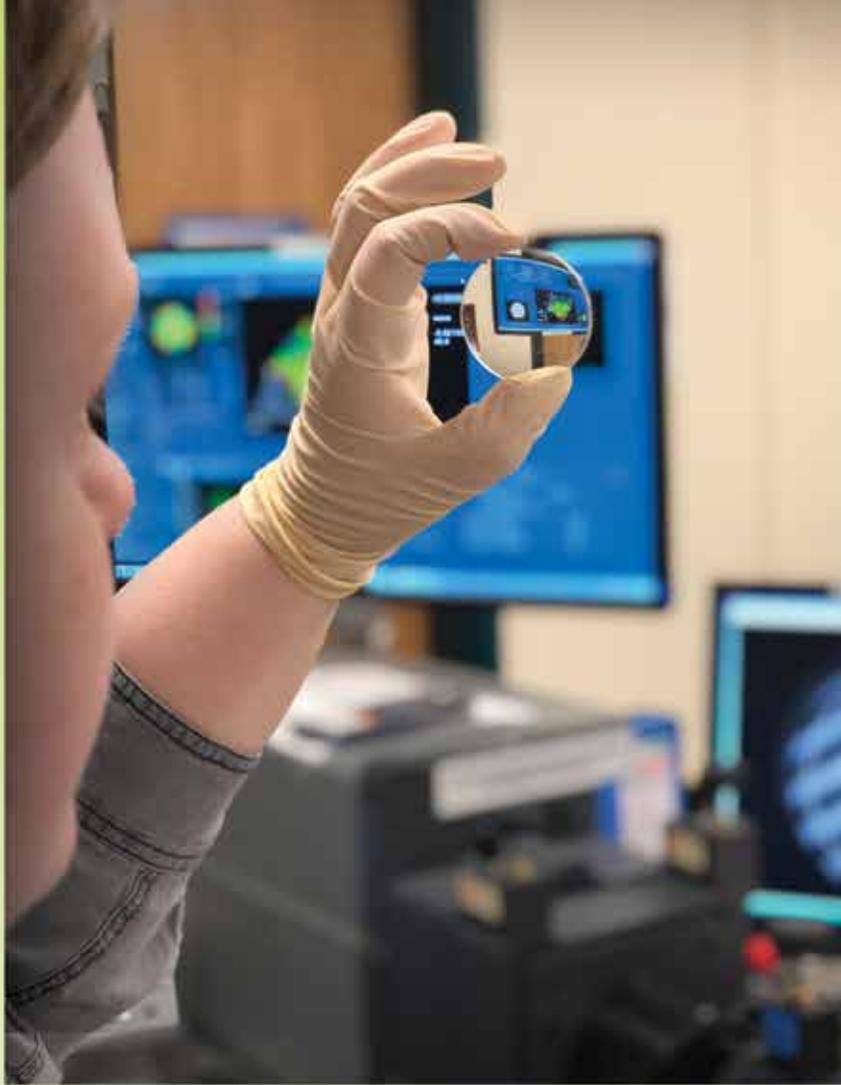


2019/20
Education
Directory



Global Directory of Programs in
Optics and Photonics

Optics and Photonics Education



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www.opticseducation.org

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spie.org/inclusion





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OSA is committed to being a diverse and inclusive organization. This recognition serves to acknowledge the outstanding accomplishments of OSA members, companies, and organizations working to foster a greater appreciation, advancement, and celebration of diversity and inclusivity.

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SPIE awarded \$298,000 in optics and photonics education scholarships to 84 outstanding individuals, based on their potential contribution to optics and photonics, or a related discipline.

Through 2018, SPIE has distributed \$6 million dollars in individual scholarships. This ambitious effort reflects the Society's commitment to education and to the next generation of optical scientists and engineers around the world. Individual awards range from \$3,000 to \$11,000.

SPIE scholarships are open to students studying anywhere in the world who are studying optics, photonics, or related fields. Scholarship applications are judged on their own merit based on the experience and education level of the individual student.

2019 NAMED SPIE SCHOLARSHIP WINNERS:



The SPIE D.J. Lovell Scholarship was awarded to **Derek Burrell**, CREOL, The College of Optics and Photonics, University of Central Florida (USA). This is the Society's largest, most prestigious scholarship and sponsored by SPIE.



Gennadii-Piavchenko, Orel State University (Russian Federation), was awarded the John Kiel Scholarship. This is the Society's second largest scholarship and it is sponsored by SPIE.



The Laser Technology, Engineering and Applications Scholarship was awarded to **Jingyi-Yang**, Baylor University (USA). This scholarship is awarded in recognition of the student's scholarly achievement in Laser Technology, Engineering, or Applications.



Shubham Chandel, IISER Kolkata (India), was awarded the Teddi Laurin Scholarship. Photonics Media partners with SPIE to fund the Teddi Laurin Scholarship to raise awareness of optics and photonics and to foster growth and success in the photonics industry by supporting students involved in photonics. This scholarship is in memory of Laurin Publishing and Photonics Media founder Teddi Laurin.



Rafael Gonzalez Acuña, Tecnológico de Monterrey (Mexico), was awarded the Optical Design and Engineering Scholarship. This Scholarship was established in honor of Bill Price and Warren Smith, both well-respected members of SPIE's technical community. This scholarship is awarded to a full-time student in the field of optical design and engineering.



Dennis Rich, University of Illinois at Urbana-Champaign (United States), was awarded the BACUS Scholarship. This scholarship is awarded to a student in the field of microlithography with an emphasis on optical tooling and/or semiconductor manufacturing technologies. This scholarship is sponsored by BACUS, SPIE's Photomask International Technical Group.

For more information on SPIE's scholarship program, a complete list of 2019 scholarship winners, and the criteria used by the SPIE Scholarship Committee in selecting recipients, visit spie.org/scholarships.

SCHOLARSHIPS OF RELATED INTEREST

THE JOE AND AGNETE YAVER MEMORIAL SCHOLARSHIP



The Joe and Agnete Yaver Memorial Scholarship was awarded to **Bethany Johns**, manager of government relations and public policy at the American Institute of Physics. This Scholarship is awarded to those seeking an advanced degree that provides the business knowledge required to facilitate the advancement and application of optics and photonics research and technology. The scholarship honors the contributions and vision of the

Yavers who were instrumental to the technical and financial success of the Society.

THE NICK COBB MEMORIAL SCHOLARSHIP



Haoyu Yang, who is currently pursuing his PhD at the Chinese University of Hong Kong, was awarded the Nick Cobb Memorial Scholarship by SPIE and Mentor Graphics, a Siemens Business for his potential contributions to the field of advanced lithography. The award honors the memory of Nick Cobb, who was an SPIE Senior Member and chief engineer at Mentor. His groundbreaking contributions enabled optical and process proximity

correction for IC manufacturing.

THE MICHAEL KIDGER MEMORIAL SCHOLARSHIP



Nicholas Takaki, Institute of Optics, School of Engineering and Applied Sciences, University of Rochester, was awarded the 2019 Michael Kidger Memorial Scholarship in Optical Design. This award will be presented at the 2019 UK Optical Design Meeting in London, United Kingdom. This scholarship is supported by the Michael Kidger Memorial Scholarship Fund in memory of Michael John Kidger, a well-respected educator, design software developer and

member of the optical science and engineering community. *For more information on the Michael Kidger Memorial Scholarship, visit www.kidger.com.*

THE FRIENDS OF TUCSON OPTICS SCHOLARSHIP



Sihan Wu, of Beijing University (China) is the 2019-2020 recipient of the SPIE Graduate Student Endowed Scholarship in Optical Sciences the University of Arizona, James Wyant College of Optical Sciences. The scholarship is awarded to first-year graduate student who demonstrates academic excellence in optical sciences, commitment to the scholarship, involvement in extracurricular activities, and interests beyond science

and technology. *For more information visit: www.optics.arizona.edu*

CONSIDER A FUTURE IN OPTICS AND PHOTONICS.

Optics and Photonics Education: Global Directory of Programs in Optics and Photonics

Managing Editor: **Pascale Barnett**

Contributors: **Melissa Farlow and Curtis Burrill**

Design and Typesetting: **Linda DeLano**

Optics and Photonics Education: Global Directory of Programs in Optics and Photonics is a comprehensive guide to optics and photonics programs offered at institutions around the world. The directory is published by SPIE and The Optical Society (OSA).

The listings are intended to serve as a resource guide for the optics and photonics community. The information in the listings was submitted in response to an annual request made by SPIE and OSA for information to be included in this publication. Information was taken from the online version, www.opticseducation.org. Listings for individual optics and photonics programs in this directory reflect the opinions of their authors; inclusion does not necessarily constitute endorsement by SPIE or OSA, and SPIE and OSA take no responsibility for their accuracy.

Contributions of information and photographs for inclusion in the directory (online and print) are welcome.

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About SPIE

SPIE, the international society for optics and photonics, is an educational not-for-profit organization founded in 1955 to advance light-based science, engineering, and technology. The Society serves nearly 257,000 constituents from 173 countries, offering conferences and their published proceedings, continuing education, books, journals, and the SPIE Digital Library. In 2018, SPIE provided \$4 million in support of education and outreach programs. For more information, visit spie.org.

About The Optical Society

Founded in 1916, The Optical Society (OSA) is the leading professional organization for scientists, engineers, students and entrepreneurs who fuel discoveries, shape real-life applications and accelerate achievements in the science of light. Through world-renowned publications, meetings and membership initiatives, OSA provides quality research, inspired interactions and dedicated resources for its extensive global network of optics and photonics experts. For more information, visit osa.org/100.

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Optics and Photonics Education

Global Directory of Programs in Optics and Photonics

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Contact Melissa Farlow for information on
how to become a supporter of the Optics and Photonics Education Directory
Tel: +1 360 685 5596 • **Email:** melissaf@spie.org

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ASSOCIATE PROGRAMS

CANADA

Niagara College of Applied Arts and Technology Welland, Canada

SPIE. STUDENT CHAPTERS

Niagara College's photonics programs have received substantial industry and government support as part of a province-wide plan to improve photonics education. Industry supporters have interest areas ranging from telecommunications, industrial lasers, sensing, component manufacture, contract manufacture, biomedical and imaging systems. We offer a highly practical investigation based program with extensive coverage of real-world photonics applications.

Name of department: Technology

Number of core optics/photonics students currently enrolled in a related program: 60

Number of optics/photonics related courses offered in this program: 1

Certification: Advanced Lasers Graduate Certificate 1 Year. This program is open to anyone with a technology or physics background, and provides a specialization in laser technology. Associate degree(s): Photonics Engineering Technology Diploma 3 year. Photonics Engineering Technician Diploma 2 year. Bachelors program: In collaboration with Brock University: <http://www.physics.brocku.ca/programs/Photonics/poster.php>

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Electrical engineering; Optics; Photonics; Biomedical optics; Fiber optics

Academic and research specialties related to optics/photonics: Our courses cover a huge breadth of photonics theory and application. In particular, we have dedicated clean room space for device fabrication and thin film deposition; an advanced optics laboratory installed with 3 research grade vibration isolated optical tables, including an automated He:Cd laser system for grating creation; and extensive teaching laboratories equipped with advanced test and measurement systems such as OTDR, OSA, DCA, DSO and swept wavelength systems for passive device characterization. Our manufacturing labs include advanced robotic systems with machine vision and laser machining tools.

Admission deadlines: Please contact the registrar's department for details of application procedures, deadlines and our fees schedule.

Year program was founded: 2001

Contact: Alexander McGlashan, Coordinator

Email: amcglashan@niagarac.on.ca

Website: <http://www.niagarac.on.ca/photonics>

Mailing address: Niagara College, 300 Woodlawn Rd., Welland ON L3C 7L3 Canada

UNITED STATES AND US TERRITORIES

CALIFORNIA

Irvine Valley College Tustin, California USA

OSA Student Chapter

Photonics involves cutting-edge applications of lasers, cameras, lenses, mirrors, sensors, displays, fiber optics and other technical devices that interact with light. Photonics enables a variety of fields such as medicine, defense, aerospace, telecommunications, entertainment and more. Funded by a National Science Foundation Advanced Technology Education Grant, the Laser and Photonics Technology instructors are leading hands-on, laboratory-driven classes utilizing state-of-the-art industrial equipment. Instructors also work with the local business and education community to provide on-site demonstrations to increase awareness of the diverse opportunities in the field of photonics. In addition to laboratory skills, students are also offered one-on-one support and career advice, including résumé and LinkedIn profile building. New courses developed and taught at IVC are based on the industry-guided photonics curricula written by industry professionals and published by OP-TEC, the National Center for Optics and Photonics Education. Photonics courses are being taught at IVC's Advanced Technology Education Park in Tustin.

Name of department: Laser and Photonics Technology

Number of core optics/photonics students currently enrolled in a related program: 25

Number of students in optics/photonics related course work: 40

Number of optics/photonics related courses offered in this program: 4

Optics/photonics related programs/degrees offered: Certification: True

Certificates of Proficiency in Photonics, Optoelectronics, Precision Optics. Certificate of Achievement in Photonics Technology, Associate of Science in Laser and Photonics Technology (pending, 2017)

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Optics; Photonics

Academic and research specialties related to optics/photonics: Remote Sensing

Year program was founded: 2013

Contact: Brian Monacelli, Laser Tech Instructor

Email: IVCphotonics@ivc.edu

Website: <http://academics.ivc.edu/idea/lasertech>

Mailing address: 1624 Valencia Ave, Tustin CA 92782 USA

San Jose City College San Jose, California USA

The Laser Technology program at San Jose City College (SJCC) has been able to maintain its vitality and relevance by ensuring that students learn what employers need. The program was designed, and is continuously being updated, in conjunction with the Laser Electro-Optics Manufacturers Association (LEOMA), <http://www.leoma.com>. Emphasis is placed on both theory and hands-on skills for technicians are the vital link between engineers' "blueprints" and their real-world implementations. Trainees learn how to install, operate, maintain, and modify laser/electro-optic systems.

Name of department: Laser Technology

Number of core optics/photonics students currently enrolled in a related program: 30

Number of optics/photonics related courses offered in this program: 6

Optics/photonics related programs/degrees offered: Certificate in Laser Technology; Associate Degree in Laser Technology

Type/Description of disciplines/program tracks offered: Optics; Laser Manufacturing and Testing

Academic and research specialties related to optics/photonics: Students work with lamp- and laser diode-pumped solid state and fiber lasers, state-of-the-art transverse and longitudinal laser beam analyzers and lens design software.

Year program was founded: 1970

Contact: Dr. Sydney Sukuta, Professor

Email: sydney.sukuta@sjcc.edu

Website: <http://www.sjcc.edu/ACADEMICS/>

Mailing address: Laser Technology, San Jose CA 95128-2799 USA

COLORADO

Front Range Community College Longmont, Colorado USA

Name of department: Optics Technology

Number of core optics/photonics students currently enrolled in a related program: 18

Number of students in optics/photonics related course work: 18

Number of optics/photonics related courses offered in this program: 8

Optics/photonics related programs/degrees offered: 30-credit Optics Technology certificate

Type/Description of disciplines/program tracks offered: Optics

Accreditation Organization: Higher Learning Commission

Admission deadlines: August 17

Year program was founded: 2017

Contact: George Newman, Adv Mfg Program Director

Email: george.newman@frontrange.edu

Website: <https://www.frontrange.edu/programs-and-courses/a-z-program-list/optics-technology>

Mailing address: 1351 S. Sunset Street, Longmont CO 80501 USA

FLORIDA

Indian River State College Fort Pierce, Florida USA

SPIE. STUDENT CHAPTERS

A two year, Associate in Science degree program, educating photonics and robotics technicians to the highest industrial standards, using state of the art equipment and facilities. The first year provides a strong

foundation in basic photonics, electronics and electromechanical systems. In the second year we concentrate in 1) robotics/automation using the Allen Bradley PLC's, and Fanuc robots, and 2) Lasers, Fiber Optics, Photonics Applications with hands on labs with Nd:YAG, CO₂, HeNe, and semiconductor lasers, geometrical optics, and fiber optics utilizing the latest fusion splicers, and OTDRs. Extensive knowledge and experience is gained in computer skills: circuit simulation, schematic and pcb design, pld design, word processing and spread sheet design with Microsoft Word and Excel. A graduate of this program is able and ready to install, repair and maintain today's complex electro-optical systems.

Name of department: Electronics Engineering Technology
Number of core optics/photonics students currently enrolled in a related program: 64

Number of students in optics/photonics related course work: 223
Number of optics/photonics related courses offered in this program: 6

Optics/photonics related programs/degrees offered: Certification: Lasers and Photonics - 12 credits. This program will prepare you for employment as an entry level technician for a photonics related company. After completing this certificate you can also transfer all the credit towards an AS degree in Electronics Engineering Technology. Associate program in Electronics Engineering Technology - 68 credits. Lasers, fiber-optics, robotics, automation, wireless networks, biomedical equipment, space exploration, and modern electric power generation are cutting-edge technologies made possible by electronic engineering. The demand for technicians in these fields is at an all time high. Starting salaries for entry-level technicians in any of these fields are higher than the national average. The Electronics Engineering Technology degree offers specialization options in lasers and photonics, robotics and industrial automation, power plant technology, computer technology, and telecommunications. Industry classes are taught at the Kight Center for Emerging Technologies, with state-of-the-art equipment and instrumentation.

Academic and research specialties related to optics/photonics: Fiber Optics, Solar Energy
Accreditation Organization: Southern Association of Colleges and Schools Commission on Colleges
Year program was founded: 2004

Additional comments: Dr Mo Hasanovic, Assistant Professor, Electronics Engineering Technology, Indian River State College, Main Campus, V443D, Fort Pierce, FL 34981, Office Phone: (772) 462-7743
Email: mhasanov@irsc.edu

Contacts: Prof. Chrys A. Panayiotou, Chairman; Prof. Mo Hasanovic, Assistant Professor, Electronics Engineering Technology
Emails: cpanayio@irsc.edu; mhasanov@irsc.edu
Website: <http://irsc.smartcatalogiq.com/en/Current/Catalog/AAS-Degrees-Certificates/Electronics-Engineering-Technology/Associate-in-Science-Degree-in-Electronics-Engineering-Technology>
Mailing address: 3209 Virginia Avenue, Fort Pierce FL 34981 USA

Valencia College Orlando, Florida USA

This program is designed to produce highly-skilled Photonics/Optics/Electro-Optical Engineers and Technologists capable of assisting in the design, production, operation and servicing of electronics, optics, photonics, lasers, telecommunication and wireless systems and equipment. The specializations will provide an up-to-date curriculum in electronics engineering, lasers and photonics, and telecommunication and wireless technology. Valencia is a Center of Electronics, Photonics, and Optics Emphasis in Florida and is equipped with special test equipment and advanced laboratories which provide the latest in hands-on experience.

Name of department: Electronics Engineering Technology
Number of core optics/photonics students currently enrolled in a related program: 105

Number of students in optics/photonics related course work: 150
Number of optics/photonics related courses offered in this program: 12
Optics/photonics related programs/degrees offered: Certification: Laser and Photonics Technician Technical Certificate. This program is designed to prepare individuals for employment as lasers, optics and photonics engineers and technicians or in related occupations in laser and optics industry. Associate in Science in Electronics Engineering Technology - Lasers and Photonics Concentration. Valencia's Bachelor of Science Degree Program in Electrical and Computer Engineering Technology degree builds on earned associate (AA, AS, AAS) degrees to complete the upper-division requirements for a bachelor's in as little as two years.

Valencia is the only school in Florida to offer a bachelor's degree in Electrical and Computer Engineering Technology. This ECET program was developed in partnership with local engineering professionals and incorporates the same state-of-the-art equipment found in the research and development departments of major companies. This way, students are prepared to meet industry demands and employer expectations upon completion and graduation from the program. With small class sizes of 20, students will receive the same individual instruction and support that students have come to expect from Valencia. ECET Program offers the following Concentrations Areas: Lasers and Photonics, Electrical/Electronic Systems, Computer Systems, and Audio and Electro-Acoustical Systems.

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Electrical engineering; Optics; Photonics; Fiber optics

Year program was founded: 2005
Contact: Ali Notash, Professor & Program Chair
Email: anotash@valenciacollege.edu

Website: <http://www.valenciacollege.edu/west/engineering/>
Mailing address: Valencia College - West Campus, Electrical & Electronics Engineering Technology Department, 1800 S. Kirkman Rd, Orlando FL 32811 USA

IDAHO

Idaho State University Pocatello, Idaho USA

This is an Associate degree program. Hands-on experience is a large part of the course. There is a core electronics curriculum that is the first two semesters. Content of the course is diversified across the photonics industry.

Name of department: Robotics and Communications Systems Engineering Technology
Number of core optics/photonics students currently enrolled in a related program: 15

Number of students in optics/photonics related course work: 3
Number of optics/photonics related courses offered in this program: 2
Optics/photonics related programs/degrees offered: Certification:

Advanced Technical Certificate: Laser/Electro-Optics Technology;
 Associate of Applied Science: Laser/Electro-Optics Technology
Type/Description of disciplines/program tracks offered: Optics; Photonics; Fiber optics

Year program was founded: 1976
Contact: Dr. Randy Norton, Assistant Professor
Email: nortrand@isu.edu
Website: <http://isu.edu/robotics/>

Mailing address: Idaho State University, College of Technology, 921 S 8th Ave Stop 8380, Pocatello ID 83209-8380 USA

IOWA

Indian Hills Community College Ottumwa, Iowa USA

The IHCC Laser & Optics Technology coursework, consisting of over 80 credit hours, is one of the premier photonics programs in the U.S. To complement cutting edge course content, students receive many valuable hours of hands-on training. Graduates of the program accept positions throughout the U.S. and other countries; in many different industries (research facilities, military contractors, industrial, medical, telecommunications, national labs, etc...). Each year, over 30 employers contact and/or visit IHCC giving our students the opportunity to select from hundreds of employment positions.

Name of department: Laser & Optics Technology
Number of core optics/photonics students currently enrolled in a related program: 25

Number of students in optics/photonics related course work: 25
Number of optics/photonics related courses offered in this program: 12
Optics/photonics related programs/degrees offered: Certification:

Electronics Technician: Diploma received after completion of initial 3 terms (9 months). Laser & Optics Technology: Associates of Applied Science degree received after completion of 4 terms (12 months).

Type/Description of disciplines/program tracks offered: Physics; Optics; Photonics; Biomedical optics; Fiber optics
Academic and research specialties related to optics/photonics: Photonics

ASSOCIATE PROGRAMS

Concepts, Introduction to Photonics, Laser System Fundamentals, Geometrical Optics, Wave Optics, Laser Components, Optical Devices, Photonic System Troubleshooting, Photonic Applications, Automated Laser Processing, Optical System Analysis, and Photonics Systems Labs.

Year program was founded: 1985

Contact: Michael Shay, Instructor

Email: michael.shay@indianhills.edu

Website: <http://www.indianhills.edu>

Mailing address: 626 Indian Hills Drive, Ottumwa IA 52501 USA

MASSACHUSETTS

Springfield Technical Community College Springfield, Massachusetts USA

OSA Student Chapter

Laser Electro-Optics Technology (LEOT) or "Photonics" is one of the most important new technologies of the twenty-first century. Photonics involves the practical application of light, optics, and electronics and has unlimited applications in today's high-tech world. Lasers, fiber optics, CD/DVDs, holograms, bar-code scanners, LCD TVs, satellite imagery, environmental sensing, infrared imaging, nanotechnology, LASIK, laser surgery, photodynamic cancer therapy, and homeland security are just a few examples of the many applications of photonics technology. In the same way that electronics changed our lives in the 20th century, photonics will play a critical role in enabling manufacturing, medical, sensing, telecommunications, homeland security, and defense technologies in the 21st century. More photonics technicians are needed to ensure that the US maintains its global leadership in this rapidly growing field. STCC's LEOT program is designed to provide students with a solid working knowledge in a broad range of photonics areas including laser systems, electronics, optics, electro-optics, and fiber optics. Classroom lectures are supplemented with extensive hands-on laboratory experiences and real-world problem solving activities designed to develop and enhance students' problem-solving and critical thinking skills. Graduates of this program work in a wide variety of companies, both locally and nationally, involved in making lasers, integrating lasers into other products & systems, conducting research and development on next-generation laser-based applications, or who use lasers and laser-based systems in their manufacturing processes and other precision applications. Industries include fiber optics and telecommunications, manufacturing, medical, defense, homeland security, alternative energy, aerospace, research and more.

Name of department: Laser Electro-Optics Technology

Number of core optics/photonics students currently enrolled in a related program: 25

Number of students in optics/photonics related course work: 75

Number of optics/photonics related courses offered in this program: 10

Optics/photonics related programs/degrees offered: Certification:

Certificate of Completion in Laser Electro-Optics Technology; Associate of Science in Laser Electro-Optics Technology

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Optics; Photonics; Fiber optics.

Academic and research specialties related to optics/photonics:

Holography, fiber optics, optical metrology, laser materials processing, interferometry, laser and optical systems.

Admission deadlines: September 1

Year program was founded: 1976

Contact: Dr. Nicholas Massa, Professor/Program Coordinator

Email: massa@stcc.edu

Website: <http://stcc.edu>

Mailing address: Springfield Technical Community College, Laser Electro-Optics Technology Dept., One Armory Square, Springfield MA 01102-9000 USA

MICHIGAN

Baker College Flint, Michigan USA

The Photonics and Laser Technology program is the only 2-year Associate program specializing in photonics in Michigan. The 60 credit hour program includes courses in optics, lasers, and fiber optics, as well as electric circuits and robotics. Program graduates are employed with photonics companies in the state.

Name of department: College of Engineering and Information Technology

Number of optics/photonics related courses offered in this program: 8

Optics/photonics related programs/degrees offered: Associate degree(s): Photonics and Laser Technology. Can be completed in 4 semesters. Electrical Engineering

Type/Description of disciplines/program tracks offered: Physics; Electrical engineering; Optics; Photonics; Biomedical optics; Fiber optics

Academic and research specialties related to optics/photonics: The program prepares students to build, test, install, operate, maintain and repair laser and electro-optic devices and systems.

Year program was founded: 2013

Contact: Dr. Anca Sala, Dean

Email: anca.sala@baker.edu

Website: <https://www.baker.edu/academics/undergraduate-studies/college-of-engineering-and-information-technology/electrical-engineering>

Mailing address: 1050 W Bristol Rd, Flint MI 48507 USA

NEW JERSEY

Camden County College Blackwood, New Jersey USA

All students enrolled are required to take core courses in Introductions to Photonics and Photonics Safety, comprehensive Optics course, Photonics Measurements, and Electrical and Electronic Principles. Students take courses in Fiber-optics and advanced fiber-optic communications and Installation. Students in the AAS Laser Technology program take Photonic Materials, Electronics I and II, Pulsed and CW Lasers, and Photonics & Electro-Optic Devices.

Name of department: Photonics

Number of core optics/photonics students currently enrolled in a related program: 25

Number of students in optics/photonics related course work: 40

Number of optics/photonics related courses offered in this program: 10

Optics/photonics related programs/degrees offered: AAS - Associate in Applied Science in Photonics, laser or fiber optic option (60)

Type/Description of disciplines/program tracks offered: Physics; Photonics; Fiber optics

Academic and research specialties related to optics/photonics: Laser Technicians - service, calibrate, repair, align different kinds of lasers (medical, industrial, etc.) and accompanying equipment. Fiber Optic Technicians - install, test, troubleshoot, maintain fiber optic cables and sensors and accompanying equipment for telecommunications and medical/technical applications. Fiber Optic Certified Installation Specialists - install, maintain and troubleshoot optical networks.

Year program was founded: 1976

Contact: Lawrence Chatman, Ed.D., Professor & Coordinator, Engineering Programs

Email: lchatman@camdencc.edu

Website: <http://www.camdencc.edu/departments/photonics/>

Mailing address: Camden County College, Photonics Dept., PO Box 200, Blackwood NJ 08012 USA

NEW YORK



Student at Monroe Community College inspecting a lens during manufacturing process.

Monroe Community College Rochester, New York USA

Name of department: Optical Systems Technology
Number of core optics/photronics students currently enrolled in a related program: 23
Number of students in optics/photronics related course work: 72
Number of optics/photronics related courses offered in this program: 12
Optics/photronics related programs/degrees offered: Certification: Optical Systems Technology; AAS Optical Systems Technology
Type/Description of disciplines/program tracks offered: Optical engineering; Optics; Photonics
Academic and research specialties related to optics/photronics: Advanced Optical Manufacturing
Admission deadlines: New students and students applying for readmission should contact the Admissions Office at admission@monroecc.edu or (585) 292-2200
Year program was founded: 1963
Contact: Dr. Alexis Vogt, Endowed Chair & Associate Professor, Optical Systems Technology
Website: <http://www.monroecc.edu/depts/eomctech/programs/optical-technology/>
Mailing address: Monroe Community College, Optical Systems Technology, 1000 E. Henrietta Rd., Rochester NY 14623 USA

NORTH CAROLINA

Central Carolina Community College Lillington, North Carolina USA

Two year associate degree program in Lasers & Photonics Technology preparing students for photonics technician careers in research, development, manufacturing, or field service. Students also obtain a certificate in electronics engineering technology.

Name of department: Laser and Photonics Technology
Number of core optics/photronics students currently enrolled in a related program: 30
Number of students in optics/photronics related course work: 40
Number of optics/photronics related courses offered in this program: 5
Optics/photronics related programs/degrees offered: Certification: Electronics Engineering Technology; AAS in Laser and Photonics Technology
Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Electrical engineering; Optics; Photonics; Fiber optics
Academic and research specialties related to optics/photronics: Lasers & Fiber Optics
Year program was founded: 1986
Contact: Mr. Gary Beasley, Lead Instructor
Email: gbeasley@cccc.edu
Website: <http://www.cccc.edu>

SPIE STUDENT CHAPTERS **OSA** Student Chapter

Mailing address: Central Carolina Community College, Laser & Photonics Tech Dept, 1075 E. Cornelius Harnett Blvd, Lillington NC 27546 USA

PUERTO RICO

Universidad Ana G. Méndez San Juan, Puerto Rico

The Puerto Rico Photonics Institute at the Universidad Ana G. Méndez is the only program in Puerto Rico and the Caribbean to specialize in education and research in optics and photonics.

Name of department: Puerto Rico Photonics Institute
Number of core optics/photronics students currently enrolled in a related program: 7
Number of students in optics/photronics related course work: 4
Number of optics/photronics related courses offered in this program: 6
Optics/photronics related programs/degrees offered: Certification: New Horizons: Puerto Rico Lasers and Photonics Career Pathways. 1-year Photonics Technical Specialist Certificate. Certified by OP-TEC and ETA-I. Associate in Engineering Technology in Lasers and Photonics. Planned as part of the University of Turabo MSEE
Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Fiber optics
Admission deadlines: August 15 for our AAS program. We can accept applications up to the last minute, but space will be limited.
Year program was founded: 2016
Contact: Jonathan Friedman, Director
Email: jsfriedman@suagm.edu
Website: <http://prpi.suagm.edu>
Mailing address: School of Science, Technology and Environment, Universidad Ana G. Mendez, PO Box 21150, San Juan 00928-1150 Puerto Rico

TEXAS

Northwest Vista College San Antonio, Texas USA

Name of department: Math & Engineering
Number of core optics/photronics students currently enrolled in a related program:
Number of students in optics/photronics related course work:
Number of optics/photronics related courses offered in this program:
Optics/photronics related programs/degrees offered: Advanced Technical Skills Certificate, Enhanced Skills Certificate- ESC, Certificate Level 1 (CL1), Certificate Level 2 (CL2), and Occupational Skills Award (OSA). Associate of Arts - AA, Associate of Science - AS, Associate of Applied Science - AAS, and Associate of Arts in Teaching - AAT.
Contact: Qiaoying Zhou, Associate Professor
Website: <http://www.alamo.edu/nvc/>
Mailing address: Northwest Vista College, Nanotechnology, 3535 N Ellison Dr, San Antonio TX 78251-4217 USA

Texas State Technical College Waco, Texas USA

Name of department: Laser Electro-Optics and Nanotechnology
Number of students in optics/photronics related course work:
Optics/photronics related programs/degrees offered: AAS Laser Electro-Optics Technology, AAS Biomedical Laser Technician
Type/Description of disciplines/program tracks offered: Technology; Optics; Photonics Hands-on training in Photonics concepts with applications to support the Laser and Nanotechnology Industry needs; Fiber optics.
Contact: John Pedrotti, Department Chair and Instructor
Email: john.pedrotti@tstc.edu
Website: <https://www.tstc.edu/programs/LaserElectroOptics>
Mailing address: Texas State Technical College, Laser Electro-Optics Technology, 3801 Campus Dr., Waco TX 76705-1696 USA

ASSOCIATE PROGRAMS

WASHINGTON

Lake Washington Institute of Technology

Kirkland, Washington USA

Name of department: Photonics

Number of core optics/photonics students currently enrolled in a related program: 6

Number of students in optics/photonics related course work: 6

Optics/photonics related programs/degrees offered: Certification:

Photonics Technology, Certificate of Proficiency; Associate degree(s):

Electronics Technology

Type/Description of disciplines/program tracks offered: Physics; Electrical engineering; Photonics

Year program was founded: 2016

Contact: Stephanie Bostwick, Assistant Professor

Email: stephanie.bostwick@lwtech.edu

Website: http://catalog.lwtech.edu/preview_program.php?catoid=2&poid=919&returnto=43

Mailing address: 11605 132nd Ave NE, Kirkland WA 98125 USA

ARGENTINA

National University of Tucuman SPIE. STUDENT CHAPTERS OSA Student Chapter San Miguel de Tucuman, Argentina

Name of department: Department of Lighting, Light and Vision

Number of core optics/photonics students currently enrolled in a related program: 20

Number of students in optics/photonics related course work: 20

Number of optics/photonics related courses offered in this program: 4

Optics/photonics related programs/degrees offered: Technical Designer of Lighting (2 years) and Lighting Designer (4 years); Masters Degree on Lighting; Doctorate Degree in Visual Environment and Efficient Lighting

Type/Description of disciplines/program tracks offered: Lighting and vision

Academic and research specialties related to optics/photonics: optics and lighting, physiological optics, lighting and vision, photometry and radiometry, luminous sources, impact of lighting on the environment and on humans.

Admission deadlines: University Technical Designer in Lighting, December of every year; Master and Doctorate at any time.

Contact: Dr. Elisa Margarita Colombo

Email: ecolombo@herrera.unt.edu.ar

Website: <http://www1.herrera.unt.edu.ar/faceyt/dllyv/>

Mailing address: Av. Independencia 1800, San Miguel de Tucuman Tucuman 4000

Universidad de Buenos Aires SPIE. STUDENT CHAPTERS OSA Student Chapter Buenos Aires, Argentina

The College of Engineering, UBA (Facultad de Ingeniería, UBA) offers a professional-oriented postgraduate course in optics, optoelectronics and photonics, with a title of Specialist in Optoelectronics Engineering (one year) or a research-oriented Master in Optoelectronics and Photonics Engineering (two years) directed to engineers, physicists and researchers who want to work in these fields, to cover the lack of professionals specialized in optoelectronics and photonics. The University of Buenos Aires is one of the most prestigious in Latin America, and Buenos Aires, capital of tango, has a wonderful cultural and sports offer. Students accommodations are plenty and good and medical services are of optimal quality.

Name of department: Facultad de Ingeniería, Depts. Física y Electrónica

Number of core optics/photonics students currently enrolled in a related program: 10

Number of students in optics/photonics related course work: 40

Number of optics/photonics related courses offered in this program: 22

Optics/photonics related programs/degrees offered: Master in Optoelectronics and Photonics Engineering (2 years); Doctor in Engineering (equivalent to PhD) (3 years)

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Electrical engineering; Biomedical optics; Fiber optics

Accreditation Program: Master Accreditation

Accreditation Organization: CONEAU

Admission deadlines: Application Deadline: November 1.

Admission requirements: Electrical or Electronic Engineer Title or equivalent University Title.

Year program was founded: 2001

Contact: Prof. Juan Carlos Fernandez, Associate Professor

Email: optoelec@fi.uba.ar and optoelectronica.fiuba@gmail.com

Website: <http://www.fi.uba.ar/>

Mailing address: Dto. de Física, Facultad de Ingeniería, Paseo Colon 850, Buenos Aires 1063 Argentina

Universidad Nacional de Rosario Rosario, Argentina

Name of department: Physics

Number of core optics/photonics students currently enrolled in a related program: 4

Number of optics/photonics related courses offered in this program: 5

Optics/photonics related programs/degrees offered: Doctoral program: Physics with specialization in Optical Metrology

Type/Description of disciplines/program tracks offered: Physics; Optical engineering

Academic and research specialties related to optics/photonics: optical metrology, speckle metrology, holography, digital image processing, biomedical optics.

Admission deadlines: August 1.

Year program was founded: 1987

Contact: Prof. Guillermo H. Kaufmann, Head of Optical Metrology Lab.

Email: kaufmann@ifir-conicet.gov.ar

Website: <http://www.ifir-conicet.gov.ar/optics/ghk.html>

Mailing address: Inst de Física Rosario, Optical Metrology Lab., Ocampo y Esmeralda, Rosario Santa Fe S2000EZF Argentina

ARMENIA

National Polytechnic University of Armenia Yerevan, Armenia

Fiber Optics Communication Systems (basic course). Passive components, active components (basic course). Basics of Multiple Access (basic course). Integrated Optics (advanced course). Optical Networks (advanced course). Communication Technology (advanced course). Optical Networks (advanced course). Passive and active components computer simulation (advanced course).

Name of department: Radio Engineering and Communication Systems

Number of core optics/photonics students currently enrolled in a related program: 25

Number of students in optics/photonics related course work: 30

Number of optics/photonics related courses offered in this program: 7

Optics/photonics related programs/degrees offered: BSEE in Engineering of Optics Communication Communication; MS in Optics Communication; PhD in Radioengineering and Communication

Type/Description of disciplines/program tracks offered: Optical engineering; Optics; Photonics; Fiber optics

Academic and research specialties related to optics/photonics: basics of fiber optics communication, fiber optics communication media & passive components, fiber optics communication systems, optoelectronics, integrated optics, optical communication technology, optical networks.

Accreditation Program: Photonics

Accreditation Organization: Ministry of high education

Admission deadlines: September 1.

Year program was founded: 1998

Contact: Prof. Hovik Baghdasaryan, Head of Fiber Optics Communication Lab. named after Vardges Barsam

Email: hovik@seua.am

Website: <http://polytech.am/wpolytech/>

Mailing address: National Polytechnic Univ. of Armenia, Fiber Optics Communication Lab, 105 Terian str., Yerevan 9 Armenia

Yerevan State University SPIE. STUDENT CHAPTERS OSA Student Chapter Yerevan, Armenia

Name of department: Quantum Electronics

Number of optics/photonics related courses offered in this program: 10

Optics/photonics related programs/degrees offered: Bachelors, masters, and doctoral programs available.

Academic and research specialties related to optics/photonics: lasers, fiber optics, guided optics, optoelectronics, nonlinear crystals.

Year program was founded: 1995

Contact: Khachatur Nerkararyan, Professor

Email: knerkar@ysu.am

Website: <http://www.yasu.am>

Mailing address: 1 A. Manugian st., Yerevan 375049 Armenia

AUSTRALIA

Australian National University SPIE. STUDENT CHAPTERS OSA Student Chapter Canberra, Australia

Name of department: Research School of Physics & Engineering, College of Physical and Mathematical Sciences and College of Engineering and Computer Sciences

Number of core optics/photonics students currently enrolled in a related program: 40

Number of students in optics/photonics related course work: 12

Number of optics/photonics related courses offered in this program: 8

Optics/photonics related programs/degrees offered: Bachelor of Science, Bachelor of Philosophy; Master of Philosophy (research only program), Master of Engineering (Photonics) (coursework)- please refer to <http://programsandcourses.anu.edu.au/2015/program/NENPH>, PhD

UNDERGRADUATE/GRADUATE PROGRAMS

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Optics; Photonics; Fiber optics

Academic and research specialties related to optics/photonics:

laser cooling and trapping of atoms, optical materials, photonics, optoelectronic devices, quantum computing, optical solitons, theoretical modelling of nonlinear optical phenomena, nonlinear optics, modern information transmission systems, waveguides and integrated optics, all-optical switching devices, nanooptics and photonic crystals, nonlinear atom optics and the dynamics of the Bose-Einstein condensates, Optics, Quantum Optics, Relativistic Optics.

Admission deadlines: PhD/MPhil applications are accepted throughout the year. Please visit <http://www.anu.edu.au/study/information-for/postgrad-research-students> for details. For Master of Photonics application deadlines, please visit <http://www.anu.edu.au/study/information->

Contact: A/Prof. Fu Lan, Convenor, Graduate Academic Network Physics

Email: lan.fu@anu.edu.au

Website: <http://physics.anu.edu.au/> and <http://cecs.anu.edu.au/>

Mailing address: Student Office, Research School of Physical Sciences and Engineering, Research School of Physics and Engineering, Bldg 60, Australian National University, Canberra ACT 0200 Australia

Griffith University

SPIE. STUDENT CHAPTERS OSA Student Chapter

Nathan, Australia

Name of department: School of Science

Optics/photonics related programs/degrees offered: Bachelor of Photonics and Nanoscience; Master program by Research; Doctoral program(s): PhD program in Physics

Type/Description of disciplines/program tracks offered: Physics

Contact: Dr. Robert Thomas Sang,

Email: R.Sang@griffith.edu.au

Website: <http://www.gu.edu.au/>

Mailing address: School of Natural Sciences, Science 2 Bldg, 170 Kessels Rd, Nathan QLD 4111 Australia

Macquarie University

OSA Student Chapter

Sydney, Australia

Innovative photonics and optics lie at the heart of some of today's most exciting fundamental scientific discoveries while optics underpins technologies for medicine, environmental monitoring, advanced computers, quantum communications, and manufacturing. Trained and qualified optical scientists, technologists and engineers find work in many different industry sectors. The Bachelor of Science (Physics) program combines studies of physics, optics, material science and electronics in a professionally-oriented degree, and includes technologies such as lasers, nanophotonics, biophotonics, optical fibres and communications. In this degree, you will develop industry-relevant skills including technical writing and communication skills, technology management and practical skills using modern instrumentation. In a highlight of the degree program, our students are placed in local high-technology companies in an industry-based project. Graduates of the degree take up a broad range of employment from engineering to science research support, from management to education and training, with opportunities for postgraduate study also. Building on a strong tradition of optics, optical instrumentation and optical fibre technology in Australia, local employers continue to seek highly qualified graduates in the fields of optics, optoelectronics and photonics or more generally, applied physics, for research and development, and for manufacturing positions in industries including telecommunications, optical components, biomedicine, nanotechnology, imaging, sensing, and defence. Research degrees including MRes and PhD are offered for eligible students. Cutting-edge research projects are supervised on campus or collaboratively in co-tutelle arrangements with other institutions.

Name of department: Physics and Astronomy

Number of core optics/photonics students currently enrolled in a related program: 10

Number of students in optics/photonics related course work: 30

Number of optics/photonics related courses offered in this program: 6

Optics/photonics related programs/degrees offered: Bachelors program(s): Science (Physics); Masters program(s): M Res - research and coursework masters degree (2 years) - preparation for PhD study; Doctoral program(s): PhD by research (3-4 years) with limited coursework. Scholarships available for excellent candidates.

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Electrical engineering; Optics; Astronomy and Astrophotonics

Admission deadlines: Academic year commences in February each year. Applications due in July of previous year; late applications possible with payment of a late fee. PhD applications accepted all year round.

Year program was founded: 1988

Contact: Judith Dawes, Prof in Physics, Director MQ Photonics Research Centre

Email: judith.dawes@mq.edu.au

Website: <http://www.physics.mq.edu.au>

Mailing address: Macquarie University, Dept. of Physics and Astronomy, Sydney NSW 2109 Australia

Swinburne University of Technology

SPIE. STUDENT CHAPTERS OSA Student Chapter

Hawthorn, Australia

Name of department: Physics and Astronomy

Contact: Dr. Brenton Hall

Email: brhall@swin.edu.au

Website: <http://www.swinburne.edu.au/>

Mailing address: Swinburne Univ of Technology, Dept of Physics & Astronomy Rm EN153, John St, Hawthorn VIC 3122 Australia

The University of Adelaide

OSA Student Chapter

Adelaide, Australia

Experimental optical physics, lasers, modern optical fibers and applications research, leading to: BSc in Photonics; MSc by course work in Photonics; PhD in Physics

Name of department: Physics

Number of core optics/photonics students currently enrolled in a related program: 15

Number of optics/photonics related courses offered in this program: 5

Optics/photonics related programs/degrees offered: BSc-Physics, BSc-Optics and Photonics; MSc-Lasers and Optics; PhD-Physics (40)

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Electrical engineering

Academic and research specialties related to optics/photonics: Solid State Lasers, Optics, Photonics, holography, remote sensing, optical phase conjugation, frequency stabilization, Optical fibers, microstructure and advanced fibers, fiber fabrication in soft glasses, polymers

Year program was founded: 2000

Contact: Jesper Munch, Professor

Email: jesper.munch@adelaide.edu.au

Website: <http://www.chemphys.adelaide.edu.au/physics/research/optics/>

Mailing address: Dept of Physics, School of Chem. and Physics, The University of Adelaide, Adelaide South Australia 5005 Australia

The University of Melbourne

SPIE. STUDENT CHAPTERS OSA Student Chapter

Victoria, Australia

Name of department: School of Physics: Optical Physics Group

Number of core optics/photonics students currently enrolled in a related program: 35

Number of students in optics/photonics related course work: 20

Optics/photonics related programs/degrees offered: Students undertake a BSc with a major in Physics or Mathematical Physics. Optics-related subjects are offered in the undergraduate program. MSc by coursework in Physics is offered by the University. A MPhil by research is also offered. A PhD program is offered. Students submit a thesis for examination after 3 - 4 years of research.

Type/Description of disciplines/program tracks offered: Physics; Optics
Academic and research specialties related to optics/photonics: Physical optics and photonics, imaging, atom optics, x-ray optics, x-ray spectroscopy, measurement of atomic form factors, tests of QED, coherence, plasmonics, metamaterials, metasurfaces, nano- and micro-optics, plasmonics, nanowires, optical trapping.

Accreditation Organization: Australian Institute of Physics; Australian Government Tertiary Education Quality and Standards Agency

Admission deadlines: International Students. BSc: See: <http://www.bsc.unimelb.edu.au/>. MSc: See: <http://science-courses.unimelb.edu.au/study/degrees/master-of-science-physics/overview>. MPhil and PhD: 30 September for decision by 31 January. See: <http://science-courses>

Year program was founded: 1882

Contact: Professor Ann Roberts, Professor

Email: ann.roberts@unimelb.edu.au

Website: <http://optics.physics.unimelb.edu.au/>

Mailing address: University of Melbourne, School of Physics, Victoria 3010 Australia

University of Sydney Sydney, Australia

The Illumination Design program offers strong technical education in human visual perception, methods for quantifying light, lighting technologies and issues of sustainability. This field is enjoying rapid and exciting technological innovations and this program emphasizes the knowledge and critical thinking skills to enable students to adapt to - and even lead - future changes. As a student of Illumination Design, you will develop your expertise in lighting for architectural and urban environments. You will understand how rapidly-evolving sustainable lighting technologies are changing industry practise and are contributing to new opportunities for creative applications of modern materials, colours and technologies. You will understand the relationship between lighting and allied-built environment disciplines and how the interaction of optics, psychology and physiology determines an occupant's perception and appreciation of lighting choices.

Name of department: Faculty of Architecture, Design and Planning

Optics/photronics related programs/degrees offered: Master of Architectural Science (Illumination Design). MPhil and PhD study available for students wishing to conduct research on innovative lighting applications.

Admission deadlines: Applications accepted twice per year for March entry (deadline: 31 Jan.) and July entry (deadline: 30 Jun.). Late applications accepted.

Year program was founded: 1979

Contact: Wendy Davis, Associate Professor/Director of Illumination Design

Email: wendy.davis@sydney.edu.au

Website: http://sydney.edu.au/architecture/programs_of_study/postgraduate/illumination_design.shtml

Mailing address: Faculty of Architecture, Design and Planning, University of Sydney NSW 2006 Australia

University of Sydney - School of Physics Sydney, Australia

SPIE. STUDENT CHAPTERS **OSA** Student Chapter

MSc (research) or PhD in Physics with specialization in optics and photonics; MSc in Photonics and Optical Sciences: 2 semester coursework including Guided waves and Optical communications, Optical Instrumentation and Imaging, Optical Materials and Methods, Optical Sources and Detectors, Physical and Nonlinear Optics, Quantum Optics and Nanophotonics, Biophotonics and Microscopy, Optics in Industry.

Name of department: Institute of Photonics and Optical Sciences (IPOS)

Number of core optics/photronics students currently enrolled in a related program: 20

Number of students in optics/photronics related course work: 50

Number of optics/photronics related courses offered in this program: 8

Optics/photronics related programs/degrees offered: BSc (Honours); PhD in Physics

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Electrical engineering; Optics; Photonics; Biomedical optics; Fiber optics

Academic and research specialties related to optics/photronics:

Nanophotonics, nanoplasmonics, nonlinear optics; photonic engineering; stimulated Brillouin scattering; astrophotonics; polymer fibres; microwave photonics; optical sensors.

Admission deadlines: Please enquire. Semester 1 (March) and Semester 2 (July) enrollments are possible.

Contact: Martijn de Sterke, Professor

Email: ipos.admin@sydney.edu.au

Website: <http://sydney.edu.au/ipos/>

Mailing address: The University of Sydney, IPOS, School of Physics A28, Sydney NSW 2006 Australia

University of Technology Sydney Sydney, Australia

Optical related courses at UTS include introductory optics and electromagnetics, applied optics, imaging science (including medical and general imaging and signal processing), optoelectronic devices, energy and solar energy, nanophotonics. There are also various supporting courses such as electron and force microscopy, computational physics, maths, data analysis, electronics and interfacing. DTech also includes courses on research and project management, project planning, IP and technology commercialisation. There is an emphasis on laboratory work in the core optics subjects.

Name of department: School of Mathematical and Physical Sciences

Number of core optics/photronics students currently enrolled in a related program: 70

Number of optics/photronics related courses offered in this program: 6

Optics/photronics related programs/degrees offered: Bachelor of Science (Applied Physics); Bachelor of Science (Nanotechnology); Bachelor of Biomedical Physics; Master of Science (Applied Physics) by research; Master of Science (Nanotechnology) by research; Doctor of Philosophy (Physics or Nanotechnology)

Type/Description of disciplines/program tracks offered: Physics;

Optical engineering; Electrical engineering; Photonics, Nanophotonics; Biomedical optics

Academic and research specialties related to optics/photronics: Optical materials, polymer optics, thin films, nanophotonics, plasmonics, quantum structures, lighting and daylighting, solar energy, glazing and energy efficiency, fluorescence, complex optical media theory.

Admission deadlines: September 30

Year program was founded: 1980

Contact: Dr. Annette Dowd

Email: annette.dowd@uts.edu.au

Website: <https://www.uts.edu.au/about/faculty-science/school-mathematical-and-physical-sciences/about-us>

Mailing address: PO Box 123, Broadway, Sydney NSW 2007 Australia

Victoria University Melbourne, Australia

OSA Student Chapter

Students may choose the photonics specialisation within the 4-year BEng(Electrical & Electronic Engineering) or the 3-year BEngSc(Electrical & Electronic Engineering) degrees. The first year of these degrees provides a basic grounding in physics, electrical circuits, mathematics, electronics and the software aspects of computing. The second year has various electrical engineering subjects, mathematics and specialised technical software. The third and fourth years of the course involve a range of engineering, modern optics and relevant business topics. Both the Bachelor of Engineering and the Bachelor of Engineering Science involve a substantial component of "problem-based learning".

Name of department: College of Engineering and Science

Number of core optics/photronics students currently enrolled in a related program: 10

Number of students in optics/photronics related course work: 0

Number of optics/photronics related courses offered in this program: 6

Optics/photronics related programs/degrees offered: BEng (Electrical & Electronic Engineering), BEngSc (Electrical & Electronic Engineering), BSc (Honours) in physics; MSc by research, MEng (by coursework) with specialisation in Photonics; PhD

Academic and research specialties related to optics/photronics: Optical Fibre Sensors (eg. simultaneous measurement of temperature and strain), Optical Materials (eg. rare-earth-doped optical fibres), Fibre Lasers & Optical Amplifiers, Imaging of Photonic Devices (eg. fibre Bragg gratings).

Admission deadlines: The usual deadline for VU is near the end of the year for study commencing in the following March.

Year program was founded: 1992

Contact: Stephen Collins, Professor

Email: stephen.collins@vu.edu.au

Website: <http://www.vu.edu.au>

Mailing address: Victoria University, College of Engineering and Science, PO Box 14428, Melbourne Victoria 8001 Australia

BELGIUM

Ghent University (UGent) Ghent, Belgium

SPIE. STUDENT CHAPTERS

The aim of these master programs is to form engineers and scientists with firm basic knowledge in the field of photonics and with the skills to apply this knowledge to the design, realisation and the management of photonic systems for a broad range of application domains. Furthermore the students will have the opportunity to broaden their knowledge and skills in other domains, such as ICT, biosciences, physics and chemistry of materials, industrial management. The theoretical courses cover all the basics in Photonics as well as more advanced and specialized subfields of photonics. The practical classes provide the students with a training in all kind of photonic domains where they use the acquired theoretical knowledge to handle this projects with a professional approach.

UNDERGRADUATE/GRADUATE PROGRAMS

Name of department: Dept. of Information Technology
Number of core optics/photronics students currently enrolled in a related program: 60

Number of students in optics/photronics related course work:

Number of optics/photronics related courses offered in this program: 20

Optics/photronics related programs/degrees offered: Bachelor of Science in Electrical Engineering, Bachelor of Science in Applied Physics; European Master of Science in Photonics: English taught 2-year master program. Jointly offered by the degree-conferring partners: Ghent University & Vrije Universiteit Brussel. With mandatory mobility track in year 2 to one of our associated members. PhD in Photonics - There are several research groups active in the field of photonics. The total number of PhD students in the field of photonics is of the order of 60.

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Electrical engineering; Optics; Photonics; Biomedical optics; Fiber optics

Academic and research specialties related to optics/photronics: Photonic integration and nanophotonics III-V and Si-based photonics; Liquid Crystals; Microsystems

Year program was founded: 2004

Contact: Bert Coryn, Photonics Programme Officer

Email: bert.coryn@ugent.be

Website: <http://www.masterphotonics.be>

Mailing address: INTEC-Department, Technologiepark-Zwijnaarde 15, Ghent B-9052 Belgium

Vrije Universiteit Brussel Brussels, Belgium

SPIE. STUDENT CHAPTERS

The multidisciplinary European MSc. in Photonics offers a challenging program with skills development like laser engineering, optical communication, optical materials, microphotonics and optical sensors. Next to the fundamental science of photonics, students receive an in-depth training in engineering of light-based phenomena and systems. A dedicated team of professors with an impressive track record in photonics and optics research train students during the two-year curriculum (120 ECTS) which leads to a joint degree from UGent and VUB. This program prepares students for a professional career in innovative industries and research domains such as biotechnology, health care, agriculture and food, green energy, ICT and Industry 4.0.

Name of department: Department of Applied Physics and Photonics

Number of core optics/photronics students currently enrolled in a related program: 40

Number of optics/photronics related courses offered in this program: 40

Optics/photronics related programs/degrees offered: Bachelor Engineering Sciences; European Master of Science in Photonics (joint Master with Universiteit Gent (Belgium), Language=English); PhD Photonics Engineering

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Optics; Biomedical optics

Admission deadlines: <http://www.vub.ac.be/en/study/european-master-of-science-in-photonics/admission-and-registration>

Year program was founded: 2004

Contact: Prof. Heidi Ottevaere, Education Responsible

Email: Heidi.Ottevaere@vub.ac.be

Website: <http://www.b-phot.org>

Mailing address: Vrije Univ. Brussel, Applied Physics & Photonics Dept., Pleinlaan 2, Brussels B-1050 Belgium

BRAZIL

Universidade Federal de Pernambuco Recife, Brazil

SPIE. STUDENT CHAPTERS

OSA Student Chapter

Name of department: Departamento de Física

Number of students in optics/photronics related course work: 24

Number of optics/photronics related courses offered in this program: 12

Optics/photronics related programs/degrees offered: BSc in Physics; MSc in Physics; PhD in Physics

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Optics; Photonics

Admission deadlines: Please see home page.

Year program was founded: 1978

Contact: Cid B. de Araújo, Professor of Physics

Email: cid@df.ufpe.br

Website: <http://www.ufpe.br/df>

Mailing address: Universidade Federal de Pernambuco, Departamento de Física, Recife Pernambuco 50670-901 Brazil

Universidade Federal do Rio Grande do Sul Porto Alegre, Brazil

SPIE. STUDENT CHAPTERS

OSA Student Chapter

Physics: <http://www.if.ufrgs.br/>

Material Sciences: <http://www.ufrgs.br/pgcimat/>

Microelectronics: <http://www.inf.ufrgs.br/pgmicro/>

Name of department: Physics, Laser Spectroscopy and Film Optics

Number of core optics/photronics students currently enrolled in a related program: 12

Number of students in optics/photronics related course work: 80

Number of optics/photronics related courses offered in this program: 6

Optics/photronics related programs/degrees offered: Certification: Initiation to science; Initiation to technology; Associate degree(s): Extension activities; BSc in Physics; BSc in Physical Engineering; MSc in Physics, Material Sciences or Microelectronics; Dr. in Physics, Material Sciences or Microelectronics

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Electrical engineering; Optics; Photonics in physical engineering; Fiber optics

Academic and research specialties related to optics/photronics: Optical thin films, integrated optics, optics of interfaces, anti-reflection and superhydrophobic surfaces

Year program was founded: 1963

Contact: Prof. Flavio Horowitz

Email: flavio.horowitz@ufrgs.br

Website: <http://www.ufrgs.br/english/home>

Mailing address: Instituto de Física, UFRGS, Campus do Vale, CP 15051, Porto Alegre RS 91501-970 Brazil

CANADA

Carleton University Ottawa, Canada

SPIE. STUDENT CHAPTERS

OSA Student Chapter

Name of department: Carleton School of Information Technology

Number of core optics/photronics students currently enrolled in a related program: 80

Number of students in optics/photronics related course work: 80

Number of optics/photronics related courses offered in this program: 16

Optics/photronics related programs/degrees offered: Photonics and Laser Technology (BIT): 4 year Bachelors program taught through the school of information technology.

Type/Description of disciplines/program tracks offered: Optical engineering

Contact: Christopher Smelser, Associate Professor

Email: Christopher.Smelser@carleton.ca

Website: <http://www.carleton.ca>

Mailing address: 1125 Colonel By Dr., Ottawa ON K2J 4E5 Canada

Ecole Polytechnique de Montréal Montréal, Canada

SPIE. STUDENT CHAPTERS

OSA Student Chapter

Several programs are offered by the Department of Engineering Physics.

The undergraduate program provides solid training in general and applied physics, with a possible specialization in photonics during the fourth year. At the graduate level, Masters and PhD programs in Applied science are offered. Members of the Department can offer research projects in Engineering Physics as well as Biomedical Engineering. The research areas that are actively pursued comprise: optical fibre devices and systems, spectroscopy, endoscopy, optical coherence tomography, confocal endoscopy, optical thin films, biomedical optics, translational research in the operating room, micro-fluidics, micro-opto-electro-mechanical systems (MOEMS), photonic cristal fibres, polymer fibers, fiber Bragg gratings, quantum and nonlinear optics, organic light-emitting devices, laser processing of materials and others.

Name of department: Engineering Physics

Number of core optics/photronics students currently enrolled in a related program: 50

Number of students in optics/photronics related course work: 150

Number of optics/photronics related courses offered in this program: 18

Optics/photronics related programs/degrees offered: Bachelors in Engineering with specialty in Engineering Physics; Masters in Applied Science with specialty in Engineering Physics or Biomedical Engineering; PhD in Applied Science with specialty in Engineering Physics or Biomedical Engineering.

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Biomedical optics

Admission deadlines: Admissions to Bachelors programs are accepted twice per year. Admissions to graduate programs are accepted three times per year. For more information, consult <http://www.polymtl.ca/admission/en/graduate-studies/check-application-deadlines>

Year program was founded: 1958

Contact: Prof. Alain Rochefort, Head of Engineering Physics Dept.

Email: alain.rochefort@polymtl.ca

Website: <http://www.polymtl.ca/phys>

Mailing address: Ecole Polytechnique de Montréal, Dept. of Engineering Physics, P.O. Box 6079, Station Centre-Ville, Montréal QC H3C 3A7 Canada

McMaster University Hamilton, Canada

SPIE. STUDENT CHAPTERS

Engineering Physics at McMaster is an interdisciplinary engineering program that studies advanced materials, devices, and systems based on our fundamental understanding of physics. The undergraduate B.Eng. Engineering Physics program is accredited by the Canadian Engineering Accreditation Board (CEAB). Our faculty and students are involved in pushing the envelope of new technologies to address grand challenges such as energy supply, information and communications technology, and human health. Photonics Engineering is one of the four specialties/streams offered in the program. One of the strengths of the McMaster Photonics Engineering program is that it is broadly based and prepares its graduates to pursue a wide range of career paths. All students in the program obtain a background in electrical science, engineering materials, classical and quantum mechanics, thermodynamics, electronics, data acquisition and handling, mathematical physics and numerical analysis, fundamentals of physical optics, optical communications, elect-optics, and optical instrumentation.

Name of department: Engineering Physics

Number of core optics/photronics students currently enrolled in a related program: 40

Number of students in optics/photronics related course work: 100

Number of optics/photronics related courses offered in this program: 21

Optics/photronics related programs/degrees offered: Bachelor of Engineering in Engineering Physics; Master of Applied Science in Engineering Physics and Master of Engineering (Industrial Internship) in Engineering Physics; PhD in Engineering Physics

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Optics; Photonics; Biomedical optics; Fiber optics

Academic and research specialties related to optics/photronics: nanophotonics, optical instrumentation, optical materials, semiconductor growth and materials characterization; design, processing and characterization of semiconductor devices; optical communication, fiber optics, integrated optics, optical sensors, MOEMs, optofluidics, optical sensors, biophotonics; source development including novel wavelengths, broadband, ultrafast and low coherence; laser-based manufacturing, photodetectors, opto-electronic packaging, ultrafast photonics, terahertz spectroscopy, optical displays, optical coatings and filters.

Accreditation Program: Bachelor of Engineering (BEng) in Engineering Physics

Accreditation Organization: Canadian Engineering Accreditation Board (CEAB)

Year program was founded: 1960

Contact: Dr. Ray LaPierre, Chair and Professor

Email: engphys@mcmaster.ca

Website: <http://engphys.mcmaster.ca/>

Mailing address: McMaster University, Dept. of Engineering Physics, JHE A315, 1280 Main St. W., Hamilton ON L8S 4L7 Canada

Ryerson University Toronto, Canada

SPIE. STUDENT CHAPTERS **OSA** Student Chapter

Name of department: Electrical and Computer Engineering

Number of core optics/photronics students currently enrolled in a related program: 12

Number of students in optics/photronics related course work: 90

Number of optics/photronics related courses offered in this program: 4

Optics/photronics related programs/degrees offered: Four-year Bachelors

programs available with specialization in Electrical or Computer Engineering with an emphasis on fiber-optics and communications. Four-year Bachelors programs available with Physics with an emphasis on optics. Two-year MASc (research based) and MEng (course based) programs are available with an emphasis on optical fiber communications and microwave photonics. Research based doctoral programs are available with an emphasis on optical communications, optical networks and microwave photonics.

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Electrical engineering

Academic and research specialties related to optics/photronics: We have strong research groups working on following areas: 1. Radio over fiber systems; 2. Infrared Wireless Communications; 3. Optical sensors and fiber Bragg gratings; 4. Biomedical Physics visit <http://www.ee.ryerson.ca/~fernando>

Admission deadlines: Visit <http://www.ryerson.ca/~eleceng> for exact dates

Year program was founded: 1997

Contact: Dr. Xavier Fernando, Associate Professor

Email: fernando@ee.ryerson.ca

Website: <http://www.ee.ryerson.ca/>

Mailing address: Ryerson University, Electrical and Computer Engineering, 350 Victoria St, Toronto ON M5B 2K3 Canada

Université Laval Quebec, Canada

SPIE. STUDENT CHAPTERS **OSA** Student Chapter

The Center for Optics, Photonics, and Lasers (COPL), brings together researchers from the Department of Physics, Engineering Physics and Optics, from the Department of Chemistry and from the Department of Electrical and Computer Engineering of Université Laval in Quebec City. The Center also includes researchers from École Polytechnique de Montréal, McGill University, Université de Sherbrooke, INRS-Énergie, Matériaux et Télécommunications, École de technologie supérieure, Concordia University, UQAM. For information: www.copl.ulaval.ca

Name of department: Center for Optics, Photonics, and Lasers (COPL)

Number of core optics/photronics students currently enrolled in a related program: 150

Number of students in optics/photronics related course work: 150

Number of optics/photronics related courses offered in this program: 60

Optics/photronics related programs/degrees offered: Bachelors in Physics, Bachelors in Engineering Physics, Bachelors in Electrical Engineering, Bachelors in Chemistry. MSc in Physics, MSc in Electrical Engineering, MSc in Chemistry, MSc in Biophotonics. PhD in Physics, PhD in Electrical Engineering, PhD in Chemistry, PhD in Biophotonics.

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Electrical engineering; Optics; Photonics; Biomedical optics; Fiber optics

Academic and research specialties related to optics/photronics: Optical communications; Imaging, Metrology, Optical Instrumentation, Lasers and Ultrashort Pulses; Photonic Materials; Guided-Wave Optics and Fiber Optics; Biophotonics.

Admission deadlines: see www.reg.ulaval.ca

Year program was founded: 1967

Contact: Real Vallee, Director

Email: copl@copl.ulaval.ca

Website: <http://www.copl.ulaval.ca>

Mailing address: COPL, Pavillon d'optique-photonique, Room 2104, Université Laval, Quebec G1V 0A6 Canada

University of Alberta Edmonton, Canada

SPIE. STUDENT CHAPTERS **OSA** Student Chapter

Members of the Photonics and Plasmas group are conducting leading edge research in lasers, plasmas, photonics, ultrafast photonics, biophotonics, nonlinear photonics and nanophotonics.

Name of department: Electrical and Computer Engineering

Optics/photronics related programs/degrees offered: M.Sc in Electrical and Computer Engineering. PhD in Electrical and Computer Engineering.

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Electrical engineering

Contact: Dr. Horacio Marquez, Chair ECE Department

Email: marquez@ece.ualberta.ca

Website: <http://www.ece.ualberta.ca/>

Mailing address: Univ. of Alberta, E&CE Dept., Edmonton AB T6G 2V4 Canada

UNDERGRADUATE/GRADUATE PROGRAMS

University of Toronto

SPIE. STUDENT CHAPTERS OSA Student Chapter

Toronto, Canada

Name of department: Medical Biophysics

Number of core optics/photonics students currently enrolled in a related program: 12

Number of students in optics/photonics related course work: 15

Number of optics/photonics related courses offered in this program: 1

Optics/photonics related programs/degrees offered: Masters and Doctoral programs available.

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Electrical engineering; Optics; Photonics

Contact: Merle Casci, Administrator/Business Manager

Email: casc@uoft.utoronto.ca

Website: <http://medbio.utoronto.ca>

Mailing address: Univ. of Toronto, Medical Biophysics, Room 15-706, 101 College St., Toronto ON M5G 1L7 Canada

University of Toronto -

SPIE. STUDENT CHAPTERS OSA Student Chapter

Electrical and Computer Engineering, Photonics Group

Toronto, Canada

Name of department: Electrical and Computer Engineering, Photonics Group

Number of core optics/photonics students currently enrolled in a related program: 60

Number of students in optics/photonics related course work: 120

Number of optics/photonics related courses offered in this program: 25

Optics/photonics related programs/degrees offered: BAsc in Electrical Engineering (optics courses in 3rd and 4th year of program). MASc in Electrical Engineering (concentration in photonics). PhD in Electrical Engineering (concentration in photonics).

Type/Description of disciplines/program tracks offered: Optical engineering.

Contact: Prof. Peter R. Herman, Photonics Group Chair

Email: p.herman@utoronto.ca

Website: <http://photonics.light.utoronto.ca/>

Mailing address: Univ. of Toronto, E&CE Dept., Photonics Group, 10 King's College Rd., Toronto ON M5S 3G4 Canada

University of Waterloo

SPIE. STUDENT CHAPTERS OSA Student Chapter

Waterloo, Canada

Name of department: Physics and Astronomy

Number of core optics/photonics students currently enrolled in a related program: 28

Number of optics/photonics related courses offered in this program: 5

Optics/photonics related programs/degrees offered: Education Program for Photonics Professionals (EP3) 6 courses, each receive a certificate, receive a diploma for all 6 courses. MS in Physic. PhD in Physics

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Optics; Biomedical optics; Fiber optics

Academic and research specialties related to optics/photonics: Quantum Optics.

Contact: Donna Strickland, Assoc. Professor

Email: strickla@uwaterloo.ca

Website: <https://uwaterloo.ca/physics-astronomy/>

Mailing address: Physics & Astronomy Dept., Univ. of Waterloo, Waterloo ON N2L 3G1 Canada

CHINA

Beihang University

SPIE. STUDENT CHAPTERS OSA Student Chapter

Beijing, China

Name of department: School of Electronic and Information Engineering

Number of core optics/photonics students currently enrolled in a related program: 80

Number of students in optics/photonics related course work: 80

Number of optics/photonics related courses offered in this program: 15

Optics/photonics related programs/degrees offered: BEng in

Optoelectronic Science and Engineering; MEng in Optical Engineering; PhD in Optical Engineering

Type/Description of disciplines/program tracks offered: Optical engineering; Electrical engineering; Optics; Photonics; Fiber optics

Contact: Zheng Zheng, Professor

Email: zhengzheng@buaa.edu.cn

Website: <http://www.ee.buaa.edu.cn>

Mailing address: BeiHang Univ., School of Electronics & Information Engineering, No 37 Xueyuan Rd, Haidan District, Beijing 100081 China

Beijing Institute of Technology

SPIE. STUDENT CHAPTERS OSA Student Chapter

Beijing, China

Name of department: School of Optics and Photonics

Number of core optics/photonics students currently enrolled in a related program: 1695

Number of optics/photonics related courses offered in this program: 30

Optics/photonics related programs/degrees offered: Bachelors program(s): Optoelectronics Information Science and Engineering. Masters program(s): Optical Engineering. Doctoral program(s): Optical Engineering

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Electrical engineering; Optics; Photonics; Biomedical optics; Fiber optics

Contact: Liquan Dong, Associate Professor

Email: kybind@bit.edu.cn

Website: <http://opt.bit.edu.cn/>

Mailing address: 5 South Zhongguancun Street, Haidian District, Beijing Institute of Technology, School of Optics and Photonics, Beijing 100081 China

Capital Normal University

SPIE. STUDENT CHAPTERS OSA Student Chapter

Beijing, China

The THz lab in the department of physics, Capital Normal University, established in 2001, boasts one of the top THz research institutions in China. It became the Beijing Key Lab of THz Spectroscopy and Imaging in 2006 and one year later the Department and Education Key Lab of THz Photonics. It has published over 160 SCI indexed papers including publications on Physics Review Letters, Applied Physics Letters, Optics Letters, Optics Express, etc.

Name of department: Department of Physics

Number of core optics/photonics students currently enrolled in a related program: 60

Number of students in optics/photonics related course work: 90

Number of optics/photonics related courses offered in this program: 15

Optics/photonics related programs/degrees offered: Bachelors program in Optical and Electrical Information Engineering. Masters program in Optics, Optical Engineering. Doctoral program in Optical Engineering.

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Electrical engineering; Optics

Academic and research specialties related to optics/photonics: THz Science and Technology, optics crystal, nano-optics.

Year program was founded: 2001

Contact: Prof. Yan Zhang, Director

Email: yzhang@mail.cnu.edu.cn

Website: <http://202.204.213.10/>

Mailing address: Capital Normal Univ., Dept. of Physics, No 105 Xisanhuan North Rd, Haidan District, Beijing 100048 China

Fudan University -

SPIE. STUDENT CHAPTERS OSA Student Chapter

School of Information Science and Engineering

Shanghai, China

Name of department: Department of Optical Science and Engineering

Number of core optics/photonics students currently enrolled in a related program: 210

Number of optics/photonics related courses offered in this program: 30

Type/Description of disciplines/program tracks offered: Physics; Optical engineering

Admission deadlines: November 10.

Year program was founded: 2000

Contact: Prof. Rongjun Zhang

Email: rjzhang@fudan.edu.cn

Website: <http://www.optics.fudan.edu.cn>

Mailing address: Fudan Univ., Dept. of Optical Science and Engineering, School of Information Science & Engineering, Shanghai 200433 China

HuaZhong University of Science and Technology Wuhan, China

SPIE. STUDENT CHAPTERS OSA Student Chapter

Name of department: Department of Optoelectronic Engineering
Number of core optics/photronics students currently enrolled in a related program: 2000
Number of optics/photronics related courses offered in this program: 41
Optics/photronics related programs/degrees offered: Bachelors program(s): Optical Information Science and Technology. Masters and Doctoral programs in Physics Electronics, Optics Engineering, and Optoelectronic Information Engineering.
Type/Description of disciplines/program tracks offered: Optical engineering
Academic and research specialties related to optics/photronics: Optical Fiber Communication, Opto-electro control, opto-electro information, Opto-electric Sensing Technology.
Contact: Prof. Deming Liu
Email: dmliu@mail.hust.edu.cn
Website: <http://www.hust.edu.cn/>
Mailing address: Huazhong Univ. of Science and Technology, Dept. of Optoelectronic Engineering, Wuhan Hubei 430074 China

Nanjing University of Science and Technology Nanjing, China

SPIE. STUDENT CHAPTERS OSA Student Chapter

Name of department: Optics
Number of core optics/photronics students currently enrolled in a related program: 80
Number of optics/photronics related courses offered in this program: 22
Optics/photronics related programs/degrees offered: Bachelors, Masters and Doctoral programs available.
Type/Description of disciplines/program tracks offered: Physics; Optical engineering
Academic and research specialties related to optics/photronics: pattern recognition, image processing of synthetic-aperture radar, coherent optics, holography, electronic optics, optical surface analysis, laser physics, optical design, optical instruments, thin film, fiber optics, optical technology, hybrid photoelectric systems, solid image device, interferometry, optical metrology.
Admission deadlines: December 10.
Contact: Prof. Tao Chuncan
Email: taock812@sohu.com
Website: <http://www.njust.edu.cn>
Mailing address: Nanjing Univ. of Science & Technology, Optics Dept., Rm 28-301, Nanjing 210094 China

Shanghai Institute of Optics and Fine Mechanics, Chinese Academy of Sciences Shanghai, China

SPIE. STUDENT CHAPTERS OSA Student Chapter

Name of department: The State Key Laboratory for High Field Physics
Number of students in optics/photronics related course work: 43
Type/Description of disciplines/program tracks offered: Optical engineering
Contact: Li Yanyan, Dr
Email: yyli@siom.ac.cn
Website: <http://www.siom.cas.cn/>
Mailing address: No.390 Qinghe Road, JiaDing District, Shanghai 201800 China

Sichuan University Chengdu, China

SPIE. STUDENT CHAPTERS OSA Student Chapter

Name of department: College of Electronics and Information Engineering
Number of core optics/photronics students currently enrolled in a related program: 1800
Number of students in optics/photronics related course work: 2450
Number of optics/photronics related courses offered in this program: 33
Optics/photronics related programs/degrees offered: Bachelors, Masters and Doctoral programs available.
Type/Description of disciplines/program tracks offered: Optical engineering; Optics; Photonics; Optoelectronic Technology; Terahertz technology
Year program was founded: 1986
Contact: Dr. Qican Zhang, Professor
Email: qican_zhang@hotmail.com

Website: <http://www.scu.edu.cn/eie/index.htm>
Mailing address: College of Electronics and Information Engineering, Sichuan University, Chengdu Sichuan 610065 China

Tianjin University Tianjin, China

SPIE. STUDENT CHAPTERS OSA Student Chapter

Name of department: College of Precision Instruments and Opto-Electronics Engineering
Number of core optics/photronics students currently enrolled in a related program: 720
Number of students in optics/photronics related course work: 1440
Number of optics/photronics related courses offered in this program: 58
Optics/photronics related programs/degrees offered: BE Optoelectronic information Engineering, Science and Technology of Electronics (Optoelectronics track). Double BE&BS Science and Technology of Optoelectronics. ME Optical Engineering. PhD Optical Engineering.
Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Electrical engineering; Optics; Photonics; Laser Principle Fiber optics
Academic and research specialties related to optics/photronics: Information Engineering (Photoelectric Information Engineering Orientation), Electronic Science and Technology (Optoelectronics), Opto-electronic Technology Science (Cooperate with Nankai University).
Contact: Dr. Xiaodong Chen, Professor
Email: xdchen@tju.edu.cn
Website: <http://www.tju.edu.cn>
Mailing address: Tianjin Univ., College of Precision Instruments & OptoElectronics Engineering, Tianjin 300072 China

Tsinghua University Beijing, China

SPIE. STUDENT CHAPTERS OSA Student Chapter

Name of department: Department of Precision Instrument
Number of core optics/photronics students currently enrolled in a related program: 50
Number of students in optics/photronics related course work: 150
Number of optics/photronics related courses offered in this program: 36
Optics/photronics related programs/degrees offered: BSc in Optics; MSc in Optics; PhD in Optics
Type/Description of disciplines/program tracks offered: Optical engineering; Optics; Photonics; Biomedical optics
Academic and research specialties related to optics/photronics: Diffraction and Gratings, Fiber Optics, Holography, Measurement and Metrology, Laser optics, Biomedical optics, Nonlinear optics, Spectroscopy, Ultrafast optics.
Year program was founded: 1959
Contact: Haoyun Wei, Associate Professor
Email: luckiwei@mail.tsinghua.edu.cn
Website: <http://www.tsinghua.edu.cn/publish/dpien/index.html>
Mailing address: Tsinghua Univ., Dept. of Precision Instrument, Institute of Opto-electronic Engineering, Beijing 100084 China

Zhejiang University Hangzhou, China

SPIE. STUDENT CHAPTERS OSA Student Chapter

Name of department: College of Optical Science and Engineering
Number of core optics/photronics students currently enrolled in a related program: 1000
Number of students in optics/photronics related course work: 1000
Number of optics/photronics related courses offered in this program: 60
Optics/photronics related programs/degrees offered: Bachelors program in Optoelectronic information science and Engineering. Masters and doctoral programs in Optical Engineering
Type/Description of disciplines/program tracks offered: Optical engineering; Electrical engineering; Optics; Photonics; Biomedical optics; Fiber optics
Contact: Yaocheng Shi, Professor
Email: yaocheng@zju.edu.cn
Website: <http://opt.zju.edu.cn/english/>
Mailing address: Zhejiang Univ., Bldg #5, Zijingang Campus, Hangzhou Zhejiang 310058 China

UNDERGRADUATE/GRADUATE PROGRAMS

COLOMBIA

Universidad de Antioquia Medellín, Colombia

OSA Student Chapter

Name of department: Physics Institute

Number of core optics/photonics students currently enrolled in a related program: 5

Number of students in optics/photonics related course work: 10

Optics/photonics related programs/degrees offered: MSc in Physics

Research work in one Optics / Photonics specialty. DrSci Thesis in one Optics / Photonics specialty.

Type/Description of disciplines/program tracks offered: Physics; Optical engineering

Academic and research specialties related to optics/photonics:

Optical properties in semiconductors, solitons, Astronomical spectrophotometry, quantum optics, Optical information processing.

Year program was founded: 1968

Contact: Daniel Jaramillo, Director

Email: direccionfisica@udea.edu.co

Website: www.udea.edu.co

Mailing address: calle 70 No. 52-21 of. 6-105, Medellín Antioquia Colombia

Universidad del Valle Santiago de Cali, Colombia

SPIE Student Chapters OSA Student Chapter

Physics Degree program with specialties in different aspects of optics and photonics. Master program and Doctorate oriented to optical and photonic applications and developments in quantum optics, quantum information, new optical materials and biophotonics.

Name of department: Física

Number of core optics/photonics students currently enrolled in a related program: 25

Number of students in optics/photonics related course work: 35

Number of optics/photonics related courses offered in this program: 10

Optics/photonics related programs/degrees offered: BSc Phys. Fisico.

MSc in Physics. Research work in one Optics / Photonics specialty. DrSci Thesis in one Optics / Photonics specialty.

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Optics; Photonics; Biomedical optics

Academic and research specialties related to optics/photonics: Laser

Physics, Biophotonics, Theoretical Photonics and Biophotonics Modelling and simulations, Quantum Optics, and Material Processing and Optics of Materials.

Admission deadlines: Postgraduate Programs: <http://www.univalle.edu.co/programas/postgrado/ciencias.html>; <http://admisiones.univalle.edu.co/new/index.php>. Bachelors Program: <http://admisiones.univalle.edu.co/new/index.php>; <http://fisica.univalle.edu.co/index.php/prese>

Year program was founded: 1966

Group Websites: <http://opticaquantica.correounivalle.edu.co/>; <http://estadosolido.correounivalle.edu.co/http://estadosolido.correounivalle.edu.co/>; <http://quantic.correounivalle.edu.co/>; <http://nuevosmateriales.correounivalle.edu.co/>

Contact: Dr. Efrain Solarte Rodriguez, Professor

Email: efrain.solarte@correounivalle.edu.co

Website: <http://www.univalle.edu.co/facultadesydependencias/ciencias.html>

Mailing address: Universidad del Valle, Dpto de Fisica, Calle 13 No 100-00 Ed 320, Santiago de Cali Valle del Cauca 7600 Colombia

Universidad Nacional de Colombia - Medellín Medellín, Colombia

SPIE Student Chapters OSA Student Chapter

Name of department: Escuela de Física (School of Physics)

Number of core optics/photonics students currently enrolled in a related program: 16

Number of students in optics/photonics related course work: 35

Number of optics/photonics related courses offered in this program: 12

Optics/photonics related programs/degrees offered: Bachelors programs:

Engineering Physics (Lines- Optics I: Coherence, Technical optics; Optics II: Photonics & Optoelectronics; Optics III: Spectroscopy and Laser Technology). Master of Sciences – Physics. Philosophical Doctor of Sciences – Physics.

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Photonics; Fundamentals of Photonics

Admission deadlines: Public offering posted on website and published in national press every semester. <http://admisiones.unal.edu.co/>.

Year program was founded: 1998

Contact: Juan F. Botero-Cadavid, PhD, Assistant Professor

Email: jfbotero@unal.edu.co

Website: <http://ciencias.medellin.unal.edu.co/escuelas/fisica/>

Mailing address: Universidad Nacional de Colombia - Sede Medellín, Escuela de Física, Calle 59A #63-20, Bloque 21, Of. 406, Medellín Antioquia 50034 Colombia

Universidad Tecnológica de Pereira

SPIE Student Chapters OSA Student Chapter

Pereira Risaralda, Colombia

Name of department: Ingeniería Física

Number of core optics/photonics students currently enrolled in a related program: 10

Number of students in optics/photonics related course work: 35

Number of optics/photonics related courses offered in this program: 1

Optics/photonics related programs/degrees offered: Certification programs available.

Type/Description of disciplines/program tracks offered: Physics; Optical engineering

Year program was founded: 2002

Contact: Henry Riascos, Dr.

Email: hriascos@utp.edu.co

Website: <http://www.utp.edu.co>

Mailing address: Univ. Tecnologica de Pereira, Physics Dept., Carrera 27 #10-02 Barrio Alamos, Pereira Risaralda 660003 Colombia

CZECH REPUBLIC

Palacky University Olomouc, Czech Republic

Courses in quantum theory, statistical physics, electronics, geometrical and physical optics, theory of optical systems, laser physics, solid state physics, sources and detectors of optical radiation, optical measurements, nonlinear optics, quantum and statistical optics, holography, spectroscopy, integrated optics, and optical information processing are included in BS program. After three year studies the student must pass the BS exam. MS studies (five years) provides profiling to: quantum and statistical optics, nonlinear optics, laser physics, optical communications, optical processing, design of optical systems, instrument optics, optoelectronic systems. The PhD program is designed to train the student to carry out optics research.

Name of department: Faculty of Science, Optics

Number of core optics/photonics students currently enrolled in a related program: 3

Number of optics/photonics related courses offered in this program: 3

Optics/photonics related programs/degrees offered: BS in Optics and Optoelectronics. BS in Optometry Applied Optics. MS in Optics and Optoelectronics. PhD in Optics and Optoelectronics.

Type/Description of disciplines/program tracks offered: Optical engineering

Academic and research specialties related to optics/photonics: Optics, optoelectronics, and optometry.

Contact: Zdenek Hradil, Professor/Department Head

Email: hradil@optics.upol.cz

Website: <http://www.upol.cz/>

Mailing address: Palacky University, Faculty of Sciences, Svobody 26, Department of Optics, 17. listopadu 50, Olomouc 77146 Czech Republic

DENMARK

Aalborg University Aalborg Oest, Denmark

Master program: Two optics courses are offered, Nano optics and optoelectronics. In addition there will be other nanotechnology or physics courses. There are typically three courses per semester (15 ECTS in total) and one large project (15 ECTS) which is carried out as group work. The projects can be both experimental, theoretical, or both, and may, if desired, contain a large portion of practical optics Laboratory Work or theoretical Work. www.nano.aau.dk

Name of department: Department of Physics and Nanotechnology
Number of core optics/photronics students currently enrolled in a related program: 15

Number of students in optics/photronics related course work: 15
Optics/photronics related programs/degrees offered: Masters program in Nanotechnology.

Type/Description of disciplines/program tracks offered: Physic; Optical engineering; Technology; Optics; Photonics; Biomedical optics

Academic and research specialties related to optics/photronics: nano-optics, plasmonics, surface and interface nonlinear optics, quantum optics.

Admission deadlines: May

Contact: Dr. Thomas Søndergaard, Associate professor

Email: ts@nano.aau.dk

Website: <http://www.nano.aau.dk>

Mailing address: Aalborg Univ., Dept. of Physics & Nanotechnology, Skjernvej 4A, Aalborg Oest DK-9220 Denmark

Technical University of Denmark - SPIE. STUDENT CHAPTERS OSA Student Chapter

DTU Fotonik

Kgs Lyngby, Denmark

General optics courses are offered, including courses in applied photonics, linear and nonlinear optics, waveguide optics and nano-photonics.

Specializations in photonic materials and structures, lasers and light-sources, bio-photonics and sensors, and components for optical communication are offered. Entrepreneurship is part of the students curriculum. Students may focus on theoretical competences or explore an education with strong focus on experimental activities.

Name of department: Photonics Engineering

Number of core optics/photronics students currently enrolled in a related program: 15

Number of students in optics/photronics related course work: 40
Number of optics/photronics related courses offered in this program: 25

Optics/photronics related programs/degrees offered: BS in Physics and Nanotechnology, BS in IT and Communication Technology. MS in Photonics Engineering, MS in Telecommunication. Doctoral program available.

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Electrical engineering; Photonics; Biomedical optics; Fiber optics

Year program was founded: 2000

Contact: Karsten Rottwitz, Professor

Email: karo@fotonik.dtu.dk

Website: <http://www.fotonik.dtu.dk>

Mailing address: Technical Univ. of Denmark, DTU Fotonik, Bldg. 343, Kgs Lyngby DK-2800 Denmark

FINLAND

University of Eastern Finland Joensuu, Finland

The Master's Degree Programme in Photonics is a two-year programme taught in English at the Institute of Photonics, University of Eastern Finland. Master's degree in Photonics offers outstanding skills needed in international careers in optics, photonics, and related fields. The programme covers all important aspects from theory to practical work in laboratories with world-class facilities. The education is based on high-quality photonics research in the department. This programme is intended for the applicants with a Bachelor's degree or equivalent in physics, optics, photonics, physical and engineering sciences with an extensive physics basic education, or another discipline related to the

programme, entailing proficiency in physics and mathematics.

Name of department: Institute of Photonics

Optics/photronics related programs/degrees offered: Master's program available. www.uef.fi/mdp-photonics. The Doctoral Programme in Science, Technology and Computing combines science with computational analysis and technology to form a multidisciplinary programme. The computational component includes computing sciences, mathematics and inverse problems and mathematical modelling. Science and technology combine photonics, chemistry and medical physics and technology. The purpose of the doctoral programme is to provide students with the competences required to create new knowledge, apply scientific research methods in a critical manner and independently, and to work in demanding expert and research positions in academia, business and the public sector. On the programme, students can complete a doctoral degree in the following fields of science and research: photonics, computer science, mathematics, computational physics and inverse problems, chemistry, medical physics and technology. Research conducted in internationally acknowledged research groups forms a key part of the studies. Students will benefit from wide-ranging networking opportunities during their studies. Programme homepage: www.uef.fi/dpsciteco

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Optics; Photonics; Biomedical optics; Fiber optics

Admission deadlines: <http://www.uef.fi/web/mdp-photonics/admission> Information about the tuition fees and scholarships: <http://www.uef.fi/en/web/mdp-photonics/scholarships-fees>

Year program was founded: 2010

Additional comments: Contact: Dr. Noora Heikkilä, Coordinator

Email: noora.heikkila@uef.fi

Website: <http://www.uef.fi/en/photonics/photonics>

Mailing address: Univ of Eastern Finland, Institute of Photonics, Joensuu Campus PO Box 111, Joensuu 80101 Finland

FRANCE

Franche-Comté University

SPIE. STUDENT CHAPTERS OSA Student Chapter

Besançon, France

Purpose: Training of engineers familiar with physical phenomena underlying new technologies, from an applied as well as a fundamental point of view (industry and research), in such fields as photonics, micro/nano-optics, quantum optics, micro/nano-technologies, instrumentation, time-frequency metrology, micro-oscillators, micro/nano-acoustics, biophotonics, and complex systems involving these disciplines. Careers: Telecommunications, healthcare, aerospace. Fundamental and applied research in academia or high-tech industrial development/R&D.

Name of department: Faculty of Sciences and Technologies

Number of core optics/photronics students currently enrolled in a related program: 690

Number of optics/photronics related courses offered in this program: 15

Optics/photronics related programs/degrees offered: BSc in Physics, BSc in Physics and Chemistry (<http://physique.univ-fcomte.fr>). MSRes in Photonics Micro&nanotechnologies and time-frequency (web site : <http://sdm.univ-fcomte.fr/pages/fr/menu3281/accueil-master-photonique-micro-nano-technologies-temps-frequence-14339.html>), MSc in Physics and Numerical Physics. PhD in Photonics under the supervision of the Doctoral School SPIM (Sciences Pour l'Ingénieur et Microtechniques: Engineering Sciences and Microtechnologies, <http://ed-spim.univ-fcomte.fr>).

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Electrical engineering; Optics; Photonics; Fiber optics

Academic and research specialties related to optics/photronics: nano-optics, quantum optics, non linear optics, ultrafast optics.

Contact: Fabrice Devaux, Full professor

Email: fabrice.devaux@univ-fcomte.fr

Website: <http://sciences.univ-fcomte.fr>

Mailing address: Optical Department, FEMTO-ST Institute UMR 6174 CNRS, 15B Avenue des Montboucons, Besançon 25030 France

UNDERGRADUATE/GRADUATE PROGRAMS



An assistant-professor keeping an eye on his X-UV mirror manufacturing at the Institut d'Optique Graduate School.

Institut d'Optique Graduate School Palaiseau, France

OSA Student Chapter

Celebrating 100 years of History in 2017, Institut d'Optique Graduate School is a leading education and research institution in photonics, in France. The main programme of study at Institut d'Optique leads to the award of the nationally accredited Diplôme d'Ingénieur de l'Institut d'Optique, equivalent to an integrated Master of Science in Engineering, in Photonics. This programme is highly selective and prestigious, with very high career prospects, whether it be in companies, academia or as innovators. It is a 3-year programme, equivalent to a final year of BSc, a Master 1st year and a Master 2nd year. For local applicants, admission is generally by competitive entrance examination taken after two years of intensive undergraduate preparation in the Classes Préparatoires aux Grandes Écoles. For international students, the programme has been adapted: specific admission processes and creation of an international track in 2017. The international track is a first semester fully taught in English, along with classes of French for foreigners, and updates on photonics and optics. The other semesters are then in French. International students can join as degree-seeking students (long stay, issuance of the degree) or as non-degree/credits only students (short stay, credits transfer only). Please refer to: <https://www.institutoptique.fr/International/MScEng-Diplome-d-Ingénieur-Instytut-d-Optique> also offers admission into its other MSc programmes, its Advanced Master in Embedded Lighting Systems (<http://embedded-lighting.com/>) and PhD programmes.

Name of department: Photonics and Optical Sciences & Engineering
Number of core optics/photonics students currently enrolled in a related program: 700

Number of students in optics/photonics related course work: 550
Number of optics/photonics related courses offered in this program: 65
Optics/photonics related programs/degrees offered: Master of Science in Engineering (Diplôme d'Ingénieur de l'Institut d'optique théorique et appliquée); Master in Optical Science (LOM - Laser, Optique, Matière); Master in Nanosciences (in conjunction with several partners). Institut d'Optique is also a partner of several Université Paris-Saclay master programmes. PhD in Physics (Optical Science).

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Electrical engineering; Optics; Photonics; Biomedical optics; Fiber optics

Academic and research specialties related to optics/photonics: intensive optics, signal and image processing labwork.

Accreditation Program: MScEng (Diplôme d'ingénieur)

Accreditation Organization: CTI (Commission des Titres d'Ingénieurs)

Admission deadlines: MScEng-Diplôme d'Ingénieur: International applicants can send their application until 1st May (degree seeking students) or 15th May (non-degree / exchange students). Master's degree and PhD: International students as early as possible during the academic year prior to intended entry, preferably before the end of April.

Year program was founded: 1917

Contact: Pierre Baladi, Head of International Relations

Email: international@institutoptique.fr

Website: <http://www.institutoptique.fr>

Mailing address: Institut d'Optique Graduate School, 2 Avenue Augustin Fresnel, Palaiseau 91127 France

University of Bordeaux Talence, France

SPIE. STUDENT CHAPTERS OSA Student Chapter

The Light Sciences and Technologies Graduate School of the University of Bordeaux provide a multidisciplinary, innovative and international training program from Master to Doctorate. The interdisciplinary graduate program in Light Sciences and Technologies focuses on three domains of excellence of the University of Bordeaux: extreme regimes of light; light generation, manipulation and detection; imaging and biophotonics.

Name of department: Light Sciences and Technologies Graduate School
Number of core optics/photonics students currently enrolled in a related program: 19

Number of students in optics/photonics related course work: 30

Number of optics/photonics related courses offered in this program: 33

Optics/photonics related programs/degrees offered: Light Sciences and Technologies Master Graduate Program. Selected as a French Initiative of Excellence, the Master focuses on knowledge and innovation in light sciences and technologies, providing a multidisciplinary environment for first-class research and education. The UB grad's in Light Sciences and Technologies is an integrated, interdisciplinary program, provided by both academic and industrial experts. The Master is embedded in a cross-fertilizing research environment, adapted to future professions within photonic industries.

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Optics; Photonics; Biomedical optics

Academic and research specialties related to optics/photonics: Light matter interaction, laser, nano optics, neurophotonics.

Admission deadlines: March 15

Year program was founded: 2018

Contact: Marie Vieules, Program manager

Email: contact.light-st@u-bordeaux.fr

Website: <https://light-st.u-bordeaux.fr>

Mailing address: 1 rue François Mitterrand, Talence 33405 France

Polytech'Paris-Sud Orsay, France

SPIE. STUDENT CHAPTERS OSA Student Chapter

The Polytech'Paris-Sud covers 5 years of higher education. Training includes an equal amount of optics and electronics leading up to final year specialized courses in optronics. An important point is the close cooperation between University and Industry in the training of students.

Name of department: Photonics and Optronics devices

Number of core optics/photonics students currently enrolled in a related program: 140

Number of optics/photonics related courses offered in this program: 10

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Electrical engineering; Optics; Photonics; Biomedical optics; Fiber optics

Academic and research specialties related to optics/photonics: Lasers, fibre optics, guided optics, non linear optics, detectors technology, optical telecommunication, image processing, spectroscopy, electro-optics, optronics.

Year program was founded: 1990

Contact: Yves Bernard, Director - Optronics Department

Email: yves.bernard@u-psud.fr

Website: <http://www.polytech.u-psud.fr>

Mailing address: Polytech'Paris-Sud Optronique, Bat 470, Campus d'Orsay, Université Paris Sud 11, Orsay 91405 France

University Jean Monnet Saint-Etienne, France

Name of department: Faculty of Sciences and Techniques

Number of core optics/photonics students currently enrolled in a related program: 90

Number of students in optics/photonics related course work: 230

Number of optics/photonics related courses offered in this program: 30

Optics/photonics related programs/degrees offered: BSc in Physics; BSc in Physics and Chemistry; MSc in Optics for surface and interface science and engineering; MSc in Advanced imaging and Material appearance; ERASMUS + MSc in Color in Science and Industry; International MSc in 3D Multimedia Technologies; PhD in Optics and Photonics; PhD in Image, Signal and Vision

Type/Description of disciplines/program tracks offered: Optical engineering; Optics; Photonics

Academic and research specialties related to optics/photonics: Photonic micro&nano systems, diffractive optics, optical fibres, photosensitivity,

sensors, lasers, optical materials, nanophotonics, plasmonics, laser processing, image acquisition and processing, computer vision, non-conventional imaging, colour science, visual rendering, material appearance.

Contact: Nathalie Destouches, Professor

Email: nathalie.destouches@univ-st-etienne.fr

Website: <https://master-oivm.univ-st-etienne.fr/en/>

Mailing address: Hubert Curien Laboratory, UMR CNRS, 18 rue du Pr Benoît Lauras, Saint-Etienne F-42000 France

GERMANY

Aalen University

Aalen, Germany

Name of department: Optical Engineering / Photonics

Number of core optics/photonics students currently enrolled in a related program: 150

Number of students in optics/photonics related course work: 250

Number of optics/photonics related courses offered in this program: 2

Optics/photonics related programs/degrees offered: Bachelors program in Optical Engineering. Masters program in Photonics.

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Electrical engineering; Optics; Photonics; Biomedical optics; Fiber optics

Year program was founded: 1991

Contact: Prof. Dr. Jürgen Krapp

Email: juergen.krapp@hs-aalen.de

Website: <https://www.hs-aalen.de/s/ph>

Mailing address: Aalen University, Beethovenstraße 1, Aalen D-73430 Germany

Abbe School of Photonics

Jena, Germany

Name of department: Friedrich Schiller University Jena

Number of core optics/photonics students currently enrolled in a related program: 150

Number of students in optics/photonics related course work: 300

Number of optics/photonics related courses offered in this program: 40

Optics/photonics related programs/degrees offered: Master of Science in Photonics is a Master's degree course providing a multidisciplinary coverage of the field of optics and photonics, from upstream scientific aspects to engineering and applications in major sectors of economy. Students enrolled in the two-year program are trained for technical or scientific positions in industry and academia. Scholarships are available. The Abbe School of Photonics offers an excellent, research-oriented doctoral program for national and international students. A broad academic education at the highest international level in a modern research environment provides a profound up-to-date knowledge in a variety of fields - from fundamental sciences and laser physics to material sciences and life sciences. Well-equipped laboratories offer optimum conditions for research at the frontiers of Optics & Photonics. Regular seminars and workshops held at the ASP provide deep insight into the latest developments in all fields of Optics and Photonics. A cornerstone of our philosophy is to regard and value our doctoral candidates as scientists in all respects. The ASP offers an individually adjusted program to meet each candidate's scientific background and interests. This guarantees an optimum preparation for a high-profile career in research or industry.

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Electrical engineering; Optics; Photonics; Biomedical optics; Fiber optics

Academic and research specialties related to optics/photonics: biophotonics, nanooptics, ultra optics, strong field physics.

Year program was founded: 2007

Contact: Dr. Dorit Schmidt, Coordinator

Email: dorit.schmidt@uni-jena.de; phd-asp@uni-jena.de, master-asp@uni-jena.de

Website: <http://www.asp.uni-jena.de/>

Mailing address: Abbe School of Photonics, Abbe Ctr. of Photonics, Albert-Einstein-Str. 6, Jena 07745 Germany

SPIE. STUDENT CHAPTERS **OSA** Student Chapter

Beuth Hochschule für Technik Berlin

Berlin, Germany

Name of department: Mathematics/Physics/Chemistry

Number of core optics/photonics students currently enrolled in a related program: 150

Number of students in optics/photonics related course work: 150

Number of optics/photonics related courses offered in this program: 10

Optics/photonics related programs/degrees offered: Bachelor of Engineering in Applied Physics and Medical Engineering, BEng (6 semesters). Master of Engineering Applied Physics and Medical Engineering (4 semesters), (including laser applications and medical optics), Meng.

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Electrical engineering; Optics; Photonics Laser technology; Biomedical optics

Academic and research specialties related to optics/photonics: medical optics, lasers, optoelectronics, electron microscopy.

Admission deadlines: The Bachelor and Master courses in Applied Physics start in October. Bachelor studies also starts in April.

Year program was founded: 1990

Contact: Dr. Ingeborg Beckers, Professor

Email: beckers@beuth-hochschule.de

Website: <http://www.beuth-hochschule.de/>

Mailing address: Beuth Hochschule Berlin, Univ. of Applied Sciences, Seestr. 64, Berlin 13347 Germany

Erlangen Graduate School in

SPIE. STUDENT CHAPTERS **OSA** Student Chapter

Advanced Optical Technologies (SAOT)

Erlangen, Germany

Today, optics is widely regarded as one of the most important key technologies for this century. Many experts even anticipate that the 21st century will be the century of the photon. Optics and optical technologies have impact to nearly all areas of life and cover a wide range of applications in science and industry. The SAOT provides an interdisciplinary research and education program of excellence within a broad international network of distinguished experts to promote innovation and leadership in the areas optical metrology, optical material processing, optics in medicine, optics in communication and information technology, optical materials and systems as well as computational optics.

Name of department: Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU)

Number of core optics/photonics students currently enrolled in a related program: 40

Number of students in optics/photonics related course work: 142

Optics/photonics related programs/degrees offered: The Master Programme in Advanced Optical Technologies (MAOT) provides in-depth training in the fundamentals and applications of state-of-the-art optical technologies. The programme is highly interdisciplinary and brings together experts and knowledge from the fields of Engineering, Physics, Computer Science and Medicine. At MAOT students get this expertise from across the university in one integrated programme - practically unique in the field of optical technologies. See web site for more details. A doctoral programme starts typically with a course on Fundamentals of Optical Technologies. Each doctoral student chooses then three of the six application areas metrology, material processing, medicine, communication and information technologies, materials and systems or computational optics to acquire broad knowledge in the area of optical technology. A research thesis project in one of these fields under the supervision of a SAOT mentor completes the requirements for the doctoral degree. During the programme doctoral candidates have the opportunity to attend academies which foster intensive team work in the solution of optical problems. A credit point scheme encourages not only the participation in these academies but also the attendance at scientific conferences, workshops and lectures, the publication of scientific papers and the acquisition of soft skills. Research at the SAOT can be undertaken in cooperation with three leading research centres in Erlangen. See web site for more details.

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Electrical engineering; Optics; Photonics; Biomedical optics; Fiber optics

Year program was founded: 2006

Contact: Dr.-Ing. Andreas Bräuer

Email: andreas.braeuer@aot.uni-erlangen.de

Website: <http://www.aot.uni-erlangen.de/saot/home.html>

UNDERGRADUATE/GRADUATE PROGRAMS

Mailing address: Erlangen Graduate School in Advanced Optical Technologies (SAOT), Paul Gordan Strasse 6, 91052 Erlangen Germany

Ernst-Abbe-Hochschule Jena, University of Applied Sciences

Jena, Germany

With this educational program tailor-made for optical industries, the University of Applied Sciences Jena meets the needs of the growth potential in this field and of the lack of specialists. The areas of laser technology, optical technologies, optics development and optoelectronics are represented in these programs. The courses are also characterized by practical training sessions in modern, well-equipped laboratories and held with the support of regional companies, dealing in particular with practical courses and with bachelor as well as master theses. The application of the European credit point transfer system (ECTS) allows the completion of parts of the program abroad.

Name of department: SciTec (Science and Technology)

Number of core optics/photronics students currently enrolled in a related program: 170

Number of students in optics/photronics related course work: 480

Number of optics/photronics related courses offered in this program: 21

Optics/photronics related programs/degrees offered: Bachelor of Engineering in Laser and Optical Technologies (6 semesters). Master of Engineering in Laser and Optical Technologies (4 semesters).

Type/Description of disciplines/program tracks offered: Optical engineering; Optics; Photonics

Academic and research specialties related to optics/photronics: Laser technique (laser material processing, laser measurement techniques), Optical development (optical CAD), Optical technology (optical materials, coatings and surface technology), Optoelectronics (fiber optic), **Contacts:** to: optical development, digital projection, micro optics, laser in medicine, optical coatings, lens design, assembly of optics, fiber technology, ophthalmologic technology, spectral sensor technology and others.

Accreditation Program: Bachelor and Master of Engineering in Laser and Optical Technologies

Accreditation Organization: ACQUIN

Admission deadlines: The application deadline for winter semester is August, 15 and for summer semester January, 15 every year.

Year program was founded: 2002

Contact: Mr. Prof. Dr. Burkhard Fleck, Program Director

Email: LOT@eah-jena.de

Website: <http://www.eah-jena.de>

Mailing address: Ernst-Abbe-Hochschule Jena, Studiengaenge LOT, Carl-Zeiss-Promenade 2, Jena Thuringia D-07745 Germany

Harz University of Applied Sciences

Wernigerode, Germany

Name of department: Automation and Computer Science

Number of core optics/photronics students currently enrolled in a related program: 18

Number of students in optics/photronics related course work: 120

Number of optics/photronics related courses offered in this program: 5

Optics/photronics related programs/degrees offered: Certification: Polymeric Optical Fiber transmission systems; Bachelor of Automation Systems, Photonics Systems Engineering; Master program available.

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Electrical engineering; Photonics Laser Technology; Fiber optics

Academic and research specialties related to optics/photronics:

Polymer-optical fiber (POF) transmission systems, Wavelength Division Multiplexing (WDM) Systems with POF, Metrology of Wavelength and Laser Diode Testing.

Contact: Fischer-Hirchert, Prof. Dr.

Email: ufischerhirchert@hs-harz.de

Website: <https://www.hs-harz.de/ufischerhirchert>

Mailing address: Dpt. of Automation and Computer Science, Photonic Communications Lab, Friedrichstr. 57, Wernigerode 38855 Germany

Heilbronn University

Heilbronn, Germany

Name of department: Mechatronics

Number of core optics/photronics students currently enrolled in a related program: 10

Number of students in optics/photronics related course work: 200

Number of optics/photronics related courses offered in this program: 4

Optics/photronics related programs/degrees offered: Bachelor of Engineering in Mechatronics; Master of Engineering in Mechatronics

Type/Description of disciplines/program tracks offered: Optical engineering; Electrical engineering; Technology

Academic and research specialties related to optics/photronics: Optical Design; Optical Metrology.

Admission deadlines: January 15 and July 15 every year.

Year program was founded: 1965

Contact: Prof. Dr.-Ing. Peter Ott, Professor, Optical Engineering

Email: peter.ott@hs-heilbronn.de

Website: <http://www.mm.hs-heilbronn.de/mm-e.htm>

Mailing address: Heilbronn University, Mechatronics Department, Max-Planck-Str. 39, Heilbronn 74081 Germany

Hochschule Darmstadt, University of Applied Sciences Darmstadt, Germany

Name of department: Mathematics and Sciences Faculty

Number of core optics/photronics students currently enrolled in a related program: 250

Number of students in optics/photronics related course work: 250

Number of optics/photronics related courses offered in this program: 60

Optics/photronics related programs/degrees offered: Bachelor of Science Degree in Photonic and Machine Vision; Master of Science Degree in Photonic and Machine Vision. A significant amount of students will be given the possibility to work on a PhD in cooperation with industry / university partners.

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Electrical engineering; Optics; Photonics

Academic and research specialties related to optics/photronics: Technical Optics, Optical System Design, Ophthalmic Optics, Optometry, Optical Quality Control, Laser Techniques, Interferometry, Fiber Optics, Microoptics, Quantitative Image Analysis, Pattern Recognition, 3D-Image Analysis, Morphological Image Processing, Machine Vision, Parallel Image Processing Algorithms, OpenCV, Image Processing on Android, Image Processing on iOS.

Admission deadlines: The application deadline for winter semester is August 15 every year. Late applications may be possible until October.

Year program was founded: 1997

Contact: Thomas Netzsch, Prof. Dr.

Email: Thomas.Netzsch@h-da.de

Website: <http://www.h-da.de/index.php>, <http://www.fbmn.h-da.de/index.php>

Mailing address: Darmstadt University of Applied Sciences, Mathematics and Science Faculty, Schoefferstrasse 3, Darmstadt D-64295 Germany

Humboldt University of Berlin

SPIE. STUDENT CHAPTERS OSA Student Chapter

Berlin, Germany

The MSc in Optical Sciences program is exclusively taught in English and prepares the students for a challenging career in the optics & photonics industry or for the pursuit of a doctoral degree. This is facilitated through several temporally overlapping stages with increasing degrees of specialization. Stage 1 features a broad in-depth education in state-of-the-art optics knowledge with a focus on coherent light-matter interaction. This is followed by stage 2 where the student acquires specialized skills in an elective subject - these elective subjects represent the main research areas of the different research groups at Humboldt University of Berlin and the cooperating non-university research institutes in the Science- and Technology-Park Berlin-Adlershof. Finally, within stage 3 the students start into their own independent research which leads up to the final 6-month master thesis.

Name of department: Institute of Physics

Number of core optics/photronics students currently enrolled in a related program: 150

Optics/photronics related programs/degrees offered: MSc in Optical Sciences, <http://opticalsciences.physik.hu-berlin.de>; Dr. rer. nat. (in Physics)

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Optics

Academic and research specialties related to optics/photronics: Optical Sciences in Berlin-Adlershof is one of the few centers of Optical Sciences in Germany. It features a highly diversified and internationally very visible research portfolio. The optics research groups at the Institute of Physics of the HU Berlin are engaged in fundamental research of light-matter interaction on the nano-scale (Prof. Benson), quantum optics and metrology (Prof. Peters), theoretical atomic, molecular,

and optical physics (Prof. Saenz), and the theory of light propagation and light-matter interaction in complex optical and quantum photonic systems (Prof. Busch). Laser systems for ultra-short and -intense pulses, the characterization and shaping of such pulses, the development of corresponding measurement instrumentation for ultrafast processes and their theoretical description is the focus of research at the Max Born Institute (MBI). Profs. Elsässer and Ivanov of MBI are affiliated with the HU Berlin and Prof. Busch of HU Berlin is affiliated with MBI). The Helmholtz Center Berlin (HZB) has at its disposal a powerful source of extreme-UV and X-ray light (BESSY II) that facilitates high-resolution microscopy, novel coherent imaging methods, and in conjunction with the so-called femtosecond laser slicing, allows for ultrafast experiments (Prof. Schneider of HZB is affiliated with HU Berlin). In addition, the HZB conducts extensive research in photovoltaics. The Ferdinand Braun Institute (FBH) develops key technologies in the areas of microwave techniques and optoelectronics with a special emphasis on novel light sources (Prof. Peters of HU Berlin is affiliated with FBH). The German Aerospace Center's Institute for Optical Sensor Systems (DLR OS) develops novel satellite- and rover-based optical sensors and cameras for applications in earth observation and planetary research (Prof. Hübers of DLR OS is affiliated with HU Berlin). Within its main application area "nano- and optoelectronics" the Weierstrass Institute (WIAS) works on problems of applied mathematics with direct reference to Optical Sciences (PD Dr. Bandelow of WIAS is affiliated with HU Berlin). Furthermore, the HU Berlin is the coordinating institution of the Collaborative Research Center 951 "Hybrid Inorganic/Organic Systems for Opto-Electronics" (CRC 951 HIOS). It aims at elucidating the basic chemical, electronic, and photonic interactions in innovative hybrid systems comprised of inorganic semiconductors, metallic nanostructures and conjugated organic materials for advanced applications. In addition, the Science- and Technology-Park Berlin-Adlershof features "Photonics/Optics" as one of its five Technology Centers, which presently hosts some 55 small and medium-sized enterprises. The above-described unique combination of basic and applied optics-related research in Berlin-Adlershof represents the central motivation and provides the basis for the research-oriented Master program in Optical Sciences at HU Berlin.

Year program was founded: 2015

Contact: Kurt Busch, Prof.

Email: optical.sciences@physik.hu-berlin.de

Website: <http://www.physik.hu-berlin.de/de/op>

Mailing address: Humboldt University of Berlin, Department of Physics, Newtonstr. 15, Berlin 12489 Germany



Students presenting their work at the bi-annual Karlsruhe Days of Optics & Photonics.

Karlsruhe School of Optics & Photonics Karlsruhe, Germany

SPIE STUDENT CHAPTERS **OSA** Student Chapter

The KSOP educational concept is designed to qualify its graduates for accelerated careers at the world's best academic institutions and in optic & photonic high-technology industries. The 2-year Master's Program spans the bridge between undergraduate classes in natural and engineering sciences and the required in-depth knowledge that is essential for cutting-edge research. It qualifies for a further career in the industry as well as in research. For those who would like to continue their

careers in research, KSOP established an exclusive PhD Program. KSOP also is a member of the European Erasmus Mundus Master's Program EUROPHOTONICS. Advantages for Students, Doctoral Researchers & Industry By fostering a strong industry partner program, KSOP identified the requirements of O&P companies on its graduates. Those demands and specifications were integrated, e.g., within the MSc program including laboratory courses, research projects, industry internships, and German courses tailored to the qualification of international students. A strong pillar of the PhD qualification concept is the individual coaching and supervision of its doctoral researchers by the research area mentors. On top of this, KSOP actively promotes the thesis work of its doctoral researchers by scientific and technical training. Concomitantly, the professional skills of the graduates are enhanced by tailored personal and management training, e.g., in the MBA Fundamentals Program.

Name of department: International Department of the Universität Karlsruhe
Number of core optics/photonics students currently enrolled in a related program: 300

Number of optics/photonics related courses offered in this program: 2

Optics/photonics related programs/degrees offered: MBA Fundamentals

Program for doctoral researchers puts participants in the position to gain management expertise while still working towards their PhD. Doctoral researchers often benefit from knowledge on management topics at an early stage of their career. Management expertise often has a positive impact on the career possibilities, especially when switching from academia to industry. In the six units of the MBA Fundamentals Program they learn a whole new approach regarding, e.g., project management, human resource management and marketing. After completing the program successfully, participants get a certificate. The 2-year Master Program is taught in English. Applicants need a Bachelor degree in natural or engineering sciences to become part of the interdisciplinary Master program. After a foundation of a solid background, each student chooses a research specialization. The educational concept of KSOP is supported by a scholarship program of the German Federal Government, the state of Baden- Württemberg and leading Optics & Photonics companies. Industry partners such Carl Zeiss AG, OSRAM or TRUMPF provide students with internships, Master thesis projects, excursions as well as individualized workshops and career events. Both for students and industry the cooperation is of high value, especially in regard to future employments. The research and educational concept of KSOP has been established to optimally reflect the multidisciplinary research among natural scientists and engineers. KSOP research activities cover the most important topics in Optics & Photonics and excel in particular in the five Research Areas: Photonic Materials & Devices, Quantum Optics & Spectroscopy, Biomedical Photonics, Optical Systems & Solar Energy. KSOP unites 16 institutes of the Karlsruhe Institute of Technology in one interdisciplinary Graduate School and therefore benefits from a huge knowledge base. Especially the merger with the former national research centre Karlsruhe has created a direct link to the research taking place in the laboratories every day. All research areas are strongly interlinked and most institutes feature research projects in more than one of the research areas. Start of the MSc Program is in October each year. Further information on the application process under www.ksop.kit.edu. Since 2010, KSOP also participates in the Europhotonics Master Program of Erasmus Mundus. Further information at www.europhotonics.org The Karlsruhe School of Optics & Photonics offers a 3-year PhD program in one of the research areas: Photonic Materials & Devices, Quantum Optics & Spectroscopy, Biomedical Photonics, Optical Systems and Solar Energy. KSOP provides PhD candidates with an optimal research environment at the Karlsruhe Institute of Technology (KIT) to carry out first rank PhD projects in the multidisciplinary field of Optics & Photonics. Integrated into the graduate school, doctoral researchers pursue their projects autonomously. Since successful careers in industry or academia often require leadership and interdisciplinary knowledge, emphasis is laid on management skills, which are taught as mandatory management modules within KSOP. In addition, there are also elements as technical, scientific and personal key competence modules. To support their endeavor, two independent advisors and a mentor accompany the research work of the doctoral researcher. All PhD positions are financed - either by KSOP scholarships or other sources.

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Electrical engineering; Optics; Photonics Photonic Materials & Device; Biomedical optics; Fiber optic; Quantum Physics & Spectroscopy; Solar Energy

Accreditation Organization: Swiss Agency of Accreditation and Quality Assurance

Admission deadlines: MSc Program: Application Deadline for annual

UNDERGRADUATE/GRADUATE PROGRAMS

program start is April 30 each year. PhD Program: The application is possible any time.

Year program was founded: 2006

Contact: Miriam Sonnenbichler, Program Manager

Email: info@ksop.de

Website: www.ksop.kit.edu

Mailing address: Karlsruhe School of Optics & Photonics, International Department of the Karlsruhe Institute for Technology GmbH, Schlossplatz 19, Karlsruhe 76131 Germany

Leibniz University Hannover, **SPIE.** STUDENT CHAPTERS Hannover Centre for Optical Technologies HOT Hannover, Germany

Name of department: Faculty of Mechanical Engineering / Faculty of Mathematics and Physics

Number of core optics/photonics students currently enrolled in a related program: 150

Number of students in optics/photonics related course work: 350

Number of optics/photonics related courses offered in this program: 30

Optics/photonics related programs/degrees offered: Bachelor's degree in Physics; Bachelor's degree in Mechanical Engineering, or related are required for admission; MSc in Optical Technologies. The opportunity to obtain a PhD in Physics (Dr. rer. nat.) or in Mechanical Engineering (Dr.-Ing.) is given, depending on individual qualifications and funding.

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Optics; Photonics; Biomedical optics; Fiber optics

Academic and research specialties related to optics/photonics: Optics and photonics, Laser measurement, Laser applications in the life sciences, Medical optics, Biophotonics, Production measurement technology and monitoring, Image processing, Integrated photonics, Polymer optics, Optical modelling and simulation, Light and illumination technologies.

Accreditation Program: Master course

Accreditation Organization: ASIIN

Year program was founded: 2007

Contact: Prof. Dr. Habil. Bernhard Roth, Program Coordinator

Email: lehre@hot.uni-hannover.de

Website: <http://www.hot.uni-hannover.de/masterstudiengang.html?&L=1>

Mailing address: Hannover Centre for Optical Technologies, Leibniz University Hannover, Nienburger str. 17, Hannover D-30167 Germany

Muenster University of Applied Sciences Steinfurt, Germany

Basis of the program is a profound education in mathematics, physics and mechanical/electrical engineering. Spezialisierung is in laser technology and photonics.

Name of department: Applied Physics

Number of core optics/photonics students currently enrolled in a related program: 15

Number of students in optics/photonics related course work: 50

Number of optics/photonics related courses offered in this program: 21

Optics/photonics related programs/degrees offered: BSc in Applied Physics with Specialization in Laser Technology (6 semesters). MSc in Photonics (4 semesters). Teaching language is German. Doctoral program(s): At Muenster University of Applied Sciences several graduate students are pursuing research for their PhD thesis. The PhD degree will be conferred by another university in the framework of a Cooperative PhD program.

Type/Description of disciplines/program tracks offered: Optical engineering; Optics; Photonics

Admission deadlines: Annual admission of new students is for the fall semester which starts at the end of September. Applications should reach the university by June.

Year program was founded: 2006

Contact: Ulrich Wittrock, Prof. Dr.

Email: wittrock@fh-muenster.de

Website: <http://www.lasertechnik-photonik.de/en>

Mailing address: FH Muenster Univ. of Applied Sciences, Stegerwaldstr. 39, FB 11, Steinfurt 48565 Germany

Ruhr-University Bochum **SPIE.** STUDENT CHAPTERS Bochum, Germany

The international Masters programme, Lasers and Photonics, with its highly interdisciplinary subjects in the field of optics, lasers and photonics offers a wide range of interesting topics concerning both current

research and a vast range of commercial products and applications. In addition to the fundamental courses in these fields, the programme offers hands on lab projects in modern, well equipped laser laboratories, international conference participations and projects with international collaborators.

Name of department: Photonics and Terahertz Technology and Laser Application Technology

Number of core optics/photonics students currently enrolled in a related program: 35

Number of students in optics/photonics related course work: 100

Number of optics/photonics related courses offered in this program: 2

Optics/photonics related programs/degrees offered: There is a limited amount of PhD positions available for outstanding, excellent students who would like to continue their research subsequent to the masters degree.

Type/Description of disciplines/program tracks offered: Optical engineering; Photonics courses are offered in the Master Lasers and Photonics.

Academic and research specialties related to optics/photonics:

Spintronics, Optical Coherence Tomography, Image Processing, Semiconductor Lasers, Short Pulp Generation, Micromanipulation, Microstructuring, Thin Film Structuring.

Admission deadlines: application deadline for Winter term (starting in October): 15 July each year; for Summer term (starting in April): 15 January.

Year program was founded: 2011

Contact: Dr. Martin Hofman, Professor

Email: martin.hofmann@rub.de

Website: <http://www.ei.rub.de/studium/lap/>

Mailing address: Ruhr-Universität Bochum, ID 04/329 Photonics and Terahertz Technology, Universitätsstr. 150, Bochum 44801 Germany

Technical University Berlin - Institute of Optics Berlin, Germany

Name of department: Physics

Number of core optics/photonics students currently enrolled in a related program: 15

Number of students in optics/photonics related course work: 10

Number of optics/photonics related courses offered in this program: 3

Optics/photonics related programs/degrees offered: Bachelor in Physics with specialization in Optics. Undergraduate lab with experiments on lens characterization, microscopy, spectroscopy, telescopes, digital camera, diffraction, interference, polarization, liquid crystals, laser beam propagation, microwaves, X-Rays. Lectures in German language on Applied Optics (Dr. Mahlkow) and Optical Technologies (Prof. Sandner). Master in Photonics joint program together with Universities of Applied Sciences in Berlin, Brandenburg, Wildau, coordinator Prof. Dr. S. Schrader, duration 2 years; contents at TUB: Fibre optics, Applied Laser Technology. Doctoral programs available.

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Technology; Optics; Photonics; Biomedical optics; Fiber optics

Academic and research specialties related to optics/photonics: The Institute of Optics offers a broad range of facilities in technical optics, laser technology and electron microscopy.

Admission deadlines: Deadline June for Bachelor and Master courses starting in October. No application deadline for PhD studies.

Contact: Hans Joachim Eichler, Prof. Dr., Head of Laser Group

Email: joachim.eichler@tu-berlin.de

Website: <http://www.physik.tu-berlin.de/institute/OI/>

Mailing address: Technical University Berlin, Institute of Optics, Sekr. P 1-1, Strasse des 17 Juni 135, Berlin D-10623 Germany

Technische Hochschule Köln Koeln, Germany

Our degree programmes in Optics deal with any physical, chemical and biological laws of nature and technology to make use of light. In the first three semesters our students obtain a comprehensive education in the basics of electrical engineering. Optical lessons start in the third semester covering all aspects: generation, amplification, modulation, transmission and measurement of light.

Name of department: Institute of Applied Optics and Electronics

Number of core optics/photonics students currently enrolled in a related program: 150

Number of students in optics/photonics related course work: 180

Number of optics/photonics related courses offered in this program: 19

Optics/photronics related programs/degrees offered: Bachelors and Masters programs available (Electrical Engineering, field of study: Optical Technologies).

Type/Description of disciplines/program tracks offered: Optical engineering; Electrical engineering; Optics; Photonics; Biomedical optics

Academic and research specialties related to optics/photronics: ray and wave optics, theory and methods of optical imaging, microscopy, surface inspection, interferometry, optical 3D measurement technics, holography, laser technology, light and illumination technics, microsystems engineering, microfabrication technologies, optical design, biomedical optics

Admission deadlines: July 15 every year. Courses start in September.

Year program was founded: 2003

Contact: Uwe Oberheide, Prof. Dr.

Email: uwe.oberheide@th-koeln.de

Website: <http://www.angewandte-optik.de>

Mailing address: TH Köln, Univ of Applied Sciences, Institut f. Angewandte Optik & Elektronik, Betzdorfer Str 2, Koeln 50679 Germany

Technische Universitaet Dresden

Dresden, Germany

The master's program in Organic and Molecular Electronics strives to educate young professionals in the cutting edge field of organic electronics. It offers an interdisciplinary study programme comprising physics, chemistry, electrical engineering, and materials science. The close collaboration with industry partners enables a highly practice-oriented education. Organic electronics is an innovative class of electronics with enormous market potential in four key application areas: displays, photovoltaics, lighting, and integrated smart systems. While the technology is novel it is also able to be employed in many current applications, providing reduced cost and low energy manufacturing processes. The field is evolving at a rapid pace, opening many exciting application possibilities and developments.

Name of department: Dresden Integrated Center for Applied Physics and Photonic Materials

Number of core optics/photronics students currently enrolled in a related program: 70

Number of students in optics/photronics related course work: 90

Number of optics/photronics related courses offered in this program: 3

Optics/photronics related programs/degrees offered: MS in Physics (10/year), MS in Organic Electronics (20/year). PhD in Physics (10/year).

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Optics; Photonics

Academic and research specialties related to optics/photronics: Organic light emitting diodes, organic solar cells, organic electronics, ultrafast optics.

Year program was founded: 1908

Contact: Prof. Karl Leo, Department Head

Email: info@iapp.de

Website: <http://www.iapp.de>, www.tu-dresden.de/physik/ome

Mailing address: TU Dresden, IAPP, Dresden D-01062 Germany

Universitaet Leipzig

Leipzig, Germany

Name of department: Felix Bloch Institute for Solid State Physics

Number of core optics/photronics students currently enrolled in a related program: 30

Number of students in optics/photronics related course work: 50

Number of optics/photronics related courses offered in this program: 12

Optics/photronics related programs/degrees offered: Bachelors, Masters and Doctoral programs available.

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Technology; Optics; Photonics

Academic and research specialties related to optics/photronics: Novel optoelectronic semiconductor materials and phenomena, development of devices for key areas such as internet communication, data storage, displays, illumination, environmental monitoring and life sciences. Nanotechnology and self-assembling techniques, novel gain materials, e.g. GaInAsN, group-III nitrides and ZnO-based materials, intersublevel transitions for the mid-infrared spectral range, interaction of active materials with dielectric structures, device preparation and characterization, interfacing of semiconductors and biologically active materials, advanced theoretical modeling.

Admission deadlines: find out here: <https://www.uni-leipzig.de/en/international/studying-at-leipzig-university/>.

Year program was founded: 2007

Contact: Dr. M. Grundmann, Professor

Email: grundmann@physik.uni-leipzig.de

Website: <https://research.uni-leipzig.de/hlp/>

Mailing address: Universitaet Leipzig, Felix Bloch Institute for Solid State Physics, Linnestr. 5, Leipzig 04103 Germany

Universität Stuttgart - Institut für Technische Optik Stuttgart, Germany

SPIE. STUDENT CHAPTERS

A strong optics education is offered to both graduate and undergraduate students. The five faculty members teach different optics courses in the Mechanical Engineering Department of the University of Stuttgart. In addition, students from the Physics as well as from the Electronics Department attend some of the lecture courses. Both the undergraduate and graduate programs benefit from the research activities in applied optics. The project work of graduate students as well as the postgraduate work is based on research projects mainly in the field of applied optics. Research opportunities for the Masters and PhD degrees exist in the areas of nondestructive testing, interferometry, holography, speckle techniques, microroughness measurement, optoelectronic devices, analogue and digital image processing, application of diffractive optics (CGH, HOE), surface and subsurface defect analysis, application of photorefractive materials and micro-optics.

Name of department: Institut für Technische Optik

Number of core optics/photronics students currently enrolled in a related program: 70

Number of students in optics/photronics related course work: 200

Number of optics/photronics related courses offered in this program: 10

Optics/photronics related programs/degrees offered: BSc in Mechanical Engineering (spezialization in Optics), BSc in Medical Engineering (spezialization in optics for medizin), MSc in Micro-, Precision and Photonics Engineering, MSc in Mechanical Engineering (specialization in optics), MSc in Medical Engineering (spezialization in optics for medizin), MSc in Photonic Engineering, PhD, Dr.-Ing. in Mechanical Engineering (specialization in optics).

Type/Description of disciplines/program tracks offered: Optical engineering; Optics

Year program was founded: 1960

Contact: Prof. Dr. W. Osten, Director

Email: osten@ito.uni-stuttgart.de

Website: <http://www.ito.uni-stuttgart.de>

Mailing address: Universität Stuttgart, Institut fuer Technische Optik, Pfaffenwaldring 9, Stuttgart D-70569 Germany

University Konstanz

Konstanz, Germany

Name of department: Physics

Number of core optics/photronics students currently enrolled in a related program: 50

Number of students in optics/photronics related course work: 200

Number of optics/photronics related courses offered in this program: 5

Optics/photronics related programs/degrees offered: Bachelors program in Physics. Masters program in Physics with specialization in Photonics. Doctoral program available.

Type/Description of disciplines/program tracks offered: Optical engineering, Quantum Electronics, Terahertz Technology, Laser Physics

Admission deadlines: June 15th

Year program was founded: 2005

Contact: Thomas Dekorsy, Prof. Dr.

Email: thomas.dekorsy@uni-konstanz.de

Website: <http://www.physik.uni-konstanz.de/en/>

Mailing address: Department of Physics, Box M700, Konstanz 78457 Germany

University of Oldenburg

Oldenburg, Germany

Name of department: Institute of Physics

Number of core optics/photronics students currently enrolled in a related program: 30

Number of students in optics/photronics related course work: 60

Number of optics/photronics related courses offered in this program: 15

Optics/photronics related programs/degrees offered: BEng and BSc in Physics Engineering (specialization Laser Technology), Bachelor in Physics (Optical Metrology). MSc in Physics Engineering (specialization

UNDERGRADUATE/GRADUATE PROGRAMS

Laser Technology), Master in Physics (Optical Metrology).
Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Optics; Biomedical optics
Academic and research specialties related to optics/photonics: Field of Specialization for Bachelor/Master in Physics: Photonics / Optical Metrology.
Year program was founded: 1995
Contact: Dr. Martin Sillies, Postdoctoral researcher
Email: martin.sillies@uni-oldenburg.de
Website: <http://www.uno.uni-oldenburg.de/>
Mailing address: University of Oldenburg, Institute of Physics, Ultrafast Nano-Optics, Oldenburg D-26111 Germany

HONG KONG

Hong Kong University of Science and Technology Clear Water Bay, Hong Kong

The optics program at HKUST is carried out in the ECE and the Physics departments. ECE-main emphases are on areas of optics closer to applications, example: display technologies, optoelectronics/optical communications. There are active programs in LCD, microdisplays and organic light emitting diodes research. In optoelectronics, there is an active program in blue LED and efficient LED lighting research. All these programs have close ties with the local and PRC manufacturing industry. Physics-emphases is on fundamental areas of semiconductors and materials science. There are active programs in II-VI semiconductors, UV light detectors, ultrafast laser spectroscopy and optical materials research.

Name of department: Electrical and Electronic Engineering; Physics
Number of core optics/photonics students currently enrolled in a related program: 100

Number of students in optics/photonics related course work: 100
Number of optics/photonics related courses offered in this program: 8
Optics/photonics related programs/degrees offered: BS in ECE; BS in Physics. MSc in Electronic and Computer Engineering; MSc in Physics; MPhil in Electrical and Electronic Engineering; MPhil in Physics. PhD in Electronic and Computer Engineering; PhD in Physics.

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Electrical engineering

Academic and research specialties related to optics/photonics: Display technologies, GaN LED, MEMS, photonics, thin film optics, II-VI and III-V semiconductors, ultrafast optics, laser spectroscopy, nanotechnology, solar cells, optical instrumentation.

Year program was founded: 1990
Contact: Prof. H.S. Kwok, Director of CDR
Email: eekwok@ust.hk

Website: <http://www.cdr.ust.hk>
Mailing address: HKUST, Dept. of ECE, Clear Water Bay Hong Kong

University of Hong Kong Hong Kong

Name of department: Electrical and Electronic Engineering
Number of core optics/photonics students currently enrolled in a related program: 20

Number of students in optics/photonics related course work: 40
Number of optics/photonics related courses offered in this program: 8
Optics/photonics related programs/degrees offered: Bachelor of Engineering in Electronic Engineering. Master of Philosophy in Electrical and Electronic Engineering. PhD in Electrical and Electronic Engineering.

Type/Description of disciplines/program tracks offered: Optical engineering; Electrical engineering

Year program was founded: 1911
Contact: Edmund Lam, Professor
Email: elam@eee.hku.hk
Website: <http://www.eee.hku.hk>

Mailing address: Univ. of Hong Kong, Dept of Electrical & Electronic Engineering, Rm 601 Chow Yei Ching Bldg., Pokfulam Road, Hong Kong

HUNGARY

Budapest University of Technology and Economics Budapest, Hungary

On credit system of Engineering Physics education (compulsory and facultative courses) detailed info is available on http://newton.phy.bme.hu/education/credit/index_eng.html. In the last 2 years students make 3 semesters directed individual studies including preparation of the thesis work in applied optics. Research topics for PhD degrees are in the areas of optical data storage, opto-electronics, acousto-optical devices and spectroscopy.

Name of department: Atomic Physics

Number of core optics/photonics students currently enrolled in a related program: 23

Number of students in optics/photonics related course work: 39
Number of optics/photonics related courses offered in this program: 23
Optics/photonics related programs/degrees offered: BSc in Physics, specialization in Applied Physics. MSc in Physics, specialization Applied Physics. PhD in Applied Physics

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Optics; Photonics

Academic and research specialties related to optics/photonics: • Optical data storage • Acousto-optic modulators, deflectors, Q switches, mode-lockers, filters, fsec pulse shapers • Integrated optics, guided wave devices, fiber optic systems • Optical signal processing • New optical technologies • Modelling and design of optical systems • Nonlinear optical devices • Photo-acoustic and time-resolved fluorescence spectroscopy of biological materials • Light sources • Optical measurement techniques • Optics for medical diagnostics • Laser material processing • Coherent infrared differential absorption lidar • Holography • Spectroscopic measurement techniques (NIR, VIS, fluorescence, LIBS, color) • Displays • Photovoltaics.

Year program was founded: 1991

Contact: Eموke Lorincz, Associate Professor

Email: lorincz@eik.bme.hu

Website: <http://www.fat.bme.hu/>

Mailing address: Budapest Univ. of Technology and Economics, Dept. of Atomic Physics, Budafoki ut 8, Budapest H-1111 Hungary

ICELAND

University of Iceland Reykjavík, Iceland

Name of department: Faculty of Physical Sciences

Number of students in optics/photonics related course work: 10
Number of optics/photonics related courses offered in this program: 3
Optics/photonics related programs/degrees offered: BS Physics - 3 years; BS Engineering Physics - 3 years. MS Physics - 2 years; MS Engineering Physics - 2 years. PhD Physics - 3 years; PhD Engineering Physics - 3 years.

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Electrical engineering

Admission deadlines: MS/PHD, 15 March; BS, 5 June

Contact: Ari Olafsson, Photonics Research Professor

Email: ario@hi.is

Website: https://english.hi.is/faculty_of_physical_sciences

Mailing address: Háskóli Íslands, Sæmundargata 1, Reykjavík Iceland

INDIA

Delhi Technological University Delhi, India

SPIE. STUDENT CHAPTERS **OSA** Student Chapter

Delhi Technological University formerly Delhi College of Engineering is one of the top ranking institutions offering academic program in various branches of engineering and applied science in India. There are various courses and laboratories related to Optics and Photonics in its curriculum. An advances center called TIFAC-CORE in Fiber Optics and Optical Communication is also established with a dedicated program in the area of Optics and Photonics, under Technology Vision-2020 program of Govt. of India. University offers following three dedicated academic programs: BTech (Engineering Physics) with major/minor in

Photonics, MTech (Microwave & Optical Communication Engineering) with emphasis on Fiber Optics and Optical Communication Systems and networks. MTech (Nano Science and Technology) with electives on Nano Photonics. Besides these academic program, an active research group consisting of five faculty members and over a dozen PhD students are involved in R&D in the area related to Optics and photonics.

Name of department: Applied Physics
Number of core optics/photonics students currently enrolled in a related program: 252

Number of students in optics/photonics related course work: 1600
Number of optics/photonics related courses offered in this program: 20
Optics/photonics related programs/degrees offered: Doctoral programs in the area of Fiber Optics, Optoelectronics and Optical Communication systems & network, Nanophotonics, Carbon Nanotube, Photonic Crystal Fibers, Photonic Bandgap Structures and Plasmonic devices, Molecular Spectroscopy etc.

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Optics; Photonics; Fiber optics

Academic and research specialties related to optics/photonics: Photonic crystal fibers, Photonic band gap devices, Quantum size devices, EDFA, Raman amplifiers, Electron waveguides and Multiple access techniques in optical communication, Quantum Computation and Information theory, Imaging and Optical Signal Processings, Molecular Photonics etc.

Year program was founded: 2009

Contact: Dr. R.K. Sinha, Professor & Head of Applied Physics and Chief Coordinator, TIFAC-CORE@DCE

Email: dr_rk_sinha@yahoo.com

Website: http://dtu.ac.in

Mailing address: Delhi Technological Univ., Applied Physics Dept, Bawana Rd, Delhi 110042 India

Guru Jambheshwar University of Science and Technology Hisar, India

Name of department: Physics
Number of core optics/photonics students currently enrolled in a related program: 10

Number of students in optics/photonics related course work: 50
Number of optics/photonics related courses offered in this program: 3
Optics/photonics related programs/degrees offered: Dual Degree BSc (H) - MSc (Physics), MSc (Physics). Doctoral program available.

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Electrical engineering; Optics; Photonics; Fiber optics

Academic and research specialties related to optics/photonics: Optical Design and Production, Illumination Engineering, Photonics and Fiber Optics, Light Wave Network.

Admission deadlines: Normally in July. For exact details visit University Web Site

Year program was founded: 2006

Contact: Ajay Shankar, Associate Professor

Email: ajay@gjust.org

Website: http://www.gjust.ac.in

Mailing address: Department of Physics, Optical Engineering, Guru Jambheshwar University of Science and Technology, Hisar Haryana 125001 India

Indian Institute of Science SPIE. STUDENT CHAPTERS OSA Student Chapter Bangalore, India

Name of department: Physics
Number of core optics/photonics students currently enrolled in a related program: 40

Number of students in optics/photonics related course work: 200
Number of optics/photonics related courses offered in this program: 22
Optics/photonics related programs/degrees offered: BS in Physics, Material Science. MSc (Engg) in Instrumentation, Physics, SERC, CENSE and ECE Department. Doctoral programs in Instrumentation, Physics, SERC, CENSE and ECE Department.

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Electrical engineering; Optics; Photonics; Biomedical optics; Fiber optics

Contact: Assistant Registrar

Email: ar@academic.admin.iisc.ernet.in

Website: http://www.iisc.ac.in

Mailing address: Assistant Registrar, Admissions Unit, Indian Institute of Science, Bangalore 560012 India

Indian Institute of Technology SPIE. STUDENT CHAPTERS OSA Student Chapter Delhi

New Delhi, India

Name of department: Physics
Number of core optics/photonics students currently enrolled in a related program: 150

Number of students in optics/photonics related course work: 400
Number of optics/photonics related courses offered in this program: 50
Optics/photonics related programs/degrees offered: Bachelor of Technology in Engineering Physics (60). Master of Science in Physics (55); Master of Technology in Applied Optics (30); Master of Technology in Optoelectronics & Optical Communication (15); Master of Technology in Solid State Materials (30). Doctor of Philosophy (Title of the thesis is mentioned in the Degree) (50).

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Optics; Photonics; Biomedical optics; Fiber optics

Admission deadlines: March 6, 2020

Contact: Anurag Sharma, Professor & Head of the Department

Email: hodphysics@admin.iitd.ac.in

Website: http://physics.iitd.ac.in

Mailing address: Physics Department, Indian Institute of Technology Delhi, New Delhi Delhi 110016 India

Indian Institute of Technology Kanpur OSA Student Chapter Kanpur, India

Focus research areas (a) Optical Electronics & Communication; (b) Biology/Medicine; (c) Optical Imaging/Instrumentation; (d) Manufacturing & Materials; (e) Laser Development.

Name of department: Photonics Science and Engineering
Number of core optics/photonics students currently enrolled in a related program: 20

Number of students in optics/photonics related course work: 20
Number of optics/photonics related courses offered in this program: 10
Optics/photonics related programs/degrees offered: Master of Technology in Laser Technology.

Type/Description of disciplines/program tracks offered: Optical engineering

Year program was founded: 1983

Contact: Prof. Asima Pradhan, Head of Center for Lasers and Photonics

Email: asima@iitk.ac.in

Website: http://www.iitk.ac.in/celt

Mailing address: Center for Lasers and Photonics, Indian Institute of Technology Kanpur, Kanpur 208016 India

Indian Institute of Technology SPIE. STUDENT CHAPTERS OSA Student Chapter Madras

Chennai, India

Name of department: Physics
Number of core optics/photonics students currently enrolled in a related program: 20

Number of students in optics/photonics related course work: 20
Number of optics/photonics related courses offered in this program: 6
Optics/photonics related programs/degrees offered: Masters and Doctoral programs in physics.

Type/Description of disciplines/program tracks offered: Physics; Optical engineering

Admission deadlines: Announced on Website during January-March of the year

Contact: M. P. .Kothiyal, Professor

Email: kothiyal@iitm.ac.in

Website: http://www.iitm.ac.in

Mailing address: Physics Department, Indian Institute of Technology, Madras, Chennai Tamilnadu 600 036 India

Indian Institute of Technology SPIE. STUDENT CHAPTERS OSA Student Chapter Roorkee

Roorkee, India

Name of department: Physics
Optics/photonics related programs/degrees offered: PhD Photonics
Type/Description of disciplines/program tracks offered: Optical engineering

Contact: Vipul Rastogi, Associate Professor

Email: vipul.rastogi@osamember.org

Website: http://www.iitr.ac.in/departments/PH/pages/index.html

UNDERGRADUATE/GRADUATE PROGRAMS

Mailing address: Department of Physics, Roorkee Uttarakhand 247667
India

Manipal Academy of Higher Education Manipal, India

SPIE. STUDENT CHAPTERS

MSC PHOTONICS OVERVIEW 2 years divided into 4 semesters. Indian nationals can apply under the General Category. Foreign nationals or Non Resident Indians or Indian nationals supported by NRI relatives can apply under the Foreign/NRI Category. Candidate should have Bachelor's Degree with a minimum of 55% marks in any of the following areas at the time of admission • BSc in Physics/Electronics/ Applied Physics/Photonics • B.Tech. in Electronics/Electrical/Material Science/Applied Physics. **MSC NANOSCIENCE AND TECHNOLOGY OVERVIEW** Nanoscience and Technology is an interdisciplinary field with tremendous impact on our day to day life. It finds applications in medical sciences, biotechnology, pharmaceuticals, imaging technology, metallurgy and material science etc. Career in this emerging field has numerous promising opportunities in Industries, Academia, Research and Development organisations. 2 years divided into 4 semesters. Indian nationals can apply under the General Category. Foreign nationals or Non Resident Indians or Indian nationals supported by NRI relatives can apply under the Foreign/NRI Category. Candidate should have Bachelor's Degree with a minimum of 55% marks in any of the following areas at the time of admission • B. Sc. in Physics/Chemistry/ B. Tech. in Chemical Engineering/ Biomedical Engineering, Material Science/ Applied Physics. **MSC BIOPHYSICS OVERVIEW** 2 years divided into 4 semesters. Indian nationals can apply under the General Category. Foreign nationals or Non Resident Indians or Indian nationals supported by NRI relatives can apply under the Foreign/NRI Category. Candidate should have Bachelor Degree with a minimum of 55% marks in any of the following areas at the time of admission • BSc Physics /Bio-informatics/ Biology (10+2 with mathematics) / Chemistry / Biotechnology / Biochemistry / B. Tech. Bioinformatics / Biotechnology / Industrial Biotechnology. **PHD COURSE. CERTIFICATE COURSES OVERVIEW** The Department of Atomic and Molecular Physics offers certificate courses in Laser Application in Biology and Medicine. Practical and demonstration experiments involved in this program are laser safety drill, HPLC -LIF and LIF prototype, Raman Spectroscopy and optical tweezers, laser induced breakdown spectroscopy, femtosecond laser applications, interference and diffraction experiments, UV-VIS absorption measurements, surface plasmon resonance and FTIR spectrometry. The duration of the course is three months and consists of theory and practical sessions. **CERTIFICATE COURSE IN NANO SCIENCE & TECHNOLOGY** The Department of Atomic and Molecular Physics offers a certificate course in Nanoscience and Technology. The course features include the basic understanding of nanoscience and technology, preparation and characterization of nanoparticles and their applications in: energy, medicine, pharmaceuticals science, biological sciences and biotechnology. Practical and demonstration experiments involved in this program are laser safety drill, HPLC -LIF and LIF prototype, Raman Spectroscopy and optical tweezers, laser induced breakdown spectroscopy, femtosecond laser applications, interference and diffraction experiments, UV-VIS absorption measurements, surface plasmon resonance and FTIR spectrometry. The duration of the course is three months and consists of theory and practical sessions. Candidates with Bachelor degree in any of the following disciplines: Science/Medicine/Engineering/ Nursing/Pharmacy/ Allied Health (Students in the final year of their course are also eligible).

Name of department: Department of Atomic and Molecular Physics

Number of core optics/photronics students currently enrolled in a related program: 30

Number of students in optics/photronics related course work: 20

Number of optics/photronics related courses offered in this program: 4

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Optics; Photonics; Biomedical optics; Fiber optics

Admission deadlines: July 5.

Year program was founded: 2009

Contact: Ajeetkumar Patil, Associate Professor & Faculty Adviser, SPIE Manipal Univ. Chapter

Email: ajeetkumar.p@manipal.edu

Website: <https://manipal.edu/damp.html>

Mailing address: Department of Atomic and Molecular Physics, Lg-01. Ab-5, MIT, Manipal Academy of Higher Education, Manipal Karnataka 576104 India

Techno India

Kolkata, India

SPIE. STUDENT CHAPTERS

Name of department: Electronics and Instrumentation Engineering

Number of students in optics/photronics related course work: 70

Number of optics/photronics related courses offered in this program: 2

Optics/photronics related programs/degrees offered: Bachelors program available.

Type/Description of disciplines/program tracks offered: Optical engineering; Electrical engineering

Year program was founded: 2005

Contact: Saikat Majumder, Assistant Professor

Email: msaikat2004@gmail.com

Website: <https://www.ticollege.ac.in/index.php?id=19>

Mailing address: EM 4/1 Sector V, Salt Lake, Kolkata West Bengal 700091 India

University of Calcutta

SPIE. STUDENT CHAPTERS **OSA** Student Chapter

Kolkata, India

The Department of Applied Optics and Photonics of Calcutta University conducts • 4-year (8 Semester) B.Tech. course in Optics and Optoelectronics after Higher Secondary (Class 12) through the State Joint Entrance Examination • BS Physics or Electronics major students can have lateral entry in the 3rd Semester of the above course • 2-year (4 semester) M.Tech. course in Optics and Optoelectronics for students with B.Tech. in Electronics/ communications/ instrumentation/ Optics & Optoelectronics and MSc in Physics • 2-year M.Tech-PhD programme in Astronomical Instrumentation in collaboration with Indian Institute of Astrophysics, Bangalore. Candidates are selected through a national level entrance test. Covers all aspects of Astronomical Instrumentation including optical design • 2-year M.Tech. course in Biomedical Instrumentation. Brief description of the courses: Most areas of optical technology including Optical System Design, Fibre Optics and optical waveguides, Lasers, Nonlinear Optics, Adaptive Optics are taught in the B.Tech courses. The final semester is completely devoted to project work. Advanced optics topics are taught in the 2-Year M.Tech. course in Optics and Optoelectronics. The final year is completely devoted to project work. The M.Tech. course in Biomedical Instrumentation covers most aspects of the subject and lays some emphasis on optical principles involved in Biomedical Imaging and laser instrumentation. The M.Tech. course in Astronomical Instrumentation covers most aspects of Astronomical Instrumentation including optical design, Image Science, coherence theory etc.. During the third semester, students of this course undergo internship at the different facilities and observatories of IIA, Bangalore. After the 4th semester project work, students are mostly absorbed as PhD students. The Department also has a number of research scholars pursuing PhD(Tech.) offered by Calcutta University.

Name of department: Applied Optics and Photonics

Number of core optics/photronics students currently enrolled in a related program: 80

Number of students in optics/photronics related course work: 80

Number of optics/photronics related courses offered in this program: 30

Optics/photronics related programs/degrees offered: Certification: Advanced Diploma in Biomedical Instrumentation. B.Tech in Optics and Optoelectronics. MTech in Optics and Optoelectronics, MTech in Astronomical Instrumentation, MTech in Biomedical Instrumentation. Doctoral programs in Optical System Design, Applied Interferometry, Optical image processing, Laser Beam Shaping, Diffractive Optics, Optical Metrology, Polarization and Birefringence measurements, optical waveguides.

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Electrical engineering; Optics; Photonics Integrated optics, Optical networks, sensors and actuator; Biomedical optics; Fiber optic; Astronomical optics

Academic and research specialties related to optics/photronics: lens design; optical image processing; laser beam shaping; polarization optics, polarization phase shifting interferometry; diffractive optical elements, astronomical optics.

Admission deadlines: Please visit the University website (<https://www.caluniv.ac.in>) for admission announcements.

Year program was founded: 1979

Contact: Dr. Kallol Bhattacharya, Head of Applied Optics & Photonics Dept.

Email: kbaop@caluniv.ac.in

Website: http://www.caluniv.ac.in/academic/department/App_optics_photonics.html

Mailing address: University of Calcutta, Applied Optics & Photonics Dept., Technology Campus, JD-2, Sector III Kolkata, 700 106 India

University of Engineering & Management Kolkata, India

SPIE. STUDENT CHAPTERS OSA Student Chapter

B.Tech and M.Tech in Electronics Computer Science & Engineering, Electronics & Communication Engineering, Mechanical Engineering, Civil Engineering, Electrical Engineering, Electrical & Electronics Engineering, Electronics & Instrumentation Engineering, Bio Technology, Ph.D in Engineering

Name of department: Research and Development Council

Number of core optics/photonics students currently enrolled in a related program: 200

Number of students in optics/photonics related course work: 2500

Number of optics/photonics related courses offered in this program: 10

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Electrical engineering; Optics; Photonics; Biomedical optics; Fiber optics

Year program was founded: 2015

Contact: Indrani Bhattacharya

Email: indrani.bhattacharya@iemcal.com

Website: <http://www.uem.edu.in/>

Mailing address: University Area, Plot No.III - B/5, Main Arterial Road, New Town, Action Area - III, Kolkata 700160 India

IRAN

University of Tehran Tehran, Iran

We offer MSc and PhD programs in Optics, lasers physics, light-matter interaction, Plasma physics, and Photonic materials.

Name of department: Dept. of Physics

Number of core optics/photonics students currently enrolled in a related program: 25

Number of students in optics/photonics related course work: 25

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Optics

Academic and research specialties related to optics/photonics: Moire technique, Speckle interferometry, Fresnel diffraction.

Admission deadlines: June 1

Year program was founded: 1990

Contact: Khosrow Hassani, Education Administrator

Email: hassanikh@ut.ac.ir

Website: <http://physics.ut.ac.ir>

Mailing address: Kargar Shomally Ave., in front of 19th Street, Tehran 1439955961 Iran

IRELAND

National University of Ireland, Galway

SPIE. STUDENT CHAPTERS OSA Student Chapter

Galway, Ireland

Name of department: School of Physics

Number of core optics/photonics students currently enrolled in a related program: 20

Number of students in optics/photonics related course work: 750

Number of optics/photonics related courses offered in this program: 5

Optics/photonics related programs/degrees offered: Bachelor of Science (Physics - degree options in Applied, Astrophysics, Biomedical, Theoretical) MS in Astronomical Instrumentation and Technology (includes Telescopes and optical instruments); MS in Key Enabling Technologies (including Photonics); MS in Medical Physics; MS in Physics by research (includes Lasers & Optics research activities). PhD in Physics (includes Lasers & Optics and Biophotonics research activities)

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Optics; Photonics; Biomedical optics

Academic and research specialties related to optics/photonics: Adaptive optics, smart optics, atmospheric characterization, scattering and propagation, optical engineering, high-power laser applications, optical spectroscopy, astronomical imaging and instrumentation. Biophotonics, Imaging, Optical Coherence Tomography, Photoacoustics, Image Processing.

Admission deadlines: No formal deadline.

Year program was founded: 1934

Contact: Prof. Martin J. Leahy, Professor of Applied Physics

Email: martin.leahy@nuigalway.ie

Website: <http://www.nuigalway.ie/physics/>

Mailing address: School of Physics, National University of Ireland, Galway, University Rd., Galway H91 CF50 Ireland

National University of Ireland/ University College Cork

SPIE. STUDENT CHAPTERS OSA Student Chapter

Cork, Ireland

Major international research efforts in photonics in the Departments of Physics, EE, Chemistry and the inter-disciplinary Tyndall Institute. See faculty research interests for details or consult these useful websites: www.ucc.ie, www.physics.ucc.ie, www.tyndall.ie.

Name of department: Physics/Electrical Engineering/Microelectronics/Tyndall Institute

Number of core optics/photonics students currently enrolled in a related program: 100

Number of students in optics/photonics related course work: 100

Number of optics/photonics related courses offered in this program: 10

Optics/photonics related programs/degrees offered: BSc Physics; BSc Physics/Mathematics; BSc Physics/Applied Mathematics; BSc Physics/Mathematical Science; BSc Astrophysics; BSc Chemical Physics; BE Electrical Engineering BE Microelectronics. MSc Physics; MSc Applied Physics; MSc Photonics; MEngSc Electrical Engineering; MEngSc Microelectronics PhD in Physics, Electrical Engineering or Microelectronics

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Electrical engineering

Admission deadlines: MSc and Postgraduate Higher Diploma applications by 15 Aug each year. PhD applications accepted continuously.

Year program was founded: 1993

Contact: Professor John G. McInerney, Head, Department of Physics

Email: mcinerney@ucc.ie

Website: <http://www.ucc.ie>, <http://www.tyndall.ie>

Mailing address: National Univ. of Ireland/Cork, Dept. of Physics, University College, Cork Ireland

University College Dublin Dublin, Ireland

SPIE. STUDENT CHAPTERS OSA Student Chapter

Name of department: School of Physics

Number of core optics/photonics students currently enrolled in a related program: 10

Number of students in optics/photonics related course work: 70

Number of optics/photonics related courses offered in this program: 9

Optics/photonics related programs/degrees offered: BSc in Experimental Physics; BSc in Theoretical Physics; BSc in Physics with Astronomy and Space Science. MSc in Physics; MSc in NanoBio Science; MSc in NanoTechnology; MSc in Physics by Negotiated Learning.

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; NanoBio Science

Admission deadlines: For MSc programmes deadline of application is September 1st.

Year program was founded: 2008

Contact: Dr. Brian Vohnsen

Email: brian.vohnsen@ucd.ie

Website: <http://www.ucd.ie/physics/>

Mailing address: School of Physics, University College Dublin, Belfield Campus, Dublin 4 Ireland

ISRAEL

Ben Gurion University of the Negev Beer-Sheva, Israel

SPIE. STUDENT CHAPTERS OSA Student Chapter

The Electrooptical Engineering (EOE) unit at BGU was established in the year 2000 to strengthen the research and education in electrooptics and photonics engineering at BGU. The unit offers graduate studies (M.Sc and PhD) in variety of fields in electrooptics and photonics such as image processing, biomedical optics, liquid crystal devices, optical imaging, atmospheric optics, optical computing, nanophotonics, remote sensing, photovoltaics, optical communications, atom optics and lasers. Presently we have around 100 M.Sc student and 20 PhD students. During

UNDERGRADUATE/GRADUATE PROGRAMS

the last 10 years over 300 M.Sc students and 30 PhD students graduated from the EOE unit. Over 50 publications are issued each year from the EOE department staff and students. For the M.Sc program the student can choose between a thesis or final project tracks. In the thesis track he has to study 8 courses and to perform an extended research and write a thesis. In the non-thesis or final project track the student has to study 10 courses and perform a mini project and write a report. Every student has to give a final seminar. The EOE academic staff composed of 4 core staff and over 20 staff members from other departments within the faculty of engineering sciences as well as from the Physics and Chemistry departments who participate both in the teaching and supervision of students. The image processing activity even involves researchers from other departments such as the geography and the department of industrial engineering. Wide selection of courses are offered: Introduction to optical engineering, imaging systems I&2, mathematical principles in electrooptics, image processing, radiation and matter, statistical optics, holography and diffractive optics, integrated optics in communications, wireless optical communication, principles of fiber optic communication, optical properties of biomaterials, optical metrology, industrial entrepreneurship in electrooptics, biomedical optical instrumentation, eye and vision optics, lasers, nonlinear optics, processing of biomedical images, selected topics in electromagnetism for electrooptics engineering, pattern recognition, solar cells, semiconductor and photonic devices, quantum optics, electrooptics lab, optics and photonics lab, and optical telecommunication lab.

Name of department: Electro-Optical Engineering

Number of core optics/photonics students currently enrolled in a related program: 90

Number of optics/photonics related courses offered in this program: 25

Optics/photonics related programs/degrees offered: MSc in Electrooptical Engineering. PhD in Electrooptical Engineering.

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Electrical engineering; Optics; Photonics; Biomedical optics; Fiber optics

Academic and research specialties related to optics/photonics: imaging systems and image processing, optical communication, lasers and quantum optics, optical computing, biomedical optics, liquid crystals, optoelectronic sensors and VLSI smart cameras.

Year program was founded: 1999

Contact: Prof. Adrian Stern, Head of the Electro-Optical Engineering Department

Email: stern@bgu.ac.il

Website: <https://in.bgu.ac.il/en/engn/electrop/Pages/default.aspx>

Mailing address: Ben Gurion Univ.of the Negev, PO Box 653, Beer-Sheva 84105 Israel

Jerusalem College of Technology

Jerusalem, Israel

A rigorous bachelor level program in classical and modern physics in addition to an engineering program in electro-optics. Graduates of the program are registered as optical engineers in Israel's Engineers Registry.

Name of department: Applied Physics/Electro-Optics

Number of core optics/photonics students currently enrolled in a related program: 184

Number of students in optics/photonics related course work: 209

Number of optics/photonics related courses offered in this program: 15

Optics/photonics related programs/degrees offered: BS in Physics-Electro-Optical Engineering.

Type/Description of disciplines/program tracks offered: Optical engineering

Academic and research specialties related to optics/photonics: Medical Optics, Micro-Optics, Communications, Image Processing, Photonic Crystals, Industrial Measurements.

Year program was founded: 1980

Contact: Yoel Arieli, Department Head

Email: chanak@mail.jct.ac.il

Website: <http://www.jct.ac.il>

Mailing address: Jerusalem College of Technology, 21 Havaad Haleumi St., POB 16031, Jerusalem 91160 Israel

Tel Aviv University

Tel Aviv, Israel

Name of department: School of Electrical Engineering

Number of core optics/photonics students currently enrolled in a related program: 60

Number of students in optics/photonics related course work: 60

Number of optics/photonics related courses offered in this program: 10

Optics/photonics related programs/degrees offered: BSEE with specialization in electro-optics. MS with research in optics-related topics. PhD with research in optics-related topics.

Type/Description of disciplines/program tracks offered: Optical engineering; Electrical engineering

Academic and research specialties related to optics/photonics: lasers, nonlinear optics, integrated optics, optical communications, optical signal processing, microwave photonics.

Year program was founded: 1973

Contact: Dr. Ady Arie, Professor

Email: ady@eng.tau.ac.il

Website: <http://www.tau.ac.il>

Mailing address: Tel Aviv University, School of Electrical Engineering, Tel Aviv 69978 Israel

Weizmann Institute of Science

Rehovot, Israel

Name of department: Physics of Complex Systems and Chemical Physics

Number of core optics/photonics students currently enrolled in a related program: 55

Number of optics/photonics related courses offered in this program: 8

Optics/photonics related programs/degrees offered: Masters and Doctoral programs available.

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Optics; Photonics; Biomedical optics

Academic and research specialties related to optics/photonics: Lasers, holography, microscopy, diffractive optics, photonic devices and nano-optics, nonlinear optics, quantum optics, ultra-fast optics, atomic and molecular optics, laser cooling.

Year program was founded: 1970

Contact: Dr. Ofer Firstenberg, Senior Scientist

Email: ofer.firstenberg@weizmann.ac.il

Website: <http://www.weizmann.ac.il/physics/AMOS/>

Mailing address: Weizmann Institute of Science, Physics of Complex Systems Dept., Rehovot 76100 Israel

ITALY

University of Pavia

Pavia, Italy

In Photonics we count 2 Emeritus Professors, 3 Full Professors, 6 Associate Professors and 6 Assistant Professors (called "Ricercatori") plus 3 technicians. In the DIII Department there are additional 3 Emeritus, 12 Full, 14 Associate and 8 Assistant Professors.

Name of department: Dipartimento di Ingegneria Industriale e dell'Informazione

Number of core optics/photonics students currently enrolled in a related program: 18

Number of students in optics/photonics related course work: 140

Number of optics/photonics related courses offered in this program: 9

Optics/photonics related programs/degrees offered: general Bachelor in Electrical Engineering. Master (2-years) in Photonics. PhD (3-years) in Electronic Engineering track Photonics.

Type/Description of disciplines/program tracks offered: Optical engineering; Electrical engineering; Optics

Academic research specifically related to optics/photonics: photonic instrumentation, optoelectronic devices, fiberoptic communications, ultrafast lasers, nonlinear optics.

Year program was founded: 1992

Additional comments: <http://www-3.unipv.it/optoele/> and <http://iii.unipv.it/index.php>

Contact: Prof. S. Donati

Email: donati@unipv.it

Website: <http://iii.unipv.it/index.php>

Mailing address: v Ferrata 1, DIII, Univ Pavia, Pavia Lombardy 27100 Italy

JAPAN

Hamamatsu University

Hamamatsu, Japan

Name of department: Department of Administration and Informatics

SPIE. STUDENT CHAPTERS OSA Student Chapter

Number of students in optics/photonics related course work: 10
Number of optics/photonics related courses offered in this program: 0
Optics/photonics related programs/degrees offered: BS in Image Science and Simulation. MS in Image Science and Simulation.

Type/Description of disciplines/program tracks offered: Optical engineering

Academic and research specialties related to optics/photonics: Image Science, Simulation.

Year program was founded: 1996

Contact: Prof. Katsuyuki Kojima, PhD, Image Science, Simulation

Email: kkojima@khaki.plala.or.jp

Website: <http://www.hamamatsu-u.ac.jp/>

Mailing address: Dept of Administration and Informatics, Hamamatsu University, 1230, Miyakodacho, Kita-ku, Hamamatsu Shizuoka 431-2102 Japan

Kansai University

Suita, Osaka, Japan

Name of department: Mechanical Engineering

Number of core optics/photonics students currently enrolled in a related program: 16

Number of students in optics/photonics related course work: 16

Optics/photonics related programs/degrees offered: Bachelors, Masters and Doctoral programs in Engineering.

Type/Description of disciplines/program tracks offered: Optical engineering

Academic and research specialties related to optics/photonics: Optical MEMS.

Contact: Yasuhiko Arai, Professors

Email: arai@kansai-u.ac.jp

Website: <http://www.kansai-u.ac.jp>

Mailing address: Kansai Univ., Dept. of Mechanical Engineering, 3-3-35, Yamata-cho, Suita, Osaka 564-8680 Japan

Osaka University

Suita, Japan

With a faculty of 27 professors, the Photonics Center, School of Engineering, Osaka University is the largest center in Japan for research and teaching in photonics sciences and engineering. Functioning with its own buildings, the Center houses numerous laboratories and equipment used for teaching and research endeavors in a very broad range of photonics and interdisciplinary programs. We call the whole Center system; personnel, equipment and intellectual properties as "Photonics Cannery" and it enables researchers, students and partner companies to fabricate prototype photonics products. Osaka University's Photonics Center is engaged in the following projects: 1) JSPS Core To Core Program in Advanced Nanophotonics in the Emerging Fields of Nano-imaging, Spectroscopy, Nonlinear Optics, Plasmonics/Metamaterials and Devices. 2) Osaka University-AIST OIL.

Name of department: Photonics Center

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Optics; Photonics; Nanophotonic; Plasmonic; Metamateria; Metasurface; Nanospectroscopy; Biophotonic; Optical Microscopy; Nonlinear photonic; Biomedical optics; Fiber optics. International Collaboration: Functional Photonics, International Promotion Program with MASCI, FSR Mohammed V University, Morocco. JSPS Core to Core Program: Advanced Nanophotonics in the Emerging Fields of Nano-imaging, Spectroscopy, Nonlinear Optics, Plasmonics/Metamaterials and Devices. Core to Core Program with China, Taiwan, Singapore and other 7 countries. Description of Program: With a faculty of 27 professors, the Photonics Center, School of En

Contact: Junichi TAKAHARA, Professor

Email: takahara@ap.eng.osaka-u.ac.jp

Website: <http://www.parc.osaka-u.ac.jp/en/>

Mailing address: Photonics Center, Osaka University, P3, 2-1 Yamadaoka, Suita Osaka 565-0871 Japan

Utsunomiya University

Utsunomiya, Japan

Utsunomiya University's Department of Optical Engineering was founded in 2008 to gather together optics researchers in one place, and to provide education in optics for students entering the many optics-related industries in Japan. The program has attracted students from all over the world, including Mexico, Malaysia, and India, and holds cooperative agreements with over 10 other universities worldwide. The department also enjoys close relationships with the local optics industry.

The Department of Optical Engineering currently offers the following degree programs: Bachelor of Science in Optical Engineering (beginning in 2017); Master of Science in Optical Engineering; PhD in Advanced Interdisciplinary Sciences with a focus on Optical Sciences.

Name of department: Department of Optical Engineering

Number of core optics/photonics students currently enrolled in a related program: 68

Number of students in optics/photonics related course work: 68

Number of optics/photonics related courses offered in this program: 30

Optics/photonics related programs/degrees offered: MS Optical Engineering. PhD Advanced Interdisciplinary Sciences.

Type/Description of disciplines/program tracks offered: Optical engineering; Optics; Photonics; Biomedical optics

Academic and research specialties related to optics/photonics: Optical systems design; biomedical imaging; polarization sensing; infrared sensing; lasers; photonic devices; optical data storage; optical communications.

Year program was founded: 2008

Contact: Nathan Hagen, Assistant Professor

Email: nh@hagenlab.org

Website: http://www.eng.utsunomiya-u.ac.jp/intro_opt.html

Mailing address: 7-1-2 Yoto, Department of Optical Engineering, Utsunomiya Tochigi 321-8585 Japan

Yamagata University

Yonezawa, Japan

Name of department: Electrical engineering

Number of core optics/photonics students currently enrolled in a related program: 5

Number of students in optics/photonics related course work: 5

Optics/photonics related programs/degrees offered: Doctoral programs available.

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Electrical engineering; Optics; Photonics; Biomedical optics; Fiber optics

Contact: Manabu Sato, Professor

Email: msato@yz.yamagata-u.ac.jp

Website: <http://msatolab.yz.yamagata-u.ac.jp/index.html>

Mailing address: Johnan 4-3-16, Yonezawa Yamagata 992-8510 Japan

KUWAIT

Kuwait Institute for Scientific Research

Safat, Kuwait

Interdisciplinary program of applied optics in engineering

Name of department: Materials Science and Photo-Electronics Lab.

Number of core optics/photonics students currently enrolled in a related program: 6

Number of students in optics/photonics related course work: 6

Number of optics/photonics related courses offered in this program: 2

Optics/photonics related programs/degrees offered: Certification, Associate, Bachelors program available. MS Chemical Engineering (optics are applied in research)

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Electrical engineering; Optics; Photonics; Fiber optics

Academic and research specialties related to optics/photonics:

Fundamentals and Applications of Optical Interferometry as NDT Techniques for Materials Evaluation in Different Severe Environments (complex media).

Year program was founded: 1988

Contact: Dr. K. Habib, PhD, Fellow of SPIE & Senior member of OSA, Senior Research Scientist

Email: khalehabib@usa.net or public_relations@safat.kisr.edu.kw

Website: <http://www.kisr.edu.kw> or E-mail:

Mailing address: Materials Science and Photo-Electronics Lab., RE Program, EBR Center, KISR, PO Box 24885, Safat 13109 Kuwait

LATVIA

University of Latvia

Riga, Latvia

Name of department: Physics, Faculty of Physics and Mathematics

SPIE. STUDENT CHAPTERS OSA Student Chapter

UNDERGRADUATE/GRADUATE PROGRAMS

Number of optics/photonics related courses offered in this program: 10

Optics/photonics related programs/degrees offered: Bachelors, Masters and Doctoral programs in Physics.

Type/Description of disciplines/program tracks offered: Physics; Optical engineering

Academic and research specialties related to optics/photonics: Optics, laser physics and spectroscopy, biomedical optics.

Year program was founded: 1964

Contact: Prof. Marcis Auzinsh, Dean

Email: mauzins@latnet.lv

Website: <https://www.lu.lv/>

Mailing address: Univ. of Latvia, Dept. of Physics, Faculty of Physics & Mathematics, Raina Blvd. 19, Riga LV-1586 Latvia

MALAYSIA

Multimedia University Cyberjaya, Malaysia

SPIE. STUDENT CHAPTERS

Name of department: Faculty of Engineering

Optics/photonics related programs/degrees offered: BEng (Hons) Electronics majoring in optical engineering. Master of Engineering in Photonics.

Type/Description of disciplines/program tracks offered: Optical engineering; Electrical engineering

Contact: Prof. Hin Yong Wong,

Email: enginfo@mmu.edu.my

Website: <http://www.mmu.edu.my/>

Mailing address: Multimedia Univ, Faculty of Engineering, Rm b-BR2038 1st Floor Block B, FOE, Cyberjaya Selangor Darul Ehsan 63100 Malaysia

Universiti Teknologi Malaysia Johor Bahru, Malaysia

The Laser Center offers students the opportunity to develop their research and communication skills, and to engage with exciting projects in photonics. The institute immerses its students in an environment that fosters collaboration, team working, and the unique opportunity to work with photonic staff on prototype development of products through its partnership with other divisions in University Technology Malaysia(UTM) and with UTM's global linkages. Our mission is to disseminate of products, skills and knowledge in photonic science to meet the present and future needs of the nation and its manpower and to support the nation's aspiration of becoming a developed country through the field of photonic science.

Name of department: Laser Center, Ibnu Sina Institute for Scientific and Industrial Research (ISI-SIR)

Number of core optics/photonics students currently enrolled in a related program: 50

Number of students in optics/photonics related course work: 200

Number of optics/photonics related courses offered in this program: 8

Optics/photonics related programs/degrees offered: BSc (Hons) (Physics), BSc (Hons) (Industrial Physics), BEng (Elect.Eng). All are 4-yr courses. MSc (Physics) by research, MSc (Mixed Mode Physics) program 1.5 yrs, MEng (Telecommunications) by research, MEng (Mixed mode ElectEng) program. PhD (Physics), PhD (Photonics), PhD (Telecommunications).

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Electrical engineering; Optics; Photonics; Biomedical optics; Fiber optics

Academic and research specialties related to optics/photonics: Nonlinear Photonics, Nanowaveguides, Optical Solitons, Linear and Non-Linear Optical Communications, Quantum Information, Optical Cavitation Studies, Laser Interferometry, Computational Optics, Laser optics & Applications, Laser engineering, Fibre optic sensors, Fibre Bragg Grating devices, Photonics components, Optical and Terahertz Imaging, Optical and IR sensors, Photometric studies, Optoelectronic devices.

Year program was founded: 1990

Contact: Professor Dr. Jaiil Ali, Head of Nanophotonics Research Group

Email: jaililali@utm.my

Website: <http://www.utm.my>

Mailing address: Physics Dept., Science Faculty, UTM, Nanophotonics Research Group, Nanotechnology Research Alliance, 81310 Johor Bahru Malaysia

MEXICO

Benemerita Universidad Autonoma de Puebla Puebla, Mexico

SPIE. STUDENT CHAPTERS **OSA** Student Chapter

Name of department: Faculty of Physics and Mathematics/Optoelectronics

Number of core optics/photonics students currently enrolled in a related program: 2

Optics/photonics related programs/degrees offered: Masters and Doctoral programs in Optics & Optoelectronics.

Type/Description of disciplines/program tracks offered: Optical engineering

Contact: Andrey S. Ostrovsky, Dr.Sc/Professor

Email: andreyo@fcm.buap.mx

Website: <http://www.fcm.buap.mx>

Mailing address: Facultad de Ciencias F, Avenida San Claudio y R, Puebla Puebla 72570 Mexico

Centro de Investigacion Cientifica y de Educacion Superior de Ensenada Ensenada, Mexico

SPIE. STUDENT CHAPTERS **OSA** Student Chapter

Name of department: Dept de Óptica, División de Fisica Aplicada

Number of core optics/photonics students currently enrolled in a related program: 40

Number of optics/photonics related courses offered in this program: 20
Optics/photonics related programs/degrees offered: Master of Science in Optics. Doctor of Science in Optics

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Optic; Photonic; Biomedical Optic; Fiber Optics

Academic and research specialties related to optics/photonics: Ultrafast lasers, nonlinear optics, integrated optics, fiber optics, light scattering, quantum optics.

Year program was founded: 1977

Contact: Dr. Roger Cudney, Researcher

Email: rcudney@cicese.mx

Website: <http://www.cicese.mx>

Mailing address: Carretera Ensenada, Tijuana No 3918 Zona Playitas, Ensenada 22860 Mexico

Centro de Investigacion e Innovacion Tecnologica del IPN Mexico City, Mexico

SPIE. STUDENT CHAPTERS

Name of department: Instituto Politecnico Nacional

Number of core optics/photonics students currently enrolled in a related program: 60

Number of students in optics/photonics related course work: 100

Number of optics/photonics related courses offered in this program: 12
Optics/photonics related programs/degrees offered: Master in Advanced Technology - Fiber Optics. PhD in Advanced Technology - Fiber Optics

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Electrical engineering; Optics; Photonics; Biomedical optics; Fiber optics

Accreditation Program: PNPC

Accreditation Organization: CONACYT

Admission deadlines: Applications open throughout the year. Entrance twice a year

Contact: Dr. Jose Alfredo Alvarez-Chavez

Email: jalvarezch@ipn.mx

Website: <http://www.ciitec.ipn.mx/>

Mailing address: Cerrada Cecati S/N. Col. Santa Catarina Azcapotzalco, Mexico City 22510 Mexico

Centro de Investigaciones en Optica, A.C. Leon, Mexico

SPIE. STUDENT CHAPTERS **OSA** Student Chapter

The Master of Science (Optics) has the objective of generating human resources that possess, as a result of their studies, ample theoretical and practical knowledge in the field of Optics, as well as basic methodological abilities in popularization, technological innovation and research. The program consists of 6 terms completed in 24 months, with 9 core curriculum courses, 3 electives, and 3 thesis elaboration courses. Additionally, a thesis must be written to obtain the degree. The

Master of Optomchatronics objective is to generate human resources at a master's level with theoretical and practical knowledge, capable of developing opto-mechanic, opto-electronic, opto-computer and/or opto-mechatronic systems that have a technological impact on the regional and national industry. The program consists of 6 terms completed in 24 months, with 12 core curriculum courses, 4 electives, 2 Thesis and Link to Industrial Sector courses, and 1 for thesis. Furthermore, a thesis must be written to obtain the degree. The PhD in Optical Sciences has the objective of generating human resources that participate in the development of science and technology in the field of Optics as researchers of the highest quality and level within their field of competence, with the mission of generating new knowledge and collaborate in the progress of basic and applied science. The program consists of 12 terms completed in 48 months, with 5 core curriculum courses, 2 electives, and 5 thesis seminar courses, and 5 of thesis elaboration. Thesis must be completed to obtain the degree.

Name of department: Graduate Studies Office

Number of core optics/photronics students currently enrolled in a related program: 160

Number of students in optics/photronics related course work: 160

Number of optics/photronics related courses offered in this program: 100

Type/Description of disciplines/program tracks offered: Optical engineering; Optics; Photonics; Fiber optics

Academic and research specialties related to optics/photronics:

Colorimetry, Photometry, Vision and Digital Image Processing, Spectroscopy and Optical Materials, Interferometry, Infrared, and Optical Metrology.

Year program was founded: 1984

Contact: Dr. Luis Armando Diaz-Torres, Director of Graduate Studies Office

Email: ditlacio@cio.mx

Website: <http://www.cio.mx/en/>

Mailing address: Loma del Bosque 115, Colonia Lomas del Campestre, Leon, GTO 37150 Mexico

Instituto Nacional de Astrofisica Optica y Electronica Sta Ma Tonantzintla, Mexico

INAOE is the oldest educational center devoted specifically to optics in Mexico, besides astronomy and electronics. It has graduated over 200 MSc's and PhD's in optics since 1972. INAOE began its activities in 1941 as "Observatorio Astronomico de Tonantzintla" and as INAOE in 1971 to promote astronomical instrumentation. Since then has grown to cover most of the optical specialties with researchers formed around the world. Overall, INAOE is the Mexican institution with the second highest scientific impact in Mexico. Almost all optics activity in Mexico can be traced back to INAOE. MSc in optics program is two year long. 5 mandatory and 5 elective courses have to be taken followed by a thesis. Starting 2017 there are two admission periods each year (January and August). Application deadlines are may and October each year. For the PhD in Optics program, student coming from an optical MSc program must present a qualifier examination within the first year. For students coming from a non-optical MSc program, mandatory optics MSc program courses have to be taken followed by a qualifier examination. Within the first year and a half a candidacy exam presenting the PhD project must be defended. The PhD in optics program is 4 years long without course work. Two research journal papers are required before dissertation defense. Scholarships: Mexican students are supported by CONACYT (the Mexican National Council of Science and Technology). The academic program is open for worldwide students. All the non-mexican students can search scholarship from AEO, SRE, UN and others. International students can apply for CONACYT scholarship after admitted to the program. Non-resident tuition applies for non-mexican applicants. INAOE provides support documentation for FM3 immigration form. All the academic programs are within the excellence program from CONACYT.

Name of department: Direccion de Formacion Academica

Number of core optics/photronics students currently enrolled in a related program: 150

Number of students in optics/photronics related course work: 150

Number of optics/photronics related courses offered in this program: 50

Optics/photronics related programs/degrees offered: MSc (Optics), MSc (Astrophysics), MSc (Electronics), MSc (Computer Science), MSc (Aerospace Engineering), MSc - Masters in Science (Biomedical Science and Technology), Doctorate in Science (Optics), Doctorate in Science (Astrophysics), Doctorate in Science (Electronics), Doctorate in Science (Computer Science), Doctorate in Science (Aerospace Engineering),

Doctorate in Science (Biomedical Science and Technology).

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Optics; Photonics Lasers; Biomedical optics; Fiber optics

Admission deadlines: PhD Optics - Documentation year round, entry in February and August each year. MSc Optics - Documentation year round, evaluation on May and November each year, Courses start in August and January each year.

Year program was founded: 1972

Contact: Dr. Javier Baez-Rojas, Academic Affairs Director

Email: dfa@inaoep.mx

Website: <http://yolotli.inaoep.mx>

Mailing address: Luis Enrique Erro 1, Sta Ma Tonantzintla Puebla 72840 Mexico

Tecnologico de Monterrey Monterrey, Mexico

Research is supported by the Photonics and Mathematical Optics Group and funded by the Research Chair in Optics. Theoretical and experimental work in beam propagation, digital image processing, laser resonator dynamics, mathematical optics, angular momentum transfer and optical trapping and manipulation.

Name of department: Physics

Number of core optics/photronics students currently enrolled in a related program: 16

Number of students in optics/photronics related course work: 60

Number of optics/photronics related courses offered in this program: 12

Optics/photronics related programs/degrees offered: Bachelors program in Physics Engineering, areas of specialization include optoelectronics and biomedical engineering. Masters program in Optical Engineering. Doctoral program in Optical engineering.

Type/Description of disciplines/program tracks offered: Optical engineering; Optics

Academic and research specialties related to optics/photronics: Wave propagation, mathematical optics, photonics, beam shaping, digital holography, resonator physics and digital image processing.

Admission deadlines: Spring Semester starts early January, Fall term starts early August. Summer courses available upon demand with limited enrollment.

Year program was founded: 2003

Contact: Julio Cesar Gutierrez Vega, Director, Optics Center

Email: juliocesar@itesm.mx

Website: <http://www.mty.itesm.mx>

Mailing address: Physics Dept, Tecnologico de Monterrey, E Garza Sada 2501 sur, Colonia Tecnologico, Monterrey Nuevo Leon 64849 Mexico

Universidad de Guanajuato Salamanca, Mexico

The Optoelectronics mayor for Undergraduate programs can be obtained taking 6 specialization courses in the senior year. Courses as Electrodynamics, Optics, Modern Physics and Solid State are part of the background of Electronics Eng. Student in that level. In the Master Program, the student must take 6 obligatory courses, which will provide of the mathematical and electronics background to the student. The speciality courses (six) can be selected by the student and his adviser. The duration of the master program is of 18 months and the elaboration of a thesis is a requisite to get the degree.

Name of department: Departamento de Comunicaciones y Electronica

Number of core optics/photronics students currently enrolled in a related program: 442

Number of students in optics/photronics related course work: 82

Number of optics/photronics related courses offered in this program: 30

Optics/photronics related programs/degrees offered: Bachelor in Communications and Electronics Engineering (Digital Signal Processing, Computing, Digital & Analog Electronics and Optoelectronics). Master in Electrical Engineering (Digital Signal Processing and Optoelectronics). Doctorate in Electrical Engineering.

Type/Description of disciplines/program tracks offered: Optical engineering; Electrical engineering; Fiber optics

Academic and research specialties related to optics/photronics: The Undergraduate and Graduate programs offer non-linear optics and optical fiber areas. Optical solitons in photorefractive crystals, optical characterization of new materials, nonlinear phenomena in photonic crystals and sensors and communications systems using optical fibers are some of the topics in both areas. Phase Optics Space.

Accreditation Program: National Council for Research (CONACYT).

Accreditation Organization: Mexican Government

UNDERGRADUATE/GRADUATE PROGRAMS

Admission deadlines: Two times per year: Winter; January 6th. and Summer; July 28th

Year program was founded: 1991

Contact: Miguel Torres-Cisneros Ph. D., Professor

Email: mtorres@salamanca.ugto.mx

Website: <http://www.ugto.mx>

Mailing address: Universidad de Guanajuato, Campus Salamanca, Km 3, Carretera Salamanca-Valle, Comunidad de Palo Blanco, Salamanca Guanajuato 36885 Mexico

Universidad Tecnológica de Tulancingo Tulancingo, Mexico

OSA Student Chapter

First Optics and Photonics Engineering undergraduate program in Mexico.

Name of department: Centro de Tecnologías Ópticas y Fónicas

Number of core optics/photonics students currently enrolled in a related program: 15

Number of students in optics/photonics related course work: 20

Number of optics/photonics related courses offered in this program: 30

Optics/photonics related programs/degrees offered: Optics and Photonics engineering undergraduate program

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Optics; Photonics; Fiber optics

Year program was founded: 2012

Contact: Dr. Noel-Ivan Toto-Arellano

Email: noel.toto@utec-tgo.edu.mx

Website: <http://www.utec-tgo.edu.mx/>

Mailing address: Camino a Ahuehuetitla # 301 Col. Las Presas, Col. Las Presas, Tulancingo Hidalgo 43642 Mexico

NETHERLANDS

Delft University of Technology Delft, Netherlands

Physics is concerned with the discovery and application of the laws of nature. It elucidates, in terms of basic principles, phenomena that range from the very small to the unimaginably large, from subatomic particles to the universe. The pace of discovery is often set by the speed of technological and engineering developments. The applied physicist is educated to contribute to the solution of the physics aspects of any scientific technical problem. The MSc programme in Applied Physics at TU Delft combines the skills and management of a standard engineering programme with the depth and insight that is expected from a physicist. Completion of the programme prepares graduates for contributions and advancements in any number of industries, research institutes or academia. Recent advances in nanotechnology, seismic exploration, robotics, medical imaging, biophysics, communications technology, and energy-efficient industrial processing, all rely on exploring the mechanisms and limits of the physical world. It is for these types of challenges that we train the physicists in Delft, www.tnw.tudelft.nl/msc.

Name of department: Imaging Science & Technology

Number of core optics/photonics students currently enrolled in a related program: 10

Number of students in optics/photonics related course work: 10

Number of optics/photonics related courses offered in this program: 4

Optics/photonics related programs/degrees offered: BSc in Applied Physics (in Dutch language), MSc Applied Physics - track: Imaging Science & Technology; MSc Optics in Science & Technology (Erasmus Mundus Master course). See www.ist.tudelft.nl and research groups for possible PhD positions

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Technology; Optics; Photonics; Biomedical optics

Academic and research specialties related to optics/photonics: - interferometry, advanced lithographic imaging methods, super high-density optical storage, terahertz science & technology, image-based measurement and analysis research projects, novel electron sources, aberration corrector, Auger spectroscopy in TEM.

Admission deadlines: www.tnw.tudelft.nl/msc

Year program was founded: 1928

Contact: International Recruitment Officer, International Recruitment Officer

Email: msc-tnw@tudelft.nl

Website: <http://www.tnw.tudelft.nl>

Mailing address: TU Delft, Faculty of Applied Sciences, Lorentzweg 1, 2628 CJ, Delft Netherlands

PAKISTAN

Ghulam Ishaq Khan Institute of Engineering Sciences and Technology

SPIE Student Chapter OSA Student Chapter

Topi Sawabi, Pakistan

Name of department: Faculty of Engineering Sciences
Optics/photonics related programs/degrees offered: Bachelors, Masters and Doctoral programs available.

Type/Description of disciplines/program tracks offered: Optical engineering; Optics

Contact: Prof. Dr. M. Hassan Sayyad, Professor

Email: sayyad@giki.edu.pk

Website: <http://www.giki.edu.pk>

Mailing address: GIKI, Faculty of Engineering Sciences, Swabi, Topi Sawabi North-West Frontier Province (NWFP) 23460 Pakistan

Quaid-i-Azam University Islamabad, Pakistan

SPIE Student Chapter

Name of department: Department of Electronics

Type/Description of disciplines/program tracks offered: Optical engineering

Contact: Chairman Office

Website: <http://www.qau.edu.pk>

Mailing address: Dept of Electronics, Quaid-i-Azam University, Islamabad 45320 Pakistan

PERU

Pontificia Universidad Católica del Perú Lima, Peru

OSA Student Chapter

Name of department: Physics

Number of core optics/photonics students currently enrolled in a related program: 20

Number of optics/photonics related courses offered in this program: 25
Optics/photonics related programs/degrees offered: Certification Diplomas in Laser and applications, Optical engineering. One year program at the graduate level. MS in Applied Physics (Applied optics), MS in Physics (Quantum optics).

Type/Description of disciplines/program tracks offered: Physics; Optical engineering

Academic and research specialties related to optics/photonics: Lasers, optical design, optical metrology, optical thin films, quantum optics.

Admission deadlines: January

Year program was founded: 1960

Contact: Prof. Guillermo Baldwin, Head of Optics Lab. / Coordinator, Applied Physics Program

Email: gbaldwin@fisica.pucp.edu.pe

Website: <http://www.pucp.edu.pe/>

Mailing address: Pontificia Universidad Católica del Perú, Lab. de Óptica, Apartado postal 1761, Lima 32 Peru

POLAND

Nicholas Copernicus University Torun, Poland

SPIE Student Chapter

All students of physics are obliged to take one semester course of optics. The following courses are offered to the students of different specializations: Detection of light, Optoelectronics of semiconductors, Optical spectroscopy, Laser optics, Laser applications, Solid state spectroscopy, Eye and optometry, Introduction to quantum optics, Quantum electronics. (all courses are in Polish).

Name of department: Physics

Number of core optics/photonics students currently enrolled in a related program: 30

Number of optics/photonics related courses offered in this program: 12
Optics/photonics related programs/degrees offered: Bc in experimental physics; MSc in physics/ specialization in: experimental and theoretical physics, MSc in technical physics specialization in medical physics. Doctoral program available.

Type/Description of disciplines/program tracks offered: Physics; Optical

engineering; Optics; Photonics materials for detection of ionizing radiation; Biomedical optics

Academic and research specialties related to optics/photonics: All students are obliged to take a one-semester course of optics.

The following courses are offered to the students of different specializations: Laser optics, Everyday optics, Electrodynamics and optics, Characterizing materials with methods of nonlinear optics, Detection of light, Interaction of atomic systems and light, Introductory quantum optics, Physics and applications of lasers, Elements of quantum information in applications, Optoelectronics, Eye and optometry, Laboratory of opto- and microelectronics, Photometry and astrospectroscopy, Biospectroscopy, Luminescence and photo conductivity of Semiconductors.

Admission deadlines: Any date. All applications are dealt individually by the Rector of the University

Contact: Dr. Andrzej Kowalczyk, Professor

Email: akowal@fizyka.umk.pl

Website: <http://www.fizyka.umk.pl>

Mailing address: Nicholas Copernicus University, Dept. of Physics, Grudziadzka 5, Torun 87-100 Poland

University of Warsaw

SPIE. STUDENT CHAPTERS OSA Student Chapter

Warsaw, Poland

Name of department: Faculty of Physics

Number of core optics/photonics students currently enrolled in a related program: 100

Number of students in optics/photonics related course work: 1000

Number of optics/photonics related courses offered in this program: 50

Optics/photonics related programs/degrees offered: Bachelors program(s): Visit <http://www.fuw.edu.pl/first-degree-studies.html>. Masters program(s): Visit <http://www.fuw.edu.pl/second-degree-studies.html>. Doctoral program(s): Visit <http://www.fuw.edu.pl/phd-studies.html>

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Optics; Photonics; Biomedical optics

Academic and research specialties related to optics/photonics:

Realization of these during Physics studies is also available at University of Warsaw independent branch, Centre of New Technologies (CENT UW) - an interdisciplinary unit focused on research and technology development. Three quantum optics-related laboratories are operating there with cooperation with Faculty of Physics - studies leading faculty.

Admission deadlines: <http://rekrutacja.uw.edu.pl/en/>

Contact: Dr. Krzysztof Turzyński

Email: krzysztof.turzynski@fuw.edu.pl

Website: <http://www.fuw.edu.pl>

Mailing address: University of Warsaw, Faculty of Physics, Pasteura 5, Warsaw 02-093 Poland

Warsaw University of Technology SPIE. STUDENT CHAPTERS OSA Student Chapter

Warsaw, Poland

Bachelor course: The duration of the study is 7 semesters (3.5 academic years). During the first 4 semesters the basic technical knowledge is delivered (120 ECTS split into 4 equally loaded semesters) and the next 3 semesters are focused on the photonics engineering specialization (75 ECTS split into 3 equally loaded semesters and 15 ECTS – diploma thesis). The profile of a graduate corresponds with the challenges of the 21st century. It has basic knowledge as well as general and specialist knowledge, which provides a basis for designing, manufacturing, testing and operating opto-mechatronic systems and devices. The basic knowledge includes first off all mathematics, physics, mechanics and electronics – especially the branches useful while designing precision opto-mechatronic devices. The program of the first level Photonics Engineering specialization is developed as a high quality educational offer in the area of optomechatronics, especially in: building of optical and optoelectronic equipment and its applications in opto-numerical methods of inspection, e.g. holography cameras, spectrometers, multimedia devices and multi-functional interferometers

for different scale objects testing (from big engineering structures up to microelements MEMS/MOEMS). The specialist knowledge, delivered during this course, prepares the graduate for a career as engineers in modern fields of technology and industry, which are dynamically developing. After the BSc course students can take the MSc course in the same specialization. Masters course: The duration of the study is 3 semesters (1.5 academic years) - 90 ECTS are split into 3 equally loaded semesters. The program of the second level of Photonics Engineering specialization is developed as a high-quality educational offer in the area of modern optics, photonics and optomechanics. After graduation students will have mastered the diverse areas of photonics, especially: mathematical and numerical modeling, design of opto-mechanical systems, image processing and recognition, optical methods of testing, diffraction optics and microoptics. The profile of a graduate corresponds with the challenges of the 21st century. The specialist knowledge, delivered during this course, prepares the graduate for a career as engineers and researchers in modern fields of science, technology and industry, which are dynamically developing. After the MSc course students can take next study in the doctoral course on Optics in Science and Engineering.

Name of department: Faculty of Mechatronics, Institute of Micromechanics and Photonics

Number of core optics/photonics students currently enrolled in a related program: 60

Number of students in optics/photonics related course work: 60

Number of optics/photonics related courses offered in this program: 5

Optics/photonics related programs/degrees offered: BSc in Mechatronics specialization in Photonics Engineering (in Polish). MSc in Mechatronics specialization in Photonics Engineering (in Polish). Doctor of Engineering, Photonics Engineering.

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Electrical engineering; Optics; Photonic; Fiber optics

Academic and research specialties related to optics/photonics: Optical analysis: diffraction and interference phenomena. Optical design and construction of opto-electronic devices. Optical metrology: active interferometry, digital holography, optical tomography, optical methods of testing in biomedical engineering, experimental mechanics, material engineering, MEMS/MOEMS/*; optical testing (optics, fiber optics, etc.). Optical and numerical methods of image processing: digital holography, imaging and data conversion for virtual reality and active TV.

Admission deadlines: For admission details, deadlines, documents, see: <https://www.pw.edu.pl/Kandydaci> - for Residents; <http://www.students.pw.edu.pl/> - for Non-residents;

Year program was founded: 2007

Contact: Adam Styk, Assistant Professor

Email: a.styk@mchtr.pw.edu.pl

Website: <http://zif.mchtr.pw.edu.pl/en/>

Mailing address: Institute of Micromechanics and Photonics, 8 Sw.A.Boboli St., Warsaw 02-525 Poland

PORTUGAL

Universidade do Porto

SPIE. STUDENT CHAPTERS

Porto, Portugal

Name of department: Physics

Type/Description of disciplines/program tracks offered: Optical engineering

Contact: Dr Joao Pedro Araujo, Group Leader

Email: jeaaraujo@fc.up.pt

Website: <http://www.fc.up.pt>

Mailing address: Instituto de Fisica dos Materiais da Universidade do Porto, Rua do Campo Alegre 687, Porto 4169-007 Portugal

ROMANIA



Performing measurements on a fiber optics setup in the Optoelectronics Lab at Univ. Politehnica of Bucharest.

University Politehnica of Bucharest Bucharest, Romania

Name of department: Physics Department
Number of core optics/photronics students currently enrolled in a related program: 100
Number of students in optics/photronics related course work: 100
Number of optics/photronics related courses offered in this program: 27
Optics/photronics related programs/degrees offered: Bachelors, Masters, and Doctoral programs available.
Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Electrical engineering; Optics; Photonics; Fiber optics
Academic and research specialties related to optics/photronics: Engineering and Applications of Lasers and Particle Accelerators (IALA) Master Program.
Accreditation Organization: ARACIS <http://www.aracis.ro/en/>
Admission deadlines: Admission every year, in July and September
Year program was founded: 2005
Contact: Emil Smeu, Associate Professor
Email: emil.smeu@physics.pub.ro
Website: <http://www.physics.pub.ro>
Mailing address: University Politehnica of Bucharest, Physics Dept., Splaiul Independentei 313, Bucharest 60042 Romania

RUSSIAN FEDERATION

ITMO University

Saint Petersburg, Russian Federation

SPIE. STUDENT CHAPTERS **OSA** Student Chapter

Name of department: Photonics and Optical Information Technology Dept.
Number of core optics/photronics students currently enrolled in a related program: 300
Number of students in optics/photronics related course work: 3000
Number of optics/photronics related courses offered in this program: 40
Optics/photronics related programs/degrees offered: Bachelor, Masters and Doctoral programs available.
Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Electrical engineering; Optics; Photonics; Biomedical optics; Fiber optics
Admission deadlines: 1/1/2012 submission of applicants up to August 20th (beginning of studies: Sept. 1st)
Contact: Andrei Rybin, Vice Rector
Email: rybin@mail.ifmo.ru
Website: <http://en.ifmo.ru>
Mailing address: Kronverkskii ave., 49, Saint Petersburg 197101 Russian Federation

Kazan National Research Technical University Kazan, Russian Federation

SPIE. STUDENT CHAPTERS **OSA** Student Chapter

Name of department: Radiophotonics and Microwave Technologies
Number of core optics/photronics students currently enrolled in a related program: 75
Number of students in optics/photronics related course work: 200
Number of optics/photronics related courses offered in this program: 40
Optics/photronics related programs/degrees offered: Bachelor of photonic or optical technologies. Full-time education; programs duration - 4 years; Opportunities to continue education after graduation in master programs. Master of Photonic or Optical Technologies. Full-time education; programs duration- 2 years; opportunities to continue education after graduation. Doctoral programs in Optical and optical & electronic devices and complexes; Means and methods for nature, matter, materials and devices monitoring; Telecommunication fiber optic nets. Full-time/part-time education; programs duration- 3/4 years.
Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Electrical engineering; Optics; Photonics; Biomedical optics; Fiber optics
Academic and research specialties related to optics/photronics: Optical System Design; Diffractive optics; Automated Control and Stabilization of Optical Systems; Optical Systems for Lasers; Laser Rangefinders. Symmetrical Double-Frequency Reflectometry; Complexes for telecommunication nets monitoring; Metrological Systems With Fiber Bragg Gratings; Laser and Fiber Spectrometers for measurement of aerosols and nano-scale particles; Systems for Industrial and Environmental Inspection; Microwave Photonic Systems for Instant Frequency Measuring.
Admission deadlines: www.kai.ru
Year program was founded: 2014
Contacts: Prof. Oleg G. Morozov, Department Head, Email: OGMorozov@kai.ru. Prof. Eduard Muslimov, Dept of Optical and Electronic Systems, Email: e0123@mail.ru
Website: <http://www.kai.ru>
Mailing address: KNRTU-KAI, R&D Institute of Applied Electrodynamics, Photonics & Living Systems, PO box 72, Kazan 420107 Russian Federation

M.V. Lomonosov Moscow State University

Moscow, Russian Federation

SPIE. STUDENT CHAPTERS **OSA** Student Chapter

Name of department: Faculty of Physics
Number of core optics/photronics students currently enrolled in a related program: 400
Number of students in optics/photronics related course work: 420
Number of optics/photronics related courses offered in this program: 17
Optics/photronics related programs/degrees offered: Bachelors, Masters and Doctoral programs in Optics, Laser Physics, Quantum Electronics.
Type/Description of disciplines/program tracks offered: Optical engineering
Academic and research specialties related to optics/photronics: optical information processing; physics of electro- and acousto-optics; quantum communications and quantum calculations; quantum oscillating systems; waves in guiding structures; physics of superintense laser fields and their applications; interaction of laser radiation with molecular gases; laser diagnostics in biology and medicine; laser opto-acoustics; lasers and nonlinear optics; modern computer technologies in detection, data acquisition, data processing, and control systems; modern problems of adaptive optics; nonlinear laser spectroscopy; nonlinear polarization optics; nonlinear waves and nonlinear optics; optical data processing; optics of conducting polymers and nanomaterials.
Contact: Natalya N. Nikiforova, Head of the International Office
Email: info@physics.msu.ru
Website: <http://www.phys.msu.ru>
Mailing address: M.V. Lomonosov Moscow State Univ., Faculty of Physics, Moscow 119992 Russian Federation

Povolzhskiy State University of Telecommunications and Informatics Samara, Russian Federation

SPIE. STUDENT CHAPTERS

Name of department: The Faculty of Telecommunications and Radiotechnology

Number of core optics/photronics students currently enrolled in a related program: 120

Number of students in optics/photronics related course work: 1136

Number of optics/photronics related courses offered in this program: 6

Optics/photronics related programs/degrees offered: BS -

Telecommunications. MS - CES Physics and Techniques of Optical Communication, MS - CES Telecom Networks and Switching Systems, MS - CES Multichannel Telecommunication Systems. Doctoral programs in Telecommunication System Networks and Equipment, Telecommunication Systems and Computer Networks, Radio physics.

Type/Description of disciplines/program tracks offered: Optical engineering; Electrical engineering

Year program was founded: 1985

Contact: Anton V. Bourdine, Professor

Email: bourdine@psuti.ru

Website: <http://www.psuti.ru>

Mailing address: Lev Tolstoy str., 23, Samara 443010 Russian Federation

Samara State Aerospace University

Samara, Russian Federation

Name of department: Information Science

Number of core optics/photronics students currently enrolled in a related program: 25

Number of students in optics/photronics related course work: 50

Optics/photronics related programs/degrees offered: Associate, Bachelors, Masters and Doctoral programs available.

Type/Description of disciplines/program tracks offered: Optical engineering; Electrical engineering; Optics; Photonics; Biomedical optics; Fiber optics

Contact: Prof. Victor A. Soifer, President

Email: soifer@ssau.ru

Website: <http://www.ssau.ru>

Mailing address: Samara State Aerospace Univ., Information Science Dept., 34 Moskovskoe shosse, Samara 443086 Russian Federation

Saratov State University

SPIE. STUDENT CHAPTERS **OSA** Student Chapter

Saratov, Russian Federation

Saratov State University has been training specialists in optics since 1946.

In 2017 five optics-related BS and MS programs will be offered at Physics Department: 1) BS program Optics and Laser Physics, 2) BS program Physics of Living Systems, 3) BS program Medical Photonics, 4) MS program Biophotonics, 5) MS program Physics of Optical and Laser Phenomena. BS program students are educated in the fundamental fields of mathematics, physics, biology, chemistry, computers and electronics then they attend the courses on specialization disciplines and gain practical experience in laboratories of Physics Department. Students have the opportunity to work in research labs of Research-Educational Institute of Optics and Biophotonics and International Research-Educational Center of Optical Technologies for Industry and Medicine "Photonics" of Saratov State University when preparing their annual projects/diploma projects. After graduation, students can continue their education with postgraduate (Candidate of Science) programs. New educational technologies aim at improving the quality of knowledge and skills of BS, MS, and postgraduate programs students in such key areas of physics and interdisciplinary sciences as physics of optical phenomena, biomedical photonics and biophysics and training specialists in the areas of laser and optical biomedical technologies, nanobiophotonics, optical biosensing, optical information and telecommunication systems, photonic-crystal devices, and others.

Name of department: Department of Physics

Number of core optics/photronics students currently enrolled in a related program: 180

Number of students in optics/photronics related course work: 280

Number of optics/photronics related courses offered in this program: 60

Optics/photronics related programs/degrees offered: Four-year Bachelor programs: Physics - Optics and Laser Physics. Physics - Physics of Living Systems. Bioengineering Systems and Technologies - Medical Photonics. Two-year Masters programs: Physics - Biophotonics. Physics - Physics of Optical and Laser Phenomena. Four-year Candidate of Science programs: Biology - Biophysics. Physics and Astronomy - Optics. Physics and Astronomy - Laser Physics. Physics and Astronomy - Biophysics.

Type/Description of disciplines/program tracks offered: Physics; Optical engineering

Academic and research specialties related to optics/photronics: Optics and spectroscopy, holography and optics of speckles, molecular

spectroscopy, nonlinear dynamics and chaos in laser systems, tissue optics, fundamentals of photobiology, physics of optical and laser measurements, laser and optical measurements in medicine.

Contact: Prof. Valery V. Tuchin, Head of Subdivision of Optics and Biophotonics

Email: tuchinvv@mail.ru

Website: <http://www.sgu.ru/en>

Mailing address: Saratov State Univ., 83 Astrakhanskaya str., Saratov 410012 Russian Federation

V.E. Zuev Institute of Atmospheric Optics **SPIE.** STUDENT CHAPTERS

Tomsk, Russian Federation

Name of department: Siberian Branch of RAS

Number of core optics/photronics students currently enrolled in a related program: 75

Optics/photronics related programs/degrees offered: Doctoral programs in Optics, Radio Physics, Ecology, Atmosphere Physics & Hydro Orb, Geocology.

Type/Description of disciplines/program tracks offered: Physics; Optical engineering

Year program was founded: 1993

Contact: Prof. Oleg A. Romanovskii, Deputy Director

Email: roa@iao.ru

Website: <http://www.iao.ru/en/>

Mailing address: Institute of Atmospheric Optics SB RAS, 1 Akademicheskoy Ave., Tomsk 634021 Russian Federation

SAUDI ARABIA

King Abdullah University of

SPIE. STUDENT CHAPTERS **OSA** Student Chapter

Science & Technology

Thuwal, Saudi Arabia

The photonics program in KAUST provides quality education and training on basic and applied optical sciences aiming at increasing students' understanding and utilization of photonics knowledge in fundamental research and engineering.

Name of department: Electrical Engineering

Number of core optics/photronics students currently enrolled in a related program: 25

Number of students in optics/photronics related course work: 40

Number of optics/photronics related courses offered in this program: 11

Optics/photronics related programs/degrees offered: MS in Electrical Engineering. PhD in Electrical Engineering.

Type/Description of disciplines/program tracks offered: Optical engineering; Electrical engineering; Optics; Photonics

Academic and research specialties related to optics/photronics: optics, photonics, optoelectronics, and computational electromagnetics.

Admission deadlines: January 15 for Fall admission and June 15 for Spring admission

Year program was founded: 2009

Contact: Prof. Boon S. Ooi, Professor of Electrical Engineering

Email: boon.ooi@kaust.edu.sa

Website: <http://ee.kaust.edu.sa/>

Mailing address: King Abdullah Univ. of Science & Technology, Electrical Engineering Dept., Thuwal 23955-6900 Saudi Arabia

SINGAPORE

Nanyang Technological University **SPIE.** STUDENT CHAPTERS **OSA** Student Chapter

Singapore

To create a regional centre on Optical Engineering with strong emphasis on research and talent grooming. To act as a problem solving centre for local and multinational companies in this field. To be a magnet to local students to participate in this growing niche sector. To organise international conferences, workshops, short course and conduct outreach activities to promote the sector and garner international recognition for the centre.

Name of department: School of Mechanical and Aerospace Engineering

Number of core optics/photronics students currently enrolled in a related program: 10

Number of students in optics/photronics related course work: 15

Number of optics/photronics related courses offered in this program: 4

UNDERGRADUATE/GRADUATE PROGRAMS

Optics/photronics related programs/degrees offered: Bachelors program available. MSc in Precision Engineering with specialization in Optical Engineering. PhD and Industrial PhD Program (IPP)

Type/Description of disciplines/program tracks offered: Optical engineering; Biomedical optics

Academic and research specialties related to optics/photronics: Relevant strategic areas: Optical Engineering, MEMS and Microsystems, Bio-Photonics, Robotics and Mechatronics, Renewable Energy.

Year program was founded: 1996

Contact: Anand Asundi, Professor and Director Centre for Optical and Laser Engineering

Email: anand.asundi@gmail.com

Website: <http://www.mae.ntu.edu.sg>

Mailing address: Nanyang Technological Univ., School of Mechanical and Aerospace Engineering,, 50 Nanyang Avenue, 639798 Singapore

National University of Singapore Singapore, Singapore

OSA Student Chapter

Name of department: Centre for Optoelectronics, Department of Electrical and Computer Engineering

Number of core optics/photronics students currently enrolled in a related program: 30

Number of optics/photronics related courses offered in this program: 5

Optics/photronics related programs/degrees offered: BEng (Electrical Engineering), BEng (Computer Engineering), BTech (Electronics). MSc (Electrical Engineering), MSc (Materials Science), MTech (Software and Knowledge Engineering). The Department offers two research degrees, Master of Engineering (MEng) and Doctor of Philosophy (PhD). These higher degrees are awarded on the basis of independent but supervised research in a topic, culminating in the submission of a thesis.

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Electrical engineering

Academic and research specialties related to optics/photronics:

Optoelectronics materials growth (compound semiconductor), characterisation of materials (optical, electronic and microstructural studies), fabrication of devices (semiconductor lasers and LEDs, MEMS, photodetectors and optical waveguides), microelectronic/optoelectronics unit processes and simulation of optoelectronics fundamental processes.

Year program was founded: 1989

Contact: Mansoor B. A. Jalil, Associate Professor

Email: elembaj@nus.edu.sg

Website: <http://www.ece.nus.edu.sg/COE>

Mailing address: Department of Electrical and Computer Engineering, National University of Singapore, 4, Engineering Drive 3, Singapore Singapore 117576 Singapore

SOUTH AFRICA

Council for Scientific and Industrial Research Brummeria, South Africa

OSPIE Student Chapter

A studentship (either in the form of a MSc or PhD) at the CSIR National Laser Centre (NLC), allows the student to conduct his/her research in one of the following areas in optics: laser sources; atmospheric remote sensing; applied photonics; mathematical optics; biophotonics and laser materials processing. The student will conduct his/her research in-house at the CSIR NLC, but will be registered off-campus at one of the South African campuses, either the University of Stellenbosch or the University of KwaZulu-Natal or any other participating university.

Name of department: CSIR National Laser Centre

Optics/photronics related programs/degrees offered: Masters and Doctoral programs in Physics.

Type/Description of disciplines/program tracks offered: Physics; Optical engineering

Academic and research specialties related to optics/photronics:

solida state lasers; atmospheric remote sensing; applied photonics (coherent control of chemical reactions, ion cooling and trapping, and laser applications in paleoantropology); mathematical optics (beam propagation in turbulence, novel laser beams, laser resonators and quantum entanglement); biophotonics; laser materials processing.

Contact: Dr. Paul Motalane, Coordinator for Higher Education Institutes

Email: pmotalane@csir.co.za

Website: <http://www.csir.co.za>

Mailing address: National Laser Ctr., CSIR Campus, Bldg 46, Meiring Naude Rd, Brummeria Pretoria 1 South Africa

SPAIN

Consejo Superior de Investigaciones Cientificas Madrid, Spain

OSA Student Chapter

Academic program at the associated universities (with various Masters/PhD programs in Visual Sciences, Photonics, femtochemistry, etc.). Onsite excellent research facilities. Active program of seminars and colloquia. Optical Society of America Student Chapter Program (www.iosa.csic.es). Excellent multidisciplinary research on campus (CSIC)

Name of department: Instituto de Optica

Number of core optics/photronics students currently enrolled in a related program: 20

Number of students in optics/photronics related course work: 20

Number of optics/photronics related courses offered in this program: 10

Optics/photronics related programs/degrees offered: Masters Program in Visual Sciences (the Institute of Optics, CSIC, is the node of this interdisciplinary, interuniversity program, coordinated by the University of Valladolid). Various members of the institute also participate in other Masters Programs. PhD Program in Visual Sciences (the Institute of Optics, CSIC, is the node of this interdisciplinary, interuniversity program, coordinated by the University of Valladolid).

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Photonics; Fiber optics

Contact: Joaquin Campos, Director

Email: direccion.io@csic.es

Website: <http://www.io.csic.es>

Mailing address: Instituto de Optica Daza de Valdes, Consejo Superior de Investigaciones Cientificas, Serrano 121, Madrid 28006 Spain

ICFO - The Institute of Photonic Sciences Castelldefels (Barcelona), Spain

OSPIE Student Chapter

ICFO participates in the Master of Multidisciplinary Research in Experimental Sciences, offered by UPF and BIST. This new program offers highly flexible and personalized hands-on research training in a multidisciplinary research environment. ICFO also participates in the Master in Photonics offered by 4 Universities located in the Barcelona area. The master is comprehensive in the basics and applications of optical sciences with special focus to applications in life sciences, nanotechnologies, and remote sensing. ICFO offers a focused PhD program that targets the most advanced topics in optical sciences and technologies. Research lines include, but are not limited to:
- Biophotonics and photo-medicine - Graphene opto-electronics - Nanophotonics and Nanotechnology - Nonlinear Optics and Frequency conversion - Quantum Optics and Quantum Information - Atto-science and Ultrafast Laser Science - Optical Sensing and Optoelectronics - Green Photonics and Photovoltaics - Nanoscopy and Super-resolution Imaging. Students in this program have access to cutting-edge experimental infrastructures and to specialized courses and seminars given by ICFO faculty. Entrepreneurship and commercialization techniques are also an integral part of the curricula. ICFO, in collaboration with other European institutions, is offering an Erasmus Mundus Master EUROPHOTONICS.

Name of department: ICFO - The Institute of Photonic Sciences

Number of core optics/photronics students currently enrolled in a related program: 150

Number of students in optics/photronics related course work: 150

Number of optics/photronics related courses offered in this program: 4

Optics/photronics related programs/degrees offered: MSc of

Multidisciplinary Research in Experimental Sciences; MSc in Photonics; EUROPHOTONICS Erasmus Mundus Master Course. PhD in Photonics.

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Optics; Photonics; Biomedical optics; Fiber optics

Academic and research specialties related to optics/photronics: Optical engineering, optics, and photonics, experimental and theoretical physics programs are available in disciplines such as: Biophotonics, Biophysics and Biomedical Optics; Nanophotonics; Quantum Optics and Quantum Information; Optical Sensing, Optoelectronics and Photovoltaics;

Nonlinear Optics and Ultrafast Physics. For further information, please visit: www.icfo.eu.

Admission deadlines: May 26, 2019

Year program was founded: 2007

Contact: Dr. Rob Sewell, ICFO Coordinator of Academic Programs

Email: robert.sewell@icfo.eu

Website: <http://www.icfo.eu>

Mailing address: ICFO-The Institute of Photonic Sciences, Mediterranean Technology Park, Av. Carl Friedrich Gauss, n.3, Castelldefels (Barcelona) 08860 Spain

Universidad de Granada

Granada, Spain

Our Department is involved in optics courses, theoretical and experimental, to obtain the MSc degree in Physics and Chemistry, MSEE in Electronic Engineering, MSCE in Chemistry Engineering, PhD in Physics, as well as the Diploma in Optics and Optometry. Starting in Fall 2008 the European Master CIMET is broadly interdisciplinary, encompassing photonics, computer vision and imaging science, computer science and multimedia technology as a mix of relevant theoretical and practical knowledge. The Department comprises colorimetry and photometry (basic and applied), color imaging, physiological optics, optoelectronics and optical design researching areas.

Name of department: Departamento de Óptica

Number of core optics/photonics students currently enrolled in a related program: 400

Number of students in optics/photonics related course work: 700

Number of optics/photonics related courses offered in this program: 42

Optics/photonics related programs/degrees offered: Bachelors program in Optometry. Masters programs in Physics. European Master Color in Informatics and Media Technology (CIMET). Doctoral program in Physics, with emphasis in Colorimetry and visual Optics.

Type/Description of disciplines/program tracks offered: Physics; Optical engineering

Academic and research specialties related to optics/photonics: Optical Design. Atmospheric Optics. Optoelectronic. Color Imaging.

Admission deadlines: <https://fciencias.ugr.es/en>

Year program was founded: 1989

Contact: José Antonio García García, School of Optics Director

Email: jgarcia@ugr.es

Website: <http://optica.ugr.es>

Mailing address: Universidad de Granada, Departamento de Óptica, Facultad de Ciencias, Edificio Mecenas, Granada Granada 18071 Spain

Universidad de Murcia

Murcia, Spain

General training physics (five years) with a concentration in optics the last two years. During the optics concentration, the following courses, among others, are offered: photonics, image processing, visual optics, biomedical optics, advance optical instrumentation, statistical optics. Master degree in Physics of Vision, with emphasis in the optical aspects of Vision science. PhD programs are mainly related to the research activities of the Optics Lab in visual optics and adaptive optics.

Name of department: Laboratorio de Óptica

Number of core optics/photonics students currently enrolled in a related program: 20

Number of students in optics/photonics related course work: 60

Number of optics/photonics related courses offered in this program: 20

Optics/photonics related programs/degrees offered: BS Physics, BS Optometry. MS in Physics. PhD in Optics, PhD in Vision Science

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Optics; Photonics; Fiber optic; Optometry

Academic and research specialties related to optics/photonics:

visual optics, microscopy, adaptive optics, biomedical optics, optical instrumentation, image processing, near-field optics, lasers, ultrafast optics.

Admission deadlines: July-September

Year program was founded: 1998

Contact: Pablo Artal, Prof.

Email: pablo@um.es

Website: <https://lo.um.es>

Mailing address: Universidad de Murcia, Laboratorio de Optica, Centro de Investigacion en Optica y Nanofisica (CiOyN), Campus de Espinardo, Murcia 30100 Spain

Universidad de Salamanca

Salamanca, Spain

Name of department: Centro de Laseres Pulsados

Number of core optics/photonics students currently enrolled in a related program: 10

Number of optics/photonics related courses offered in this program: 1

Optics/photonics related programs/degrees offered: Master in Physics and Technology of Lasers. It is a master program with a PhD Program focused on ultrastrong ultraintense lasers, in relation with the multi-Terawatt laser laboratory at Salamanca.

Type/Description of disciplines/program tracks offered: Optical engineering

Year program was founded: 2006

Contact: Luis Roso, Professor

Email: roso@usal.es

Website: www.clpu.es

Mailing address: Univ. de Salamanca, Dept. of Applied Physics, Plaza de la Merced s/n, Salamanca Salamanca 37008 Spain

University Complutense of Madrid

Madrid, Spain

The bachelor program in Optics and Optometry is a 4-year comprehensive program. The Master in Optical and Image Technology is a 1-year master program in Optical Engineering and Photonics with a special emphasis in image analysis. The master in Optometry and Vision is a 1-year master program in advanced optometry and research in vision sciences.

Name of department: Optics and Optometry

Number of core optics/photonics students currently enrolled in a related program: 20

Number of students in optics/photonics related course work: 800

Number of optics/photonics related courses offered in this program: 40

Optics/photonics related programs/degrees offered: Bachelors Degree in Optics and Optometry. Master in Optical and Image Technology Master in Optometry and Vision. PhD Program in Optics, Optometry and Vision

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Optics; Biomedical optics

Admission deadlines: General information for international students: <http://www.ucm.es/?a=&d=men00334> Bachelor Program: <http://www.ucm.es/?a=menu&d=0022379>

Year program was founded: 1973

Contact: Javier Alda, Professor

Email: javier.alda@ucm.es

Website: <http://optica.ucm.es>

Mailing address: Ave. Arcos de Jalon, 118, Madrid 28037 Spain

Universidad de Sevilla

Seville, Spain

The main objective of the courses "Applied Optics (AO)" and "Holography and 3D Visualization (H3D)" is to enhance student knowledge of applied optics and photonics, and to familiarize them about the latest applications in 3D visualization technologies of images and data. Course instruction is focused on current applications with a minimum treatment of "basic theory" and with a practical orientation toward the available technologies of these fields. The course curriculum is characterized by a "modular design" and includes applications of every engineering sector taught at our center. This curriculum is designed to allow for individualization according to specific interests, not only to tailor instruction for a particular student's degree, but also to be able to incorporate other topics about similar technologies into the program. Common Keywords: applied optics, 3D visualization, physical holography, digital holography and Fourier optics, photonics, optical technologies of measurement and analysis, radiometry, photometry, digital cameras of video and photography, light sources and lasers, solid state lightning (SSL), 2D and 3D scanning and projection systems, biomedical optics, neurophotonics, optical instrumentation for neurosurgery, phetal surgery and ophthalmology, non-invasive and image guided surgery, oncological and vascular fluorescence, thermal and hyperspectral imaging, aerial and satellite imaging, nonimaging optics and solar energy.

Name of department: Applied Physics III

Number of core optics/photonics students currently enrolled in a related program: 30

Number of students in optics/photonics related course work: 30

Number of optics/photonics related courses offered in this program: 2

Optics/photonics related programs/degrees offered: Bachelors programs available.

UNDERGRADUATE/GRADUATE PROGRAMS

Type/Description of disciplines/program tracks offered: Optical engineering; Optics; Biomedical optics

Academic and research specialties related to optics/photonics:

Biomedical optics, image-guided surgery, neurophotonics, aerial and satellite imaging, non-imaging optics, digital cameras.

Admission deadlines: Open every academic year. Visit: <http://www.etsi.us.es>

Year program was founded: 2010

Contact: Prof.Dr. Emilio Gomez-Gonzalez,

Email: egomez@us.es

Website: <http://www.esi2.us.es/DFA/OAyH3D>

Mailing address: Engineering School (ETSI), Dpt. of Applied Physics III, Camino de los Descubrimientos s/n, Seville 41092 Spain

SWEDEN

Chalmers University of Technology Gothenburg, Sweden

The programme aims to prepare the students for advanced engineering career or PhD studies in the photonics, wireless and space engineering fields. The students will have an opportunity to obtain: A thorough knowledge of methods and tools for the design and construction of modern photonic/wireless systems; Comprehensive understanding of systems, building blocks, and components for wireless and photonics; Hands-on experience through numerous lab exercises, giving a good insight into modern measurement techniques; Training in project management, teamwork, and reporting in written and oral form; A step into hardware; Strong theoretical foundation in the electromagnetic field theory, photonics, optics, antennas, and microwave circuit theory; An industrial reality through a project based education.

Name of department: Microtechnology and Nanoscience

Number of core optics/photonics students currently enrolled in a related program: 15

Number of students in optics/photonics related course work: 30

Number of optics/photonics related courses offered in this program: 17

Optics/photonics related programs/degrees offered: Bachelors programs in Engineering Physics; Electrical Engineering 3 year programs, ending with a Bachelors thesis. Preparatory for Masters program. Masters programs in Wireless, Photonics and Space Engineering (previously Wireless and Photonics Engineering), 2 year program, ending with a half-year Masters thesis. Microtechnology and Nanoscience (MC2) PhD program, 4 years of study including 1 year of courses and 3 years of research. <http://www.chalmers.se/mc2/EN/education/graduate-education>.

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Electrical engineering; Optics; Photonics; Biomedical optics

Admission deadlines: Key dates, info on late applications: <http://www.chalmers.se/en/education/programmes/application-admission/Pages/Key-dates.aspx>.

Year program was founded: 2011

Contact: Sheila Galt, Professor

Email: sheila.galt@chalmers.se

Website: <http://www.chalmers.se/en/education/programmes/masters-info/Pages/Wireless-Photonics-and-Space-Engineering.aspx>

Mailing address: Photonics Laboratory, Dept. of Microtechnology and Nanoscience, Chalmers University of Technology, Gothenburg SE-412 96 Sweden

Linköping University Linköping, Sweden

Material optics: Understanding of optical properties and microstructure of bulk materials and thin layers as well as their surfaces and interfaces. Optics in biology: Application of our methodology in surface biology and biosensors. Dynamic processes: Understanding of the dynamics of processes on surfaces and in thin films. Sensing layers: To investigate thin layers for potential use as sensing layers with optical readout. Materials studied include porous layers, polymer layers, biological layers as well as new semiconductor materials. Optical measurement systems: To develop experimental tools, methodology and measurement systems for research and industrial applications.

Name of department: Physics, Chemistry and Biology

Number of core optics/photonics students currently enrolled in a related program: 6

Number of optics/photonics related courses offered in this program: 5

Optics/photonics related programs/degrees offered: PhD in Applied Optics

Type/Description of disciplines/program tracks offered: Physics; Optical engineering

Academic and research specialties related to optics/photonics: We strive for scientific cross-fertilization between physics and biology by performing research in both areas. The overlap is essentially in methodology including modeling of optical properties and surface processes. Much of our research is centered around using and developing ellipsometry for studies of surfaces and thin films.

Year program was founded: 1999

Contact: Hans Arwin, Professor

Email: hansa@ifm.liu.se

Website: <http://www.ifm.liu.se/applot/>

Mailing address: Lab. of Applied Optics, Dept. of Physics, Chemistry and Biology, Linköping University, Linköping SE-58183 Sweden

Lulea University of Technology Lulea, Sweden

Name of department: Department of Applied Physics and Mechanical Engineering

Number of core optics/photonics students currently enrolled in a related program: 50

Number of optics/photonics related courses offered in this program: 4
MS in physics and in mechanical engineering. Doctoral program in Optical metrology.

Type/Description of disciplines/program tracks offered: Optical engineering

Academic and research specialties related to optics/photonics: Speckle metrology.

Contact: Mikael Sjö Dahl, Professor

Email: mike@ltu.se

Website: <https://www.ltu.se>

Mailing address: Division of Experimental Mechanics, Lulea University of Technology, Lulea SE-97187 Sweden

Royal Institute of Technology Kista (Stockholm), Sweden

Name of department: Microelectronics and Applied Physics

Number of core optics/photonics students currently enrolled in a related program: 30

Number of students in optics/photonics related course work: 50

Number of optics/photonics related courses offered in this program: 20

Optics/photonics related programs/degrees offered: Bachelors programs follow the Bologna 3+2 system (Candidate degree 3 years, Masters degree 2 years), Candidate degrees are general physics and engineering, Master degree in Photonics. Masters programs: www.master-photonics.org (2 years). PhD in Photonics (4 years)

Type/Description of disciplines/program tracks offered: Physics; Optical engineering electronics

Academic and research specialties related to optics/photonics:

electromagnetic optics, ultrafast optics, photonics, photonic crystals, microwave technology, quantum optics, quantum information, entanglement, micro- and nano-optics, spintronics.

Admission deadlines: deadlines vary for different programs (see home pages)

Year program was founded: 2001

Contact: Prof. Ari T. Friberg, Professor of Optics

Email: atf@kth.se

Website: <http://www.kth.se/ict/>

Mailing address: Royal Institute of Technology (KTH), Dept. of Microelectronics and Applied Physics, Electrum 229, Kista (Stockholm) SE-164 40 Sweden

TAIWAN

National Central University Chung-Li, Taiwan

SPIE STUDENT CHAPTERS **OSA** Student Chapter

Name of department: Optics and Photonics

Number of core optics/photonics students currently enrolled in a related program: 296

Number of students in optics/photonics related course work: 296

Optics/photonics related programs/degrees offered: BS, MS and PhD degrees available.

Type/Description of disciplines/program tracks offered: Optical engineering

Contact: Brian T. H. Chang, Chair, SPIE Taiwan Student Chapter

Email: thchang@ios.ncu.edu.tw

Website: <http://www.dop.ncu.edu.tw>

Mailing address: National Central Univ., Dept. of Optics and Photonics, Chung-Li 32001 Taiwan

National Chiao Tung University SPIE. STUDENT CHAPTERS OSA Student Chapter HsinChu, Taiwan

National Chiao Tung University (NCTU) has a long history of academic excellence in photonic science and technology. The Department of Photonics (DoP) was established in 2004. The graduate education arms of the DoP consist of the Institute of Electro-Optical Engineering (IEO, founded in 1980) and the Display Institute (DI, established in 2004), conferring M.S. and PhD degrees. Both Institutes are the first institute of its kind in Taiwan. Photonics will play a key role in providing the enabling technology for the 21st century. With this vision in mind, the department of photonics (DoP) emphasizes innovative teaching and cutting-edge research programs in photonics for the new millennium.

Name of department: Department of Photonics / Institute of Electro Optical Engineering / Institute of Display

Number of core optics/photonics students currently enrolled in a related program: 400

Number of students in optics/photonics related course work: 400

Number of optics/photonics related courses offered in this program: 40

Optics/photonics related programs/degrees offered: BS degree offered by Department of Photonics. MS degree Electro-Optical Engineering Track offered by Institute of Electro-Optical Engineering. Display Track offered by Institute of Display. PhD degree Electro-Optical Engineering Track offered by Institute of Electro-Optical Engineering. Display Track offered by Institute of Display.

Type/Description of disciplines/program tracks offered: Optical engineering; Optics; Photonics; EO Trac; Display Trac; Fiber optics

Academic and research specialties related to optics/photonics: (1) lasers, optical physics, photonic materials and devices; (2) optical systems, information display, storage and processing; (3) fiber optics and communication.

Year program was founded: 1980

Contact: Shu-Wen Hsu, Department Officer

Email: ieo@cc.nctu.edu.tw

Website: <http://www.ieo.nctu.edu.tw>, <http://www.di.nctu.edu.tw>

Mailing address: Department of Photonics, National Chiao Tung Univ., 1001 Ta Hsueh Road, HsinChu 300 Taiwan

National Taipei University of Technology SPIE. STUDENT CHAPTERS Taipei, Taiwan

Name of department: Electro-Optical Engineering

Number of core optics/photonics students currently enrolled in a related program: 335

Number of optics/photonics related courses offered in this program: 42

Optics/photonics related programs/degrees offered: Bachelors, Masters and Doctoral programs available.

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Electrical engineering; Technology; Optics; Photonic; Fundamentals of Photonic; Biomedical optics; Fiber optics

Contact: Yi-Jun Jen, Distinguished Professor and Vice President

Email: yjjen.tw@yahoo.com.tw

Website: <https://eo.ntut.edu.tw/>

Mailing address: 1, Sec. 3, Chung-hsiao E. Rd, Taipei 10608 Taiwan

National Taiwan University SPIE. STUDENT CHAPTERS OSA Student Chapter Taipei, Taiwan

Name of department: Physics

Number of optics/photonics related courses offered in this program: 15

Optics/photonics related programs/degrees offered: Bachelors, Masters and Doctoral programs are available.

Type/Description of disciplines/program tracks offered: Optical engineering

Academic and research specialties related to optics/photonics: 1. Optics, 2. Modern Optics, 3. Quantum Optics, 4. Fiber Optics, 5. Modern Optical Microscopy, 6. Liquid Crystal Optics, 7. Near-field Optics, 8. Nanophotonics, 9. Laser Optics, 10. Spectroscopy, 11. Photonics, 12. Nonlinear Optics, 13. Liquid Crystal Electro-optical

Contact: Din Ping Tsai, Distinguished Professor

Email: dptsai@phys.ntu.edu.tw

Website: <https://www.phys.ntu.edu.tw/>

Mailing address: R405, Department of Physics, National Taiwan University, No.1, Sec. 4, Roosevelt Road, Taipei 10617 Taiwan

TUNISIA

Sup'Com Engineering School of SPIE. STUDENT CHAPTERS OSA Student Chapter Communication of Tunis

Gazala, Tunisia

The program is designed to produce highly-qualified engineers, capable of designing, implementing and operating the services, the systems and the telecommunications networks including wireless and optical systems and equipment. The specialization will offer an up-to-date curriculum in lasers, optical fibers, and optical components, systems and networks.

Name of department: Electronics, Physics

Number of core optics/photonics students currently enrolled in a related program: 30

Number of students in optics/photonics related course work: 200

Number of optics/photonics related courses offered in this program: 5

Optics/photonics related programs/degrees offered: MSc in

Telecommunications (5 years) with research in photonics related topics.

PhD in telecommunications with research in photonics related topics.

Type/Description of disciplines/program tracks offered: Optical engineering; Fiber optics

Academic and research specialties related to optics/photonics: optical communications, optical fibers, lightwave systems, optical networks, quantum information, photonic components.

Contact: Mourad Zghal, Professor

Email: mourad.zghal@supcom.tn

Website: <http://www.supcom.mincom.tn>

Mailing address: 3,5 Km Rte De Raoued, Gazala Ariana 2080 Tunisia

TURKEY

Koç University SPIE. STUDENT CHAPTERS OSA Student Chapter Istanbul, Turkey

Research in the optical sciences and technology is performed through collaboration between the related Science and Engineering Departments. Experimental research is performed in the areas of novel optical materials, active and passive optical devices, optoelectronic systems, DWDM, near-infrared tunable solid-state lasers, spectroscopy of materials, ultrafast, lasers, MOEMS, display image quality, micro-optical elements, and scanning systems, Fluorescence Correlation Spectroscopy (FCS) and FRET microscopy, photonic crystals, metamaterials, nanophotonics, biophotonics, microwave photonics, and plasma physics. Theoretical research is performed on the optical properties of semiconductor heterojunctions, quantum phase, quantum and nonlinear optics in BEC's, ultraslow and superluminal light propagation, cavity QED, quantum information, spintronics, optical communication and advanced signal processing.

Name of department: Departments of Chemistry, Electrical and Electronics Engineering, & Physics

Number of core optics/photonics students currently enrolled in a related program: 10

Number of students in optics/photonics related course work: 100

Number of optics/photonics related courses offered in this program: 10

Optics/photonics related programs/degrees offered: BS in Chemistry, BS in Electrical and Electronics Engineering, BS in Physics. MS in Biomedical Science and Engineering, MS in Chemistry, MS in Computational Science and Engineering, MS in Electrical and Electronics Engineering, MS in Material Science and Engineering, MS in Optoelectronics and Photonics Engineering. PhD in Biomedical Science and Engineering, PhD in Chemistry, PhD in Computational Science and Engineering, PhD in Electrical and Electronics Engineering, PhD in Material Science and Engineering, PhD in Physics.

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Electrical engineering

Academic and research specialties related to optics/photonics: Design, development, and characterization of novel light sources, optoelectronic materials, microphotonic devices, micro-opto-electro-mechanical systems (MOEMS), optical information processing systems; and the investigation of ultrafast and nonlinear optics, quantum optics, ultraslow

UNDERGRADUATE/GRADUATE PROGRAMS

and superluminal light, cavity QED, quantum information, spintronics, photonic crystals, nanophotonics, biophotonics, metamaterials, microwave photonics, plasma physics, optical communication and advanced signal processing.

Accreditation Organization: MUDEK (ENAAE)

Admission deadlines: June 1

Year program was founded: 1993

Contact: Ali Serpenguzel, Professor of Physics

Email: aserpenguzel@ku.edu.tr

Website: <http://www.ku.edu.tr>

Mailing address: Koc University, Rumelifeneri Yolu, Sariyer, Istanbul 34450 Turkey

UKRAINE

Chernivtsi National University

SPIE. STUDENT CHAPTERS OSA Student Chapter

Chernivtsy, Ukraine

Name of department: Correlation Optics, Optics and Publishing Department

Number of core optics/photonics students currently enrolled in a related program: 250

Number of students in optics/photonics related course work: 250

Number of optics/photonics related courses offered in this program: 5

Optics/photonics related programs/degrees offered: BS - Metrology and Information Technique, BS - Telecommunications and Radiotechnique. MS - Optics and Laser Physics, Photonics and Optical Informatics. CandSc (Equivalent of PhD) - Optical and Laser Physics, DocSc - Optics and Laser Physics.

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Electrical engineering; Optics; Photonics; Biomedical optics; Fiber optics

Academic and research specialties related to optics/photonics:

Specializations: optoelectronic devices, biomedical optics, optics and communications, printing.

Admission deadlines: June 30

Year program was founded: 2015

Contact: Oleg V. Angelsky, Director of Physical, Technical and Computer Sciences Institute

Email: o.angelsky@chnu.edu.ua

Website: <http://ptcsi.chnu.edu.ua/en>

Mailing address: Chernivtsi National Univ. after Yu. Fed'kovich, Dept of Correlation Optics Kotsyubinsky Str. 2, Chernivtsy 58012 Ukraine

Ivan Franko Lviv National University

SPIE. STUDENT CHAPTERS OSA Student Chapter

Lviv, Ukraine

Founded in January 1661 Ivan Franko Lviv National University is one of the oldest in Europe and is one of the leading national educational establishments in training of scientific, engineering and pedagogical specialists. At present, the teaching staff and students body amount to 22,000, among them 12,000 full-time and part-time students trained in 53 scientific, engineering and pedagogical fields. Faculty of Electronics was founded in 2003 after the division of Physical Faculty. Faculty unites the departments of electronics, nonlinear optics, radioelectronic materials science, radiophysics, physics of semiconductors, physical and biomedical electronics.

Name of department: Faculty of Electronics

Number of core optics/photonics students currently enrolled in a related program: 320

Number of students in optics/photonics related course work: 50

Number of optics/photonics related courses offered in this program: 23

Optics/photonics related programs/degrees offered: Bachelors, Master and Doctoral programs are available.

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Electrical engineering; Optics; Photonics; Biomedical optics

Academic and research specialties related to optics/photonics:

radiophysics and electronics, applied physics, physical and biomedical electronics, information technologies of planning.

Admission deadlines: The deadline for B.S. and M.S. programs is usually June 15, the deadline for PhD program is usually first week of September. Please contact us for details.

Year program was founded: 1953

Contact: Alexander Bilyi, Head of Laboratory of Optoelectronic Devices

Website: <http://www.electronics.lnu.edu.ua/>

Mailing address: Ivan Franko Lviv National University, Dept. of Physical and Biomedical Electronics, Faculty of Electronics, Off. 412, Drahomanov Str. 50, Lviv 79005 Ukraine

Lviv Polytechnic National University

Lviv, Ukraine

Name of department: Photonics

Number of core optics/photonics students currently enrolled in a related program: 68

Number of students in optics/photonics related course work: 84

Number of optics/photonics related courses offered in this program: 47

Optics/photonics related programs/degrees offered: Bachelors program in Optical Engineering. Masters programs in Laser and Optoelectronic Engineering, Photonics and Optoinformatics. Doctoral programs in Optoelectronic Systems, Micro and Nano Systems Technology, Telecommunications and Radio Engineering.

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Electrical engineering; Optics; Photonics; Biomedical optics; Fiber optics

Admission deadlines: The deadline for B.S. and M.S. programs is usually June 30, the deadline for PhD program is usually July. Please contact us for details.

Year program was founded: 1994

Contact: Prof. Dr. Yaroslav Bobitski, Head of Photonics Dept.

Email: bobitski@polynet.lviv.ua

Website: <http://www.lp.edu.ua>

Mailing address: Lviv Polytechnic National Univ., Photonics Dept., 12 Stepana Bandery Str., Lviv 79013 Ukraine

Taras Shevchenko National University of Kyiv

SPIE. STUDENT CHAPTERS OSA Student Chapter

Kyiv, Ukraine

General Courses: Ukrainian Language, Mathematical Analysis, Computer modelling, Mechanics, Molecular Physics, Electricity and Magnetism, Optics, Atom Physics, Nuclear Physics, Theoretical Mechanics, Electrodynamics, Quantum Mechanics, Statistic Physics, Philosophy, History, Culture, Psychology. Special Courses: Optical Design, Optical Technology, Metrology, Laser spectroscopy, Laser techniques and applied quantum electronics, Optoelectronic systems and devices, Physics of Alive, Acousto-, Magneto-, and metalo-optics, Nonlinear optics, Semiconductor Physics, Basic of Holography, Colorimetry, Nanotechnology, Nanoelectronics, Photovoltaics.

Name of department: Department of Optics, The Faculty of Physics

Number of core optics/photonics students currently enrolled in a related program: 150

Number of optics/photonics related courses offered in this program: 30

Optics/photonics related programs/degrees offered: Associate degree(s) offered. BSc Optics and Laser Physics, BSc Optical Engineering. MSc Laser and Optoelectronic Engineering. PhD in Optics and Laser physics.

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Electrical engineering; Optics; Photonics; Fiber optics

Academic and research specialties related to optics/photonics: 1. Laser and Optoelectronic Engineering, 2. Solid State Optics.

Admission deadlines: Application Deadline: June 15

Year program was founded: 1939

Contact: Prof. Leonid V. Poperenko, Head of Chair of Optics

Email: plv@univ.kiev.ua

Website: <http://optics.univ.kiev.ua/>

Mailing address: Taras Shevchenko National University of Kyiv, Faculty of Physics, Chair of Optics, 64 Volodymyrska Vul., Kyiv 01601 Ukraine

UNITED ARAB EMIRATES

Khalifa University of Science and Technology

Abu Dhabi, United Arab Emirates

Masdar Institute is an independent, not-for-profit, research driven, graduate institution. It is developed in cooperation with the Massachusetts Institute of Technology (MIT) in the USA to follow the standards for research and education similar to MIT. The institute is located in Abu Dhabi in Masdar City, a carbon neutral and a zero waste sustainable city to be powered solely by alternative energy. During the two-year Masters program, students are taking classes and pursuing research in their selected field. A thesis is submitted at the end of the program. While

peers and faculty represent over 30 different nationalities, all instruction is conducted in English. The institute is currently working with local accreditation entities to get an interdisciplinary PhD program officially started.

Name of department: Microsystems Engineering Program
Number of core optics/photronics students currently enrolled in a related program: 8

Number of students in optics/photronics related course work: 10
Number of optics/photronics related courses offered in this program: 10

Type/Description of disciplines/program tracks offered: Optical engineering; Electrical engineering; Technology; Optics; Photonics; Biomedical optics

Academic and research specialties related to optics/photronics: Integrated Optics Nanophotonics.

Year program was founded: 2009

Contact: Dr. Jaime Ribeiro Viegas, Associate Professor

Email: jviegas@masdar.ac.ae

Website: <http://nanophotonics.labs.masdar.ac.ae/>

Mailing address: Khalifa Univ. of Science & Technology, Masdar Institute, PO Box 54224, Abu Dhabi United Arab Emirates

UNITED KINGDOM

Aston University

SPIE. STUDENT CHAPTERS **OSA** Student Chapter

Birmingham, United Kingdom

Name of department: Photonics Research Group, School of Engineering and Applied Science

Number of core optics/photronics students currently enrolled in a related program: 70

Optics/photronics related programs/degrees offered: MSc in Telecommunications Technology, MRes in Photonic Networks.

Type/Description of disciplines/program tracks offered: Optical engineering

Academic and research specialties related to optics/photronics: Fibre Bragg Gratings, Optical Fibre Sensing, Optical Fibre Transmission, Optical Switching, Radio-on-Fibre Systems.

Year program was founded: 1970

Contact: Ms. S.L.Cox, Postgraduate Administrator

Email: teltec@aston.ac.uk

Website: <http://www.aston.ac.uk/ee>

Mailing address: Aston University, Photonics Research Group, Aston Triangle, Birmingham B4 7ET United Kingdom

Cardiff University

Cardiff, United Kingdom

Cardiff's MSc in Biophotonics is the first programme in the UK offering innovative training at the interface between laser optics, cell biology and medicine. Whether you are an emerging researcher or plan a future in a biophotonics-related industry, we can provide the fundamental understanding and hands-on experience necessary for work in this rapidly developing field. This programme is jointly taught by expert scientists in the School of Physics and Astronomy and in the School of Biosciences using world-class research and teaching facilities. Much of the research in this field is inter-disciplinary in nature, drawing expertise from different areas across the life science, physical science and engineering disciplines. The course will cover a broad range of subject areas including advanced light microscopy, cell and tissue imaging, laser-based techniques, nanoparticles as optical bio-labels, biosensors, and medical applications. The programme will comprise introductory material in the autumn semester, giving both life and physical scientists the necessary tools for tackling the advanced modules in the spring semester covering the latest developments in this rapidly evolving area. Subject to satisfactory progress, students will be placed with an industrial collaborator or a university research group to undertake the project module of three months' duration.

Name of department: School of Physics & Astronomy/School of Biosciences

Number of core optics/photronics students currently enrolled in a related program: 10

Number of optics/photronics related courses offered in this program: 5

Optics/photronics related programs/degrees offered: MSc Biophotonics (FT and PT options)

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Optics; Photonics; Biomedical optics

Year program was founded: 2006

Contact: Prof. Wolfgang Langbein, Admissions Tutor

Email: mscbiophotonics@cardiff.ac.uk

Website: <http://www.astro.cf.ac.uk>

Mailing address: Cardiff School of Physics & Astronomy, Cardiff University, Queens Bldgs. The Parade, Cardiff CF24 3AA United Kingdom

Cranfield University

Cranfield, United Kingdom

Name of department: Engineering Photonics

Optics/photronics related programs/degrees offered: MSc by research. A one year programme. MPhil by research. A two year programme. PhD 3 year research programme.

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Electrical engineering; Optics; Biomedical optics

Academic and research specialties related to optics/photronics: Optical Instrumentation, Optical fibre sensors, short and long period fiber grating fabrication and application. Planar flow measurement systems for use in windtunnels and turbomachinery. Many programmes are multidisciplinary involving collaboration with other Cranfield specialisms including, composite material processing, damage and health monitoring of structures, aerospace and flight test programmes and nanoscale organic materials combined with fibres for sensing and signal processing.

Admission deadlines: Applications accepted at any time

Year program was founded: 1989

Contact: Prof. Ralph R. Tatam, Head, Centre for Engineering Photonics

Email: r.p.tatam@cranfield.ac.uk

Website: <http://www.cranfield.ac.uk/>

Mailing address: Cranfield University, Engineering Photonics, Cranfield Bedford MK43 0AL United Kingdom

Heriot-Watt University

SPIE. STUDENT CHAPTERS **OSA** Student Chapter

Edinburgh, United Kingdom

The department runs a Postgraduate Masters (MSc) program in Photonics and Optoelectronic devices that is joint with the University of St. Andrews. Students spend time at the two Universities, benefiting from the combined expertise and diversity of staff, teaching and research facilities made available to them. This one-year course includes a three-month period on a research project at an industrial company, usually in the UK.

Name of department: Department of Physics
Number of core optics/photronics students currently enrolled in a related program: 250

Optics/photronics related programs/degrees offered: We offer a number of Undergraduate programmes in Physics including BSc (Honours) in Physics. BSc (Honours) in Engineering Physics. We offer integrated Masters programmes (MPhys) in Physics, and also in Engineering Physics. Our postgraduate Masters course, MSc in Photonics and Optoelectronic Devices, is delivered in partnership with the University of St Andrews. Doctoral research programmes are available for both PhD and EngD (Engineering Doctorate) study. Photonics PhD research is available in the Institute of Photonics and Quantum Sciences, see website for details: <http://www.ipaqs.hw.ac.uk>. The Engineering Doctorate in Applied Photonics is a 4 year postgraduate degree, with an emphasis on research in a business/industrial context, with the aim of delivering senior research managers of the future. It is a combination of taught coursework and industrial research projects. See the website for details: <http://www.engd.hw.ac.uk/>

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Optics; Photonics; Biomedical optics; Fiber optics

Academic and research specialties related to optics/photronics: Optoelectronics, Bio-photonics, nonlinear optics, laser, physics and engineering, fibre optics, instrumentation, semiconductor materials, quantum optics, nano-photonics.

Admission deadlines: All our Undergraduate and MSc programmes start in September. Applications are normally requested by early summer, but may be considered closer to the start date.

Year program was founded: 1980

Contact: Dr. William MacPherson, Deputy Academic Head of Physics

Email: w.n.macpherson@hw.ac.uk

Website: <http://www.phy.hw.ac.uk>

Mailing address: Department of Physics, School of Engineering and Physical Sciences, Heriot-Watt University, Edinburgh EH14 4AS United Kingdom

UNDERGRADUATE/GRADUATE PROGRAMS

Imperial College London London, United Kingdom

SPiE STUDENT CHAPTERS **OSA** Student Chapter

The MSc Programme in Optics and Photonics (<https://www.imperial.ac.uk/physics/students/admissions/postgraduate-admissions/master-level-programmes/>) is a 12-month course that includes 180 hours of lectures, 160 hours of laboratory work and a 4-month project. It covers all aspects of opto-electronics, laser physics and optical engineering required for a career in this field. The MRes in Photonics is available for students beginning an MSc + PhD programme. Please see <http://www3.imperial.ac.uk/physics> for details of our other courses.

Name of department: Physics (Blackett Laboratory)

Number of core optics/photonics students currently enrolled in a related program: 20

Number of students in optics/photonics related course work: 50

Number of optics/photonics related courses offered in this program: 7

Optics/photonics related programs/degrees offered: BSc/MSci Physics, MSc in Optics and Photonics, MRes in Photonics, MSc in Physics with Nanophotonics, MRes in Controlled Quantum Dynamics, MRes in Plastic Electronic Materials, PhD in Physics

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Optics; Photonics; Biomedical optics; Fiber optics

Academic and research specialties related to optics/photonics: All aspects of optics and photonics are covered by our extensive research activities. See www.imperial.ac.uk/physics for details of current research topics.

Admission deadlines: No fixed deadline, best to apply by end of June.

Year program was founded: 1917

Contact: Dr. Andrew Williamson, PG Development Officer

Email: andrew.williamson@imperial.ac.uk

Website: <http://www3.imperial.ac.uk/physics/admissions/pg/msc>

Mailing address: Blackett Laboratory, Imperial College London, London SW7 2AZ United Kingdom

Northumbria University Newcastle upon Tyne, United Kingdom

Name of department: School of Computing, Engineering and Information Sciences

Number of core optics/photonics students currently enrolled in a related program: 50

Number of optics/photonics related courses offered in this program: 2

Optics/photonics related programs/degrees offered: MSc Optoelectronic and Communication Systems, MSc Optical and Computer Networks.

Type/Description of disciplines/program tracks offered: Optical engineering; Electrical engineering

Contact: Dr. Rob Miles, Programme Leader

Email: robert.miles@northumbria.ac.uk

Website: <http://www.northumbria.ac.uk/ceis>

Mailing address: School of Computing, Engineering & Information Sciences, Northumbria University, Pandon Building, Newcastle upon Tyne NE2 1XE United Kingdom

University College London Torrington Place, United Kingdom

The Master of Research (MRes) one year programme offered at both UCL and Cambridge aims to provide you with the scientific skills and knowledge necessary to undertake research effectively. The programme is taught jointly and has modules delivered at both UCL and Cambridge, with the participation of industry. This will provide understanding of the applications, systems and business drivers as well as the underpinning scientific and engineering material required for photonic systems research at the highest level. The course includes mini-projects at both institutions in contrasting areas of photonics. Successful MRes students can progress on to a PhD at either UCL or Cambridge.

Name of department: Cambridge Centre for Doctoral Training in Integrated Photonic and Electronic Systems

Number of core optics/photonics students currently enrolled in a related program: 50

Number of students in optics/photonics related course work: 13

Number of optics/photonics related courses offered in this program: 26

Optics/photonics related programs/degrees offered: MRes Integrated Photonic and Electronic Systems (taught jointly between UCL and University of Cambridge). Research degrees with the Centre are offered in a broad range of integrated photonics research areas are offered at both UCL and Cambridge.

Type/Description of disciplines/program tracks offered: Physics; Optical

engineering; Electrical engineering; Optics; Photonics; Biomedical optics; Fiber optics

Academic and research specialties related to optics/photonics:

Biosensors, physics and optics of nanostructures, computer vision and robotics, image processing and image coding, embedded sensors for IoT.

Accreditation Program: MRes modules accredited by the IET

Accreditation Organization: IET

Admission deadlines: UCL and Cambridge full application deadlines vary, but candidates should aim to apply no later than end May.

Year program was founded: 2009

Contact: Tim Bodley-Scott, Centre Manager

Email: t.bodley-scott@ucl.ac.uk

Website: <http://www.ipes-cdt.org>

Mailing address: Room 602, Roberts Building, Torrington Place London WC1E 7JE United Kingdom

University of Dundee Dundee, United Kingdom

Name of department: Division of Physics

Number of core optics/photonics students currently enrolled in a related program: 40

Number of students in optics/photonics related course work: 60

Number of optics/photonics related courses offered in this program: 7

Optics/photonics related programs/degrees offered: BSc (Hons) in Physics, BEng (Hons) in Electronic Engineering, BSc in Electronic Engineering and Physics, BSci (Hons) in Physics with Renewable Energy Science, MSci (Hons) in Physics, MSci (Hons) in Physics with Renewable Energy Science, MSc Biomedical Engineering, PhD Physics (Optics, Photonics, Biophotonics), PhD Electronic Engineering.

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Optics; Photonics; Biomedical optics; Renewable Energy

Academic and research specialties related to optics/photonics: Laser Physics, Laser Material Processing, optical manipulation, biophotonics, complex photonics, solar lasers.

Admission deadlines: Deadlines for undergraduate programmes are at the start of January for September intake; MSc deadlines are similar but less rigid, so can roll throughout the year, but start dates are in September. Graduate programme has a rolling deadline, but entry is preferred in September.

Year program was founded: 1883

Contact: David McGloin, Associate Dean - Research

Email: d.mcglain@dundee.ac.uk

Website: <http://www.dundee.ac.uk/>

Mailing address: Physics, School of Science and Engineering, University of Dundee, Dundee Scotland DD1 4HN United Kingdom

University of Kent Canterbury, United Kingdom

OSA Student Chapter

Training in methods and devices for non-invasive high resolution optical measurements and imaging. Offers research training in optical scanning, optical coherence tomography, interferometry, sensing, optical sources, adaptive optics, optical devices for non-invasive imaging of tissue/optics of the tissue. Applicants must have a good background in theoretical/experimental optics and a degree in Physics, Medical Physics or Electronic Engineering.

Name of department: Applied Optics Group, School of Physical Sciences

Number of core optics/photonics students currently enrolled in a related program: 5

Number of students in optics/photonics related course work: 25

Number of optics/photonics related courses offered in this program: 3

Optics/photonics related programs/degrees offered: BSc Physics; BSc Physics with Astrophysics; BSc Astronomy, Space Science & Astrophysics; BSc Physics with a Foundation Year. MSc Physics (includes Optics); MSc EuroMasters in Physics; MSc Biomedical Imaging; MSc Chemistry; MPhil Physics (includes Optics); MPhil Chemistry. PhD Physics (includes Optics); PhD Chemistry.

Type/Description of disciplines/program tracks offered: Physics; Optical engineering

Academic and research specialties related to optics/photonics: Optical Coherence Tomography (OCT), Confocal Microscopy (CM), Adaptive Optics for the eye (AO), components for OCT, CM and AO, endoscopy, fiber optic sensing, secure optical communications.

Admission deadlines: The University will consider applications for research degrees throughout the year. To apply for postgraduate study at Kent, go to the following website to complete the online application form: <http://www.kent.ac.uk/studying/postgrad/apply/index.html>

Year program was founded: 2006

Additional comments: Please note that tuition fees listed are for the 2017/18 academic year, and are subject to change.

Contact: Adrian Podoleanu, Professor of Biomedical Optics

Email: ap11@kent.ac.uk

Website: <https://research.kent.ac.uk/appliedoptics/>

Mailing address: School of Physical Sciences, University of Kent, Ingram Building, Room 301, Canterbury Kent CT2 7NH United Kingdom

University of Manchester Manchester, United Kingdom

MSc Photon Science: The MSc is available as a 12 month full time taught course in postgraduate education. Both course streams have evolved from the former MSc in Laser Photonics and Modern Optics and have been combined with course units and experimental projects from other schools including: Chemistry, Chemical Engineering and Analytical Science, and Electrical and Electronic Engineering. Course units include: Laser Photonics; Laser Technology; Laser Laboratory; Laser Photomedicine; Nonlinear Optics; Spectroscopy; Laser, Electron and Photon Interactions with Atoms and Molecules; Soft Matter Physics; Holography; Holography Laboratory; Topics in Advanced Physical Chemistry; Advanced Instrumental Methods; Computational Chemistry; Optoelectronics for Measurement and High Speed Devices; Sensors and Systems; Tools and Techniques for Enterprise. The choice of options may vary from year to year. Each course unit is assessed by a formal examination and / or coursework. Students will also carry out an extended experimental project in one of the participating Schools, which is examined by submission of a dissertation.

Name of department: School of Physics and Astronomy

Number of core optics/photronics students currently enrolled in a related program: 30

Number of students in optics/photronics related course work: 250

Number of optics/photronics related courses offered in this program: 2

Optics/photronics related programs/degrees offered: MSc Photon Science.

Photon Science is a broad and enabling discipline that encompasses all aspects of light and electromagnetic waves for instance: emission transmission, detection, amplification, switching and modulation. The photonics industry is evolving and growing rapidly over a wide range of businesses including aerospace and defence, visual entertainment, holographic security, laser manufacturing, lighting and displays, LEDs, medical technology, nuclear power, solar energy technology, fibre-optic telecommunications and information storage (CDs, DVDs, Blue-Ray). As a result trained optical and laser scientists are in high demand around the world. The course is specifically designed to be an ideal entry point to a career in the rapidly developing and diverse photonics industry. Roughly half of previous graduates have moved successfully into employment as laser/optical scientists, sometimes directly as a result of the university's industrial links, and the other half have proceeded to further research study (eg PhD degree). A few graduates have taken their transferable mathematical, scientific and enterprise skills into areas such as finance and technical sales. MSc by Research programme also available. This programme enables you to study a photon physics related project supervised by an academic staff member throughout the year. Students are expected to spend full-time working on the research project unless they are attending lectures. Hence the student becomes an integral part of the research group, allowing communication of ideas between the student and various members of the group. An MSc dissertation must be submitted at the end of the year, which will reflect the research that has been undertaken by the student. This programme therefore provides advanced training useful both in industry and research. In addition to continuing physics research in industry, an MSc provides the entry level training to undertake further research which may lead to a PhD. Doctoral program(s): PhD Physics (Photon Science): PhD Physics (Photon Science): The Photon Physics research group covers a wide range of studies, both pure and applied, involving the interaction of photons and electrons with matter. Atomic and molecular targets are studied using CW and pulsed lasers, synchrotron radiation and electron beams to understand the dynamics of excitation and ionisation by photons and electrons. Synchrotron Radiation (SR) is used to study multi-ionisation processes that are dominated by electron-electron correlations. CW lasers are used for atom cooling and for the nano-fabrication of surface structures in ultra-high vacuum systems. Novel experimental techniques are developed and laser-atom interactions are modelled. Synchrotron radiation and lab-based sources are used to study the surface electronic structure of functional materials. These include GMR oxides, oxide catalysts, photovoltaics and more latterly biologically

important surfaces and interfaces. The experimental approaches used combine photo-emission and electron energy loss spectroscopy with information obtained from X-ray absorption measurements. The group plays a very active role in the development of the UK 4GLS (4th Generation Light Source) project (www.4gls.ac.uk), and members of the group were instrumental in setting up the new Photon Science Institute at The University of Manchester (www.psi.manchester.ac.uk). Activities within the group include the development of new laser sources and materials. These include pulsed and high power CW mid-IR fibre lasers, compact diode pumped crystal lasers and solid state dye lasers based on polymer, sol-gel or inorganic-organic composite hosts.

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Electrical engineering; Technology

Admission deadlines: MSc courses commence the last week in September.

Contact: Karen Ross, Admissions Officer

Email: pg-physics@manchester.ac.uk

Website: <http://www.physics.manchester.ac.uk/>

Mailing address: Univ. of Manchester, School of Physics & Astronomy, Schuster Bldg, Oxford Rd, Manchester M13 9PL United Kingdom

University of Southampton Southampton, United Kingdom

SPIE. STUDENT CHAPTERS **OSA** Student Chapter

Name of department: Optoelectronics Research Centre

Number of core optics/photronics students currently enrolled in a related program: 120

Number of students in optics/photronics related course work: 120

Number of optics/photronics related courses offered in this program: 3

Optics/photronics related programs/degrees offered: MSc Photonic

Technologies and MSc Optical Fibre Technologies. PhD in Photonics

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Electrical engineering; Optics; Photonics; Biomedical optics; Fiber optics

Academic and research specialties related to optics/photronics: Optical Fibres and Waveguides, Optical Materials and Fabrication, Diode-Pumped Solid State Lasers, Fibre Lasers and Amplifiers, Optical Parametric Oscillators, Nonlinear optics, Sensors, Telecommunications, Nanophotonics, High Power Lasers, Ultrafast Optics Pulse Shaping and X-Ray Generation, Scanning Near Field Microscopy, Microstructuring, Biophotonics, Silicon Photonics.

Year program was founded: 1990

Contact: Dr. Pier Sazio

Email: fpse-phdapply@soton.ac.uk

Website: <http://www.orc.soton.ac.uk>

Mailing address: University of Southampton, Optoelectronics Research Centre, Building 46, Highfield Campus, Southampton Hampshire SO17 1BJ United Kingdom

University of St. Andrews Scotland, United Kingdom

SPIE. STUDENT CHAPTERS

First degree (MPhys) in Physics: four/five-year course contains substantial project, often working closely with a research group. MSc in Photonics and Optoelectronics Devices: well-established 12-month course with academic input from two highly regarded Universities, including a summer project placement in industry. PhD in Physics: three years working in one of the School's successful research teams towards the degree of PhD, projects currently running in ultrashort pulse lasers and devices, semiconductor spectroscopy, solid-state lasers, optical parametric devices, optical instrumentation, and terahertz technology. EngD programme is at same level as PhD, but with most of the time spent in industry.

Name of department: School of Physics and Astronomy

Number of core optics/photronics students currently enrolled in a related program: 60

Number of students in optics/photronics related course work: 300

Number of optics/photronics related courses offered in this program: 3

Optics/photronics related programs/degrees offered: BSc programmes in physics (3 or 4 years long) can contain significant amounts of photonics. Master of Science: Postgraduate Photonics and Optoelectronic Devices (1 year), MPhys First degree: Physics. PhD and EngD programmes in photonics research are available.

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Optics; Photonics

Academic and research specialties related to optics/photronics:

Biophotonics, ultrashort-pulse-devices, optical parametric oscillators, miniature solid-state lasers, optical time-resolved studies of low-dimensional semiconductors, optical-instrumentation, photonic

UNDERGRADUATE/GRADUATE PROGRAMS

microstructures, Fabrication of novel (III-V and organic) semiconductor light sources, quantum-optics, coherent effects in atoms, optical-trapping and guiding. Other areas include Terahertz-technologies, astronomy, solid-state, theoretical-physics. These specialties are reflected in the range of special options in undergraduate degree programme, and in PhD student places.

Admission deadlines: As soon as possible. January deadline for most first degree courses. Spring deadline for PhD courses, summer deadline for consideration for MSc and EngD places. Details from the School.

Contact: Dr Bruce Sinclair, Reader

Email: b.d.sinclair@st-andrews.ac.uk

Website: <http://www.st-and.ac.uk/physics>

Mailing address: School of Physics and Astronomy, University of St Andrews, St Andrews Fife, Scotland KY16 9SS United Kingdom

University of Strathclyde Glasgow, United Kingdom

SPIE. STUDENT CHAPTERS OSA Student Chapter

One of the research themes in the Department of Electronic and Electrical Engineering is in Photonic Sensors, Components and systems. This has been a mainstream activity for 15 years and has grown to include topics such as optoelectronic sensors and systems, optical communication systems and optical and photonic devices. In the sensors area, projects are conducted in optical microsensors, biomedical optical systems environmental and gas sensors, and optoelectronic and fibre optic sensors for structural integrity monitoring.

Name of department: Electronic and Electrical Engineering

Number of core optics/photonics students currently enrolled in a related program: 80

Number of optics/photonics related courses offered in this program: 3

Optics/photonics related programs/degrees offered: BEng, Meng, MSc, MPhil, PhD

Type/Description of disciplines/program tracks offered: Optical engineering

Academic and research specialties related to optics/photonics:

Optoelectronic sensors and systems, optical and photonic devices in MEMS, fibre and integrated optics, and optical communication network studies.

Admission deadlines: Open deadline for postgraduate research and for masters courses. To 1 October of year of entry for undergraduate courses.

Year program was founded: 1985

Contact: Prof. Brian Culshaw

Email: b.culshaw@eee.strath.ac.uk

Website: <http://www.eee.strath.ac.uk>

Mailing address: Univ. of Strathclyde, Dept. of E&EE, 204 George St, Glasgow G1 1XW United Kingdom

UNITED STATES

ALABAMA

Alabama Agricultural and Mechanical University

OSA Student Chapter

Normal, Alabama USA

MS and PhD degrees are offered in physics with specializations in optics/lasers, materials science and space science. 12 credit hours (minimum) in general courses are required for MS, 12 hours of specialized courses in area of specialization, and six hours for thesis. Students can obtain MS degree with comprehensive examination without thesis with 30 credit hours of courses. 60 credit hours for PhD are required with 45 hours in area of specialization and 15 hours in general area. In addition student must pass a departmental qualifying examination, candidacy examination, must do research on an approved topic, must earn 12 semester credits.

Name of department: Physics

Number of core optics/photonics students currently enrolled in a related program: 15

Number of students in optics/photonics related course work: 15

Number of optics/photonics related courses offered in this program: 23

Optics/photonics related programs/degrees offered: BS in Physics, Applied Physics and Space Science. MS in Optics/lasers, MS in Materials

Science, MS in Space Science. PhD in Optics/Lasers, PhD in Materials Science.

Type/Description of disciplines/program tracks offered: Physics
Academic and research specialties related to optics/photonics: crystal growth from solution, melt, vapor for IR, NLO/photorefractive/IR window materials; piezoelectric materials, radiation detection materials; materials characterization by techniques, surface diffusion studies by ion implantation; crystal growth modeling; nonlinear optics in organic/photorefractive materials/nonlinear fiber optics; upconversion laser studies; real-time interferometry in photorefractive materials, laser beam-shaping; integrated optics in thin films of polymeric/organic materials, Fiber Optics, Fabrication of Bragg gratings for application to communication and sensing, Nonlinear Optics, Fabrication of Electrooptic Modulators, Fluorescence and Raman Spectroscopy, Diode laser spectroscopy for environmental sensing, Biophotonics, nanotechnology, Solar, space and stellar physics, Computational Physics: Remote Sensing/GIS, Hydrology, Space Weather Optics: Compact Systems, Computing, Database Management, Interconnections, Pattern Recognition, Time Delays, Panoramic Lenses, and Photorefractive Wave Mixing and Phase Conjugation, Theoretical and numerical model developments, data and measurement analyses, and magnetohydrodynamic (MHD) and particle simulations of solar-terrestrial and astrophysical plasma processes, Triboluminescent materials for structural health monitoring Energy harvesting.

Admission deadlines: Fall: June 1. Spring: October 1. Summer: March 1.

Year program was founded: 1981

Contact: Prof. Mohan Aggarwal, Chairman

Email: mohan.aggarwal@aamu.edu

Website: <http://www.aamu.edu/physics>

Mailing address: Alabama A&M Univ., Dept. of Physics, P.O. Box 428, Normal AL 35762 USA

University of Alabama at Birmingham Birmingham, Alabama USA

Name of department: Physics

Number of core optics/photonics students currently enrolled in a related program: 10

Number of students in optics/photonics related course work: 10

Type/Description of disciplines/program tracks offered: Physics; Optics

Contact: Professor Ilias Perakis, Physics Department Chair

Email: iperakis@uab.edu

Website: <http://www.uab.edu/cas/physics>

Mailing address: CH 310, Department of Physics, 1720 2nd Avenue South, Birmingham AL 35294 USA

University of Alabama in Huntsville

SPIE. STUDENT CHAPTERS OSA Student Chapter

Huntsville, Alabama USA

This unique program is highly multi-disciplinary and is followed by a wide variety of advanced course work and research in both fundamental and applied subjects. This diversity is reflected by the OSE faculty which draws on the expertise of optical scientists and engineers from the Departments of Physics, Electrical Engineering, Mechanical Engineering.

Name of department: Physics, Electrical and Computer Engineering, Center for Applied Optics

Number of core optics/photonics students currently enrolled in a related program: 80

Number of students in optics/photonics related course work: 100

Number of optics/photonics related courses offered in this program: 30

Optics/photonics related programs/degrees offered: BS or BSE with a concentration in optics and photonics. MS/MSE with a concentration in optics and Photonics. PhD in Optical Science and Engineering, PhD in Electrical Engineering.

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Electrical engineering; Optics; Photonics; Fiber optics

Academic and research specialties related to optics/photonics:

Plasmonics and metamaterials; astrophysical optics; diffractive/micro-optics; fiber optics/fiber optic sensors; holography; lasers; laser-induced plasma; image processing; lens design; medical optics/medical image processing; non-linear optics; optical communications; optical fabrication/optical system design; optical testing/metrology; opto-mechanical engineering; polarization; radiometry; remote sensing; semiconductor optical-device modeling; solid-state optics; spectroscopy; interferometry and metrology; statistical optics.

Admission deadlines: Domestic: 6 weeks prior to the start of semester. International: 3 months prior to the start of semester.

Year program was founded: 1991

Contact: Prof. Junpeng Guo

Email: guoj@uah.edu

Website: <http://www.uah.edu/OSE/>

Mailing address: University of Alabama in Huntsville, 400N Optics Bldg.,
301 Sparkman Drive, Huntsville AL 35899 USA

ARIZONA

Arizona State University

Tempe, Arizona USA

Optics courses offered within a conventional electrical engineering degree program.

Name of department: Electrical Engineering

Number of core optics/photonics students currently enrolled in a related program: 115

Number of students in optics/photonics related course work: 150

Number of optics/photonics related courses offered in this program: 8

Optics/photonics related programs/degrees offered: BSE, MS, MSE, PhD

Type/Description of disciplines/program tracks offered: Electrical engineering

Admission deadlines: December 31 for Fall semester. July 31 for Spring semester.

Year program was founded: 1956

Contact: Prof. Joseph Palais, Director of Graduate Studies

Email: askee@asu.edu

Website: <http://www.fulton.asu.edu/~eee>

Mailing address: Arizona State Univ., Electrical Engineering Dept., Tempe
AZ 85287-5706 USA

The University of Arizona

Tucson, Arizona USA

SPIE. STUDENT CHAPTERS **OSA** Student Chapter

The University of Arizona James C. Wyant College of Optical Sciences is the world's premier optical institute, with outstanding faculty members, an international student body, a challenging curriculum, pioneering research programs and close relationships with the optics industry. OSC currently offers the following degree programs: Bachelor of Science in Optical Sciences and Engineering; Professional Graduate Certificate in Optical Sciences; Professional Graduate Certificate in Photonic Communications Engineering; Master of Science in Optical Sciences; Accelerated Master of Sciences in Optical Sciences; Master of Science in Photonic Communications Engineering; Master of Science in Optical Sciences and MBA Dual Degree; Doctor of Philosophy in Optical Sciences.

Name of department: James C. Wyant College of Optical Sciences

Number of core optics/photonics students currently enrolled in a related program: 330

Number of students in optics/photonics related course work: 450

Number of optics/photonics related courses offered in this program: 138

Optics/photonics related programs/degrees offered: The Professional

Graduate Certificate in Optical Sciences is designed for professionals with bachelor's degrees who wish to supplement their post-baccalaureate practical knowledge with formal graduate coursework. Certificate students may enroll on campus or by distance through the University of Arizona Outreach College. Students complete 15 units of optics courses with a grade of B or higher. After earning a certificate, students may, upon admission, apply all 15 units toward the MS in Optical Sciences degree. International students who complete the certificate entirely by distance are exempt from the university's TOEFL requirement.// The Professional Graduate Certificate in Photonic Communications is a 15 unit professional graduate certificate designed to provide an opportunity for graduate students and industry members who possess related degrees to earn a certificate in the engineering specialization of Photonic Communications. Certificate students may enroll on campus or by distance through the University of Arizona Outreach College. Graduates of this program will be poised to contribute to the photonic communications industry by creating technology solutions to address the global demand for improved telecommunications; and by possessing the necessary vision and knowledge base to successfully venture into technology commercialization. The Bachelor of Science in Optical Sciences and Engineering is designed, in response to national need, to educate optical engineers who will be productive immediately upon graduation in areas involving lasers, optical design, optical detectors, optical fabrication and testing, optical fiber communications, and optical instrumentation. This ABET-accredited program is administered jointly through the College

of Optical Sciences and the College of Engineering. To supplement the required core courses, students choose from the following technical elective tracks: Opto-Mechanics, with a concentration in mechanical engineering; Opto-Electronics, with a concentration in electrical engineering; Optical Materials, with a concentration in materials science; and Optics. The Optics track is the most flexible curriculum, as students can choose elective courses from any related science and engineering field, as well as some business courses, with approval from the advisor. The Master of Science in Optical Sciences program prepares students to enter an exciting career in industry or to continue their educations in the PhD program. MS in Optical Sciences students may customize their programs to meet their goals, choosing to complete either a thesis or masters report. The thesis option requires 24 units of optics graduate-level courses, with grades of B or higher, and eight thesis units. The report option requires 35 units of optics graduate-level courses, with grades of B or higher, three of which must be masters report units. The MS in Optical Sciences can be completed on campus or by distance through the University of Arizona Outreach College, with minimal campus visits. The Master of Science in Photonic Communications Engineering degree is offered through the College of Optical Sciences and the College of Engineering. Graduates are poised to create technology solutions to address the global demand for improved telecommunications, possessing the necessary vision and knowledge to successfully venture into technology commercialization. As with the MS in Optical Sciences, students can choose to complete either a thesis or masters report. Both options required a B grade or higher in 35 units of coursework. For thesis students, this includes at least two laboratory courses and six research units; for master's report students, this includes three laboratory courses. Core curriculum courses are offered by distance; laboratory work may be completed in a single semester of residence. The Doctor of Philosophy in Optical Sciences program prepares students for extraordinary careers and unlimited opportunities in a fast-changing, high-tech world. PhD in Optical Sciences students must take at least one graduate course in each of eight topic areas defined by the core curriculum, which is designed to provide a broad background in all areas of optics. The balance of the coursework is extremely flexible, and students may expect to have the opportunity to explore all of the possibilities that interest them. Doctoral candidates complete 72 units of optics graduate-level work, including two optics lab courses and 18 units of dissertation. With approval of the dissertation director, the total course units of 54 may be reduced to a minimum of 45 units. As they progress, mentored by the college's faculty members, students pass a series of four exams, culminating in the final doctoral dissertation defense.

Type/Description of disciplines/program tracks offered: Phisic; Optical engineering; Optics; Photonics; Biomedical optics; Fiber optics
With the goal of accelerating the rate of innovation in industry, the University of Arizona offers students the opportunity to earn two graduate degrees concurrently: an MBA from the Eller College of Management plus an MS from the James C. Wyant College of Optical Sciences. The Master of Science in Optical Sciences and MBA Dual Degree program serves professionals who have been actively working in optics for at least three years. Dual Degree graduates will be uniquely prepared for leadership or entrepreneurship and will re-enter the competitive world with a powerful advantage.

Academic and research specialties related to optics/photonics: Optical systems design; interferometry and optical testing; radiometry; remote sensing; optical detectors; thin-film deposition; scanning probe microscopies; nuclear, X-ray and optical medical imaging; lasers; photonic devices; optical data storage; optical communications; diffractive and binary optics; novel optical materials; adaptive optics; nonlinear optics; optical trapping and cooling of atoms; semiconductor and solid state laser physics; Optomechanical Engineering.

Admission deadlines: PhD applicants should submit their complete application by Jan. 15 for fall admission consideration; new PhD students are seldom admitted for the spring semester. Graduate Certificate and MS in Optical Sciences applications for fall semester admission should be submitted by July 15 for domestic students and May 1 by international students. Graduate Certificate and MS in Optical Sciences applications for spring semester admission should be submitted by Dec. 10 for domestic students and Sept. 1 for international students. Undergraduate applications are due by May 1 for the fall semester and Nov. 1 for the spring semester. All prospective optics undergraduates must apply to the University of Arizona College of Engineering.

Year program was founded: 1964

Contact: R. John Koschel, Associate Dean, Academic Programs

Email: jkoschel@optics.arizona.edu

UNDERGRADUATE/GRADUATE PROGRAMS

Website: <http://www.optics.arizona.edu>

Mailing address: The University of Arizona College of Optical Sciences,
Meinel Bldg. #94, P.O. Box 210094, 1630 E. University Blvd., Tucson AZ
85721-0094 USA

ARKANSAS

University of Arkansas

OSA Student Chapter

Fayetteville, Arkansas USA

The Microelectronics-Photonics program at the University of Arkansas, Fayetteville, is an interdisciplinary graduate program designed to expand a student's knowledge beyond the boundaries of traditional departmental based graduate programs. Students in the Microelectronics-Photonics program will participate in cross-departmental research, will take applications-intensive classes from multiple engineering and science departments, and will develop workplace productivity skills in a simulated industrial environment. The microEP graduate program research centers on microelectronic-photonics materials; the creation of high-performance, miniaturized devices and systems made from these materials; and an understanding of the economics that affect successful introduction of these devices and systems into industry and the community.

Name of department: Microelectronics-Photonics Graduate Program

Number of core optics/photonics students currently enrolled in a related program: 15

Number of optics/photonics related courses offered in this program: 6

Optics/photonics related programs/degrees offered: MS Microelectronics-Photonics. The curriculum includes core courses in SC devices (EE department), optical properties of matter (physics department), integrated circuit processing (EE department), and commercialization of research (Management department, College of Business). In addition, students are enrolled in seminar courses in operations management, ethics, and proposal writing. Four elective courses to meet the student's career interests completes the curriculum. PhD Microelectronics-Photonics: Students entering the PhD program are required to complete 30 semester hours beyond the MS degree. Students with MS degrees from other programs must include the MS core courses in their curriculum. All entering MS and PhD students are part of that academic year's cohort that participate as a group in the seminar courses described in the MS text.

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Electrical engineering

Academic and research specialties related to optics/photonics: Quantum Optics, Photonics, nanoscience, nanotechnology, microelectronics, optical computing, quantum dots, lasers, MEMS, digital light processing, optical switches, photonic switching program was founded: 1998

Contact: Prof. Rick Wise, Director

Email: microep@uark.edu

Website: <http://microEP.uark.edu>

Mailing address: Microelectronics-Photonics Graduate Program, 731 W
Dickson St, Fayetteville AR 72701 USA

University of Arkansas at Fayetteville

SPIE. STUDENT CHAPTERS

Fayetteville, Arkansas USA

Research facilities include well-equipped research laboratories in quantum optics, nonlinear optics, high pressure physics, magnetic materials, surface physics and computer graphics. The laboratories possess a complete range of equipment including ultra-violet, visible and infrared gas lasers, ultra-high stability CW dye and solid-state laser systems, femtosecond and ultra-high power pulsed solid state laser systems, and a SQUID magnetometer. An advanced multi-chamber molecular beam epitaxy (MBE) growth facility is available in the department for fabricating and characterizing semiconductor heterostructures. Excellent sample characterization and research facilities equipped with X-ray diffractometer (SRD), TE14 scanning electron microscope (SEM), atomic force microscope (AFM), Raman spectrometer, etc., are available at HiDEC. These offer great opportunities for frontier research in lasers, nonlinear and quantum optics, and semiconductor materials.

Name of department: Physics

Number of core optics/photonics students currently enrolled in a related program: 15

Number of students in optics/photonics related course work: 30

Number of optics/photonics related courses offered in this program: 6

Optics/photonics related programs/degrees offered: Bachelor of Arts;
Bachelor of Science. Masters of Science in Physics. PhD in Physics.

Type/Description of disciplines/program tracks offered: Physics

Academic and research specialties related to optics/photonics: Atomic Physics, Laser Physics, Nonlinear Optics, Quantum Optics; Condensed Matter; Theoretical Physics; Astronomy; Biophysics.

Admission deadlines: Applications are accepted throughout the year.

Year program was founded: 1972

Contact: Dianne Melahn, Office Manager

Email: dmelahn@uark.edu

Website: <http://www.uark.edu/depts/physics/>

Mailing address: PHYS-226, 1 University of Arkansas, 825 W. Dickson St.,
Fayetteville AR 72701 USA

CALIFORNIA

California Institute of Technology

Pasadena, California USA

Faculty members, postdoctoral scholars, and graduate students of the Andrew and Peggy Cherng Department of Medical Engineering at Caltech (MedE) apply engineering principles in the health sphere. Our goal is to design and fabricate devices and systems for translational medicine—including diagnostics, therapeutics, implants, and non-invasive imaging—that will lead to cheaper, more effective, and more accessible health care.

Name of department: Andrew and Peggy Cherng Department of Medical Engineering

Type/Description of disciplines/program tracks offered: Physics; Electrical engineering

Year program was founded: 2013

Contact: Christine Garske, Medical Engineering Option Manager

Email: cchgarske@caltech.edu

Website: <http://www.mede.caltech.edu/>

Mailing address: 1200 E. California Blvd., MC136-93, 391 S Holliston Ave,
Pasadena CA 91106 USA

California Polytechnic State University

SPIE. STUDENT CHAPTERS

San Luis Obispo, California USA

Name of department: Electrical Engineering

Number of core optics/photonics students currently enrolled in a related program: 25

Number of optics/photonics related courses offered in this program: 4

Optics/photonics related programs/degrees offered: BSEE with specialization in photonics. MS with specialization in photonics

Type/Description of disciplines/program tracks offered: Electrical engineering

Contact: Prof. Dennis Derickson, Assistant Professor

Email: derrickson@calpoly.edu

Website: <http://www.ee.calpoly.edu>

Mailing address: California Polytechnic State Univ., Electrical Engineering
Dept., San Luis Obispo CA 93407 USA

California State University at Fullerton

Fullerton, California USA

Name of department: Physics

Number of core optics/photonics students currently enrolled in a related program: 9

Number of students in optics/photonics related course work: 9

Number of optics/photonics related courses offered in this program: 3

Optics/photonics related programs/degrees offered: BS in Physics. MS in Physics

Type/Description of disciplines/program tracks offered: Physics

Contact: Jim Feagin, Department Chair

Email: jfeagin@fullerton.edu

Website: <http://physics.fullerton.edu>

Mailing address: California State Univ. at Fullerton, Dept. of Physics, PO
Box 6866, Fullerton CA 92834-6866 USA



SDSU undergraduate Luis Guerrero is working on an optical pattern recognition (Fourier transform) optical system.

San Diego State University San Diego, California USA

The San Diego State University electro-optics program provides students with a BS or MS in physics with an emphasis in electro-optics. There is a strong base in optics with two senior/MS-level lecture courses. However the program is unique in the amount of hands-on laboratory provided to each student. We have a solid sequence of lab courses from the freshman year through the master's program. The senior/MS optics laboratory allows exploration of seven different areas of key interest to optics. Every student also performs a thesis project, many of which are published in refereed journals.

Name of department: Physics

Number of core optics/photonics students currently enrolled in a related program: 14

Number of optics/photonics related courses offered in this program: 4

Optics/photonics related programs/degrees offered: BS in Physics; MS in Physics

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Optics; Photonics; Fiber optics

Academic and research specialties related to optics/photonics: Teaching lab includes holography, pattern recognition, AO modulators, EO modulators and polarization, laser resonators, fiber pulse dispersion, Fourier transform spectroscopy, erbium fiber amplifiers and modeling dielectric optical coatings with BNC cable structures. Research specialties include optical pattern recognition, spatial light modulators, programmable optics, ultrafast lasers, and tunable diode laser spectroscopy.

Admission deadlines: Undergraduate: November 30. Graduate: March 1.

Year program was founded: 1970

Contact: Jeffrey A. Davis, Professor of Physics

Email: jeffrey.davis@sdsu.edu

Website: <http://www.physics.sdsu.edu>

Mailing address: Dept of Physics, San Diego State University, San Diego CA 92182-1233 USA

San Francisco State University San Francisco, California USA

OSA Student Chapter

Name of department: Physics and Astronomy

Number of core optics/photonics students currently enrolled in a related program: 10

Number of students in optics/photonics related course work: 20

Number of optics/photonics related courses offered in this program: 2

Optics/photonics related programs/degrees offered: BS in physics, BA in physics, MS in physics.

Type/Description of disciplines/program tracks offered: Physics; Optics; Photonics

Year program was founded: 1998

Contact: Weining Man, Associate Professor

Email: weining@sfsu.edu

Website: <http://physics.sfsu.edu/>

Mailing address: 1600 Holloway Ave, Thornton Hall, Room 334, San Francisco CA 94132 USA

San Jose State University San Jose, California USA

The Department of Physics and Astronomy prepares students for a variety of careers in science and engineering. We provide students with a solid foundation to pursue industrial employment or graduate work in Physics, Optics, Astronomy, Engineering, and related areas of the physical sciences. Our small class sizes enable us to provide students individual attention, and (in the lab classes) substantial hands-on experience. SJSU is committed to serving the Silicon Valley community, and students can benefit from the multitude of nearby technical companies and employment.

Name of department: Physics and Astronomy

Number of core optics/photonics students currently enrolled in a related program: 10

Number of students in optics/photonics related course work: 20

Number of optics/photonics related courses offered in this program: 8

Optics/photonics related programs/degrees offered: Physics (BA and BS),

Masters programs available in Physics, Physics with Concentration in Modern Optics, Physics with concentration in Computational Physics.

Type/Description of disciplines/program tracks offered: Physics; Optics

Admission deadlines: See SJSU website for details: <http://www.sjsu.edu>

Year program was founded: 1990

Contact: Neil Switz, Assistant Prof.

Email: neil.switz@sjsu.edu

Website: <http://www.physics.sjsu.edu>

Mailing address: San Jose State University, Dept. of Physics, SCI-148, One Washington Square, San Jose CA 95192-0106 USA

Sonoma State University Rohnert Park, California USA

The MS-CES degree at SSU, a multidisciplinary degree is built on the fundamentals of applied physics, applied mathematics, and computer science, focusing on applying these fields to the design, analysis and synthesis of solving engineering problems. The MS-CES curriculum, designed to further working skills and practical knowledge of engineers, computer scientists and similar professionals, emphasizes small classes, individual attention, and hands-on learning; benefits from a state-of-the-art laboratory component in many of the required and elective courses. Course options, including optics, computer systems, communications and networking, augment the firm base in mathematics, computer science and physics. The BS degree focusses in the area of electronics and communications with electives in various areas such as photonics and optical fiber communications. The Program offers scholarship and internship opportunities with local high tech industries.

Name of department: Computer and Engineering Science Program

Number of core optics/photonics students currently enrolled in a related program: 30

Number of students in optics/photonics related course work: 10

Number of optics/photonics related courses offered in this program: 4

Optics/photonics related programs/degrees offered: BS in Engineering

Science with specialization in Electronics and Communications. MS

in Computer and Engineering Science with specializations in (i)

Communication and Photonics, and, (ii) Computer Hardware and

Software Systems.

Type/Description of disciplines/program tracks offered: Electrical engineering

Academic and research specialties related to optics/photonics: Photonics, Optical Fiber Communication, Optical Networking.

Admission deadlines: No deadlines.

Year program was founded: 2001

Contact: Dr. Farid Farahmand, Chairman

Email: farahman@sonoma.edu

Website: <http://www.sonoma.edu/engineering>

Mailing address: Sonoma State University, Dept. of Engineering Science (Salazar Hall #2004), 1801 E. Cotati Ave., Rohnert Park CA 94928 USA

Stanford University - Applied Physics Stanford, California USA

SPIE. STUDENT CHAPTERS OSA Student Chapter

Name of department: Applied Physics

Number of optics/photonics related courses offered in this program: 18

Optics/photonics related programs/degrees offered: MS in Applied

Physics, either en route to the PhD or a terminal MS. No financial aid

provided for the MS. PhD in Applied Physics with financial aid usually provided.

UNDERGRADUATE/GRADUATE PROGRAMS

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Optics; Photonics; Biomedical optics; Fiber optics
Admission deadlines: Application specific deadline date information (subject to change) will be available in July at <http://web.stanford.edu/dept/app-physics/cgi-bin/admissions/>. Admission to commence autumn quarter only.
Year program was founded: 1968
Contact: Patrice O'Dwyer, Department Academic Manager
Email: podwyer@stanford.edu
Website: <http://appliedphysics.stanford.edu>
Mailing address: Department of Applied Physics, Stanford University, Spilker Building - Room 118, Stanford CA 94305-4090 USA

University of California, Davis **SPIE.** STUDENT CHAPTERS **OSA** Student Chapter
Davis, California USA

Name of department: Biomedical Engineering
Number of core optics/photonics students currently enrolled in a related program: 20
Number of students in optics/photonics related course work: 20
Type/Description of disciplines/program tracks offered: Physics; Electrical engineering
Contact: Vivek Srinivasan, Associate Professor
Email: vjsriniv@ucdavis.edu
Website: <https://bme.ucdavis.edu/biophotonics/>
Mailing address: UC Davis, Genome & Biomedical Sciences Bldg., 451 E. Health Sciences Dr., Davis CA 95616 USA

University of California, Irvine **SPIE.** STUDENT CHAPTERS
Irvine, California USA

Name of department: Physics and Astronomy
Contact: Prof. Peter Taborek, Chair
Email: ptaborek@uci.edu
Website: <https://www.physics.uci.edu>
Mailing address: University of California, Irvine, Dept of Physics and Astronomy, 4129 Fredrick Reines Hall, Irvine CA 92647-4575 USA

University of California, Riverside
Riverside, California USA

OSA Student Chapter

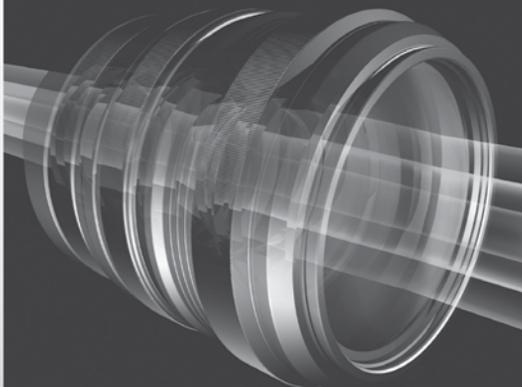
Name of department: Electrical Engineering
Number of optics/photonics related courses offered in this program: 10
Optics/photonics related programs/degrees offered: BSEE, MS, PhD
Academic and research specialties related to optics/photonics: One of the five specialization areas in the Department of Electrical Engineering is Nano Materials, Devices and Circuits (NMDC). Students in this area are offered optoelectronics and optical communication related courses.
Contact: Prof. Alexander A. Balandin, EE Undergraduate Advisor, Associate Professor
Email: alexeb@ee.ucr.edu
Website: <http://www.ucr.edu>
Mailing address: Dept of Electrical Engineering, A227 Bourns Hall, Univ. of California, Riverside, Riverside CA 92521 USA

University of California, San Diego **SPIE.** STUDENT CHAPTERS
La Jolla, California USA

Applied Physics-Applied Optics and Photonics These programs encompass interdisciplinary activities in optical science and engineering, optical materials and device technology, optical communications, computer engineering, and photonic systems. Specific topics of interest include ultrafast and nonlinear optics, quantum computing and communications, nanophotonic materials/devices and near field phenomena, optical imaging, multidimensional optoelectronic I/O devices, volume and computer-generated holography, optoelectronic and microelectromechanical devices and packaging, injection lasers, and photodetectors. Applications include optical interconnects in high-speed digital systems, optical multidimensional signal and image processing, ultrahigh-speed optical networks, 3D optical memories and memory interfaces, 3D imaging and displays, nanophotonic and biophotonic systems.
Name of department: Electrical and Computer Engineering
Number of core optics/photonics students currently enrolled in a related program: 85

UCI Division of Continuing Education

Optical Engineering and Optical Instrument Design Certificate Programs



- Take courses online
- Learn the latest technologies including new optical materials and cost-effective manufacturing
- Develop skills using industry standard software
- Understand manual design, computer simulation, and the art of creating optical systems through hands-on design courses
- Communicate details of technical specifications to manufacturers and quality control personnel

For more information: j.mortensen@uci.edu
(949) 824-9722
ce.uci.edu/optics

Number of optics/photonics related courses offered in this program: 19

Optics/photonics related programs/degrees offered: BS Electrical Engineering, BS Computer Engineering, BS Engineering Physics, MS Applied Physics, MS Photonics, PhD Applied Physics, PhD Photonics.

Academic and research specialties related to optics/photonics: Specific topics of interest include ultrafast and nonlinear optics, quantum computing and communications, nanophotonic materials/devices and near field phenomena optical imaging, multidimensional optoelectronic I/O devices, volume and computer-generated holography, optoelectronic and microelectromechanical devices and packaging, injection lasers, and photodectors.

Year program was founded: 1992

Contact: Charmaine Samahin-Mann, Director of Student Affairs

Email: csamahin-manns@eng.ucsd.edu

Website: <http://www.ece.ucsd.edu>

Mailing address: Univ. of California at San Diego, MC 0407, Dept. of ECE, 9500 Gilman Dr., La Jolla CA 92093-0407 USA

University of California,

SPIE. STUDENT CHAPTERS **OSA** Student Chapter

Santa Barbara

Santa Barbara, California USA

Name of department: Electrical and Computer Engineering

Number of core optics/photonics students currently enrolled in a related program: 75

Number of students in optics/photonics related course work: 100

Number of optics/photonics related courses offered in this program: 8

Optics/photonics related programs/degrees offered: BSEE, MS, PhD

Type/Description of disciplines/program tracks offered: Optical engineering; Optics; Photonics; Fiber optics

Contact: Pochi Yeh, Professor

Email: pochi@ece.ucsb.edu

Website: <http://www.ece.ucsb.edu>

Mailing address: UC Santa Barbara, Dept. of E&CE, Santa Barbara CA 93106 USA

University of California, Santa Cruz

Santa Cruz, California USA

Name of department: Physics

Type/Description of disciplines/program tracks offered: Physics

Contact: David Sugg, Graduate Programs Advisor

Email: dsugg@ucsc.edu

Website: <http://www.physics.ucsc.edu/>

Mailing address: UC Santa Cruz, Physics Dept, 1156 High Street, Santa Cruz CA 95064 USA

University of Southern California **SPIE.** STUDENT CHAPTERS **OSA** Student Chapter

Los Angeles, California USA

USC has developed a strong program of research and education in optics and optics-related disciplines, with special emphasis on photonic science and technology. The primary research and teaching activities are located in the Departments of Electrical Engineering-Electrophysics and Electrical Engineering-Systems, with additional research and teaching activities in the Departments of Biomedical Engineering, Ophthalmology, Chemistry, and Physics, as well as in the Neuroscience Graduate Program. Faculty and students with related research interests participate in any of several centers and institutes, hold regular seminar series, and form focal points around which industry-university collaborative programs can be developed and implemented (e.g., the Center for Photonic Technology, the Institute for Biomedical Therapeutics (formerly the National Science Foundation Engineering Research Center on Biomimetic MicroElectronic Systems, the Center for Vision Science and Technology, the Signal and Image Processing Institute, the Center for Neural Engineering, and the Integrated Media Systems Center).

Name of department: Ming Hsieh Department of Electrical Engineering, Viterbi School of Engineering

Number of core optics/photonics students currently enrolled in a related program: 40

Number of students in optics/photonics related course work: 70

Number of optics/photonics related courses offered in this program: 10

Optics/photonics related programs/degrees offered: MS in Electrical Engineering; PhD in Electrical Engineering

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Electrical engineering; Optics; Photonics; Biomedical optics; Fiber optics

Academic and research specialties related to optics/photonics: Physical

optics, nonlinear optics, hybrid electronic/photonic packaging, smart/immersive cameras, intraocular and extraocular cameras for retinal prostheses, semiconductor diode lasers, optical phase conjugation, optical signal processing, integrated optics, fiber optics, volume holographic optical elements, diffractive optical elements, optical materials, optical thin film deposition and characterization, optical communications, optical interconnections, optical computing, optical properties of semiconductors, optoelectronic materials, optoelectronic and photonic devices, nanophotonics, photonic implementations of neural networks, photonic bandgap materials and devices, biomedical optics, biophotonics, physiology of vision, visual psychophysics.

Year program was founded: 1971

Contact: Prof. Armand R. Tanguay, Jr., Professor

Email: atanguay@usc.edu

Website: <https://minghsiehee.usc.edu/>

Mailing address: University of Southern California, 520 Seaver Science Center, University Park, MC-0483, Los Angeles CA 90089-0483 USA

COLORADO

Colorado State University

Fort Collins, Colorado USA

Name of department: Electrical and Computer Engineering

Number of core optics/photonics students currently enrolled in a related program: 35

Number of students in optics/photonics related course work: 50

Number of optics/photonics related courses offered in this program: 12

Optics/photonics related programs/degrees offered: BSEE with a concentration in Lasers and Optics. MSEE. PhDEE

Type/Description of disciplines/program tracks offered: Electrical engineering

Academic and research specialties related to optics/photonics:

Extreme Ultraviolet Lasers and Applications. Ultrafast Lasers, Photonic Biosensors, Semiconductor Laser Diodes.

Year program was founded: 1992

Contact: Prof. Kevin Lear

Email: Kevin.Lear@ColoState.edu

Website: <http://www.engr.colostate.edu/academic/ece/>

Mailing address: Colorado State University, Dept. of Electrical and Computer Engineering, MS 1373, Fort Collins CO 80523-1373 USA

University of Colorado at Boulder **SPIE.** STUDENT CHAPTERS **OSA** Student Chapter

Boulder, Colorado USA

Optics at CU-Boulder is a collaborative effort and opportunities span many departments and institutes. The OSEP program offers students extensive training in optics through courses and labs, research laboratory rotations, and an industrial internship which leads to a Certificate in Optics in addition to either the MS or PhD degree in Chemistry, Electrical and Computer Engineering, or Physics. About 20 optics courses are available campus wide with up to 10 offered each year. In ECE students typically take 7-10 optics courses and must pass a specialized area prelim in photonics in order to pursue the PhD.

Name of department: ECE; Physics; Chemistry; JILA; ME; ChE; Applied Math

Number of core optics/photonics students currently enrolled in a related program: 100

Number of optics/photonics related courses offered in this program: 20

Optics/photonics related programs/degrees offered: Certificate in Optics for MS and PhD students. BS/BA in Electrical and Computer Engineering, Physics or Chemistry. MS in Physics and Chemistry, MS in ECEN with specialization in Opto-Electronics. PhD in ECEN, Physics, Chemistry, or Chemical Physics.

Academic and research specialties related to optics/photonics: Ultrafast Optical Physics and Applications; Liquid Crystal Devices, Physics and Applications; Nonlinear Optics; Optical Solitons; Atom Optics, BEC; Spectroscopy; Guided Wave Optics; RF Photonics; Semiconductor Optoelectronic Devices; Optical Interconnections and Computing; Optical Design and Packaging; Photorefractive Crystals; Optical Signal Processing; Diffractive Optics, Photonic Bandgaps, and Nano-photonics.

Year program was founded: 1987

Contact: Rafael Piestun, Professor

Email: rafael.piestun@colorado.edu

Website: <http://optics.colorado.edu/faculty.html>

Mailing address: University of Colorado at Boulder, Dept of Electrical and Computer Engineering, 425 UCB, Boulder CO 80309-0425 USA

UNDERGRADUATE/GRADUATE PROGRAMS

University of Denver

Denver, Colorado USA

Students can choose from a bachelor of arts or bachelor of science degree, and multiple concentration and minor options help focus course and lab work on personal areas of interest. Undergraduate physics and astronomy majors (and most earning minors) are often collaborate on high-powered research teams. We offer master's and doctoral training in physics, driven by faculty research in the areas of astronomy and astrophysics, biophysics and condensed matter and materials physics. Our professors advise and collaborate with our graduate students, offering the personal attention necessary for students to reach their fullest potential. Physics graduate students have landed positions at highly-prestigious organizations including National Renewable Energy Labs (NREL), National Aeronautics and Space Administration (NASA) and Intel.

Name of department: Physics and Astronomy

Contact: Barbara Stephen, Assistant to Chair

Email: barbara.stephen@du.edu

Website: <https://physics.du.edu>

Mailing address: Univ. of Denver, Physics Building, Room 211, 2112 East Wesley Ave, Denver CO 80208 USA

University of Northern Colorado

Greeley, Colorado USA

Name of department: Physics and Astronomy

Number of core optics/photonics students currently enrolled in a related program: 40

Number of students in optics/photonics related course work: 40

Number of optics/photonics related courses offered in this program: 2

Optics/photonics related programs/degrees offered: BS in Physics

Type/Description of disciplines/program tracks offered: Physics

Year program was founded: 1965

Contact: Robert Walch, Professor

Email: rawalch@unco.edu

Website: <https://www.unco.edu/nhs/physics-astronomy/>

Mailing address: Univ. of Northern Colorado, Dept. of Physics, Ross Hall 2032, Greeley 80639 CO USA

CONNECTICUT

University of Connecticut

Storrs, Connecticut USA

SPIE. STUDENT CHAPTERS **OSA** Student Chapter

The Electrical and Computer Engineering Department offers study leading to the degrees of Master of Science and Doctor of Philosophy in the field of study of Electrical Engineering with an area of concentration based on a wide selection of courses and research activities in the department. One of the official areas of concentration available under the Electrical Engineering Degree is "Electronics, Photonics, and Biophotonics."

Name of department: Electrical and Computer Engineering

Number of core optics/photonics students currently enrolled in a related program: 20

Number of students in optics/photonics related course work: 30

Number of optics/photonics related courses offered in this program: 8

Optics/photonics related programs/degrees offered: PhD program in Electrical Engineering, concentration in electronics, photonics and biophotonics.

Type/Description of disciplines/program tracks offered: Electrical engineering; Photonics; Biomedical optics; Fiber optics

Academic and research specialties related to optics/photonics:

Biomedical Optics and Ultrasound Lab: This lab is focused on biomedical applications of optical measurements and imaging as well as ultrasound measurements and imaging. Optical Image Sensing, Communication, and Visualization Lab: dedicated to research and education on information systems, signal and image processing, neural computing, real-time image recognition, information security, data encryption, optical signal processing systems, three dimensional display, three-dimensional signal processing, ultrafast communication systems, ultrafast signal processing and computing, and optical data storage. The activities include both algorithms development, system design, and hardware implementation. The facilities include advanced computers, PCs, MACs, SUN workstations, extensive software packages, state of the art spatial light modulators, high definition display devices, high definition detector arrays, lasers, stable tables, optical benches, optical accessories, and holographic systems. Micro/Optoelectronics Research Lab: this lab is equipped with CVD reactors for Ge and Si growth; MOCVD reactors for ZnS, ZnMgSse,

ZnZnCdSe growth (including a quantum dot growth setup) and PL and X-Ray setups for characterization; a photolithographic clean room to process lasers, transistors and integrated circuits; measurement setups to characterize lasers, modulators, and filters; and dedicated workstations for computer-aided design (Cadence) and simulation. Current research is focused on 1.55 micron MQW optical modulators, tunable lasers, SiGe FETs, terahertz MODFETs and quantum interference transistors, quantum dot-based nanophosphors and lasers. Sub-Micron Device Fabrication Lab: This lab features a Class 100 clean room containing an MBE system or III-V material growth, reactive ion etching (RIE), refractory metal sputtering, metal and dielectric deposition, and rapid thermal annealing(RTA). Activities include device fabrication and characterization. Current research is dedicated to optoelectronic integrated devices for communications and optoelectronic computing.

Contact: Mary McCarthy, Administrative Coordinator

Email: marymc@enr.uconn.edu

Website: <http://www.ee.uconn.edu>

Mailing address: Univ. of Connecticut, Dept. of Electrical Engineering, 371 Fairfield Way, U-2157, Storrs CT 06269 USA

Wesleyan University

Middletown, Connecticut USA

Name of department: Physics

Number of core optics/photonics students currently enrolled in a related program: 5

Number of students in optics/photonics related course work: 15

Number of optics/photonics related courses offered in this program: 2

Optics/photonics related programs/degrees offered: BA, PhD

Type/Description of disciplines/program tracks offered: Physics

Contact: Lutz Huwel, Professor of Physics

Email: lhuwel@wesleyan.edu

Website: <http://www.wesleyan.edu/physics>

Mailing address: Wesleyan Univ., Dept of Physics, 265 Church Street, Middletown CT 06459 USA

DELAWARE

University of Delaware

Newark, Delaware USA

OSA Student Chapter

Housed within the College of Engineering and operated through the Electrical and Computer Engineering Department, the Center for Innovative Multi-disciplinary Photonic Architectures using Complementary Technologies (IMPACT) was conceived to enhance interdisciplinary research within the University of Delaware and between the University and its outside collaborators. The IMPACT Center facilitates research across multiple disciplines, including nanotechnology; photonic materials and devices, advanced interconnect architectures for information processing systems, and Terahertz & millimeter wave technology and applications. The overall mission of the IMPACT Center is to provide a bridge between emerging photonic technologies and advanced applications.

Name of department: Electrical and Computer Engineering

Number of core optics/photonics students currently enrolled in a related program: 40

Optics/photonics related programs/degrees offered: Electrical Engineering

Contact: Prof. Michael W. Haney, Director, IMPACT Photonics Center

Email: haney@ece.udel.edu

Website: <http://www.ece.udel.edu/impact/index.htm>

Mailing address: University of Delaware, Evans Hall, Newark DE 19716 USA

DISTRICT OF COLUMBIA

Catholic University of America

Washington, District of Columbia USA

SPIE. STUDENT CHAPTERS **OSA** Student Chapter

Name of department: Physics

Contact: Prof. Steven Kraemer, Chair

Email: kraemer@cua.edu

Website: <https://physics.catholic.edu>

Mailing address: The Catholic University of America, 620 Michigan Ave NE, Washington DC 20064 USA

Georgetown University

Washington, District of Columbia USA

Georgetown offers both a BA or BS in Physics, and a physics graduate program. PhD students have the option of pursuing one of two programs during their first two years, after which they begin thesis research. Georgetown offers a standard physics track and the Industrial Leadership in Physics (ILP) track. Students in both programs take standard coursework in advanced physics. Students in the ILP program will also take courses in business and entrepreneurship. Before beginning thesis research, they complete a year-long industrial internship. These students gain experience solving industrial problems and develop skills in communication, research, and teamwork. The ILP training gives graduates the expertise needed to be scientists and leaders in industry.

Name of department: Physics

Number of core optics/photonics students currently enrolled in a related program: 10

Number of students in optics/photonics related course work: 15

Number of optics/photonics related courses offered in this program: 2

Optics/photonics related programs/degrees offered: BA/BS - Physics; MS - Physics; PhD - Physics

Type/Description of disciplines/program tracks offered: Physics

Academic and research specialties related to optics/photonics:

MEMS, Nonlinear Optics, Nonlinear Dynamics, Biomedical Sensors, Superconductivity, Materials Theory, Comput. Physics, & Optoelectronics.

Admission deadlines: Deadline for Fall: January 1.

Year program was founded: 2001

Contact: Ms. Amy Hicks, Graduate Program Coordinator

Email: graduateprogram@physics.georgetown.edu

Website: <http://www.physics.georgetown.edu>

Mailing address: Georgetown Univ, Dept of Physics, 37th & O St. NW, Reiss Science Bldg. Rm 505, Washington DC 20057 USA

SPIE. STUDENT CHAPTERS

include Lasers, Fiber Optics, Semiconductor and Integrated Optics, Nonlinear and Quantum Optics, and Imaging, Sensing, and Display. Researchers/instructors are always seeking new opportunities to work with industry to expose students to the industrial environment and to aid in technology transfer.

Admission deadlines: January 15, for International Student and priority Fellowships. July 1 for US resident admission. BS PSE Deadline corresponds to the UCF application and admission calendar. The BS PSE program is an open access program; no application is required for access to the program after acceptance to UCF. January 15, for International Student and priority Fellowships. July 1 for US resident admission. BS PSE Deadline corresponds to the UCF application and admission calendar. The BS PSE program is an open access program; no application is required for access to the program after acceptance to UCF.

Year program was founded: 1987

Contacts: Dr. David J. Hagan, Associate Dean/Program Director, Email: gradprog@creol.ucf.edu; Alma Montelongo, Senior Admissions Specialist; Dr. Mike McKee, Associate Director, Email: undergrad@creol.ucf.edu

Website: <http://www.creol.ucf.edu>

Mailing address: UCF-College of Optics and Photonics, 4304 Scorpis St., Bldg 53, P.O. Box 162700, Orlando, FL 32816-2700 USA

University of Florida

Gainesville, Florida USA

A multidisciplinary materials science department covering specialties ranging from metals to glass/ceramics to semiconductors to optical materials.

Name of department: Materials Science and Engineering

Number of core optics/photonics students currently enrolled in a related program: 300

Optics/photonics related programs/degrees offered: BS in Materials Science and Engineering

Academic and research specialties related to optics/photonics: Optical Materials.

Year program was founded: 1960

Contact: Prof. Franky So

Email: fso@mse.ufl.edu

Website: <http://www.mse.ufl.edu>

Mailing address: Univ. of Florida, Rm 156, Rhines Hall, MS&E Dept., PO Box 116400, Gainesville FL 32611-6400 USA

SPIE. STUDENT CHAPTERS

FLORIDA

Florida Institute of Technology

Melbourne, Florida USA

Name of department: Electrical and Computer Engineering

Number of core optics/photonics students currently enrolled in a related program: 25

Number of students in optics/photonics related course work: 60

Number of optics/photonics related courses offered in this program: 10

Optics/photonics related programs/degrees offered: BS Electrical Engineering; MS Electrical Engineering; PhD Electrical Engineering

Type/Description of disciplines/program tracks offered: Electrical engineering; Photonics; Biomedical optics; Fiber optics

Academic and research specialties related to optics/photonics: Fiber Optics, Fiber Optic Communications, Fiber Optic Sensors.

Admission deadlines: Fall: April 01. Spring: September 01. Summer: February 01

Year program was founded: 1958

Contact: Syed H. Murshid, Professor, Director of Optronics Laboratory

Email: murshid@ee.fit.edu

Website: <http://coe.fit.edu/ee/>

Mailing address: Department of Electrical and Computer Engineering, 150 West University Boulevard, Melbourne FL 32901 USA

SPIE. STUDENT CHAPTERS

OSA Student Chapter

University of Central Florida

Orlando, Florida USA

Name of department: CREOL, The College of Optics and Photonics

Number of core optics/photonics students currently enrolled in a related program: 338

Number of students in optics/photonics related course work: 275

Number of optics/photonics related courses offered in this program: 65

Optics/photonics related programs/degrees offered: BS Photonic Sciences and Engineering. MS Optics and two 12 Month Accelerated MS Tracks. One track in Optics and one track in Photonics. PhD Optics & Photonics.

Type/Description of disciplines/program tracks offered: Electrical engineering; Optics; Photonics. Other UCF programs include: MS in Electrical Engineering, PhD Electrical Engineering, MS Physics, PhD Physics.

Academic and research specialties related to optics/photonics: The research activities in CREOL span the spectrum from fundamental science to prototype development, and pursue joint research projects with industry, academia, and government laboratories. Research areas

SPIE. STUDENT CHAPTERS

OSA Student Chapter

GEORGIA

Georgia Institute of Technology

Atlanta, Georgia USA

Name of department: Electrical Engineering; Physics; Chemistry; Material Science and Engineering

Number of core optics/photonics students currently enrolled in a related program: 120

Number of students in optics/photonics related course work: 100

Number of optics/photonics related courses offered in this program: 35

Optics/photonics related programs/degrees offered: BS in Electrical Engineering; BS in Physics. Masters of Electrical Engineering; Masters of Physics; Masters in Chemistry; Masters in Material Science and Engineering. PhD in Electrical Engineering; PhD in Physics; PhD in Chemistry; PhD in Material Science and Engineering.

Type/Description of disciplines/program tracks offered: Physics; Electrical engineering; Biomedical optics

Academic and research specialties related to optics/photonics:

Biophotonics, Diffractive Optics, Ultrafast Optics, Photonics, Nanotechnology, Quantum Optics, Nonlinear Optics, Optoelectronics, Optical Materials, Optical Communications, Holography, Optical Interconnects.

Accreditation Organization: ABET SACS

Year program was founded: 1885

Contact: Jackie Nemeth, Communications Manager

Email: jackie.nemeth@ece.gatech.edu

Website: <http://www.ece.gatech.edu>

Mailing address: School of Electrical and Computer Engineering, 777 Atlantic Dr NW, Atlanta GA 30332-0250 USA

SPIE. STUDENT CHAPTERS

OSA Student Chapter

Georgia State University

Atlanta, Georgia USA

Name of department: Physics & Astronomy

UNDERGRADUATE/GRADUATE PROGRAMS

Number of core optics/photonics students currently enrolled in a related program: 45

Number of students in optics/photonics related course work: 30

Number of optics/photonics related courses offered in this program: 6

Optics/photonics related programs/degrees offered: BS in Physics - Applied Physics. MS in Physics - Applied Physics. PhD in Physics, PhD in Astronomy, PhD in Astrophysics

Type/Description of disciplines/program tracks offered: Physics; Technology

Academic and research specialties related to optics/photonics: Integrated Optoelectronics, Bifringent and non linear optical waveguided heterostructure; Nano-photonics and nano-plasmonics; Interferometry, adaptive and active optics; Optical properties of semiconductors; Novel optical applications in Astronomy; Theoretical studies of absorption and emission of radiation by Atoms; Optical applications in artificial neurons; Optical and infrared interferometry.

Year program was founded: 1985

Contact: Xiaochun He, Professor & Graduate Director (Physics or Astronomy)

Email: xhe@gsu.edu

Website: <http://phy-astr.gsu.edu/>

Mailing address: Department of Physics & Astronomy, 29 Peachtree Center Avenue, 400 Science Annex, Atlanta GA 30303 USA

IDAHO

Boise State University

Boise, Idaho USA

Name of department: Electrical and Computer Engineering

Number of core optics/photonics students currently enrolled in a related program: 275

Number of students in optics/photonics related course work: 15

Number of optics/photonics related courses offered in this program: 3

Optics/photonics related programs/degrees offered: BS Electrical Engineering, concentration in signal and image processing. MS Electrical Engineering or MS Computer Engineering, Concentration in signal and image processing, photonic devices or integrated circuit design.. PhD in Electrical and Computer Engineering. Concentration in signal and image processing, photonic devices or integrated circuit design.

Type/Description of disciplines/program tracks offered: Electrical engineering

Academic and research specialties related to optics/photonics: Electronic Imaging, Digital Image Processing, Image acquisition, Image degradation analysis, Nano-photonic devices, Silicon photonic integrated circuits, High-speed circuit design for integrated photonics.

Admission deadlines: Fall admission deadline in mid May. Spring Admission deadline in early December. Doctoral program deadlines are annually in early January to be considered for graduate assistantships.

Year program was founded: 1997

Contact: Dr. Wan Kuang, Associate Professor

Email: wankuang@boisestate.edu

Website: <http://coen.boisestate.edu>

Mailing address: Boise State University, Dept. of Electrical and Computer Engineering, 1910 University Dr., Boise ID 83725-2075 USA

ILLINOIS

Illinois Wesleyan University

Bloomington, Illinois USA

All physics majors, regardless of concentration, are expected to have a set of experiences that, overall, co-values the "three-legged stool" of • Physics formalism, • Computer methods (integrated into our offerings within the department), and • Hands-on instruction in experimentation (which we offer more of than any physics department in the midwest)

Name of department: Physics

Number of core optics/photonics students currently enrolled in a related program: 50

Number of students in optics/photonics related course work: 100

Number of optics/photonics related courses offered in this program: 5

Optics/photonics related programs/degrees offered: Bachelors programs available in Physics (with concentration in Applied Laser Physics & Imaging Science, or AstroPhysics, or BioPhysics).

Type/Description of disciplines/program tracks offered: Physics; Optics; Photonics; Biomedical optics

SPIE. STUDENT CHAPTERS

Accreditation Organization: Higher Learning Commission of the North Central Association of Colleges and Schools

Admission deadlines: Students can submit an application under Regular Decision at any time. Decisions for students applying under Regular Decision are mailed after December 15th. Students admitted under Regular Decision have until May 1st to make a college selection.

Year program was founded: 1850

Contact: Gabriel Spalding, Ames Professor of Physics, Institutional Liaison for dual-degree programs

Email: gspaldin@iwu.edu

Website: <https://www.iwu.edu/physics/>

Mailing address: 201 E. Beecher St., Bloomington IL 61701-7222 USA

University of Illinois

SPIE. STUDENT CHAPTERS **OSA** Student Chapter

Urbana, Illinois USA

Name of department: Department of Physics

Number of core optics/photonics students currently enrolled in a related program: 80

Number of students in optics/photonics related course work: 600

Number of optics/photonics related courses offered in this program: 3

Optics/photonics related programs/degrees offered: BS in Engineering Physics, BS in LAS Physics. MS in Physics. PhD in Physics

Type/Description of disciplines/program tracks offered: Physics

Academic and research specialties related to optics/photonics: optical investigations of quantum information; optical quantum memory and "delayed-choice quantum cryptography"; magneto-optic traps; quantum simulation; producing and controlling entangled states of photons; silicon nanoparticles for optoelectronics applications; optical effects in solids.

Admission deadlines: See <http://www.physics.illinois.edu/prospective>

Year program was founded: 1890

Contact: John D. Stack, Associate Head for Graduate Programs

Email: j-stack@illinois.edu

Website: <http://www.physics.illinois.edu>

Mailing address: Dept of Physics, Univ of Illinois at Urbana-Champaign, 1110 W Green St, Urbana IL 61801-3080 USA

University of Illinois at Chicago

Chicago, Illinois USA

Name of department: Physics

Number of core optics/photonics students currently enrolled in a related program: 30

Number of students in optics/photonics related course work: 500

Number of optics/photonics related courses offered in this program: 4

Optics/photonics related programs/degrees offered: BS Physics, BA Physics, BS Engineering Physics

Type/Description of disciplines/program tracks offered: Physics

Academic and research specialties related to optics/photonics: Ultrafast spectroscopy; laser development, laser-driven biomolecular dynamics; IR detector development; solar cell efficiency enhancement.

Admission deadlines: International student deadline: February 15; Domestic student deadline: May 15.

Year program was founded: 1975

Email: physics@uic.edu

Website: <http://phys.uic.edu/>

Mailing address: Dept of Physics, Univ of Illinois at Chicago, 845 W Taylor St M/C 273, Chicago IL 60607 USA

INDIANA

Purdue University

SPIE. STUDENT CHAPTERS **OSA** Student Chapter

W. Lafayette, Indiana USA

Name of department: School of Electrical and Computer Engineering

Number of core optics/photonics students currently enrolled in a related program: 891

Number of students in optics/photonics related course work: 50

Number of optics/photonics related courses offered in this program: 18

Optics/photonics related programs/degrees offered: BSEE, BSCSPE, MS, PhD

Academic and research specialties related to optics/photonics:

atomic coherence, coherent control, competition between optical processes, diffractive optics with scanning electron microscope, diffractive structures, femtosecond pulse shaping, high-speed fiber communications, information-theoretical description of nonlinear fiber-optical systems, integrated optics, integrated Si photonic

IOWA

The University of Iowa Iowa City, Iowa USA

The Optical Science and Technology Center of the University of Iowa offers scientists and engineers from a wide range of disciplines the opportunity to collaborate on important and complex research problems in broad areas of optical and laser science. The primary goals of the Center are to: 1) Establish an exciting research environment to stimulate multidisciplinary research in a broad area of optical science and technology. 2) Maintain state-of-the-art instrumentation for scientific investigations. 3) Develop facilities to advance research opportunities in optical science. 4) Facilitate the timely exchange of ideas and research findings across scientific disciplines. 5) Enhance graduate and undergraduate education by operating across traditional academic boundaries. 6) Explore the use of modern optics and lasers to probe scientific questions.

Name of department: Optical Science and Technology Center

Number of core optics/photronics students currently enrolled in a related program: 150

Number of students in optics/photronics related course work: 150

Number of optics/photronics related courses offered in this program: 5

Optics/photronics related programs/degrees offered: BA/BS Degrees granted in Physics, Chemistry, Electrical and Computer Engineering, Chemical and Biochemical Engineering. MS Degrees granted in Physics, Chemistry, Electrical and Computer Engineering, Chemical and Biochemical Engineering. PhD Degrees granted in Physics, Chemistry, Electrical and Computer Engineering, Chemical and Biochemical Engineering.

Academic and research specialties related to optics/photronics: Laser spectroscopy and photochemistry, photonics and optoelectronics, ultrafast laser development, nanotechnology, molecular beam epitaxy, chemical sensors, spintronics, nanostructures, nonlinear optics, microfabrication, environmental monitoring, noninvasive glucose sensing, photopolymerization, heterogeneous chemical reactions in atmospheric particles, organic semiconductors, synthesis and characterization of nano-sized zeolite particles, biomolecular aggregation, semiconductor heterostructures, imaging technology, atmospheric chemistry.

Year program was founded: 1994

Contact: Dr. Michael Flatté, Director of Optical Science & Technology Center

Email: ostc@uiowa.edu

Website: <http://www.ostc.uiowa.edu>

Mailing address: Optical Science and Technology Center, Univ. of Iowa, 114 IATL, Iowa City IA 52242 USA

KANSAS

Pittsburg State University Pittsburg, Kansas USA

Name of department: Physics

Contact: Professor David Kuehn, Interim Chair

Email: dkuehn@pittstate.edu

Website: <https://www.pittstate.edu/>

Mailing address: Physics Department, 307 Yates Hall, Pittsburg State University, Pittsburg KS 66762 USA

MARYLAND

Johns Hopkins University - Electrical and Computer Engineering Baltimore, Maryland USA

The Department of Electrical and Computer Engineering at Johns Hopkins University is committed to providing a rigorous educational experience that prepares students for further study and successful careers and is dedicated to theoretical/experimental research of the field. All students are given opportunities to conduct original research in close association with faculty members. Current research activities include theoretical/experimental investigation of fiber laser and nonlinear fiber optics, broadband optoelectronic devices, optical communications, nonlinear waves, optical properties of various materials, and passive remote sensing of the atmosphere. Additional courses can be taken from the Part-Time Program in Engineering and Applied Science.

Name of department: Electrical and Computer Engineering

circuits, mesoscopic physics, metamaterials, micro and nanophotonics, multiphoton processes, nanofabrication, nanoscale device physics, nanoscience, nanotechnology, negative index (Meta) materials, nonlinear optics, optical communications, optical frequency combs, optical imaging and light in scattering media, optical systems with ray-chaotic dynamics, photoionization, photonic crystals, plasmonics, quantum electronics and optoelectronics, radio-frequency photonics, solar cells, spectroscopy, thermophotovoltaics, ultrafast optics.

Contact: Prof. Chin-Lin Chen, Professor of Electrical and Computer Engineering

Email: clchen1@purdue.edu

Website: <http://engineering.purdue.edu/ECE>

Mailing address: Purdue Univ., School of Electrical and Computer Engineering, 465 Northwestern Ave., W. Lafayette IN 47907-2035 USA

Rose-Hulman Institute of Technology

SPIE. STUDENT CHAPTERS **OSA** Student Chapter

Terre Haute, Indiana USA

Emphasis is placed on lab work with a hands-on approach. Our teaching/research laboratories are equipped with the most modern equipment. Our curriculum includes 11 optics courses with corresponding labs. In the optical engineering design process the goal of understanding the problem and finding a solution and design is of utmost importance. The Bachelor's/Master's OE Program has been developed with input from representatives of the optics industry, international experts, educators, and alumni. Core topics in the curriculum include: holography, optical fibers/application, electro-optics, lens design, metrology, optical instrumentation, semiconductor devices, biomedical optics, microsensors, lasers and applications, and optical image processing. The Program has been continuously evolving into one of the strongest with input from representatives of the optics industry, international experts, educators, and alumni of our program. Rose-Hulman Institute of Technology is a private, fully accredited engineering and science college located at the eastern edge of Terre Haute, Indiana. With an enrollment of 1,800 undergraduate and 150 master's level students, Rose-Hulman is the ideal size for modern engineering and science education. It offers complete engineering, science and mathematics curricula in state-of-the-art laboratories. In addition to optics, engineering physics, and physics, students coming to Rose-Hulman can also gain valuable exposure to chemistry, computer science, economics, mathematics, and various engineering disciplines. Rose-Hulman has always enjoyed a reputation of excellence in publications such as "Barron's Guide to the Most Prestigious Colleges" and "The New York Times Selective Guide to Colleges. Rose-Hulman has been selected as #1 Undergraduate Engineering college in the nation by "U.S. News and World Report Best Colleges Guide" for the year a record 13 years in a row.

Name of department: Physics and Optical Engineering

Number of core optics/photronics students currently enrolled in a related program: 66

Number of students in optics/photronics related course work: 100

Number of optics/photronics related courses offered in this program: 30

Optics/photronics related programs/degrees offered: Certification:

Certificate in Semiconductors Materials and Devices and Optical Communications. BS in Physics, BS in Optical Engineering, BS in Engineering Physics. MS in Optical Engineering

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Optics; Photonics; Fiber optics

Academic and research specialties related to optics/photronics: Optical instrument design, fiber optic components/sensors, light scattering, computer-aided optical system design, speckle techniques holography, psi, structural/magnetic properties of materials, nanostructured/nanoparticulate magnetic materials, x-ray absorption studies with synchrotron radiation, UV-visible absorption/fluorescence studies, semiconductor materials/packaging, microscopy/complexity, lasers, high power laser systems, nonlinear optics, applications of photorefractive materials/optical phase-conjugation, optical/magneto-optical studies of II-VI magnetic heterostructures/integrated optics.

Year program was founded: 1985

Contact: Dr. Galen Duree, Jr., Chair

Email: Galen.Duree@rose-hulman.edu

Website: <http://www.rose-hulman.edu/phoe>

Mailing address: Physics and Optical Engineering, Rose-Hulman Institute of Technology, 5500 Wabash Ave., CM 169, Terre Haute IN 47803 USA

UNDERGRADUATE/GRADUATE PROGRAMS

Number of core optics/photonics students currently enrolled in a related program: 15

Number of students in optics/photonics related course work: 75

Number of optics/photonics related courses offered in this program: 12
Optics/photonics related programs/degrees offered: BS in Electrical Engineering, BS in Computer Engineering. MS in Electrical Engineering with concentration in Photonics and Optoelectronics. PhD in Electrical Engineering

Type/Description of disciplines/program tracks offered: Optical engineering; Electrical engineering

Academic and research specialties related to optics/photonics: Experimental/theoretical work in fiber lasers, fiber-optic communications/devices, solid-state lasers, optoelectronic devices; nonlinear/quantum optics, solitons, nonlinear waves, ultrafast phenomena; reflective properties of ocean surface, linear optical/nonlinear optical properties of various optical materials; optical detection and passive remote sensing of the atmosphere; microwave photonics, broadband microwave signal processing and free-space laser communications.

Year program was founded: 1913

Contact: Barbara Sullivan, Senior Administrative Coordinator

Email: bsullivan@jhu.edu

Website: <http://www.ece.jhu.edu>

Mailing address: Johns Hopkins Univ., 105 Barton Hall, Dept. of E&CE, 3400 N. Charles St., Baltimore MD 21218 USA

Johns Hopkins University - Whiting School of Engineering Baltimore, Maryland USA



The part-time program is primarily intended for students with full-time jobs. All the classes are offered in the evening during the week or on Saturday morning. A variety of convenient campuses exist in the Baltimore/Washington area. Academic course work is concentrated in optical engineering covering design, electro-optical systems, laser systems, fiber optic communication systems, and light wave propagation. The courses are offered in both Electrical and Computer Engineering and Applied Physics Programs. Research opportunities exist through special projects classes that are tailored to the interest of the student and relevant facilities and interests of a faculty member.

Name of department: Engineering for Professionals

Optics/photonics related programs/degrees offered: Certification: Advanced Certificate for Post-Master's Study. MS in Applied Physics (Photonics Concentration), MS in Electrical and Computer Engineering (Photonics Concentration).

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Electrical engineering; Optics; Photonics; Fiber optics

Academic and research specialties related to optics/photonics: Fiber optic systems, optical design, laser systems, optical detectors, light wave propagation. Research opportunities exist through special projects courses that match interests of the various faculty members.

Admission deadlines: Applications are accepted on a continuing basis.

Year program was founded: 1915

Contact: Dr. Clinton Edwards, ECE Program Vice-Chair

Email: clint@jhu.edu

Website: <http://www.ep.jhu.edu>

Mailing address: Johns Hopkins University, Engineering for Professionals, 3400 N Charles St., Wyman Park Bldg., 3rd Floor West, Baltimore MD 21218-2608 USA

MASSACHUSETTS

Boston University Boston, Massachusetts USA



Our program offers a spectrum of graduate education in photonics. The PhD study in photonics offer challenging, coordinated classroom, laboratory and project work in the science and technology of light. With the resources and entrepreneurial environment of the Photonics Center, students can prepare for industry careers or further PhD study with faculty from engineering, physics, chemistry, and other disciplines. Campus centers, like the NSF Center for Subsurface Sensing and Imaging Systems (CenSSIS), the NSF Computational Science Center, or the Fraunhofer Center for Manufacturing Innovation enrich the program. Boston is an intellectual center for education, high technology and especially photonics, creating many opportunities for industry collaboration.

Name of department: The Boston University Photonics Center

Number of core optics/photonics students currently enrolled in a related program: 20

Number of students in optics/photonics related course work: 30

Number of optics/photonics related courses offered in this program: 19
Optics/photonics related programs/degrees offered: We offer a BS in Electrical Engineering, Computer Systems Engineering, Physics, Bio Medical Engineering, Mechanical Engineering and Chemistry. We offer a MS in Electrical Engineering or in Computer Systems Engineering. EE or CSE majors may elect courses and do thesis or project work in optics and photonics. We offer a PhD in Electrical, Computer or Systems Engineering. Students can work with Photonics faculty on photonics and optics research in various PhD areas in engineering and the sciences.

Type/Description of disciplines/program tracks offered: Physics; Electrical engineering

Academic and research specialties related to optics/photonics: Our degree programs offer concentrations in lasers; fiber optics and communications; and photonic materials and devices; research groups in compound semiconductor devices; photodetectors; simulation of optoelectronic devices; magneto-optical materials; MBE of III-V compounds; quantum optics; MEMS adaptive optics; nanophotonics; optical systems; fiber optics; fiber sensors; applied electromagnetics; opto-electronic packaging; subsurface sensing and imaging.

Admission deadlines: For full aid consideration, submit applications by January 15. No-aid admission deadline is April 1. Graduate open house in early/mid March for potential aid recipients. October 1 is the deadline for all students matriculating in January.

Year program was founded: 1954

Contact: Thomas Bifano, Professor

Email: tgb@bu.edu

Website: <http://www.bu.edu/photonics>

Mailing address: Boston University, 8 St Mary's St., Room 936, Boston MA 02215-2421 USA

Northeastern University Boston, Massachusetts USA

Students interested in optics can major in Electrical and Computer Engineering, Bioengineering, Mechanical Engineering, or Physics. All departments offer BS, MS, and PhD programs.

Name of department: Electrical and Computer Engineering

Number of core optics/photonics students currently enrolled in a related program: 18

Number of students in optics/photonics related course work: 20

Number of optics/photonics related courses offered in this program: 10

Optics/photonics related programs/degrees offered: Degrees related to optics: BS in Electrical Engineering, BS in Electrical and Computer Engineering, BS in Bioengineering, BS in Mechanical Engineering, BS in Physics. MS in Electrical and Computer Engineering, MS in Bioengineering, BS in Mechanical Engineering, MS in Physics. PhD in Electrical Engineering, PhD in Bioengineering, PhD in Mechanical Engineering, PhD in Physics.

Type/Description of disciplines/program tracks offered: Electrical engineering; Biomedical optics

Academic and research specialties related to optics/photonics:

Biomedical imaging, photomedical engineering, optoelectronics, optical sensors for energy, environment and infrastructure, optical properties of materials, multimodal sensing, inverse problems.

Accreditation Organization: ABET

Admission deadlines: Application deadline for Fall. January 15 for students seeking financial support. April 15, otherwise.

Year program was founded: 1974

Contact: Jesse Marsh, Graduate Coordinator

Email: j.marsh@northeastern.edu

Website: <http://www.ece.neu.edu/groups/osl/nuopticsed.html>

Mailing address: 440 Dana Building, Northeastern Univ, 360 Huntington Ave, Boston MA 02115 USA

Tufts University Medford, Massachusetts USA

Applications of optics to biomedical engineering, especially sensing systems. Research based MS and PhD degree, Course based MEng degree. Many opportunities for collaboration with Boston area hospitals and laboratories.

Name of department: Biomedical Engineering

Number of core optics/photonics students currently enrolled in a related program: 10

Number of students in optics/photonics related course work: 15
Number of optics/photonics related courses offered in this program: 5
Optics/photonics related programs/degrees offered: Bachelors, Masters and Doctoral programs available.

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Electrical engineering; Biomedical optics

Academic and research specialties related to optics/photonics: NIR biomedical imaging, Optical tweezers, Optical diagnostics, in vivo flow cytometry; biopolymers as optical materials.

Year program was founded: 2002

Contact: Mark Cronin-Golomb, Professor

Email: Mark.Cronin-Golomb@tufts.edu

Website: <http://engineering.tufts.edu/bme/>

Mailing address: Tufts Univ., Biomedical Engineering, 4 Colby Street, Medford MA 02155 USA

University of Massachusetts at Amherst Amherst, Massachusetts USA

Name of department: Physics

Contact: Prof. Rory Miskimen, Head of Department

Email: miskimen@physics.umass.edu

Website: <https://www.umass.edu/>

Mailing address: Dept of Physics, 1126 Lederle Graduate Research Tower, Univ of Massachusetts, Amherst MA 01003 USA

Worcester Polytechnic Institute Worcester, Massachusetts USA

Name of department: Physics

Contact: Prof. Padmanabhan Aravind, Associate Department Head

Email: paravind@wpi.edu

Website: <https://www.wpi.edu/>

Mailing address: 100 Institute Road, Worcester MA 01609 USA

MICHIGAN

Michigan Technological University SPIE. STUDENT CHAPTERS OSA Student Chapter Houghton, Michigan USA

The study of Information Systems at Michigan Technological University is concerned with the transmission, measurement, processing, analysis, and interpretation of information-bearing signals. As such, areas of research in our department include optics, photonics, signal processing, image processing, computer communications, and wireless and digital communications. Students studying information systems in our department choose from a broad offering of courses in the areas of: statistical signal processing; information theory and coding; wireless and digital communications; statistical optics; optical information processing; communication networks; detection and estimation theory; wavelet and spectral analysis; image processing; and multiuser detection. High speed computing facilities and a newly developed state-of-the-art optics laboratory provide an outstanding environment for education, research, and engineering practice in this area.

Name of department: Electrical and Computer Engineering

Number of core optics/photonics students currently enrolled in a related program: 20

Number of students in optics/photonics related course work: 30

Number of optics/photonics related courses offered in this program: 10

Optics/photonics related programs/degrees offered: Bachelors program(s): Certificate in Photonics is granted along with the Undergraduate Degree in Electrical Engineering. Masters and doctoral program(s): Research in optics/photonics is usually performed within two of the main core areas of research, electrophysics or information systems

Type/Description of disciplines/program tracks offered: Physics; Electrical engineering; Photonics; Biomedical optics

Academic and research specialties related to optics/photonics: integrated optics, atmospheric turbulence, image processing, integrated optics, and photonic devices, biomedical optics, meta materials, quantum optics, magneto-optics.

Year program was founded: 1930

Contact: Christopher T. Middlebrook, Associate Professor

Email: ctmiddle@mtu.edu

Website: <http://www.ece.mtu.edu/>

Mailing address: Michigan Technological Univ., EERC Bldg. 121, 1400 Townsend Dr., Houghton MI 49931 USA

Saginaw Valley State University University Center, Michigan USA

The Department of Physics offers an Optical Physics major program. Students in the program take most of the classes for a traditional physics major and enhanced it by taking courses in optics, such as: Physical Optics, Coherent Optics, Laser Physics and Optoelectronics, Modern Optics and Holography Laboratory, and Senior Laboratory in Optics. As a result, graduates have strong hands-on laboratory skills that enable them to do well and work independently in optical engineering positions in industries, as well as the theoretical grounding to succeed in graduate schools.

Name of department: Department of Physics

Number of students in optics/photonics related course work: 12

Number of optics/photonics related courses offered in this program: 6

Optics/photonics related programs/degrees offered: Optical Physics

Type/Description of disciplines/program tracks offered: Physics

Academic and research specialties related to optics/photonics: Coherent Optics, Holography, Interferometry, Fourier Optics, Laser Cooling, Atomic Molecular and Optical Physics, Broadband Holography, Laser Trapping, Imaging through Turbulent Media, Electronic Holography, Spectral Holography.

Contact: Matthew Vannette, Department Chair and Associate Professor of Physics

Email: mvannett@svsu.edu

Website: <http://www.svsu.edu/physics>

Mailing address: Department of Physics, Saginaw Valley State University, 7400 Bay Road, University Center MI 48710 USA

University of Michigan Ann Arbor, Michigan USA

SPIE. STUDENT CHAPTERS OSA Student Chapter

Optics and photonics faculty and students are exploring biophotonics, photonic MEMS, optoelectronics in quantum structures, nanophotonics, ultrafast optics, quantum optics, and fiber and integrated photonics and lasers. Research ranges from fundamental science to emerging applications and devices, including quantum computing, on-chip micron-scaled resonators, microsensors, metamaterials, in vivo biological imaging and sensing, and biophysical studies of biomolecular structure.

Name of department: Electrical Engineering and Computer Science

Number of core optics/photonics students currently enrolled in a related program: 41

Number of students in optics/photonics related course work: 200

Number of optics/photonics related courses offered in this program: 15

Optics/photonics related programs/degrees offered: MSE in Electrical and Computer Engineering, MS in Electrical and Computer Engineering, PhD in Electrical and Computer Engineering.

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Electrical engineering; Optics; Photonics; Biomedical optics; Fiber optics

Academic and research specialties related to optics/photonics: Optics and photonics students are exploring frontiers of optics, including biophotonics, photonic MEMS, optoelectronics in quantum structures, nanophotonics, ultrafast optics, quantum optics, and fiber and integrated photonics and lasers. Research ranges from fundamental science to emerging applications and devices, including quantum computing, on-chip micron-scaled resonators, microsensors, metamaterials, in vivo biological imaging and sensing, and biophysical studies of biomolecular structure.

Accreditation Program: ABET

Accreditation Organization: ABET

Admission deadlines: December 15, PhD. January 15, MSE.

Year program was founded: 1889

Contact: Catharine June, Communications Manager

Email: cmsj@umich.edu

Website: <http://eecs.umich.edu>

Mailing address: Univ. of Michigan, Optical Science Lab, 3301 EECS, 1301 Beal Ave., Ann Arbor MI 48109-2122 USA

MINNESOTA

St. Cloud State University St. Cloud, Minnesota USA

Name of department: Physics and Astronomy

Number of core optics/photonics students currently enrolled in a related program: 5

Number of students in optics/photonics related course work: 40

UNDERGRADUATE/GRADUATE PROGRAMS

Number of optics/photonics related courses offered in this program: 7
Optics/photonics related programs/degrees offered: Bachelor of Science in Physics (with Electro-Optics track). Professional Science Masters in Materials Science and Instrumentation
Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Optics; Photonics; Fiber optics
Academic and research specialties related to optics/photonics: Spectroscopy, Space Interferometry, Ultrafast Lasers, Materials Science, High Power Lasers, Laser Plasma Interactions, Laser Sensors, Laser Ablation, Laser Propulsion.
Year program was founded: 1983
Contact: Dr. John E Sinko, Assistant Professor
Email: jesinko@stcloudstate.edu
Website: <http://www.stcloudstate.edu/physics>
Mailing address: St. Cloud State Univ., WSB 324, 720 4th Ave. S., St. Cloud MN 56301 USA

MISSISSIPPI

Alcorn State University **SPIE.** STUDENT CHAPTERS
Lorman, Mississippi USA
Name of department: Advanced Technologies
Contact: Yufeng Zheng, Professor
Email: yzheng@alcorn.edu
Website: <http://www.alcorn.edu/>
Mailing address: Alcorn State Univ., Advanced Technologies, 1000 Alcorn Dr 360, Lorman MS 39096-7500 USA

MISSOURI

Missouri University of Science and Technology
Rolla, Missouri USA
Electrical Engineering Program: <http://ece.mst.edu/>
Smart Structures Program: <http://apol.mst.edu>
Microsystems Program: <http://web.mst.edu/~ckim/>
Physics Program: <http://physics.mst.edu/>
Atomic, Molecular and Optical Physics Program: <http://physics.mst.edu/facultystaffandfacilities/researchlabs/lamor>
Name of department: Electrical and Computer Engineering
Number of students in optics/photonics related course work: 10
Number of optics/photonics related courses offered in this program: 10
Optics/photonics related programs/degrees offered: BS Electrical Engineering with a formal emphasis in optics and devices and BS Physics. MS Electrical Engineering concentration in optics/sensors/smart structures, MS Physics concentration in optics. PhD concentration in optics/sensors/smart structures.
Type/Description of disciplines/program tracks offered: Physics; Electrical engineering
Academic and research specialties related to optics/photonics: Optical Sensors, Smart Structures, Imaging, LED Illumination, Microdevices, Fiber Optic Sensors.
Admission deadlines: Visit: <http://futurestudents.mst.edu>
Year program was founded: 1991
Contact: Dr. Steve E. Watkins, Professor, Electrical and Computer Engineering, Director, Applied Optics Laboratory
Email: watkins@mst.edu
Website: <http://apol.mst.edu>
Mailing address: Missouri University of Science and Technology, 121 EECH, 301 W. 18th St., Rolla MO 65409-0040 USA

University of Missouri at Columbia
Columbia, Missouri USA
Name of department: Physics
Number of core optics/photonics students currently enrolled in a related program: 25
Optics/photonics related programs/degrees offered: BS/BA, MS, PhD
Contact: Prof. H. R. Chandrasekhar, Director of Graduate Studies
Email: chandra@missouri.edu
Website: <https://physics.missouri.edu>
Mailing address: Univ. of Missouri/Columbia, 223 Physics Bldg., Columbia MO 65211 USA

MONTANA

Montana State University **SPIE.** STUDENT CHAPTERS **OSA** Student Chapter
Bozeman, Montana USA
Students are admitted to a specific department (ECE, Physics, Chemistry) and study optics and photonics through a variety of interdisciplinary courses and research opportunities. We offer a world-class optics education in the unparalleled environment of southwestern Montana.
Name of department: Optical Technology Center
Number of core optics/photonics students currently enrolled in a related program: 30
Number of students in optics/photonics related course work: 50
Number of optics/photonics related courses offered in this program: 16
Optics/photonics related programs/degrees offered: Associate degree(s): Photonics and Laser Technology. Bachelor of Science degree in Electrical Engineering, Computer Engineering, Physics, Chemistry, or Mathematics, with significant coursework and research opportunities in optics and photonics. MS in Optics and Photonics, Electrical Engineering, Physics, Chemistry, or Mathematics. Students are admitted to a specific department and have a wide variety of interdisciplinary courses and research opportunities in optics and photonics. PhD in Electrical Engineering, Physics, Chemistry, or Math. Students are admitted to a specific department and have a wide variety of interdisciplinary courses and research opportunities in optics and photonics.
Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Electrical engineering; Optics; Photonics; Biomedical optics; Fiber optics
Academic and research specialties related to optics/photonics: Optical remote sensing, lidar, polarimetry, radiometry, optical communications, MEMS device and system design and fabrication, nano-photonics, laser physics, diode and cw Raman lasers, ultrastable lasers, spectral hole burning, spatial-spectral holography, spectroscopy, optical materials, image analysis, Space optical systems and solar physics, space and atmospheric science with optical and infrared sensors, computational adaptive optics.
Admission deadlines: The ECE, Physics, and Chemistry departments each have unique deadlines that can be found through our webpage (www.optec.montana.edu).
Year program was founded: 1994
Contact: Joseph A. Shaw, Director
Email: optics.info@montana.edu
Website: <http://www.optics.montana.edu>
Mailing address: Montana State University, Optical Technology Center (OPTEC), P.O. Box 173515, Bozeman MT 59717 USA

NEVADA

University of Nevada at Las Vegas **SPIE.** STUDENT CHAPTERS
Las Vegas, Nevada USA
Name of department: Physics
Number of core optics/photonics students currently enrolled in a related program: 60
Optics/photonics related programs/degrees offered: BS Physics, BS Applied Physics, BS Computational Physics; MS Physics; PhD Physics
Contact: Prof. James C. Selser, Chairman
Email: chair@physics.unlv.edu
Website: <http://www.physics.unlv.edu>
Mailing address: Univ. of Nevada/Las Vegas, Physics Dept., 4505 Maryland Pkwy, Las Vegas NV 89154-4002 USA

NEW JERSEY

New Jersey Institute of Technology
Newark, New Jersey USA
Flexible curricula which extends from material science and engineering, applied physics and computer and electrical engineering; Optical Science and Engineering program with a \$1,000,000 education lab.
Name of department: Electrical and Computer Engineering
Number of core optics/photonics students currently enrolled in a related program: 50
Number of students in optics/photonics related course work: 100
Number of optics/photonics related courses offered in this program: 15
Optics/photonics related programs/degrees offered: BSEE, BSCoE, Physics, BSc Chem/Chem Eng. MSEE, MSCoE, MS Telecommunications,

MS Applied Physics, MS Chem/Chem Eng. PhD, PhD Applied Physics, PhD Material Sci, PhD Chem/Chem Eng

Type/Description of disciplines/program tracks offered: Physics; Electrical engineering

Academic and research specialties related to optics/photonics: Interdisciplinary program which combines: material and device fabrication, characterization at THz frequencies, far and near IR, visible and UV using long and ultra short pulses.

Year program was founded: 1990

Contact: H. Grebel, Professor

Email: grebel@njit.edu

Website: http://www.njit.edu

Mailing address: New Jersey Institute of Technology, Electronic Imaging Center, Electrical and Computer Engineering Department, Newark NJ 07102-1982 USA

Princeton University - Electrical Engineering Princeton, New Jersey USA

SPIE. STUDENT CHAPTERS **OSA** Student Chapter

Name of department: Electrical Engineering

Number of core optics/photonics students currently enrolled in a related program: 320

Number of optics/photonics related courses offered in this program: 5

Optics/photonics related programs/degrees offered: BSEE (concentrations in Electronic Materials and Devices, Computer Engineering, Information Sciences and Systems, and Optics). M.Eng (concentrations in Electronic Materials and Devices, Computer Engineering, Information Sciences and Systems, and Optics). PhD (concentrations in Electronic Materials and Devices, Information Sciences and Systems, Computer Engineering, and Optics).

Type/Description of disciplines/program tracks offered: Optical engineering; Electrical engineering

Contact: Prof. Peter Ramadge, Department Chair

Email: sbraude@princeton.edu

Website: http://www.ee.princeton.edu

Mailing address: Princeton University, Dept. of Electrical Engineering, E-Quad, B-210, Princeton NJ 08544 USA

Stevens Institute of Technology Hoboken, New Jersey USA

The Department is home to graduate degree programs in physics with emphasis on the fields of atomic, molecular and optical physics (AMO), solid state electronics, plasma physics and photonics technology. Our research programs, many of which have a strong interdisciplinary character, lead the way in their respective fields of endeavor. Our teaching programs prepare our students for careers in physics related research, and broader areas of technology development. Our research is strongly coupled to applications and we encourage our faculty and students to investigate opportunities for commercial development. This has led to the formation of several startup ventures.

Name of department: Physics and Engineering Physics

Number of core optics/photonics students currently enrolled in a related program: 60

Number of students in optics/photonics related course work: 100

Number of optics/photonics related courses offered in this program: 11

Optics/photonics related programs/degrees offered: Certification: Microelectronics and Photonics, Applied Optics/Optical Engineering. BS Physics, BS Engineering Physics (Optical Engineering). ME Engineering Physics (Optical Engineering/Applied Optics), MS Physics, MS/ME Microelectronics and Photonics, Physics

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Optics; Photonics

Academic and research specialties related to optics/photonics: Atomic, molecular and optical physics, atomic-electron interactions, low temperature plasma physics, infrared laser spectroscopy, atmospheric physics, ultrafast lasers, optical free space communications, quantum and atom optics.

Admission deadlines: Rolling admissions process through the beginning of the term.

Year program was founded: 1950

Contact: Edward A. Whittaker, Professor

Optical Technology Center

Optics and Photonics at Montana State University



M.S. in *Optics and Photonics* and M.S. and Ph.D. with optics emphasis are available through the departments of Electrical & Computer Engineering, Physics, and Chemistry & Biochemistry. Opportunities exist for cross-disciplinary research and collaboration with local optics companies.

Contact:

Optical Technology Center
P.O. Box 173515
Montana State University
Bozeman, Montana 59717

Ph. 406.994.6279
Fax 406.994.6767
optics.info@montana.edu
www.optics.montana.edu

*World-class optics and photonics education
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Active research and student opportunities in

- Optical remote sensing instruments
- Lidar, polarimetry, and radiometry
- Optical imaging and sensor systems
- Micro-optics, nano-photonics, MEMS/MOEMS
- Optical communications
- Space optical systems and solar physics
- Laser physics and engineering
- Nonlinear optics & optical materials
- Optical spectroscopy & bio/chemical applications



UNDERGRADUATE/GRADUATE PROGRAMS

Email: edward.whittaker@stevens.edu

Website: <https://www.stevens.edu/schaefer-school-engineering-science/departments/physics-engineering-physics>

Mailing address: Dept. of Physics and Engineering Physics, Stevens Institute of Technology, 1 Castle Point Terrace, Hoboken NJ 07030 USA

NEW MEXICO

New Mexico Institute of Mining and Technology Socorro, New Mexico USA

SPIE. STUDENT CHAPTERS

The Optical Science and Engineering program at New Mexico Tech is offered as a minor degree that can be taken with nearly all of our BS programs in the Physical Sciences. The program is administered through the co-operation of the Electrical Engineering, Physics and Materials Engineering Departments. In the Electrical Engineering degree program students are able to apply their understanding of electromagnetics, controls, communications, and electronics to optical systems. This leads to the students developing an understanding of optics combined with the hands-on skills derived from their major program. In the final year of their undergraduate level studies the students participate in a year-long capstone project course where several optics projects are often available for selection. The graduate degree program is structured around a core group of courses in Electrical Engineering. Specialized courses in optics and other major topic areas are coupled with research projects that provide the key to the success of the program.

Name of department: Electrical Engineering

Number of core optics/photronics students currently enrolled in a related program: 10

Number of students in optics/photronics related course work: 20

Number of optics/photronics related courses offered in this program: 10

Optics/photronics related programs/degrees offered: Certification: A graduate certificate in Electrical Engineering is available and can be focused in areas of optics, electro-optics or photronics. Bachelors program: Electrical Engineering -The undergraduate program, founded in 1989, has approximately 150 students and concentrates on electronics and design with a foundation in circuits, signals and systems. Masters program: Electrical Engineering - The program focuses on providing students with unique educational opportunities tied to local research facilities such as the National Radio Astronomy Observatory; Langmuir Laboratory; Magdalena Ridge Observatory; Energetic Materials Research and Testing Center; Incorporated Research Institutions for Seismology and Institute for Complex Additive Systems Analysis.

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Electrical engineering

Academic and research specialties related to optics/photronics:

Atmospheric optics; beam propagation; experimental adaptive optics; fiber optics; image processing; interferometry; pattern recognition; optical sensors; spectroscopy; telescope design.

Year program was founded: 1989

Contact: Scott W. Teare, Professor & Program Chair

Email: teare@ee.nmt.edu

Website: <http://www.nmt.edu>

Mailing address: Electrical Engineering Department, New Mexico Tech, 801 Leroy Place, Socorro NM 87801 USA

New Mexico State University Las Cruces, New Mexico USA

The optics program at New Mexico State University exists in the departments of Electrical and Computer Engineering, Astronomy, Chemical Engineering, Physics, and Chemistry. Students earn degrees from any of the departments while learning the principles and applications of optics from all. Excellent cooperation among departments provides students with different, but complementary, perspectives. Student/teacher interaction is an integral aspect of the graduate student's experience at NMSU. Much work is done on a one-to-one basis, providing an excellent atmosphere for learning. Students are given many opportunities to work with modern optical devices and all are required to take laboratory courses.

Name of department: Electrical and Computer Engineering, Physics, Mechanical Engineering, Chemistry, and Astronomy

Number of core optics/photronics students currently enrolled in a related program: 10

Number of students in optics/photronics related course work: 20

Number of optics/photronics related courses offered in this program: 8

Optics/photronics related programs/degrees offered: BS, MS, PhD

Type/Description of disciplines/program tracks offered: Physics; Electrical engineering; Optics; Photonics

Academic and research specialties related to optics/photronics:

atmospheric optics, micro and nano optics, integrated electro-optical systems, spectroscopy, interferometry, laser beam propagation, polarization sensing, adaptive optics, spatial light modulators, wavefront sensing, optical and laser communications, image processing/pattern recognition, spectrochemistry, optical nanoscience, quantum optics, astronomical optics and sensors, microparticle spectroscopy, nonlinear optics.

Admission deadlines: See <http://gradschool.nmsu.edu/> for application information

Year program was founded: 1980

Contact: David Voelz, Professor of Electrical and Computer Engineering

Email: davvoelz@nmsu.edu

Website: <http://nmsu.edu>

Mailing address: The Klipsch School of Electrical and Computer Engineering, New Mexico State University, Box 30001, MSC 3-O, Las Cruces NM 88003-8001 USA

University of New Mexico Albuquerque, New Mexico USA

SPIE. STUDENT CHAPTERS **OSA** Student Chapter

More than twenty five participating faculty members cover a broad area of experimental and theoretical optics related research. Primary areas of research include high-resolution (temporal and spatial) imaging, LWIR and MWIR imaging, ultrafast optical phenomena, laser-material interactions, nonlinear optics, laser gyros, laser cooling of solids, atom optics and cooling, quantum optics, laser development, microwave photronics, mode-locked lasers, injection-locked lasers, laser-induced plasmas, biomedical optics, optoelectronic device physics and structure, optoelectronic device simulation, integrated optoelectronic circuits, semiconductor laser fabrication and characterization, vertical-cavity surface-emitting lasers (VCSELs), wide-bandgap group-III nitride devices, dilute group-III nitride materials and devices, detector design and fabrication, photonic integrated circuits, photovoltaics, nanoheteroepitaxy, thin film deposition processes, MBE, MOCVD, nanotechnology, nanophotonics, metamaterials, imaging interferometric lithography, quantum dot lasers and detectors, fiber optics, fiber lasers, optical networks, ion beam applications to optics fabrication.

Name of department: Center for High Technology Materials

Number of core optics/photronics students currently enrolled in a related program: 120

Number of optics/photronics related courses offered in this program: 16

Optics/photronics related programs/degrees offered: Certificate of Excellence in Academic and Technical Training in Optics. BS in Physics with Optics concentration. MS in Optical Science and Engineering, MS/MSEE in Optical Engineering and Optoelectronics. PhD in Optical Science and Engineering, PhD in Engineering (Optoelectronics)

Academic and research specialties related to optics/photronics: Optical Science and Engineering (joint Physics/ECE); Optoelectronics (ECE). The Optical Science and Engineering PhD and MS programs are administered by the Optical Sciences Graduate Committee with faculty membership from the two participating departments. An extensive set of optics/laser related mandatory and elective courses are offered regularly.

Year program was founded: 1983

Contact: Doris Williams, OSE Sr. Academic Advisor, Dr. Mansoor Sheikh-Bahae, Chair. Dr. Majeed Hayat, Co-Chair

Email: dorisw@chtm.unm.edu

Website: <http://www.optics.unm.edu>

Mailing address: Univ. of New Mexico, Center for High Technology Materials, 1313 Goddard SE, MSC04 2710, Albuquerque NM 87106-4343 USA

NEW YORK

Adelphi University Garden City, New York USA

Adelphi University's Department of Physics is a growing, thriving program. Faculty research and teaching have a strong focus on optics. In 2006, the department launched its MS in Physics with a concentration in Optics. The MS program is designed to serve both working professionals and recent college graduates. Students may choose from a thesis track or a non-thesis track, and they will benefit from working closely with faculty. Scholarships, teaching assistantships, and research assistantships

are available. Adelphi is located on Long Island, about 45 minutes from Manhattan.

Name of department: Department of Physics
Number of core optics/photonics students currently enrolled in a related program: 12
Number of students in optics/photonics related course work: 65
Number of optics/photonics related courses offered in this program: 17
Optics/photonics related programs/degrees offered: BA in Physics. MS in Physics with a concentration in Optics.
Type/Description of disciplines/program tracks offered: Physics
Year program was founded: 2006
Contact: Joshua Grossman, Assistant Professor (Chair, Graduate Admissions)
Website: <http://physics.adelphi.edu/>
Mailing address: Adelphi University, Department of Physics, 1 South Avenue, P.O. Box 701, Garden City NY 11530-0701 USA

Binghamton University, State University of New York Binghamton, New York USA

Name of department: Electrical Engineering
Number of core optics/photonics students currently enrolled in a related program: 405
Optics/photonics related programs/degrees offered: BS in Electrical Engineering, BS in Computer Engineering. MS in Electrical Engineering, MEng with Specializations in EE and CoE. PhD in Electrical Engineering
Contact: Kim Murphy, ECE Department Administration Assistant
Email: kmurphy@binghamton.edu
Website: <http://www.binghamton.edu/ece>
Mailing address: Binghamton University - Electrical and Computer Engineering, Engineering and Science Bldg, Room 2300, 4400 Vestal Pkwy/PO Box 6000, Binghamton NY 13902-6000 USA

Columbia University New York, New York USA

SPIE. STUDENT CHAPTERS **OSA** Student Chapter

Name of department: Applied Physics and Applied Mathematics
Optics/photonics related programs/degrees offered: BS in Applied Physics. MS in Applied Physics. PhD in Applied Physics
Academic and research specialties related to optics/photonics: Optics of nanostructures, inelastic scattering in condensed matter, photonic integrated circuits, and optical diagnostics of processing.
Admission deadlines: December 15: PhD, Eng. ScD & MS leading to PhD, all financial aid.
 February 15: MS only, non-degree. January 1: Undergrad.
Contact: Irving P. Herman, Dept. Chair and Professor
Email: seasinfo.apam@columbia.edu
Website: <http://www.apam.columbia.edu>
Mailing address: Department of Applied Physics & Applied Mathematics, 500 W. 120th Street, Room 200 Mudd, MC 4701, New York NY 10027 USA

Cornell University Ithaca, New York USA

OSA Student Chapter

Name of department: School of Applied and Engineering Physics
Number of core optics/photonics students currently enrolled in a related program: 139
Optics/photonics related programs/degrees offered: BS in Engineering Physics. MEng in Engineering Physics, MS/PhD in Applied Physics. PhD in Applied Physics
Contact: Cynthia Reynolds, Academic Programs Coordinator
Email: crr8@cornell.edu
Website: <http://www.aep.cornell.edu>
Mailing address: Cornell Univ., School of Applied & Engineering Physics, 212 Clark Hall, Ithaca NY 14853 USA

Queens College of CUNY Flushing, New York USA

Photonics is the focus of research in the Department of Physics at Queens College of CUNY. With faculty members doing cutting edge research and with the availability of state of the art laboratories, students get opportunity to work on both theoretical as well as experiments topics. Undergraduate, graduate and post-doctoral researchers are involved in research in the department with the faculty members. Photonics is also one of the flagship initiative areas within the CUNY system and Queens College has one of the strongest programs in this area. MS degree in Photonics offered by the college is a Professional Science Master's

program designed to prepare students for immediate employment in Optics and Photonics related industries. This is achieved by emphasizing hands-on laboratory experience, industrial and research internships, non-technical skills such as oral and written communication skills, familiarity with economic aspects of high-tech R&D projects, as well as team building and leadership skills.

Name of department: Physics
Number of core optics/photonics students currently enrolled in a related program: 10
Number of students in optics/photonics related course work: 25
Number of optics/photonics related courses offered in this program: 15
Optics/photonics related programs/degrees offered: BS and BA in

Physics - The Physics Department offers the BS and BA degrees in Physics. There are two tracks for BA in Physics: "Physics" and "Applied Physics". Truly outstanding majors are able to participate in the BA-MA program upon recommendation of the Department Chair. MA in Physics - The Physics Department offers a full spectrum of courses and research opportunities leading to the MA degree in Physics. This program prepares the student for a variety of scientific careers, the most common of which are Teaching, Medical or Health Physicist, Computer Programming or Physics related jobs in industry. It can also satisfy the first thirty credits required for the PhD degree in Physics. Truly outstanding majors are able to participate in the BA-M.A. program upon recommendation of the Department Chair. MS in Photonics Professional Science Master's program. MS in Photonics is an innovative industrial employment oriented program, which includes rigorous academic training in Photonics related subjects (Applied Electrodynamics, Optics, Computational Methods, Telecommunication, Optoelectronics, Semiconductors, etc.), emphasizes hands-on laboratory experience, industrial and research internship, development of oral and written communication skills as well as understanding of economic, business and project management aspects of high-tech R&D process. program in Photonics. PhD in Physics - Queens College Department of Physics is one of four senior colleges in the City University of New York (CUNY) PhD Physics consortium. The Graduate School of the University is the PhD degree granting institution. The graduate courses are offered at the Graduate School currently located on 34th Street and Fifth Avenue. The research laboratories are located at the individual colleges. The PhD Program is centrally administered and coordinated by the Graduate School.

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Optics; Photonics
Academic and research specialties related to optics/photonics: Nano and Micro Photonic structures, Microcavity polaritons, Light propagation in random and periodic medium, spectroscopy of nanostructures, silicon photonics, magnetic thin films, and polymers.

Contact: Lev Deych, Professor of Physics
Email: lev.deych@qc.cuny.edu
Website: <http://www.physics.qc.edu/>
Mailing address: Department of Physics, Queens College of CUNY, 65-30 Kissne Blvd, Flushing NY 11367 USA

Rensselaer Polytechnic Institute Troy, New York USA

Research in optical physics is directed toward developing new optical materials and devices such as light emitting diodes and semiconductor diode lasers. We focus on achieving optical characterization of materials such as nanocrystalline metal and semiconductor particles in glass or in organic materials. Experimental measurements gains further understanding of the optical properties of novel materials. Another area of optics research is theory, fabrication, and experimental assessment of photonic crystal structures. Ultrafast photonics and optoelectronics involve the generation and detection of picosecond and femtosecond electromagnetic pulses. Of particular interest are time-resolved experiments on THz pulses. THz spectroscopy opens up novel opportunities in material characterization and information technology. Other projects deal with switching semiconductor devices at THz frequencies. The study of light-matter interactions at the nanoscale focuses on investigating the changes in these interactions in the vicinity of small metal nanoparticles using super-resolution microscopy techniques, and on designing materials or structures that interface with light in predetermined ways. Also explored are the new quantum properties that emerge when excitons and localized surface plasmon resonances become strongly coupled. Optical wavefront shaping using spatial light modulators is applied to problems such as control of light propagation in biological tissues, complex photonic structures,

UNDERGRADUATE/GRADUATE PROGRAMS

plasmonic systems, and multimode fibers. Furthermore, the photon entanglement degradation is investigated.

Name of department: Physics, Applied Physics & Astronomy
Number of core optics/photonics students currently enrolled in a related program: 33

Number of students in optics/photonics related course work: 60
Number of optics/photonics related courses offered in this program: 8
Optics/photonics related programs/degrees offered: BS in Physics, BS in Applied Physics, MS in Physics, PhD in Physics

Type/Description of disciplines/program tracks offered: Physics; Electrical engineering; Optics; Photonics; Biomedical optics

Academic and research specialties related to optics/photonics:
Development of new optical materials and devices: Optical properties of materials. Optical characterization of materials. Optical interconnects. Photonic crystals. Light-emitting diodes. THz-radiation sources, THz-radiation detectors and THz-measurement systems, Nanophotonics, Plasmonics. Quantum Optics.

Admission deadlines: Undergraduate Application Due Dates: Early Decision I November 1. Early Decision II December 15. Regular Decision January 15. Graduate Applications Due Dates: Due Dates by Term of Study Fall (August - December) January 18. Spring (January - May) August 15.

Year program was founded: 1990
Contact: Ingrid Wilke, Associate Professor
Email: wilkei@rpi.edu

Website: <http://www.rpi.edu/dept/phys/physics.html>
Mailing address: Rensselaer Polytechnic Institute, Department of Physics, Applied Physics & Astronomy, 110 8th Street, Troy NY 12180-3590 USA

Rochester Institute of Technology - Center for Imaging Science

SPIE STUDENT CHAPTERS **OSA** Student Chapter
Rochester, New York USA

The Chester F. Carlson Center for Imaging Science at RIT is a highly interdisciplinary University Research and Education Center, dedicated to pushing the frontiers of imaging in all its forms and uses. Through education leading to a BS, Masters, or PhD in the interdisciplinary field of Imaging Science, we produce the next generation of researchers who design and develop imaging systems to answer fundamental scientific questions, monitor our environment, help keep our nation secure, and aid medical researchers.

Name of department: Chester F. Carlson Center for Imaging Science
Number of core optics/photonics students currently enrolled in a related program: 150

Number of optics/photonics related courses offered in this program: 13
Optics/photonics related programs/degrees offered: Bachelor of Science in Imaging Science. Master of Science in Imaging Science. PhD in Imaging Science

Admission deadlines: Applications for graduate admission are accepted on a rolling basis. However, for those applying for admission to the graduate program with financial assistance, the deadline for their application is January 15 for admission in the fall.

Year program was founded: 1986
Contact: Joe Pow, Associate Director
Email: pow@cis.rit.edu

Website: <http://www.cis.rit.edu>
Mailing address: Chester F. Carlson Center for Imaging Science, 54 Lomb Memorial Drive, , Rochester NY 14623-5604 USA

Rochester Institute of Technology - Microelectronic Engineering

SPIE STUDENT CHAPTERS **OSA** Student Chapter
Rochester, New York USA

Name of department: Electrical and Microelectronic Engineering
Number of core optics/photonics students currently enrolled in a related program: 150

Number of optics/photonics related courses offered in this program: 5
Optics/photonics related programs/degrees offered: BS - Microelectronic Engineering. MS - Microelectronic Engineering. PhD - Microsystems Engineering

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Electrical engineering

Accreditation Program: Microelectronic Engineering
Accreditation Organization: ABET
Year program was founded: 1982

Contact: Dr. Dale E. Ewbank
Website: <https://www.rit.edu>
Mailing address: RIT, Electrical & Microelectronics Engineering Dept, ENG-2551, 79 Lomb Memorial Dr., Rochester NY 14623 USA

The City College of New York

SPIE STUDENT CHAPTERS **OSA** Student Chapter
New York, New York USA

The City College of New York (CCNY) has a long tradition of academic excellence and is the flagship campus in the sciences and engineering in the City University of New York system; making it an appropriate site for a major national initiative in optical education and research. In recent years, CCNY has been among the top three schools in the nation whose graduates complete their studies towards a PhD degree. CCNY has established a reputation for pioneering research in optics through the Institute for Ultrafast Spectroscopy and Lasers (IUSL), founded in 1982. In 2003, the NASA Center for Optical Sensing and Imaging (NASA COSI) and the DOD Center for Nanoscale Photonics was established at CCNY. Undergraduate and graduate students from the Grove School of Engineering and the Division of Science at CCNY are pursuing their research in various photonics labs at the IUSL and associated CCNY labs. The cooperation of CCNY's departments of electrical engineering, earth and atmospheric sciences, civil engineering, chemical engineering, chemistry, biology and physics has enhanced the programs in optics education by combining the dimensions of engineering and physics applications. PhD/DM combinations in electrical engineering and physics are offered by the School of Engineering and the Division of Science, reflecting the strong interest and vigorous pace of activities in those areas at CCNY. Research topics include optical materials, laser design, ultrafast spectroscopy, nonlinear optics, optical communications, image processing, remote sensing, optical biopsy, optical computation, microstructures, laser medicine, photochemistry, optical mammography, optical tomography and quantum optics.

Name of department: Physics, Biology, Chemistry, Electrical Engineering and others
Number of optics/photonics related courses offered in this program: 7
Optics/photonics related programs/degrees offered: BS, BE, MS, ME, PhD
Type/Description of disciplines/program tracks offered: Physics; Electrical engineering

Academic and research specialties related to optics/photonics:
Supercontinuum generation, ultrafast lasers, ultrafast laser spectroscopy, nanophotonics, biophotonics, optical communication, nonlinear optics, biomedical optics and imaging, semiconductor micro and nano structures, laser system development, optical computation, remote sensing, optical imaging and signal processing, quantum optics, laser crystal growth, tunable solid-state lasers, terahertz radiation generation, imaging and spectroscopy, employee continuing education in photonics workshops/classes.

Admission deadlines: Please refer to school web site
Year program was founded: 1972
Contact: Dr. Robert R. Alfano, Distinguished Professor of Science and Engineering, Director, The City College of New York
Email: ralfano@ccny.cuny.edu
Website: <https://www.ccnycuny.edu/>
Mailing address: The City College of New York, 160 Convent Ave, New York NY 10031 USA

The City University of New York

OSA Student Chapter
New York, New York USA

The City University of New York (CUNY) is the nation's largest urban public university with 23 institutions, including 11 senior colleges, 6 community colleges, an undergraduate honors college and a doctoral school. Undergraduate and graduate courses in optics are offered at many of the colleges. In recent years, new faculty members have been added to CUNY through a Photonics Initiative that is dedicated to keeping CUNY at the forefront of research in photonics. Towards that end, construction of a new science building at The City College of New York campus will start in summer 2008. Scheduled for completion in early 2012, the building will feature additional state-of-the-art lab spaces for various science departments. In addition, CCNY researchers, along with leading research faculty from The City University of New York system, will occupy new space in a future CCNY-sited building called the Advanced Science Research Center. Construction of the Advanced Science Research Center will start in summer 2008. This state-of-the-art building will facilitate the development of an integrated research network for CUNY students and faculty.

Name of department: Physics, Chemistry, Biology, Electrical Engineering at various campuses
Type/Description of disciplines/program tracks offered: Physics; Electrical engineering
Academic and research specialties related to optics/photonics:
Supercontinuum generation, ultrafast lasers, ultrafast laser spectroscopy,

nanophotonics, biophotonics, optical communication, nonlinear optics, biomedical optics and imaging, semiconductor micro and nano structures, laser system development, optical computation, remote sensing, optical imaging and signal processing, quantum optics, laser crystal growth, tunable solid-state lasers, terahertz radiation generation, imaging and spectroscopy, employee continuing education in photonics workshops/classes.

Year program was founded: 1993

Contact: Prof. Robert R. Alfano, Distinguished Professor of Science and Engineering, Director, The City College of New York

Email: ralfano@ccny.cuny.edu

Website: <https://www2.cuny.edu>

Mailing address: The City College of New York, Dept of Physics, Rm MR-419, 160 Convent Ave, New York NY 10031 USA

University at Buffalo Buffalo, New York USA

OSA Student Chapter

Research in Optics and Photonics relies on a synergy of fundamental physics, materials science, numerical modeling, and device applications. Research in this area has diverse applications, such as ultra-high resolution imaging, photovoltaics, sensing, quantum cryptography and secure communications.

Name of department: Electrical Engineering

Number of core optics/photonics students currently enrolled in a related program: 100

Number of students in optics/photonics related course work: 200

Number of optics/photonics related courses offered in this program: 25

Optics/photonics related programs/degrees offered: BS in Electrical

Engineering. MS in Electrical Engineering. PhD in Electrical Engineering

Type/Description of disciplines/program tracks offered: Electrical engineering

Accreditation Organization: ABET

Year program was founded: 1945

Contact: Katharine Bartelo, PhD, Graduate Program Administrator

Email: kbartelo@buffalo.edu

Website: <https://engineering.buffalo.edu/ee.html>

Mailing address: 230 Davis Hall, Buffalo NY 14260 USA

University of Rochester

SPIE Student Chapters OSA Student Chapter

Rochester, New York USA

Name of department: The Institute of Optics

Number of core optics/photonics students currently enrolled in a related program: 287

Number of students in optics/photonics related course work: 331

Number of optics/photonics related courses offered in this program: 59

Optics/photonics related programs/degrees offered: BSc in Optics, MSc, PhD in Optics

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Optics; Photonics; Biomedical optics; Fiber optics

Academic and research specialties related to optics/photonics:

telecommunications; ultrafast optics; semiconductor optoelectronics; nonlinear optics; quantum optics; optical engineering; image science; biomedical optics; laser physics; wave front sensing; physical optics; light-matter interactions; liquid crystal optics; optics on the nanometer scale; optical materials.

Admission deadlines: Application deadline for Fall: Jan. 20, each year

Year program was founded: 1929

Contact: Dr. Xi-Cheng Zhang, Director

Email: zhangxc@rochester.edu

Website: <http://www.optics.rochester.edu/>

Mailing address: Institute of Optics, University of Rochester, 275 Hutchison Road, Rochester NY 14627 USA

NORTH CAROLINA

Duke University

SPIE Student Chapters OSA Student Chapter

Durham, North Carolina USA

The Fitzpatrick Institute for Photonics (FIP), formerly the Fitzpatrick Center for Photonics and Telecommunication Systems, Duke University is entering an important phase for leadership in photonics research.

The Photonics for the New Era Initiative is an interdisciplinary, collaborative research and educational program that integrates FIP's strengths in photonics research and leverages the excellent resources at Duke in multidisciplinary research. The program focuses on cutting-edge research areas, such as biophotonics, nano/microsystems,

nanophotonics, and quantum optics & information photonics, which are uniquely suited to address the challenges and fulfill the promises of the next technology revolution at the nexus of the nano-bio-info-opto convergence.

Name of department: The Fitzpatrick Institute for Photonics

Number of core optics/photonics students currently enrolled in a related program: 80

Number of students in optics/photonics related course work: 20

Number of optics/photonics related courses offered in this program: 17

Optics/photonics related programs/degrees offered: Certification: A

certificate program in photonics exists for both the MS and PhD degrees.

Conventional graduate and undergraduate degrees in Science and Engineering with certificates recognizing a specialization in Photonics subjects. Conventional graduate and undergraduate degrees in Science and Engineering, along with a Masters in Engineering in Photonics and Optical Sciences. Five research areas: Biophotonics, Nanophotonics, Quantum Optics, Optoelectronics, Networks, Optical Sensor Networks.

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Electrical engineering; Photonics; Biomedical optics; Fiber optics

Academic and research specialties related to optics/photonics:

biophotonics; nanophotonics; nano/micro systems; quantum optics and information photonics; photonic materials; advanced photonic systems; systems modeling, theory and data treatment; novel spectroscopies.

Admission deadlines: Deadline information is found at <http://www.gradschool.duke.edu/MEng>

in Photonics Deadlines can be found at:

<http://meng.pratt.duke.edu/apply/deadlines>

Year program was founded: 2000

Contact: Adam Wax, Associate Director of Education

Email: a.wax@duke.edu

Website: <http://www.fitzpatrick.duke.edu>

Mailing address: Duke University, The Fitzpatrick Institute for Photonics, Box 90271, Durham NC 27708 USA

North Carolina State University

SPIE Student Chapters

Raleigh, North Carolina USA

Name of department: Electrical & Computer Engineering

Number of core optics/photonics students currently enrolled in a related program: 20

Number of students in optics/photonics related course work: 40

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Electrical engineering; Optics; Photonics; Fiber optics

Contact: Dr. Michael Escuti

Email: mjescuti@ncsu.edu

Website: <http://www.ece.ncsu.edu/>

Mailing address: NC State University, Electrical & Computer Engineering, Campus Box 7914, Raleigh NC 27695-7914 USA

University of North Carolina

SPIE Student Chapters OSA Student Chapter

at Charlotte

Charlotte, North Carolina USA

UNC Charlotte, with an enrollment of over 25,000 students, is located in Charlotte, NC. Visit <http://optics.uncc.edu> for a complete description of this program. Most incoming PhD students are supported on teaching assistantship for the first year, and after that, on research assistantship. Tuition costs quoted below are typical out-of-pocket fees per semester. Tuition is typically waived for PhD students. We admit students primarily in the fall term, for which applications should be in hand by first of March. We also admit students for the spring term, for which applications should be in hand by first of October.

Name of department: Physics and Optical Science

Number of core optics/photonics students currently enrolled in a related program: 55

Number of students in optics/photonics related course work: 70

Number of optics/photonics related courses offered in this program: 21

Optics/photonics related programs/degrees offered: BA and BS in

Physics; MS in Applied Physics; MS in Optical Science and Engineering; PhD in Optical Science and Engineering

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Electrical engineering; Optics; Photonics; Biomedical optics; Fiber optics

Academic and research specialties related to optics/photonics: Main

research specialties: free-form optics; optical fab/test; metamaterials; photonics; bio-optics; lithographic/IR optics

Relation between optics & mechanical engineering is strong. Good industry connections with our research.

UNDERGRADUATE/GRADUATE PROGRAMS

Year program was founded: 2002

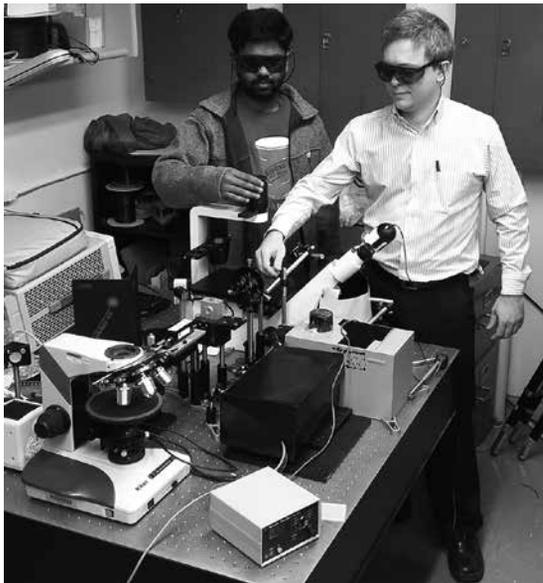
Contact: Mark Clayton, Graduate Administrator

Email: mclayton@unccl.edu

Website: <http://optics.unccl.edu>

Mailing address: UNC Charlotte, Dept. of Physics and Optical Science, 9201 University City Blvd., Charlotte NC 28223-0001 USA

NORTH DAKOTA



Conducting time-resolved fluorescence measurements in the Photonics Lab of the Department of Electrical and Computer Engineering at North Dakota State University.

North Dakota State University Fargo, North Dakota USA

The Department of Electrical and Computer Engineering and the Department of Physics have a joint program in optical science and engineering. Students customarily take credits in modern and optical physics and optical engineering. This program creates opportunities for ECE and Physics students to obtain optical engineering positions in industry while also equipping them for graduate studies in this area. The academic programs enhance interdisciplinary work between the departments. One example is the performance of undergraduate capstone projects that are joint activities of Physics and the ECE Department. The ECE at NDSU also offers MS and PhD programs in Biomedical Engineering (interdisciplinary) that are also related to the field of optics.

Name of department: Physics, Electrical and Computer Engineering

Number of core optics/photonics students currently enrolled in a related program: 5

Number of students in optics/photonics related course work: 20

Number of optics/photonics related courses offered in this program: 5

Optics/photonics related programs/degrees offered: BS in ECE, Optical Engineering Option or BS in Physics, Optical Science and Engineering Option; MS in ECE or MS in Physics; PhD in ECE or PhD in Physics

Type/Description of disciplines/program tracks offered: Physics; Electrical engineering

Academic and research specialties related to optics/photonics: fiber optics theory, fiber lasers, theory of optical communications system design, biophotonics

Accreditation Program: Electromagnetics/Optics within ECE

Accreditation Organization: Engineering Accreditation Commission of ABET since Oct. 1, 1948

Admission deadlines: Application Deadline: March 1 for fall, September 1 for spring.

Year program was founded: 2000

Contact: Orven Swenson, Associate Professor

Email: orven.swenson@ndsu.edu

Website: <http://www.ndsu.edu/>

Mailing address: North Dakota State Univ., Dept. # 2755, PO Box 6050, Fargo ND 58108-6050 USA

OHIO

Air Force Institute of Technology Wright-Patterson AFB, Ohio USA

SPIE. STUDENT CHAPTERS

Programs are offered at both the masters and doctoral levels. Optical Science and Engineering is structured around a broader core of courses such as in optics, laser physics, and radiometry and detection, and requires a graduate optics lab and specialization area. Applied Physics is structured around core more traditional for that discipline but supplemented with an optical science and engineering application area. The keystone of the MS programs is the thesis research experience. Doctoral work culminates with dissertation research.

Name of department: Engineering Physics

Number of core optics/photonics students currently enrolled in a related program: 39

Number of students in optics/photonics related course work: 45

Number of optics/photonics related courses offered in this program: 28

Optics/photonics related programs/degrees offered: Certification:

Measurement and Signal Intelligence (MASINT) Certificate Program; MS (Applied Physics), MS (Optical Science and Engineering); PhD (Applied Physics), PhD (Optical Science and Engineering)

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Technology; Optics; Photonics

Academic and research specialties related to optics/photonics:

Directed energy, laser physics, nonlinear optics, radiometry and detection, infrared systems, remote sensing, laser spectroscopy, optical properties of materials, image processing, laser propagation, ultra-fast spectroscopy, terahertz spectroscopy, polarimetry.

Year program was founded: 1973

Contact: Nancy C. Giles, Professor and Head, Dept. of Engineering Physics

Email: nancy.giles@afit.edu

Website: <http://www.afit.edu/EN>

Mailing address: Air Force Institute of Technology, AFIT/ENP, 2950 Hobson Way, Bldg 640 Room 219, Wright-Patterson AFB OH 45433-7765 USA

Bowling Green State University - Center for Photochemical Sciences Bowling Green, Ohio USA

Research in the Center focuses on a wide range of investigations into the interaction of light with matter. Graduate students from a variety of different undergraduate backgrounds work in a strongly collaborative setting on programs originating in one of a number of single research areas as defined by the faculty (see above). The core curriculum, following initial placement and qualification, includes courses in organic mechanisms and theory, quantum chemistry and spectroscopy, photophysics, kinetics and dynamics and photochemical reaction theory. Elective courses in various microscopies, surface science, x-ray crystallography, photobiochemistry, and other areas serve the needs of individual graduate students.

Name of department: Center for Photochemical Sciences

Number of core optics/photonics students currently enrolled in a related program: 60

Number of students in optics/photonics related course work: 60

Number of optics/photonics related courses offered in this program: 3

Optics/photonics related programs/degrees offered: MS in Chemistry; Photochemical Sciences Doctor of Philosophy

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Technology; Optics; Photonics

Academic and research specialties related to optics/photonics:

spectroscopy, surface science, optoelectronics, photopolymers, imaging science, electron transfer processes, combinatorial science, supramolecular chemistry, fluorescence microscopy, photonic devices and materials, nanophotonic devices.

Year program was founded: 1987

Contact: Nora R. Cassidy, Graduate Program Coordinator

Email: ncassid@bgsu.edu

Website: <http://www.bgsu.edu/departments/photochem>

Mailing address: Center for Photochemical Sciences, Bowling Green State University, 132 Overman Hall, Bowling Green OH 43403 USA

Kent State University Kent, Ohio USA

SPIE. STUDENT CHAPTERS **OSA** Student Chapter

The graduate Chemical Physics Interdisciplinary Program at KSU offers a unique program of study focused on liquid crystals which leads to an MS or PhD degree in chemical physics. Research areas include: Physical

UNDERGRADUATE/GRADUATE PROGRAMS

properties of liquid crystals/*; Optoelectronics (liquid crystal displays/applications)/*; Liquid crystal synthesis/molecular design/*; Lyotropic liquid crystals/membranes/*; General Chemical Physics. Students participate in basic and applied research conducted by program faculty at LCI, a center for basic and applied liquid crystal research. The LCI melds basic studies of liquid crystals with applied science. This approach has resulted in technological advances and new applications.

Name of department: Chemical Physics Interdisciplinary Program

Number of core optics/photronics students currently enrolled in a related program: 40

Number of students in optics/photronics related course work: 40

Number of optics/photronics related courses offered in this program: 10

Optics/photronics related programs/degrees offered: Masters program:

Visit <https://www.kent.edu/cpip/ms-liquid-crystal-engineering>

Type/Description of disciplines/program tracks offered: Physics; Electrical engineering; Optics; Photonics

Academic and research specialties related to optics/photronics: Beam steering devices; LCDs: physical mechanisms, electro-optical properties, modeling/optimization; page-size zero power displays; optical compensators and polarizers; diffractive devices; polymer-dispersed and polymer-stabilized LC systems, electronic shutters, plastic substrate LCDs, IR devices for optical beam steering and telecommunications, SmC* devices, fluorescence confocal microscopy, photonic band gap materials, lasing in custom liquid crystalline materials; liquid crystal-based biosensors; liquid crystal colloids; nanobioscience, nanophotonics, micro/nanofluidics, nanophonics.

Year program was founded: 1994

Contact: Antal Jakli, Professor of Chemical Physics, Graduate Coordinator

Email: ajakli@kent.edu

Website: <http://www.kent.edu/cas/cpip/>

Mailing address: Kent State University, Liquid Crystal Institute, PO Box 5190, Kent OH 44242 USA

Ohio State University

SPIE. STUDENT CHAPTERS **OSA** Student Chapter

Columbus, Ohio USA

The Department of Electrical and Computer Engineering has no formally named program in optics. Optics is considered interdisciplinary between electromagnetics and semiconductors; a student going for a BSEE, MS, or PhD can have emphasis in either or both. Undergraduates may take technical electives in fibers, lasers, integrated optics, nonlinear optics, and classical optics, optoelectronic materials, photonics laboratory, medical imaging. Graduates may take all these plus machine vision, high-speed electronic devices, advanced topics, solar cells. See web page for more details. Ohio State is big but friendly and there are many diverse departments for an academically rich environment.

Name of department: Electrical Engineering

Number of core optics/photronics students currently enrolled in a related program: 20

Number of students in optics/photronics related course work: 100

Number of optics/photronics related courses offered in this program: 11

Optics/photronics related programs/degrees offered: ECE with courses in photonics; MSECE; PhD Electrical and Computer Engineering

Type/Description of disciplines/program tracks offered: Photonics

Academic and research specialties related to optics/photronics: RF photonics, optical interconnections, coherence, bionanophotonics, MEMS/NEMS, polymer optical devices, Quantum dots, OEICs, photovoltaics, waveguides, planar optical circuits, nanoimprint lithography, millimeter wave imaging, semiconductor optical devices and materials, fiber optics, optical communication, medical imaging, computer vision, biomedical optics.

Admission deadlines: Visit: <http://gradadmissions.osu.edu/>

Year program was founded: 1900

Contact: Prof. Ronald M. Reano, Associate Professor

Email: reano.1@osu.edu

Website: <http://www.ece.osu.edu/>

Mailing address: Ohio State Univ., 205 Drees Lab, 2015 Neil Ave, Columbus OH 43210 USA

University of Dayton

SPIE. STUDENT CHAPTERS **OSA** Student Chapter

Dayton, Ohio USA

The Electro-Optics Graduate Studies at the University of Dayton confers two degrees: MS in Electro-Optics and PhD in Electro-Optics. The MS curriculum consists of six core courses, three lab courses and a technical elective. We emphasize a hands-on practical approach to optics. An MS thesis based on research is normally required for the degree. The PhD consists of the core courses plus at least 4 advanced level optics courses

and 2 graduate math courses. A dissertation based on research findings is required. Our program blends practical applications with a firm theoretical foundation in optics.

Name of department: Electro-Optics and Photonics

Number of core optics/photronics students currently enrolled in a related program: 60

Number of students in optics/photronics related course work: 65

Number of optics/photronics related courses offered in this program: 31

Optics/photronics related programs/degrees offered: MS in Electro-Optics; Doctor of Philosophy (PhD) in Electro-Optics

Type/Description of disciplines/program tracks offered: Optical engineering

Academic and research specialties related to optics/photronics: Nanophotonics, ellipsometry & polarimetry, plasmonics, nano-fabrication, photodetectors and focal plane arrays, metamaterials, biophotonics, terahertz generation, free space optical communications, adaptive optics, wavefront sensing, imaging through turbulent atmosphere, photorefractives, digital holographic interferometry & microscopy, parametric processes, optical/digital image processing, fiber lasers and fiber beam control, pattern/target recognition, beam steering agility, optical systems design, quantum optics, nonlinear optics, electro-optics systems, optoelectronic materials, ladar, computational electromagnetics, intense femtosecond pulse propagation.

Admission deadlines: Open enrollment

Year program was founded: 1983

Contact: Dr. Partha P. Banerjee, Director

Email: pbanerjee1@udayton.edu

Website: http://www.udayton.edu/engineering/electrooptics_grad/index.php

Mailing address: Univ. of Dayton, Electro-Optics Program, 300 College Park, Dayton OH 45469-0245 USA

OKLAHOMA

Oklahoma State University

Stillwater, Oklahoma USA

Three degree programs are offered relating to Photonics: a standalone, multidisciplinary Photonics PhD program, as well as MS-level specializations of the Physics MS or Electrical and Computer Engineering MS degree programs, respectively. Additionally, selected faculty from the Physics Dept. and from the Microbiology Dept. are active in the biophotonics track, offering course work and research projects in their respective disciplines. These multidisciplinary programs involve faculty and coursework primarily from two departments: Physics and Electrical Engineering; students take courses in their home department as well as additional coursework from the other department. Photonics laboratory courses taught as tutorials offer an introduction to the research specialties of the Photonics faculty and cover a wide range of photonics techniques.

Name of department: Physics

Number of core optics/photronics students currently enrolled in a related program: 12

Number of students in optics/photronics related course work: 15

Number of optics/photronics related courses offered in this program: 23

Optics/photronics related programs/degrees offered: MS in Physics, Optics & Photonics; MS in Electrical Engineering. PhD in Photonics; PhD in Physics; PhD in Electrical Engineering.

Type/Description of disciplines/program tracks offered: Physics; Electrical engineering; Photonics PhD in Photonics. See website for details.

Academic and research specialties related to optics/photronics: Photonics research includes quantum optics and quantum information theory, nonlinear dynamics, Bose-Einstein condensates (BECs) and ultracold atomic systems, microresonator optics, nanomaterial physics and chemistry, biosensors, terahertz spectroscopy, ultrafast lasers, and metamaterials.

Admission deadlines: Submit all application materials online, specifying the appropriate program, and, for the Photonics PhD, home department (Physics OR EE but not both, based on applicant's background) by Feb. 1st to assure full consideration for financial support in the form of an Assistantship in the home department. Applications received after this date may also be considered, resources permitting.

Year program was founded: 2000

Contact: Prof. A. T. Rosenberger, Physics/Photonics Graduate Coordinator

Email: physics.grad.coordinator@okstate.edu

Website: <http://www.photonics.okstate.edu/>

UNDERGRADUATE/GRADUATE PROGRAMS

Mailing address: Department of Physics, Oklahoma State University,
Stillwater OK 74078-3072 USA

University of Central Oklahoma Edmond, Oklahoma USA

Name of department: Engineering and Physics

Optics/photronics related programs/degrees offered: BS in Engineering
Physics (Electrical systems, Mechanical systems, or Physics); MS in
Engineering Physics

Type/Description of disciplines/program tracks offered: Physics

Contact: Dr. Charles Hughes, Assistant Department Chair

Email: chughes@uco.edu

Website: <http://www.uco.edu/cms/engineering/index.asp>

Mailing address: Univ. of Central Oklahoma, Dept. of Physics & Engineering,
100 N. University Dr, Edmond OK 73034 USA

OREGON

Oregon Institute of Technology Wilsonville, Oregon USA

The Optical Engineering is a six course program designed for junior and senior level students. All courses have three hours of lecture and three hours of laboratory work each week. Classes are scheduled for one afternoon and evening a week to accommodate the needs of working professionals. The classes cover geometric optics, radiometry and optical detection, physical optics, lasers, fiber optics, and optical metrology.

Name of department: Electrical Engineering and Renewable Energy

Number of core optics/photronics students currently enrolled in a related program: 10

Number of students in optics/photronics related course work: 10

Number of optics/photronics related courses offered in this program: 6

Optics/photronics related programs/degrees offered: Dual Major in Optical
Engineering; MS in Engineering with emphasis in optical engineering

Type/Description of disciplines/program tracks offered: Physics; Optical
engineering; Electrical engineering; Optics; Photonics; Fiber optics

Academic and research specialties related to optics/photronics: Fiber
optics and fiber optics systems, low and high power laser systems
and laser physics, optical detection, optical testing, Fourier optics,
holography.

Admission deadlines: March 15 (to apply for financial assistance)

Year program was founded: 2014

Contact: Scott Prah, Program Director of Optical Engineering

Email: scott.prah@oit.edu

Website: <http://www.oit.edu/academics/degrees/optical-engineering>

Mailing address: Oregon Institute of Technology, Electrical Engineering and
Renewable Energy, 27500 SW Parkway Ave, Wilsonville OR 97070 USA

Oregon State University Corvallis, Oregon USA

OSA Student
Chapter

Optics at Oregon State University is an interdisciplinary program with courses in Physics, Chemistry, and Electrical Engineering covering physical optics, optical electronics, guided wave optics, nonlinear optics, and various types of optical spectroscopy. Students may concentrate in any of the three areas while obtaining their optics background.

Name of department: School of Electrical Engineering and Computer
Science; Departments of Physics and Chemistry

Number of core optics/photronics students currently enrolled in a related program: 20

Number of students in optics/photronics related course work: 60

Number of optics/photronics related courses offered in this program: 8

Optics/photronics related programs/degrees offered: BS in ECE, Physics,
or Chemistry; MS in ECE, Physics, or Chemistry; PhD in ECE, Physics, or
Chemistry

Type/Description of disciplines/program tracks offered: Physics; Electrical
engineering

Academic and research specialties related to optics/photronics: Optical
materials and devices; display devices; nonlinear optical materials and
devices; transparent electronics; fiber optic sensors; optical biosensors;
optoelectronic devices, and applications, spectroscopy of surfaces
and atoms, THz spectroscopy, optical tweezers, optical properties of
biological materials.

Admission deadlines: February 1 for Fall admission for scholarship
consideration

Year program was founded: 1975

Contact: Dr. Alan Wang, Assistant Professor

Email: wang@eecs.oregonstate.edu

Website: <http://eecs.oregonstate.edu>

Mailing address: Oregon State Univ., School of Electrical Engineering and
Computer Science, Room 1148, Kelley Engineering Center, Corvallis OR
97331 USA

Portland State University Portland, Oregon USA

The optics programs at Portland State University are located primarily in the departments of physics, electrical and computer engineering, and chemistry, but optics activities exist in other departments as well. Undergraduate course work includes elective classes in lasers, optics, and electromagnetics, and graduate classes are available in lasers, optoelectronics, spectroscopy, and other optics-related areas. Portland State is Oregon's largest university and is in the heart of a vibrant and thriving high-technology industrial region, known as Silicon Forest. For example, Intel has its largest concentration of employees in the US in the Portland area. Tektronix and FLIR have their headquarters here. Students also have easy access to the well-known recreation areas of Oregon's mountains, rivers, and coast.

Name of department: Physics, Chemistry and ECE

Number of core optics/photronics students currently enrolled in a related program: 10

Number of students in optics/photronics related course work: 40

Number of optics/photronics related courses offered in this program: 6

Optics/photronics related programs/degrees offered: BS in Physics,
Chemistry, and ECE; MS in Physics, Chemistry, and ECE; PhD in Applied
Physics, Chemistry, and ECE

Type/Description of disciplines/program tracks offered: Physics; Electrical
engineering; Optics; Biomedical optics

Academic and research specialties related to optics/photronics: lasers,
optoelectronics, optical communications, light scattering, pattern
recognition, optical sensing, Nanometrology, NSOM, Spectroscopic
ellipsometry, lasers, nonlinear imaging, Raman, Kerr.

Year program was founded: 1984

Contact: Erik J. Sanchez, Professor

Email: esanchez@pdx.edu

Website: <http://www.pdx.edu/physics/>

Mailing address: Department of Physics, Portland State University, Portland
OR 97207-0751 USA

University of Oregon Eugene, Oregon USA

OSA Student
Chapter

The Oregon Center for Optical, Molecular, and Quantum Science encompasses research in basic and applied aspects of optics in physics and physical chemistry. Members of the OMQ are faculty in the Physics and Chemistry departments. Associate Members are from these departments as well as institutions outside of the University of Oregon. Students—undergraduate, masters and PhD—are involved in all aspects of research at the OMQ. Students wishing to participate in optics-related research in the OMQ enter the university through one of the academic departments, typically Physics or Chemistry, where they pursue course work according to the standards of those departments. Quantum optics; Condensed matter physics; Theoretical quantum chaos and semiclassical physics; Optical devices; Ultracold atoms and atom optics; Fluorescence fluctuation and ultrafast laser spectroscopy; Quantum information; Quantum control; Semiconductor optical physics; Nonlinear optics and lasers; Biophysics. OMQ, the Department of Chemistry, the Department of Physics and the Materials Science Institute all host visiting scholars from around the nation and the world. Guest speakers present their latest findings at weekly seminars. The OMQ seminar room, at the heart of the center, hosts both OMQ and Physical Chemistry speakers. The Physics Colloquium is presented every Thursday in the 100 Willamette auditorium. Recent presentations have included world-class researchers from major universities and US and foreign national laboratories.

Name of department: Oregon Center for Optics

Number of core optics/photronics students currently enrolled in a related program: 44

Number of students in optics/photronics related course work: 44

Number of optics/photronics related courses offered in this program: 9

Type/Description of disciplines/program tracks offered: Physics; Optical
engineering; Optics; Photonics; Fiber optics

Admission deadlines: January 15, 2020- Physics. January 5, 2020 -
Chemistry

Year program was founded: 1997

Contact: Jorjie Arden, Research and Outreach Coordinator

Email: omq@uoregon.edu
Website: <http://omq.uoregon.edu/>
Mailing address: Oregon Center for Optical, Molecular and Quantum Science, 1274 University of Oregon, Eugene OR 97403-1274 USA

PENNSYLVANIA

Indiana University of Pennsylvania

Indiana, Pennsylvania USA

Our program is unique that offers different tracks to provide learning and career opportunities for students at all levels: a 4-year BS Degree in Physics (with an emphasis in Electro-Optics and Laser Engineering Technology), and a 2-year Associate Degree. This flexibility serves the needs of photonics industry and our diverse student population. The program combines theory with extensive laboratory experience in a personalized, hands-on learning environment. The program is hosted at the main (Indiana) campus.

Name of department: Physics

Number of core optics/photonics students currently enrolled in a related program: 25

Number of students in optics/photonics related course work: 25

Number of optics/photonics related courses offered in this program: 10

Optics/photonics related programs/degrees offered: Certification: CFOT - Certified Fiber Optic Technician; ASE0 - Associate in Science in Electro-Optics and Laser Engineering technology; BS Physics/Electro-Optics and Laser Engineering Technology Track; MS in Physics

Type/Description of disciplines/program tracks offered: Physics

Academic and research specialties related to optics/photonics:

Geometrical Optics, Wave Optics, Fiber Optics, Introduction to Lasers, Industrial Applications of Lasers, Detection and Measurement, Computer Interfacing in Electro-Optics, and High-Vacuum Technology.

Admission deadlines: Normally in August but applicants are encouraged to apply earlier. Master Program: March 15th

Year program was founded: 2002

Contact: Dr. Andrew Zhou, Professor of Physics/Electro-Optics

Email: fzhou@iup.edu

Website: <http://www.iup.edu/physics>

Mailing address: Dept of Physics, IUP, 975 Oakland Ave, Indiana PA 15701 USA

Lehigh University

Bethlehem, Pennsylvania USA

SPIE. STUDENT CHAPTERS **OSA** Student Chapter

The Center for Optical Technologies is a multi-institutional initiative based at Lehigh University with a charter to advance research and applications of optical and optoelectronic technologies. Currently the three primary research focus areas are Optoelectronics, All-Optical Functionalities, and Biophotonics.

Name of department: Electrical and Computer Engineering

Number of core optics/photonics students currently enrolled in a related program: 50

Number of students in optics/photonics related course work: 150

Number of optics/photonics related courses offered in this program: 13

Optics/photonics related programs/degrees offered: BSEE; MSEE, MS Photonics, EE and Eng Physics; PhD in EE (specialty in Photonics)

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Electrical engineering

Academic and research specialties related to optics/photonics: Terahertz

Lasers, optical communications, telecommunications, semiconductor lasers, photonic crystals, integrated optics, MOCVD semiconductor fabrication, thin film displays, nanostructure optics, optical MEMS, diffraction optics.

Year program was founded: 1980

Contact: Prof. Filbert Bartoli, Department Chair

Email: fjb205@lehigh.edu

Website: <http://www.ece.lehigh.edu>

Mailing address: Lehigh Univ., ECE Dept., 19 Memorial Dr W, Bethlehem PA 18015 USA

The Pennsylvania State University **SPIE.** STUDENT CHAPTERS **OSA** Student Chapter University Park, Pennsylvania USA

Faculties in EE conduct research and education in the the following broad fields: nano-photonics, bio-photonics, signal processing, nonlinear optics, electro-optic devices, liquid crystals and nonlinear optical materials, lasers, optical computing, neural networks, optical communications and remote sensing.

Name of department: Electrical Engineering

Number of core optics/photonics students currently enrolled in a related program: 50

Number of students in optics/photonics related course work: 100

Number of optics/photonics related courses offered in this program: 13

Optics/photonics related programs/degrees offered: Certification: Laser Technologies - offered in the college of engineering; BS in Electrical Engineering; MS in Electrical Engineering; PhD in Electrical Engineering

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Electrical engineering; Optics; Photonics; Biomedical optics
 Fiber optics

Academic and research specialties related to optics/photonics: Nano-photonics, optoelectronics, nonlinear optics, electro-optics, fiber optics, liquid crystals and nonlinear optical materials, bio-photonics, lasers, display and light emitting devices, optical communications and remote sensing.

Accreditation Program: ABET

Accreditation Organization: IEEE

Year program was founded: 1985

Contact: Prof. Iam-Choon Khoo, William E Leonhard Professor of Electrical Engineering

Email: ick1@psu.edu

Website: <http://www.eecs.psu.edu/index.aspx>

Mailing address: Pennsylvania State University, Electrical Engineering Dept., 216 Electrical Engineering East, University Park PA 16802 USA

SOUTH CAROLINA

Clemson University

Anderson, South Carolina USA

OSA Student Chapter

The Center for Optical Materials Science and Engineering Technologies (COMSET) is an internationally recognized centerpiece program at Clemson University focused on cutting edge research, education, and technology transfer on materials for optical fiber and related photonic technologies. COMSET investigators are a multidisciplinary team of faculty from the Departments of Physics, Chemistry, and the School of Materials Science and Engineering at Clemson University.

Name of department: The Center for Optical Materials Science and Engineering Technologies

Number of core optics/photonics students currently enrolled in a related program: 100

Number of students in optics/photonics related course work: 6

Number of optics/photonics related courses offered in this program: 30

Optics/photonics related programs/degrees offered: An associate program has been developed by partners at local technical colleges. BS in affiliated academic units: Chemistry, Physics, and Materials Science. A new MS in Photonics is available and students are being accepted. Please see website. A new PhD in Photonics is available and students are being accepted. Please see website.

Type/Description of disciplines/program tracks offered: Physics; Electrical engineering; Optics; Photonics

Academic and research specialties related to optics/photonics: optical fibers, photonic crystals, organic light emitters, nonlinear optical crystals, electro-optic ceramics, and nanomaterials.

Admission deadlines: Visit: <http://www.clemson.edu/financial-aid/timeline.html>

Year program was founded: 2000

Contact: Dr. Stephen Foulger, Director and Professor

Email: foulger@clemson.edu

Website: <http://www.clemson.edu/centers-institutes/comset/>

Mailing address: The Center for Optical Materials Science and Engineering Technologies, 91 Technology Drive, Advanced Materials Research Laboratory, Anderson SC 29625 USA

TENNESSEE

Fisk University

Nashville, Tennessee USA

Name of department: Physics

Number of core optics/photonics students currently enrolled in a related program: 24

Number of optics/photonics related courses offered in this program: 3

Optics/photonics related programs/degrees offered: BS in Physics, concentration in photonics; MA in Physics, concentration in photonics

UNDERGRADUATE/GRADUATE PROGRAMS

Academic and research specialties related to optics/photonics: Photonic materials.

Year program was founded: 1992

Contact: Dr. Steven Morgan, Director of Optical Materials Resources

Email: smorgan@fisk.edu

Website: <http://www.fisk.edu>

Mailing address: Fisk Univ., Ctr. for Photonic Materials & Devices, Dept. of Physics, PO Box 15, Nashville TN 37208 USA

Vanderbilt University

Nashville, Tennessee USA

The emphasis of this program is on biomedical applications of photonics.

Name of department: Biomedical Engineering

Number of core optics/photonics students currently enrolled in a related program: 15

Number of students in optics/photonics related course work: 30

Number of optics/photonics related courses offered in this program: 5

Optics/photonics related programs/degrees offered: BE Degrees are awarded in Biomedical Engineering with curricular focus in Biomedical Optics. MS & ME Degrees are awarded in Biomedical Engineering with curricular focus in Biomedical Optics. PhD Degrees are awarded in Biomedical Engineering with curricular focus in Biomedical Optics.

Type/Description of disciplines/program tracks offered: Biomedical Engineering

Year program was founded: 1996

Contact: Shauna Barber, Admissions Coordinator

Website: <http://www.vanderbilt.edu/>

Mailing address: Vanderbilt Univ, Biomedical Engineering Dept., Box 351631 Station B, Nashville TN 37235 USA

TEXAS

Baylor University

Waco, Texas USA

Name of department: Electrical and Computer Engineering

Number of core optics/photonics students currently enrolled in a related program: 30

Number of students in optics/photonics related course work: 30

Number of optics/photonics related courses offered in this program: 20

Optics/photonics related programs/degrees offered: Bachelors, Masters and Doctoral programs: Electrical Engineering

Type/Description of disciplines/program tracks offered: Physics; Electrical engineering

Admission deadlines: February 15th

Year program was founded: 1979

Contact: Dr. Jonathan Hu, Associate Professor

Email: jonathan_hu@baylor.edu

Website: <http://www.baylor.edu>

Mailing address: Baylor Univ., E&CE Dept, ECS 301D, One Bear Place #97356, Waco TX 76798-7356 USA

Texas A&M University -

Department of Biomedical Engineering

College Station, Texas USA

Department of Biomedical Engineering that includes: Biomedical Optics, Sensing and Imaging, Biomechanics, and Biomaterials

Name of department: Biomedical Engineering

Number of core optics/photonics students currently enrolled in a related program: 30

Number of students in optics/photonics related course work: 30

Number of optics/photonics related courses offered in this program: 11

Optics/photonics related programs/degrees offered: MS; PhD

Type/Description of disciplines/program tracks offered: Biomedical optics

Academic and research specialties related to optics/photonics:

Biomedical Optics, Tissue Optics, Optical Biosensing, Optical Biomedical Imaging, Optical Coherence Tomography, Optical Nanotechnology, Quantum Dots, Nonlinear Optical imaging, Fluorescence, Polarimetry, Tissue Microscopy.

Year program was founded: 1972

Contact: Dr. Mike McShane, Interim Department Head, Biomedical Engineering

Email: mcshane@tamu.edu

Website: <http://engineering.tamu.edu/biomedical>

Mailing address: Texas A&M University, Dept of Materials Science and Engineering, MS 3120, Emerging Technologies Bldg., College Station TX 77843-3120 USA

Texas A&M University -

Department of Physics and Astronom

College Station, Texas USA

The basis of the extremely successful research of the quantum optics group in the Physics and Astronomy Department at Texas A&M University is the close collaboration between theory on the one hand and experiment on the other hand. This unique situation has enabled the faculty members to build a very visible, well funded research program. The quantum optics group has established long-term research collaborations with other departments of the University (Chemistry, Mathematics, Computer Science, Mechanical and Electrical Engineering) and with leading research centers around the world both in the US (such as NIST, Boulder) and abroad (Lebedev Physical Institute, Moscow, and Max-Planck Institute for Quantum Optics, Munich). Due to this international climate in a highly productive environment, our graduate and post-doctoral students are extremely successful. They hold positions in the optical, semiconductor, and photonics industries, in management and consulting, in R&D laboratories, and as faculty at national and international universities. Most recent examples of the highly productive synergism are lasing without inversion, slow light and non-linear pectroscopy in atomic vapors, as well as experiments on the foundations of quantum mechanics.

Name of department: Department of Physics and Astronomy

Number of core optics/photonics students currently enrolled in a related program: 33

Number of optics/photonics related courses offered in this program: 6

Optics/photonics related programs/degrees offered: BS in Physics BA in Physics; MS in Physics; PhD in Physics

Academic and research specialties related to optics/photonics:

Scattering theory and ion-atom collisions; quantum optics and laser physics, including studies of effects of atomic coherence on absorption and emission, electromagnetically induced transparency, lasing without inversion, slow light; quantum chaos, radiative transfer in the atmosphere-ocean system; quantum computing; spectroscopy of atoms, ions, and molecules; polarization and laser spectroscopy; stored ions; femtosecond laser; high-energy atomic collision processes: electromagnetic scattering and absorption by single particles and by suspensions. Cross-disciplinary work is carried out with the Chemistry, Mathematics, Computer Science, Mechanical and Electrical Engineering Departments.

Admission deadlines: Undergraduates: visit <http://admissions.tamu.edu/>.

Year program was founded: 1876

Contact: Sherree Kessler, Senior Academic Advisor

Email: skessler@physics.tamu.edu

Website: <http://physics.tamu.edu/>

Mailing address: 4242 TAMU, College Station TX 77843-4242 USA

University of Houston

Houston, Texas USA

Engineering Technology (ET) is the profession in which knowledge of the applied mathematical and natural sciences gained by higher education, experience, and practice is devoted to the application of engineering principles and the implementation of technological advances for the benefit of humanity. Engineering Technology education for the professional focuses primarily on analyzing, applying, implementing and improving existing and emerging technologies and is aimed at preparing graduates for the practice of engineering that is close to the product improvement, manufacturing, and engineering operational functions.

Name of department: Engineering Technology

Optics/photonics related programs/degrees offered: MS

Contact: Dr. Driss Benhaddou, Assistant Professor

Email: dbenhaddou@uh.edu

Website: <http://www.tech.uh.edu>

Mailing address: Univ. of Houston, Engineering Technology Dept., 4800 Calhoun Rd., Houston TX 77004 USA

University of Texas at Arlington

Arlington, Texas USA

Name of department: Electrical Engineering

Number of core optics/photonics students currently enrolled in a related program: 250

Number of students in optics/photonics related course work: 100

Number of optics/photonics related courses offered in this program: 9

Optics/photonics related programs/degrees offered: BSEE; MS; PhD

Type/Description of disciplines/program tracks offered: Electrical engineering

Contact: Dr. Jonathan Bredow, Department Chair
Email: tearle@uta.edu
Website: <http://www.uta.edu/ee>
Mailing address: Univ. of Texas/Arlington, Department of Electrical Engineering, Box 19016, Arlington TX 76019 USA

University of Texas at El Paso El Paso, Texas USA

The Electrical and Computer Engineering Department offers a BS in Electrical Engineering, and Master and PhD programs in Electrical and Computer Engineering, and a Graduate Certificate in Electric Power and Energy Systems. Our Vision is to provide programs of the highest quality to produce world class engineers who can address the challenges of the millennium.

Name of department: Electrical and Computer Engineering
Number of core optics/photronics students currently enrolled in a related program: 600

Optics/photronics related programs/degrees offered: Certification: Graduate Certificate in Electric Power and Energy Systems; BS in Electrical Engineering; MS in Electrical Engineering, and MS in Computer Engineering; PhD in Electrical and Computer Engineering

Type/Description of disciplines/program tracks offered: Electrical engineering; Photonics Graduate and undergraduate courses available; Fiber optics

Accreditation Program: The BS in EE program is accredited by ABET.
Accreditation Organization: Accreditation Board of Engineering and Technology

Admission deadlines: Undergraduate admissions are on a rolling base via <https://www.applytexas.org/>. Graduate (MS & PhD) programs priority admissions are October 1 for Spring, and March 1 for Fall. <http://www.utep.edu/graduate/apply-now/apply-now.html>

Year program was founded: 1949

Contact: Dr. Miguel Velez-Reyes, Chair, ECE Department
Email: mvelezreyes@utep.edu
Website: <http://ece.utep.edu>

Mailing address: Univ. of Texas at El Paso, Dept. of Electrical & Computer Engineering, 500 W. University Ave., El Paso TX 79968 USA

UTAH

Brigham Young University Provo, Utah USA

Name of department: Physics and Astronomy
Number of core optics/photronics students currently enrolled in a related program: 20

Number of students in optics/photronics related course work: 50
Number of optics/photronics related courses offered in this program: 9

Optics/photronics related programs/degrees offered: BS Physics & Astronomy; MS Physics & Astronomy; PhD Physics & Astronomy

Type/Description of disciplines/program tracks offered: Physics
Academic and research specialties related to optics/photronics: See faculty. BYU has a strong tradition of doing undergraduate research and many optics students are undergraduates. We have graduate students active in various optics fields.

Admission deadlines: Visit: <https://admissions.byu.edu/application-deadlines>

Year program was founded: 1940

Contact: Prof. David D. Allred, Professor
Email: allred@byu.edu
Website: <http://www.physics.byu.edu/>

Mailing address: Brigham Young Univ., Physics & Astronomy Dept., N283 Eyring Science Ctr, Provo UT 84602 USA

The University of Utah Salt Lake City, Utah USA

SPIE. STUDENT CHAPTERS **OSA** Student Chapter

Name of department: Materials Research Science and Engineering Center
Number of core optics/photronics students currently enrolled in a related program: 25

Number of students in optics/photronics related course work: 50
Number of optics/photronics related courses offered in this program: 15

Optics/photronics related programs/degrees offered: Electrical Engineering; MS Physics: MS in instrumentation; PhD

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Electrical engineering

Academic and research specialties related to optics/photronics: Sensors and assays, photonic crystals, plasmonics, metamaterials, near-field

optical microscopy, terahertz, medical optics, ultrafast optics, optical spectroscopy, nonlinear optics, and nanoscale optics.

Admission deadlines: See web pages for individual departments.

Year program was founded: 1986

Contact: Chelsey Short, Academic Program Coordinator
Email: chelsey.short@utah.edu

Website: <http://www.mrsec.utah.edu>

Mailing address: Univ. of Utah, College of Engineering, 72 S. Central Campus Dr., WEB 1650, Salt Lake City UT 84112 USA

VIRGINIA

University of Virginia Charlottesville, Virginia USA

SPIE. STUDENT CHAPTERS **OSA** Student Chapter

The Science and Engineering of Laser Interactions with Matter graduate training program was designed to develop students with an enhanced mastery of the knowledge and state-of-the-art technical skills required for advancement of modern science and technology. SELIM is a collaborative venture linking the University of Virginia, Norfolk State University, the Free Electron Laser (FEL) Laboratory at the Thomas Jefferson National Accelerator Facility and the FEL affiliated industrial Laser Processing Consortium. Through their research, coursework, and frequent interactions with faculty and colleagues, students receive a broad multidisciplinary training in optics ranging from fundamental spectroscopy to current applications of lasers in industry.

Name of department: Department of Mechanical and Aero Engineering
Number of core optics/photronics students currently enrolled in a related program: 60

Number of students in optics/photronics related course work: 60
Number of optics/photronics related courses offered in this program: 6

Optics/photronics related programs/degrees offered: BS through Chemistry, Physics, and Engineering Departments; MS through Chemistry, Physics, and Engineering Departments; PhD through Chemistry, Physics, and Engineering Departments

Type/Description of disciplines/program tracks offered: Physics; Optical engineering

Academic and research specialties related to optics/photronics:

Atomic Molecular and Optical Physics, Physical Chemistry, Ultrafast Laser Spectroscopy, Multiple Resonance High Resolution Optical Spectroscopies of Atoms and Molecules, Optical Pulse Shaping, Coherent Control, Non-linear Optical Spectroscopy, Optical metrology, Optical Quantum Entanglement and Quantum Information, Bose-Einstein Condensates and Laser Trapping, Laser-Matter Interactions.

Admission deadlines: Visit: <http://gsas.virginia.edu/admission>

Year program was founded: 1987

Contact: Patrick Hopkins, Professor

Email: phopkins@virginia.edu

Website: <http://faculty.virginia.edu/camos/>

Mailing address: Department of Mechanical Engineering and Aero Engineering, University of Virginia, 122 Engineer's Way, Charlottesville VA 22904-4746 USA

Virginia Tech - Center for Photonics Technology Blacksburg, Virginia USA

SPIE. STUDENT CHAPTERS **OSA** Student Chapter

Name of department: The Bradley Department of Electrical and Computer Engineering

Number of core optics/photronics students currently enrolled in a related program: 100

Number of students in optics/photronics related course work: 200
Number of optics/photronics related courses offered in this program: 5

Optics/photronics related programs/degrees offered: BSEE, BSCpE, MS, PhD

Type/Description of disciplines/program tracks offered: Optics; Photonics
Contact: Anbo Wang, Clayton Ayre Professor and Director of Center for Photonics Technology

Email: awang@vt.edu

Website: <http://www.photonics.ece.vt.edu>

Mailing address: Virginia Tech, 302 Whittemore Hall, Blacksburg VA 24061-0111 USA

UNDERGRADUATE/GRADUATE PROGRAMS

WASHINGTON

University of Washington Seattle, Washington USA

SPIE STUDENT CHAPTERS **OSA** Student Chapter

The University of Washington provides an interdisciplinary environment for research and education in Optics and Photonics. Various labs in UW work on new photonic devices and systems, explore new optoelectronic materials, and study new optical sciences. The applications range from communication, computation, sensing, energy, display, to biological study and biomedical imaging. Detailed description can be found from the website of individual labs. For example: Nano Optoelectronic Integrated System Engineering Lab (<http://www.ee.washington.edu/research/amlab/>). Photonics Lab (<http://www.ee.washington.edu/research/photoniclab/>). Nanoscale Optoelectronics Lab (<http://depts.washington.edu/xulab/>). Molecular Biophotonics Lab (<http://washington-seattle.digication.com/jonliu/Home/>). Biophotonics and Imaging Lab (<http://depts.washington.edu/wangast/>). Human Photonics Lab (<http://depts.washington.edu/hplab/>). Jen Research Group on Photonics, Optoelectronics, Biosensing & Nanoscience (<http://depts.washington.edu/jengroup/>). Microtechnology Lab (<http://depts.washington.edu/mictech/home/>). Trapped Ion Quantum Computing Group (<http://depts.washington.edu/qcomp/>). Ultracold Atoms Group (<http://faculty.washington.edu/deepg/>). Quantitative Biology Lab (<http://mtshasta.phys.washington.edu/index.html>). Organic Optoelectronic Polymers (<http://faculty.washington.edu/luscombe/>). Ultrafast Spectroscopy (<https://sites.google.com/a/uw.edu/khalilgroup/>). Theory of Light Manipulation on the Nanoscale (http://faculty.washington.edu/masiello/Masiello_Group_Website/Home.html). Super-resolution Fluorescence Microscopy (<https://sites.google.com/a/uw.edu/the-vaughan-group/>). Physical Chemistry of Nanostructured Materials (<https://depts.washington.edu/gingerlb/>). Functional Inorganic Materials (<http://depts.washington.edu/gmrg/>)

Name of department: Electrical Engineering, Physics, Mechanical Engineering, Bioengineering, Material Science and Engineering, Chemistry.

Number of core optics/photonics students currently enrolled in a related program: 100

Number of students in optics/photonics related course work: 600

Number of optics/photonics related courses offered in this program: 30

Optics/photonics related programs/degrees offered: BS, MS and PhD degrees conferred through individual departments

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Electrical engineering; Optics; Photonics; Biomedical optics; Fiber optics

Accreditation Program: ABET

Accreditation Organization: ABET

Admission deadlines: Varies by department. Student should check the website for the relevant department.

Contact: Lih Y. Lin, Professor

Email: lylin@uw.edu

Mailing address: University of Washington, Dept. of Electrical Engineering, 185 Stevens Way, Seattle WA 98195-2500 USA

Washington State University Pullman, Washington USA

SPIE STUDENT CHAPTERS **OSA** Student Chapter

The Physics and Astronomy Department at WSU offers a strong program in applied physics and astrophysics. Optical characterization is a central theme that connects a broad range of research areas that includes shock dynamics, ultrafast laser physics, surface physics, nonlinear optics, polymer physics, light scattering in bubbles and droplets, time-resolved optical spectroscopy, nonlinear optical devices and fiber optics, acoustics, electronic structure of solids and surfaces, and molecular spectroscopy. Both a thesis and nonthesis masters program are available.

Name of department: Physics and Astronomy

Number of core optics/photonics students currently enrolled in a related program: 120

Number of students in optics/photonics related course work: 22

Number of optics/photonics related courses offered in this program: 3

Optics/photonics related programs/degrees offered: BS in Physics; MS in Physics; PhD in Physics

Type/Description of disciplines/program tracks offered: Physics; Astronomy

Academic and research specialties related to optics/photonics: Optics; dynamics and spectroscopy of gases, liquids, solids, polymers, reacting systems and molecular clusters; heterostructures; quantum wells; ultrafast optics; nonlinear optics in polymeric systems; defects in

wide bandgap semiconductors; high-Tc superconductivity, excited-state dynamics; light scattering and Fourier optics; acoustics; wave propagation in materials under high pressure.

Admission deadlines: Priority application deadline for Fall: January 10 (Graduate), January 31 (Undergraduate).

Year program was founded: 1919

Contact: Robin Stratton, Administrative Manager

Email: physics.finance@wsu.edu

Website: <http://www.physics.wsu.edu/>

Mailing address: Washington State University, Dept. of Physics and Astronomy, PO Box 642814, Pullman WA 99164-2814 USA

WEST VIRGINIA

West Virginia University

Morgantown, West Virginia USA

Students major in their discipline of choice and select elective course and research projects consistent with their chosen thrust area related to photonics and current faculty research programs. Primary research areas of faculty in the PMT group include photonic MEMS and MEMS optical monitoring and control, integrated biosensing devices, GaN and multifunctional materials, photonic nanostructures, and optical crystal defect characterization.

Name of department: Photonic and Microelectronic Technologies Group WV Nano Initiative

Number of core optics/photonics students currently enrolled in a related program: 20

Number of optics/photonics related courses offered in this program: 6

Optics/photonics related programs/degrees offered: Bachelors, Masters and Doctoral program available.

Type/Description of disciplines/program tracks offered: Physics; Optical engineering; Electrical engineering; Technology True; Optics; Photonics

Academic and research specialties related to optics/photonics: The Photonic and Microelectronic Technologies (PMT) Research Working Group related degrees in electrical engineering and biometrics. Its research is focused on new innovations for solid state lighting and molecular biometrics sensor applications.

Admission deadlines: Rolling Admission.

Year program was founded: 1994

Contact: Prof. Dimitris Korakakis, Associate Professor of Electrical Engineering

Email: dimitris.korakakis@mail.wvu.edu

Website: <http://www.lcsee.cemr.wvu.edu/>

Mailing address: West Virginia Univ., Dept. of CSEE, PO Box 6109, Morgantown WV 26506-6109 USA

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STUDENTS



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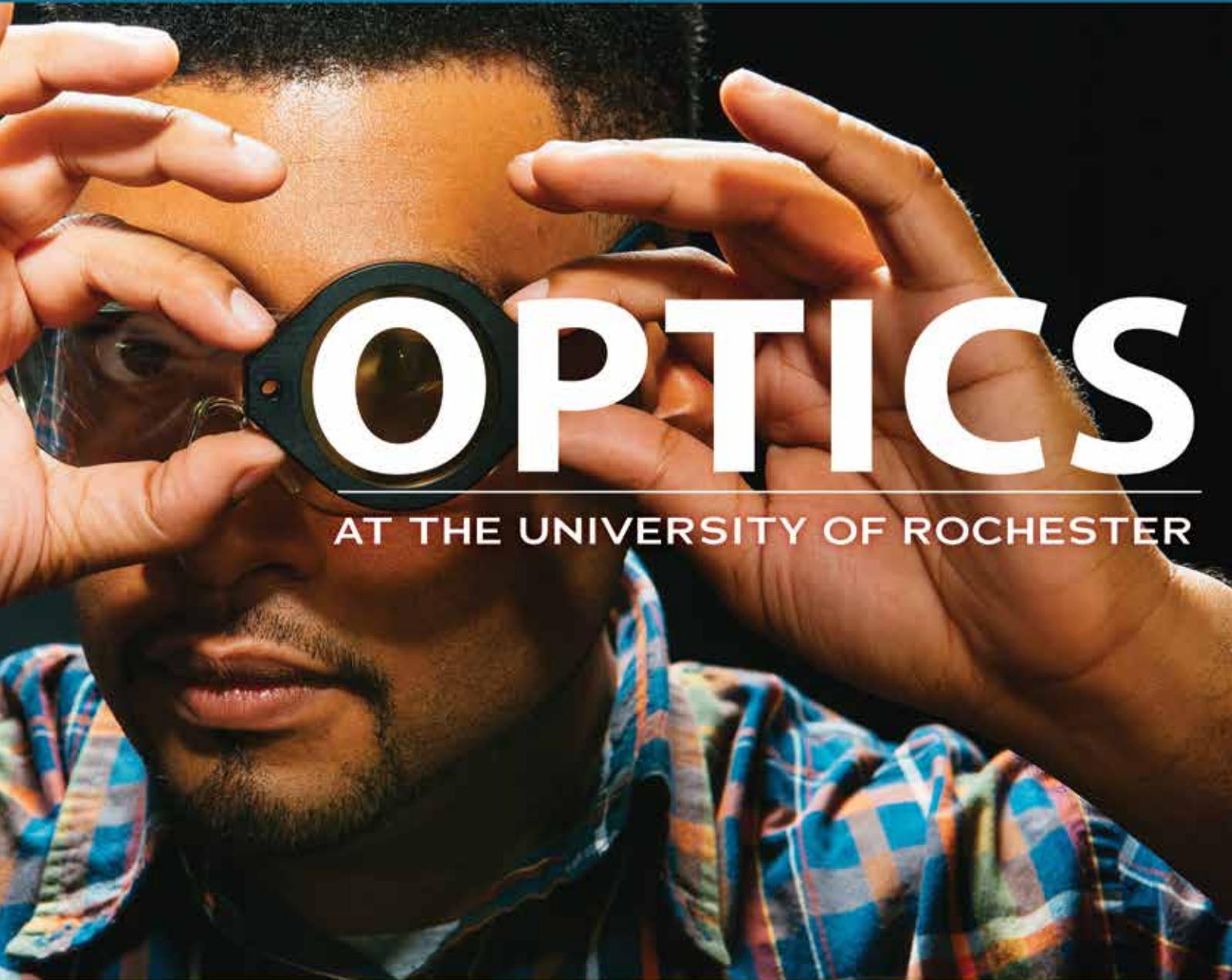
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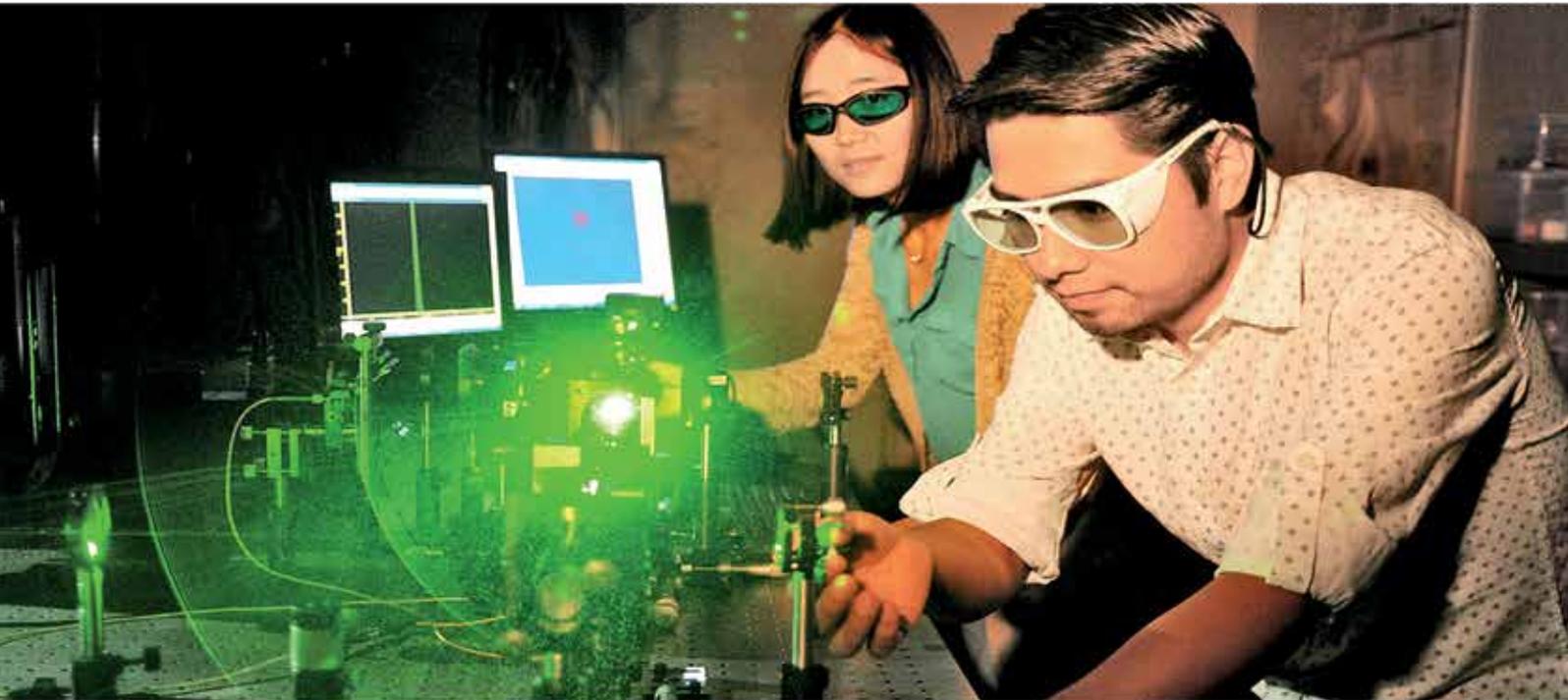
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