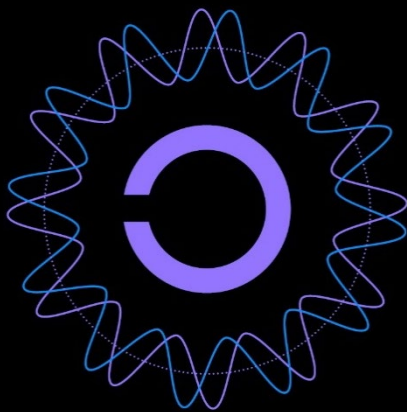


OPTICA
FOUNDATION



Women Scholars Conference

4-8 May 2024

Charlotte, North Carolina, USA

optica.org/WomenScholarsConference

**Forging connections for
lifelong careers in optics.**

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Optica Women Scholars

In 2021, the Optica Foundation launched a pilot project to support two women demonstrating enthusiasm and passion for optics and photonics enrolled in the James C. Wyant College of Optical Sciences at the University of Arizona. Thanks to a group of generous donors, we expanded this program in 2022 and now provide 20 US\$10,000 scholarships annually to young women worldwide.

This year, we are excited to launch a conference designed to take that program to the next level. With the Optica Women Scholars Conference, we aim to facilitate connections between this ever-growing list of rising young scientists that can be utilized throughout a lifetime in optics.

Learn more about other programs, scholarships, grants and prizes through the Optica Foundation at optica.org/foundation and Optica at optica.org/awards.

Optica Code of Conduct & Anti-Harassment Policy

In order to preserve a climate that encourages both civil and fruitful dialogue, we reserve the right to suspend or terminate participation for anyone who violates the Optica Code of Conduct. It is Optica policy that all forms of bullying, discrimination, and harassment, sexual or otherwise, are prohibited in any Optica events or activities, including digital forums. Harassment consists of unwanted, unwelcomed and uninvited comments or behavior that demeans, threatens or offends another. For complete policy information visit optica.org/codeofconduct. If you wish to report bullying, discrimination, or harassment you have witnessed or experienced, you may do so through the following methods:

- use the online portal optica.org/IncidentReport
- email CodeOfConduct@optica.org

Optica Women Scholars Conference

4-8 May 2024 ♦ Charlotte, NC USA

Agenda

Saturday, 4 May 2024

All Day Hotel Check-In
Hilton Garden Inn

18:30-19:30 Welcome Reception
Room E222
Charlotte Convention Center

Sunday, 5 May

07:30-08:45 Breakfast
Room E222
Charlotte Convention Center

08:50-09:00 **Welcome & Introductions**
Moderator **Gabrielle Thomas**, Menlo Systems, Germany

09:00-09:15 **Opening Remarks**
Janet Fender, US Air Force (retired); 1997 Optica President, USA
Elizabeth A. Rogan, CEO, Optica, USA

09:15-10:30 **Sustainable Networking for Scientists and Engineers**
Christina Willis, Dir. of External & Government Affairs, Infleqtion, USA

10:30-11:00 Break

11:00-12:00 **Pioneering Fusion Energy for Future Generations**
Tammy Ma, Lead, Inertial Fusion Energy, Lawrence Livermore
National Lab, USA

12:00-13:00 Lunch

13:00-14:00 **Foundations and Frontiers: Shaping the Future of Photonics**
Ursula Keller, Professor of Physics, ETH Zurich, Switzerland

14:00-15:00 **The Future of Biomedical Optics for Aspiring Talent**
Rebecca Richards-Kortum, Malcolm Gillis University Professor
of Bioengineering, Rice University, USA

15:00-15:30 Break

Sunday, 5 May, Continued

15:30-17:20 **Quick-Fire Mentoring**

Janet Fender, US Air Force (retired), USA

Keeley Hurley, Applied Energetics, Inc., USA

Ursula Keller, ETH Zurich, Switzerland

Michal Lipson, Columbia Univ., USA

Rebecca Richards-Kortum, Rice Univ., USA

Elizabeth Rogan, Optica, USA

Gabrielle Thomas, Menlo Systems, Germany

Chiara Trovatiello, Columbia Univ., USA

Deepa Venkitesh, IIT Madras, India

17:20-17:40

Whats Next?

Moderator **Gabrielle Thomas**, Menlo Systems, Germany

17:45-19:30

Dinner

Room E222

Monday, 6 May

07:30-08:30

Room E222

CLEO Chairs' Breakfast - Making the Most of CLEO 2024

Applications & Technology General Chair

Jie Qiao, Rochester Institute of Technology, USA

Fundamental Science General Chair

Julia Mikhailova, Princeton University, USA

Fundamental Science General Chair

Camille Sophie Brès, Ecole Polytechnique Federale de Lausanne, Switzerland

08:30

Conclusion of Women Scholars Conference Programming

We encourage you to explore the opportunities throughout CLEO (cleoconference.org). Below are a few activities we recommend, including talks from your colleagues.

16:30-16:45

Room 201AB

Applications of Hadamard-Multiplexed Fluorescence Imaging using a Hyperspectral Camera

Emma Abbey, University of Victoria, Canada

18:15 - 19:00

Room 201CD

Optica Technical Group Networking Event

Short Wavelength Sources and Attosecond/High Field Physics

18:30 - 20:00

Room W207D

The Paradigm of Metaphotonic Integrated Circuits: Challenges & Prospects

Optica Optoelectronics Technical Group

Tuesday, 7 May

- 8:00-10:00 Plenary Session I
CLEO Hub Theater
- Near- & Mid-IR Integrated Photonics for Sensing, Interconnects and Computing
Ray Chen, The University of Texas Austin, USA
- How Can Optical Imaging Help Reduce Global Inequities in Cancer?
Rebecca Richards-Kortum, Rice University, USA
- Quantum Science and Atomic Clocks
Jun Ye, NIST, University of Colorado at Boulder, USA
- 10:00-11:00 Meet the Editors
Optica Booth, CLEO Hub
- 13:00-15:00 Laser-driven Nuclear Fusion: A 60-year Success Story Symposium
Room W209B
Tammy Ma, Lawrence Livermore National Laboratory, USA
- 15:00-16:00 Optica Ambassador Meet & Greet
Optica Booth, CLEO Hub
- 18:00-20:00 Conference Reception
NASCAR Hall of Fame, Charlotte Convention Center

Wednesday, 8 May

- 08:30-10:00 Joint Plenary II
CLEO Hub Theater
- Science Diplomacy in the Middle East: Slogan or Reality?
Gihan Kamel, SESAME and Helwan University, Egypt
- A Revolution in High-Q Integrated Photonics
Kerry Vahala, California Institute of Technology, USA
- 11:30 Dynamics of Pump Power-Dependent Soliton Molecules in Yb-Doped
CLEO Hub Mode-Locked Fiber Laser
JR2A.198
Yingchu Xu, Nanyang Technological University, Singapore
- 13:30-13:45 Ultrafast Nanoscopy of Single-Grain Morphology and Charge Carrier
Room 201CD Dynamics in Metal Halide Perovskites, May 8, in
Svenja Nerreter, Universität Regensburg, Germany
- 14:00 - 15:00 Optica Technical Group Networking Mixer
Optica Booth, CLEO Hub
- 14:30-16:00 Laser Fusion - What's Next?
Moderator: **Gabrielle Thomas**, Menlo Systems, Germany
- Afternoon Hotel check-out and departures
Agenda

Quick-Fire Mentoring

The goal of this session is to allow the attendees to have a more in-depth discussion with several leaders in our community. Attendees will be divided into small groups, and the mentors will move from table to table for each session, with each attendee having the chance to talk with four different mentors.

Schedule

- 15:30 – session introduction
- 15:40-16:00 – Session 1
- 16:00-16:20 – Session 2
- 16:20-16:40 – Break
- 16:40-17:00 – Session 3
- 17:00-17:20 – Session 4

Words of Advice

The speakers were asked: **If you could go back in time and give your younger self one piece of advice, what would it be?** Here are their responses:



Have confidence in yourself and don't be afraid to take action.

← **Janet Fender**

Be less anxious and more confident about every choice that you make; it will all be fine in the end.

Deepa Venkitesh

You not only belong in the room but in a seat at the table with a voice in the conversation. Don't let anyone make you believe you don't, especially the voice in your own head.

Keeley Hurley

Consider exploring all potential opportunities at each stage of your career and select the optimal environments and colleagues for collaboration.

Ursula Keller →



Don't over plan, don't overthink: your life and the opportunities you will find and create along the way will shape your career regardless of your plans.

Chiara Trovatiello



Hang in there - things may get difficult sometimes, but hard work and perseverance will guide you.

← **Tammy Ma**

Change, especially change you didn't choose for yourself, is scary. Fear isn't bad; it's normal. Don't let fear make your decisions for you. Change, again, whether you chose it or not, is also a great opportunity for growth and creative freedom. Seize it.

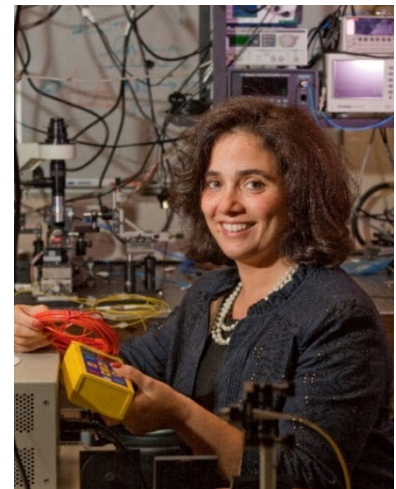
Christina Willis

It's about being smart, not necessarily right (in other words, in your career, you might need to do things that might not be your first choice but are constructive for your career.)

Michal Lipson →

Live your own values. Surround yourself with positive people who share your values. Prioritize your physical and mental health. Never stop learning. Call your mother.

Rebecca Richards-Kortum



Decisions you make now do not have to determine the rest of your life. Changing your mind is OK and gives you an opportunity to learn.

← **Gabrielle Thomas**

Show up!

Elizabeth Rogan →



Speaker & Mentor Biographies



Camille-Sophie Brès, Institute of Electrical Engineering, Switzerland

Prof. Camille-Sophie Brès is an Associate Professor in the Institute of Electrical Engineering within the School of Engineering of EPFL. Her primary research interests are centered optical communications and on parametric and nonlinear processes in optical fiber and non-silica platforms for ultrafast signal processing, all optical networks, sensing and light sources. She has authored over thirty peer-reviewed journal articles and has presented more than 15 papers at international conferences. She received the Gordon Wu Fellowship for her graduate studies, the NSF CIAN s Diversity Postdoctoral Fellowship in 2009, the Early Career Woman in Engineering Award in 2016. She is a senior member of the IEEE and Optica.



Janet S. Fender, USA

1997 President Janet S. Fender received a B.S. in physics and astronomy from the University of Oklahoma, U.S., in 1973 and an M.S. and Ph.D. in optical sciences from the University of Arizona, U.S., in 1978 and 1981. She served as the scientific adviser to the Commander, Air Combat Command (ACC), Langley Air Force Base, U.S., from 2004 until her retirement in 2018. In this position, she served as the command chief scientist providing scientific expertise and technical guidance throughout ACC. As the primary interface to the scientific community, Fender identified leading-edge technologies and catalyzed effective, rapid enhancements to ACC's war-fighting capabilities.

In previous positions at the Air Force Research Laboratory, Fender served as chief scientist for Space Vehicles and Senior Scientist for Advanced Imaging. Her multifaceted career in science and technology includes basic laboratory research, fielding new capabilities, key technical positions in major programs, and support to operations. Her research in the field of directed energy was a cornerstone for the Strategic Defense Initiative. Ultimately responsible for the design and engineering of Air Force Space Command's premier space surveillance sensor, Fender's leadership ensured full operational readiness of the Advanced Electro-Optical Sensor at Mount Haleakala, Hawaii. As the U.S. member of the United Nations Space Surveillance Expert Group, Fender participated in establishing international policy for space.

In 2016 Fender received the Presidential Distinguished Service Rank Award, the highest award granted to a federal senior executive, for her career accomplishments. Internationally recognized for research and development of innovative high-resolution imaging technologies, she has published more than 100 journal articles and reports, holds critical U.S. patents, and is a frequently invited conference speaker. Fender

represented the Air Force on the Physics and Astronomy Board of the National Science Foundation, and she represents ACC on the NASA Advanced Aircraft Program Blue Ribbon Panel. She is a former chair of the Board of Assessment of the Physics Laboratory, National Institute of Science and Technology. She is a fellow of OSA and SPIE.

Fender has served on many of the societies committees and was elected Vice President in 1995. She played a vital role on the Foundation Board throughout the years and is currently a member of the Presidential Advisory Committee.



Keeley Hurley, Applied Energetics, USA

Keeley Hurley has a diverse work experience spanning over two decades. Keeley is currently employed at Applied Energetics, Inc. as an Engineering Project Manager since March 2023. Prior to this, they worked at Coherent Inc. from July 2017 to March 2023. During this time, they held two roles, including Product Line Manager from March 2020 to March 2023 and Quality Manager from July 2017 to March 2020.

From 2008 to 2020, Keeley owned and managed Hurley Consulting LLC, where they served as the Owner/Quality Manager. Their responsibilities included acting as the Quality Manager at DILAS, Inc., implementing and maintaining ISO9001 certifications, providing quality management system training, performing internal audits, and communicating with customers and suppliers. Additionally, they handled tasks such as website design, graphic design, and MS Access database design and customization.

Prior to starting their own consultancy, they worked at DILAS as a Quality Manager from October 2005 to July 2008. Here they designed and developed an ISO9001 compliant quality management system and performed various roles including purchasing, sales support, and documentation development.

Keeley's career began at Spectra-Physics, where they worked as a Document Controller/Engineering Assistant. Their responsibilities included new product design, mechanical design and drafting, documentation control, and data administration for ERP systems. Overall, Keeley Hurley has extensive experience in project management, quality management, ISO certifications, document control, and various other roles within the engineering and manufacturing industries.

Keeley Hurley earned a Bachelor of Science (BS) degree in Biology, General from the University of Arizona from 1997 to 1999. During the same period, they also obtained a Bachelor of Science (BS) degree in Biology from the University of Arizona. In July 2022, they obtained the Certified Manager of Quality/Organizational Excellence (CMQ/OE) certification from ASQ - World Headquarters.



Ursula Keller, ETH Zurich, Switzerland

Ursula Keller has been a tenured professor of physics at ETH Zurich since 1993, and serves as a director of the Swiss research program NCCR MUST in ultrafast science since 2010. She received a „Diplom“ at ETH Zurich in 1984, a PhD at Stanford University, USA, in 1989 was a Member of Technical Staff at Bell Labs, USA, until 1993. Her research interests are exploring and pushing the frontiers in ultrafast science and technology.

Applied research in cutting-edge ultrafast lasers combined with fundamental research using ultrafast lasers in attosecond science has allowed the Keller group to make internationally leading contributions in both areas. Pioneering contributions include the development of real-world ultrashort pulsed lasers, the study of fundamental modelocking physics and pulse formation, the invention of techniques for frequency comb generation and stabilization, and groundbreaking studies of the physics of light-matter interactions on attosecond timescales.

She is the only individual to receive the Frederic Ives Medal/Jarus W. Quinn Prize, Charles H. Townes Award and Joseph Fraunhofer Award/Robert M. Burley Prize. Her many other awards and honors include: the IEEE Edison Medal, European Inventor Award for Lifetime Achievement, Weizmann Women & Science Award, IEEE Photonics Award, SPIE Gold Medal, LIA Arthur L. Schawlow Award, Leibinger Innovation Prize, and Zeiss Research Award. She is a Fellow of OSA, SPIE, IEEE, EPS and IAPLE and a member of the Royal Swedish Academy of Sciences, Academy Leopoldina and Swiss Academy of Technical Sciences. She has served the community through her work on international advisory boards, international conference committees, editorial boards and association boards including the Board of Directors.



Michal Lipson, Columbia University, USA

2023 Optica President Michal Lipson is the Eugene Higgins Professor at Columbia University, U.S. She completed her B.S., M.S. and Ph.D. degrees in Physics at The Technion – Israel Institute of Technology in 1998. Following a Postdoctoral position in MIT, U.S., in the Material Science department from 1998 to 2001, she joined the School of Electrical and Computer Engineering at Cornell University, U.S., and was named the

Given Foundation Professor of Engineering at the School of Electrical and Computer Engineering in 2012. In 2015 she joined the electrical engineering department at Columbia University.

Lipson pioneered critical building blocks in the field of Silicon Photonics, which today is recognized as one of the most promising directions for solving the major bottlenecks in microelectronics. In 2004 she showed the ability to tailor the electro-optic properties of silicon (Almeida, et al., Nature 2004 with more than 1300 citations and Xu et al Nature 2005 with more than 2000 citations) which represent critical advances that led to the explosion of silicon photonics research and development.

The number of publications related to silicon photonic devices and systems is now more than 50,000 a year. A large fraction of these publications are based on Lipson's original papers published since 2001. Today more than one thousand papers published yearly involve devices and circuits based on Lipson's original modulators, as well as on other silicon photonics devices demonstrated by her group including slot waveguides (Almeida et al, Optics Letters 2004 with more than 1500 citations) and inverse tapers (Almeida et al, Optics Letters, 2003 with more than 80 citations). The growth of the field of silicon photonics has also been evident in industry with an increasing number of companies developing silicon photonics products (IBM and Intel, HP Aurion, Melanox, Apic, Luxtera, etc).

Lipson's work has been cited in top high-impact journals such as Nature, Nature Photonics, Nature Physics, IEEE Photonics Technology Letters, Nanoletters, Lab on a Chip, Physical Review Letters and IEEE Journal of Lightwave Technologies. Her papers (over 200 refereed journal publications) have been cited more than 32,000 times. Her h-index (an index that measures both the productivity and impact of the published work) of 90 is also indicative of the impact that her work has had on the scientific community.

Lipson has delivered hundreds of invited, keynote and plenary lectures in all the major conferences in optics and related fields. She has over 30 patents that have been issued and approximately half of them have been licensed to industry. In 2010 in recognition of her work in silicon photonics she was awarded the MacArthur Fellow. She was also awarded the Blavatnik award in 2010,

She received Optica's R. W. Wood prize in 2016 and has been named by Thomson Reuters as a top 1% highly cited researcher in the field of Physics since 2014.



Tammy Ma, Lawrence Livermore National Lab, USA

Dr. Tammy Ma is a plasma physicist at NIF. She leads experiments aimed at achieving fusion ignition by using NIF's 192 laser beams to compress fuel capsules containing deuterium and tritium (isotopes of hydrogen) in a process called inertial confinement fusion (ICF). The goal is to achieve sustained thermonuclear fusion, where the fuel fuses into heavier elements, and many times more energy is released than it took to initiate the reaction. The scientific and engineering challenges are vast, but the potential to produce abundant clean energy, as well as to better understand the physics of a process that powers all the stars in the universe is irresistible.

“What I love about working at Livermore is that we do science with a purpose. Whether it's national security, or energy research, or climate change, it all has an angle that's actually achievable and has real significance,” says Ma. “You bring together great people to work on difficult projects...it's not one single scientist in his or her own little lab that can figure it all out. You need big teams and a lot of resources and you need support from the scientific community and the government, and you get all that here. Hopefully what we do has a positive impact on society and human life.”

Ma earned her bachelor's degree in aerospace engineering from Caltech in 2005, then received her master's degree in 2008, and Ph.D. in 2010, both from the University of California, San Diego. Ma always knew that LLNL was one of the most exciting places to be—she wanted to work with the biggest, most energetic laser in the world, to help push the frontiers of fusion research.

Following graduate school, she completed a postdoc at LLNL before becoming a staff scientist in 2012. Ma was recently awarded the Presidential Early Career Award for Science and Engineering, the highest honor bestowed by the United States government on early-career science and engineering professionals. She also received the American Physical Society 2016 Thomas H. Stix Award for Outstanding Early Career Contributions to Plasma Physics Research.



Julia Mikhailova, Princeton University, USA

Julia M. Mikhailova is an Associate Professor at the Department of Mechanical and Aerospace Engineering, and Associated Faculty with the Program in Plasma Physics of the Department of Astrophysical Sciences and Princeton Plasma Physics Laboratory, and Andlinger Center for Energy and the Environment. Her work integrates experimental and theoretical research to get better understanding of the physics of laser-matter interactions under extreme conditions, and use those

interactions and cross-disciplinary approaches to study ultrafast dynamics of materials and plasmas.



Jie Qiao, Rochester Institute of Technology, USA

Jie Qiao is currently an Associate Professor in the Carlson Center for Imaging Science at Rochester Institute of Technology. She leads the Advanced Optical Fabrication, Instrumentation & Metrology Laboratory where her team of graduate students and postdocs work on ultrafast-lasers-enabled advanced photonics/optics / waveguide laser fabrication, wavefront sensing, and spatial-temporal control of laser beams. Prior to joining RIT, she was a

laser system scientist at the Department -of-Energy-funded Laboratory for Laser Energetics, the University of Rochester from 2005 to 2013. She led the demonstration of the world's first 1.5-meter coherently-phased-grating pulse compressor for petawatt lasers. Dr. Qiao has worked on various innovative photonics devices, optical imaging, and metrology systems, for two photonic startups and one optics company. Dr. Qiao earned her Ph.D. in Electrical and Computer Engineering from the University of Texas at Austin and her M.S. in Precision Instruments and Fine Mechanics from Tsinghua University. She has an M.B.A in entrepreneurship, strategy, finance, and marketing from the Simon Graduate School of Business, University of Rochester.



Rebecca Richards-Kortum, Rice University, USA

Rebecca Richards-Kortum, Ph.D. is the Rice University Malcolm Gillis University Professor of Bioengineering and co-Director of Rice 360 Institute for Global Health. Her research has been instrumental in improving early detection of cancers and in developing and scaling affordable technologies to improve newborn and maternal health, especially in low-resource settings.

She is a recipient of a MacArthur Fellowship and a member of the US National Academy of Sciences, the National Academy of Engineering, the National Academy of Inventors, the American Academy of Arts and Sciences, and the American Philosophical Society. She received her Ph.D. in Medical Physics from MIT and her B.S. in Physics and Mathematics from the University of Nebraska.



Elizabeth Rogan, Optica, USA

Liz Rogan has served as Optica's Chief Executive Officer (CEO) since 2002. Her tenure is anchored by nearly 30 years of strategic, management, and operational leadership roles, including serving as Chief Operating Officer (COO) for five years. As CEO, Liz sets the Society's growth strategy and direction and oversees a US\$50M annual budget. She's responsible for modeling and setting the organization's culture and values.

Optica and the Optica Foundation's investment reserves are US\$150M+, employ 170 staff members, and have a customer base of 570K+ professionals. Liz has grown Optica's global presence, expanded corporate and individual membership, and expanded its publishing and event programs, public affairs, outreach, and more.

As the representative and advocate of the Society, Liz embodies Optica and its Board's mission to honor the endeavors of technical and scientific pioneers. Guided by her leadership, Optica collaborates with professionals to apply and advance optic and photonic technologies to meet global demands. Liz and her team are committed to serving members, volunteers, and the worldwide community engaged in the invention and innovation of light-based technologies poised to solve global challenges and improve our lives.

In 2020, Liz earned the distinction of Optica Fellow, a recognition of her tenure at Optica and industry-wide leadership in optics and photonics. Her leadership has enhanced diversity, inclusivity, and member participation within the community. Liz joined the first class of Foreign Fellows of the Chinese Optical Society in 2018. This distinction, bestowed upon individuals with significant contributions to the advancement of optics and photonics. In 2024, Liz earned the distinction of SPIE Fellow for achievements in leadership of the global optics and photonics community, expanding activities, and advocating to government and industry. A certified public accountant, Liz earned her B.A. from the University of Connecticut, U.S., and is an alumnus of the University of Pennsylvania's Wharton School of Business Executive Education programs.



Gabrielle Thomas, Menlo Systems GmbH, Germany

2019 Ambassador Gabrielle Thomas is the Innovation Ambassador for M Squared Lasers, German, and an academic visitor in the Photonics Group, Department of Physics at Imperial College, U.K.

She completed her B.Sc in Physics in 2006 and a Master's in Optics and Photonics in 2007, before undertaking a PhD in Laser Physics. Since completing her PhD, she's worked in both academic and commercial environments, developing lasers for a broad range of applications including: biomedical imaging, LIDAR, attosecond science, and quantum technology. Thomas served as an Ambassador of Optica in 2019 and was became a Senior Member in 2020.



Chiara Trovatello, Columbia University, USA

Born and raised in Siracusa, Italy, Chiara Trovatello moved to Milan, Italy, at the age of 18 for her studies at Politecnico di Milano (Bachelor and Master of Science in Engineering Physics, and Ph.D. in Physics). She did the Ph.D. within the Graphene Flagship network under the supervision of Prof. Giulio Cerullo and Prof. Stefano Dal Conte, and received the title of Ph.D. in Physics in 2020, with a doctoral thesis entitled “Ultrafast Spectroscopy of 2D Materials and Related Heterostructures”.

Her research activity focuses on ultrafast spectroscopy and nonlinear optics of layered semiconductors, like Transition Metal Dichalcogenides.

During her doctoral studies, Chiara visited the University of Wurzburg (March 2018). Additionally, she was awarded a Marie Curie RISE Fellowship to visit Columbia University (March-September 2019). After the Ph.D., she returned to Columbia University as a Postdoctoral Researcher in the group of Prof. P. James Schuck, and was awarded the Bernard J. Couillaud Prize by the Optica Foundation and Coherent Inc., a merit-based award for an early career professional to pursue a compelling and innovative project that has the potential to make a meaningful and positive impact on the science and applications of ultrafast lasers. Chiara Trovatello was recognized for the challenges and innovative solutions associated with her work in the field of ultrafast optics with 2D materials.

In 2023, Chiara Trovatello received the Marie Skłodowska-Curie Global Fellowship PIONEER by the European Union’s Horizon Europe (HORIZON) research and innovation programme to conduct independent research at Columbia University. The goal of PIONEER is to develop and characterize ultracompact platforms for quantum optics based on layered semiconductors.

She has delivered >30 invited and contributed talks, published >25 scientific papers in peer-reviewed journals, and has been part of the organizing committee of international conferences, e.g., MRS, CLEO.

Chiara is the Founder and the former President of the Optica Student Chapter of Milan (2019-2021). Within the Chapter and beyond, she passionately advocates for open science, ethical research, equal representation and opportunities in STEM, particularly for historically underrepresented categories. Since 2023 she is also a representative on the Mechanical Engineering DEI Committee of Columbia University.



Deepa Venkitesh, IIT Madras, India

Deepa Venkitesh obtained her Bachelors and Master’s degree in Physics from the University of Kerala and PhD from the Indian Institute of Technology Bombay. She has worked in SAMEER Mumbai, VES College, Mumbai before joining the Indian Institute of Technology Madras. She is currently a Professor in the Department of Electrical Engineering, IIT Madras. She was bestowed with the Young Faculty Recognition Award of IIT Madras in 2012, and the Abdul Kalam Technology Innovation Fellowship of INAE in 2021. She is Senior Member of OSA, and Editorial Board member of the IET Optoelectronics. She was the Associate Vice President of “Women in Photonics” of the IEEE Photonics Society (2020-2023). She is also the National Coordinating Faculty for the Prime Ministers Research Fellowship program of the Govt of India. She is the project lead for the Advanced Optical Communication Testbed project- which is a consortium project funded by the Department of Telecommunications, Govt of India.



Christina Willis, Infleqtion, USA

Christina C. C. Willis is a laser scientist, author, and public speaker with a passion for public policy. She served a year in the United States Senate as the 2019-2020 OSA / SPIE Arthur H. Guenther Congressional fellow and currently works as a Senior Analyst at the Boulder-based quantum technology company Infleqtion. In her free time, she teaches yoga and volunteers as a firefighter.

You can download her book Sustainable Networking for Scientists and Engineers for free from SPIE Press (<https://spie.org/christinawillisbook>) and you can find her on Twitter @willischristina.

Participant Biographies



Emma Abbey, 2022
University of Victoria, Canada

Emma Abbey is working on her PhD at the University of Victoria on the west coast of Canada. She works on designing new spectroscopic instruments, particularly using multiplexed light sources for the detection of fluorescence and/or Raman signals, for the identification and quantification of a wide range of samples. She's spent her time in research doing everything from planning and aligning new optical setups and fiber probes to circuit design to synthesizing nanoparticles. She enjoys the hands-on work and problem-solving that designing systems calls for. She's the president of the Optica student chapter at UVic, is passionate about science literacy and spends time doing fun science activities with kids. Outside of the lab you'll find her enjoying the quiet beaches and forests around Victoria with her dog. She's honoured to have been chosen as one of the 2022 Optica Women Scholars, and is excited to continue working on new projects in this far-reaching field.



Isabella Aguilera, 2023
University of Arizona, USA

I am a PhD student at the Wyant College of Optical Sciences, University of Arizona, where I am part of the Biomedical Optics and Optical Measurement group working under the supervision of Dr. Travis Sawyer. I am highly motivated by the fascinating mechanisms of living organisms and the ways we can use physics and light to study them, which has led my research to focus on biomedical applications, more especially on different imaging techniques that can be used for early detection of diseases such as cancer and Alzheimer's. I received my BS in Physics from Universidad del Valle in Cali, Colombia, where I collaborated on research projects within the Biomedical Optics and Biophotonics field under Prof. Efrain Solarte, Dr.rer.nat. In addition to research, I have developed a great interest in science outreach and leadership activities, especially those focused on underrepresented and vulnerable communities. I have been part of the Universidad del Valle OPTICA and SPIE Student Chapter (CUVO) since 2019, where I served as Secretary during the 2020 and 2021 terms, and President during 2022. I am currently part of the Women in Optics group at the University of Arizona, where I serve as event lead coordinator. I actively advocate for inclusion, diversity and equity in the workplace.



Dulce María Badia, 2022
Universitat de València, Spain

Dulce is a physics graduate from the University of Murcia, Spain. During her undergraduate studies, she was moved by her keen interest in optics, which prompted her to undertake an internship at the University of Amsterdam. There, she conducted research on measuring the optical properties of perovskite nanocrystals. For her final thesis, Dulce focused on the scattering of light through human crystalline lenses, aiming to develop a non-invasive solution for cataracts. Her work on this project has been recognized through a peer-reviewed paper and contributions to prestigious congresses. Dulce's commitment to advancing optics extends beyond the laboratory. Since joining Optica, she has actively engaged in outreach events, sharing her knowledge and passion for optics with the wider community. In recognition of her dedication and contributions, she was honored with the Optica Women Scholars award in 2022,

enabling her to pursue a master's degree in photonics. Currently enrolled at the University of Valencia, Dulce continues her research on perovskites during her final master's thesis. With her insatiable curiosity and drive for innovation, Dulce is poised to make significant contributions to the field of optics and photonics.



Manon Bart, 2023
Tulane University, United States

Manon Bart received her dual bachelor's degrees in physics and in chemical engineering from Louisiana State University in 2020. She is currently a graduate student at Tulane University in New Orleans, LA., where she works in the Quantum Information and Nonlinear Optics Group with Dr. Ryan Glasser. Her current research focus is optical machine learning and neural networks. In addition to her research at Tulane, she is currently a pathways intern at NASA Goddard where she works on improving free space communication using machine learning techniques.



Julia Bertero Di Tella, 2024
Universidad de Buenos Aires, Argentina

I am currently in the final year of my Licenciatura in Physics degree (B.Sc. + M.Sc.) at Facultad de Ciencias Exactas y Naturales (FCEyN) of Universidad de Buenos Aires (UBA). My thesis focuses on "Quantum state receiver encoded in the optical phase of pairs of light pulses and stabilization of an interferometer with path imbalance" at DEILAP (CITEDEF). Previously, at Laboratorio de Iones y Átomos Fríos (LIAF) at UBA, I explored the generation of vector beams for Rubidium Spectroscopy. This research experience was what initially sparked my passion for optics. After completing my degree, my aspiration is to pursue a PhD in quantum physics, specifically focusing on quantum sensing and metrology. Alongside academia, I am a teaching assistant at Universidad de San Andrés (UdeSA) and UBA. I have found immense personal and professional growth in these roles. Beyond physics, I enjoy reading and competing in wheelchair rugby.



Gloria Davidova, 2023
Cornell University, United States

I recently graduated with a degree in Applied and Engineering Physics from Cornell University, where I worked on understanding collective effects in strong coupling of optical fields to organic semiconductor excitons in the Musser Group. I briefly worked in the Atwater group for a summer project relating to design of sub-wavelength structures that enhance graphene plasmon emission. I am now working at ICFO in the Thermal Photonics group with Georgia Papadakis on (1) characterization of mid-IR phonons in TMDCs and (2) directional thermal emission. I will be starting my PhD on thermal modulation of polaritons at EPFL with Giulia Tagliabue this summer.



Klaudia Dilcher, 2022
University of Warsaw, Poland

Klaudia Dilcher is a PhD student in Theoretical Physics at the University of Warsaw in Poland, and a member of the Quantum Information and Inference Lab in the Centre for Quantum Optical Technologies. Her research investigates the optimal optical magnetometry estimation strategies using Bayesian inference techniques. In addition to her studies, Klaudia has professional experience in software engineering and has performed research with groups at IQC in Waterloo, Canada, at ICFO in Castelldefels, Spain, and at the University of Warsaw. Besides physics, Klaudia likes spending

time with her husband and two children, aged 5 and 3. She also enjoys outdoor activities, such as hiking, biking and camping.



Ernestina Domey, 2024
University of Rochester, United States

I am currently a master's student in Biomedical Engineering with a focus on Biomedical Optics at the University of Rochester, USA. My academic journey underscores a steadfast commitment to unraveling the intricacies of healthcare through the application of cutting-edge optical technologies.



Mackenzie Essington, 2022
Western University, Canada

Mackenzie Essington is a student at Western University, where she is completing her Master of Electrical Engineering. She works in Dr. Jayshri Sabarinathan's nanophotonics research group, and her thesis is titled "Periodic Structures to Improve Performance of Silicon-based Optical Phase Shifters for Inter-Satellite Communication". During her degree, Mackenzie has participated in a multi-wafer project run, where she completed photonic FDTD simulations, a photonic integrated circuit layout, and the photonics foundry tape-out process. She was also an intern with Honeywell Aerospace and was responsible for the electro-optic measurements and characterization of a thermo-optic phase shifter on a photonic chip. In 2023, Mackenzie attended the Siegmán Laser School in Dublin, Ireland where she was privileged to make many connections in the optics and photonics community. Mackenzie grew up near the Rocky Mountains, and enjoys activities such as skiing, hiking, and biking with her friends and family. She is an animal lover, and currently a cat mom to a 3-year old tabby named Molly.



Leah Frackleton, 2024
University of Ottawa, Canada

Leah Frackleton is a master's student in physics at the University of Ottawa, Canada, where she first honed her passion for optics and photonics during her undergraduate degree. Working with her team in the Multimodal Stimulated Raman Microscopy (MSRM) Laboratory, she developed a new variation of collinear Frequency Resolved Optical Gating (FROG) suitable for characterising laser pulses in a microscope. As she continues her studies, she aims to contribute to the field of biomedical imaging by developing new modalities for Coherent Raman Microscopy. Leah is keen to engage with the physics and photonics community, both within her university and at large. At uOttawa, she is involved in outreach and in promoting club inclusivity, currently as officer for the Joint Optica-SPIE student chapter and previously for the undergraduate Physics Society. Internationally, she participated in an internship with the Max-Planck Institute for the Science of Light in Erlangen, Germany where she broadened her practical and computational research skills and gained further collaborative experience. Leah is honored to be selected as a 2024 Optica Woman Scholar and looks forward to the opportunity to collaborate with world-renowned leaders in photonics and to be a role model for other aspiring women physicists.



Ana Garrigues Navarro, 2022
Universitat de València, Spain

Ana I. Garrigues-Navarro has always been fascinated by music, physics, and their interplay. These passions were combined when she discovered the possibilities of optomechanics, the field of Photonics where light and sound speak to each other. Currently, she is completing her master's degree in Photonics at Universitat de València. She is part of the 2022 OPTICA Women's Scholar class, which she received during her third undergraduate year. This scholarship was determinant. Since then, she had the opportunity to carry out an internship in the Laboratory of Fiber Optics, where she now works as a research assistant. Her research focuses on optomechanical interactions in fiber optic devices to create sensors and biosensors. She plans on pursuing a PhD on that topic next year. Next fall, she will carry out a research visit to the MipLab in Florence (funded by the scholarship) to further develop her research before starting her PhD. Ana is actively engaged in various initiatives, serving as president of the OPTICA student chapter, Photonets, and as an elected member of the national committee of the Students Group - Spanish Royal Society of Physics (GdE-RSEF). Her commitment extends to outreach efforts, including publications in Lluminiària (the chapter's outreach magazine) and organizing events like the I Mediterranean Meeting of Young Researchers in Optics. Additionally, she is involved in equity and diversity initiatives through the Women in Optics and Photonics group of the Spanish Optics Society (SEDOPTICA-MOF). In her spare time, sings as an alto in the women's choir "Thiasos Coral" and play dolçaina, saxophone or percussion in different musical groups.



Alejandra Gómez, 2024
Vrije Universiteit Brussel, Belgium

Alejandra Gómez Ramírez is a Colombian photonics engineering student currently pursuing a master's degree at Vrije Universiteit Brussel in Belgium, following a successful academic journey that began with a degree in physics engineering from Universidad Nacional de Colombia. During her time at Universidad Nacional de Colombia, Alejandra was a member of the Optics and Opto-digital research group, where they specialized in Digital Holographic Microscopy, contributing to advancements in low-cost microscopy technology. Seeking international exposure, Alejandra worked at the Laboratory of Applied Computational Imaging of Université INRS in Quebec, Canada, focusing on structured-light profilometry. Additionally, she participated in the Laboratory of Optical Imaging and Biomedical Optics at the Wellman Center for Photomedicine during the Harvard-MIT Summer Institute of 2021, specializing in optical coherence tomography. Passionate about outreach in science, Alejandra served as Secretary and President of the 'Capítulo Estudiantil de Óptica student chapter at Universidad Nacional de Colombia and is currently an active member of the B-PHOT student chapter at Vrije Universiteit Brussel. With a commitment to innovation in the fields of sustainability and clean energy production, Alejandra hopes to apply research and development projects that have a positive impact, demonstrating her passion for creating meaningful change through science and engineering.



Anastasia Goulopoulos, 2022
University of Massachusetts Lowell, United States

Anastasia Goulopoulos is an aspiring clinician and scientist. She received a bachelor's degree in Biomedical Engineering with a concentration in Tissue Engineering and a master's in Biomedical Engineering & Biotechnology from the University of Massachusetts Lowell. Throughout her academic

career, she has conducted photonics and computational analysis-based research. Her most recent publication outlined her use of Monte Carlo simulations to model how light propagates through a photo-extracorporeal membrane oxygenator device for carbon monoxide treatment. Anastasia is currently exploring machine-learning applications for noise reduction in near-infrared spectroscopy. Additionally, she serves as an adjunct faculty member at UMass Lowell.



Alexis Guidi, 2022
University of British Columbia, Canada

Alexis Guidi is a Ph.D. student in electrical engineering at the University of British Columbia, Canada. Her research focuses on developing terahertz spectroscopy and imaging systems for biological characterization, with applications ranging from cancer detection to improved tumor margin assessment. She also regularly participates in outreach activities related to STEM and optics for children and prospective students. Outside of academia, she enjoys hiking, painting, and reading.



Carolyn Hokin, 2024
University of Arizona, United States

Carolyn Hokin is a student in the Accelerated Master's Program at the Wyant College of Optical Sciences in Tucson, AZ. She is a research member in the Lightweight Optics Lab, where she studies the long-term stability of ultrafast-laser stress figuring in thin fused silica optics. In 2023, Carolyn presented a poster and published a paper on the initial results at the SPIE Optomechanical Engineering conference in San Diego, CA. She completed a manufacturing internship with MKS Instruments that same summer. This academic year, she has been leading a study of the propagation of unpolarized light in polarization maintaining fiber with a student team. She was among the awardees of the 2022-2023 Robert S. Hilbert Memorial Optical Design Competition, selected with her team for a project on a two-group lens design for a compact relay for image steering in augmented reality. Carolyn plans to work in industry after she completes her MS in Optical Sciences.



Nuri Hong, 2024
Cornell University, United States

Nuri Hong is an accomplished undergraduate researcher and biomedical engineer currently pursuing a Bachelor of Science in Biomedical Engineering at Cornell University. Her research applies innovative Third Harmonic Generation (THG) imaging techniques to study neurodegenerative diseases through the white matter. This work has led to the development of techniques for tracking myelin degeneration, with significant implications for the understanding and treatment of conditions like multiple sclerosis and Alzheimer's disease. She is also interested in adaptive optics and developing tools for improving imaging and instrumentation. In addition to research, Nuri is an active member of the Cornell Engineering World Health Project Team as the Electrical Team Lead, spearheading projects to build low-cost biomedical devices for global health improvement. Nuri has also contributed to teaching and assisting in courses like Thermodynamics and Physics at Cornell, further showcasing a commitment to education and mentorship. In her free time, she loves playing board games like Monopoly and Catan, and going on frozen yogurt runs with her friends.



Christabel Isagi, 2023
Multimedia University of Kenya, Kenya

I am Christabel, an MSc student from the Multimedia University of Kenya, currently immersed in the Applied Optics program. Balancing experimental research and manuscript preparation for my first objective keeps me on my toes, but I thrive on the challenges. Outside the lab, I wear a couple of different hats. As the treasurer for our Optica student chapter at the Multimedia University of Kenya (MUKOS), I enjoy fostering a community of learning and sharing in the fascinating realms of optics and photonics. It's rewarding to see how our collective knowledge grows with each interaction. Additionally, I serve as the social media officer for Optica's Polarization Management and Propagation Technical Group. Being part of this group has been an enlightening experience; I've had the opportunity to learn from fellow members and deepen my understanding of polarization topics. All of these experiences have helped shape me into a well-rounded individual with strong core values and principles. Through my journey in optics and photonics, I've gained a newfound perspective and appreciation for the field. The challenges and triumphs have enriched my academic pursuits and fueled my passion for making a meaningful impact in the world of science and technology.



Petra Ivatovic, 2024
University of Zagreb, Croatia

Passionate and dedicated physics enthusiast focused on light-matter interaction research. During my studies at the University of Zagreb in Croatia, I collaborated with researchers from the Institute of Physics Zagreb through multiple internships. I gained hands-on experience in constructing and characterizing advanced optical setups and delved into 2D material research. Last summer, I was researching bilayer graphene quantum dots in Germany at the 2nd Institute of Physics A at RWTH Aachen University. Beyond my research endeavors, I actively participate in numerous physics-related activities; among them, the International Physicists' Tournament 2022 in Colombia, serving as a TA, tutoring, and organizing science workshops and a competition. I love to travel, and in my free time, you can often find me indulging in ice cream, spending quality time with friends, and enjoying my second favorite optics hobby, photography. My journey in physics began at the age of 16, and since then, my fascination and love for the subject have only deepened. My goal is to contribute meaningfully with innovative research and to light the way for the next generation of aspiring scientists through teaching and outreach efforts.



Yewon Kim, 2024
Yonsei University, South Korea

Yewon grew up in Seoul, South Korea, and attended Yonsei University. Under the guidance of Professor Chulmin Joo, she designed a compact Phothermal Lateral Flow Assay sensor for the quantitative diagnosis of cardiovascular disease. In 2020, she graduated with a bachelor's degree in Chemistry and Mechanical Engineering. Joining the BOIL group in the summer of 2022, she immersed herself in Lens-less Ptychographic Microscopy, integrating deep learning techniques. Passionate about optical engineering, Yewon actively contributes to the field as a member of OPTICA. Additionally, she dedicates her time to teaching Cambodian undergraduates, providing them with opportunities to learn the latest technologies and optical knowledge, especially those who lack educational infrastructure. Her goal is two-folds: to make cutting-edge resources accessible to students facing barriers to education, and to inspire people with imaging technologies invention to see what was invisible before.



Paula Kirya, 2023
University of California San Diego, United States

Paula Kirya is a master's student at UC San Diego studying Mechanical Engineering. She received a bachelor's degree in Bioengineering from UCSD in June 2024. Since August 2021, Paula has worked in the Poulidakos Lab at UCSD studying and developing nature-inspired nanophotonic materials for detecting disease in biological tissue. Her master's research is supported by the Optica Amplify Scholarship, Optica Women Scholarship, and the AAUW Selected Professions Fellowship.



Inbal Kom Betzer, 2024
Technion – Israel Institute of Technology, Israel

Inbal Kom Betzer obtained a BSc degree in Physics in 2017 and a BSc degree in Electrical Engineering in 2019 (cum laude), both from the Technion – Israel Institute of Technology, Israel. She is actively engaged in pursuing an MSc degree at the Technion's Viterbi Faculty of Electrical and Computer Engineering. Her research interests primarily involve computer vision and optics, employing physics-based and data-driven methodologies, aiming to improve climate models. Inbal won the Pazy Foundation Award for students in 2020 and the Apple's Excellence Award in 2023. She is a mother of two, mentoring other student mothers as part of the Wisemama project. She is also a farmer of wheat, barley, and alfalfa crops and is collaborating with ALTA INNOVATION to develop drone-based sustainable farming practices.



Zhamila Kulchukova, 2024
Nazarbayev University, Kazakhstan

Since I was four, I made it my mission to annoy everyone around me telling them I would be a scientist when I grew up. 20 years later, I can now proudly call myself a young scientist. I officially joined my supervisor's research group in 2022, graduated with my BSc in Physics degree in 2023, and published my first paper this February. Currently, my focus is on pursuing my Master's degree while preparing a strong portfolio for my future in academia. I aspire to enter a PhD program upon completion of my Master's studies. Beyond my academic pursuits, I am deeply committed to environmental activism. This passion has led me to initiate various campus projects and participate in climate justice movements. Additionally, I have represented my interests on an international scale by attending forums and organizing conferences. This has also led me to prioritize spending quality time with loved ones. Whenever possible, I use every opportunity to explore national parks and natural wonders alongside friends and family.



Sydney Lepard, 2024
Institut National de la Recherche Scientifique, Canada

Sydney Lepard is pursuing a Master of Science in Energy and Materials at L'Institut National de la Recherche Scientifique (INRS) in Montreal, Quebec, Canada. Her thesis is focused on developing artificial intelligence models for diverse applications, including the characterization of ultrafast lasers, and medical diagnostics. With a bachelor's degree in biomedical engineering, Sydney's diverse work experience includes real-time dermatological imaging, lab-on-a-chip devices, and sustainable material science. In addition to her research, Sydney shows her commitment to the scientific community through her leadership roles and outreach activities, including, most recently, serving as Chair of Sponsorships and the Biotechnology session at her

university's inaugural conference. With the support of Optica's Women Scholars award, Sydney plans to pursue a career working collaboratively with both academic and industry research and development teams to further medical innovation.



Rebecca Mac, 2023
University of Waterloo, Canada

Rebecca Mac is currently a PhD student at the University of Waterloo. Since 2021, she has been working with Prof. Dayan Ban's research group to develop advanced transport models for quantum cascade lasers and other intersubband optoelectronic devices. Before starting graduate school, she received her BSc. in Nanotechnology Engineering from the University of Waterloo. Rebecca began her optics/photonics research journey while working with Prof. Joanna Aizenberg's group at Harvard University (Massachusetts, USA). There, she helped to demonstrate switchable interactions between self-trapped laser beams in soft materials. She later returned to Waterloo and joined Prof. Donna Strickland's lab, where she developed simulation tools for optimizing high-power fiber laser systems. Outside the lab (or the office), Rebecca spends her time reading novels and learning to cook new dishes.



Viviana Maldonado Estrada, 2023
Tecnológico de Monterrey, Mexico

I am a recent B.Sc. in Engineering Physics graduate and will begin graduate school this fall. In 2023, I was selected as a recipient of the Optica Women Scholarship. I have experience in structured light and photonics and am also interested in quantum optics.



Elena Moreno, 2022
University of Murcia, Spain

My name is Elena Moreno. I was born in Murcia (Spain) in 2001. I pursued a Physics Degree at the University of Murcia (2019-2023), which furnished me with a solid background in a wide range of scientific topics. Throughout my undergraduate studies, I interned at the Optics Department of my university, originating my profound interest in the field of adaptive optics to develop a treatment for cataracts. This led me to base my Degree Thesis on "Wavefront Shaping and Optical Memory Effect in crystalline lenses". Additionally, I did an internship at VOPTICA, a company devoted to providing customized visual solutions to ophthalmological problems. In 2022, I was honored by Optica with a \$10,000 scholarship aimed at promoting women's scientific careers. Presently, I am enrolled in a Master's degree at Complutense University (Madrid, Spain), focusing on Optics and Image Technology. This Master's aims to train scientists and technologists with a broad knowledge base and practical skills in advanced optical technologies widely used in industry and in optical laboratories, with a special emphasis on image formation, handling, and analysis. My Master's Thesis is currently being developed at the Optics Institute of the Spanish National Research Council (IO-CSIC, Madrid), as it is devoted to polychromatic optical and visual characterization of the normal and myopic eye.



Maria Vitoria Moura Cabrera, 2024
Wellesley College, United States

Maria Moura Cabrera is an undergraduate senior at Wellesley College, a historically Women's College in Massachusetts, double majoring in Physics and Computer Science. Maria is an International Student from Campo Grande, Brazil, where she lived until her 20s before moving to the United States. She is interested in Quantum Optics and Quantum Information and has languages as her hobbies, speaking Portuguese, Spanish, English, and Arabic. She has conducted quantum information and optics research alongside USC's Information Sciences Institute, working at their Quantum-limited Information Laboratory. After graduating, Maria is interested in pursuing a Ph.D. in Quantum Sciences and Engineering, to work with either teaching or Optics in an industry setting.



Mathu Mathi Murugavel, 2023
Indian Institute of Technology Madras, India

Mathu Mathi is an enthusiastic optics and photonics researcher with extensive knowledge of fundamental physics. Her expertise in the field was developed through her research on near-field scanning optical microscopy, which she conducted while pursuing her master's degree in physics. While employed as a project associate at the Indian Institute of Technology Madras (IITM), she widened her research to include the creation of spectroscopy techniques for testing the soil. Her involvement in the project has led her to pursue a research-based master's degree in Photonics. Where she worked in designing and testing the optical accessory for Diffuse reflectance Spectroscopy for analyzing the powder sample. She honed her administrative abilities through her role as the public relations officer of the OPTICA IITM student chapter. She received the renowned OPTICA women's scholarship in 2023. She continues to make significant strides in the field of optics and photonics.



Anulia Mykhaelian, 2024
Humboldt University of Berlin, Germany

Born and raised in Kyiv, Ukraine. During my school years, apart from studying, I had a professional athletic career in wakeboarding. While in high school, I won numerous scientific contests. After graduation from Kyiv Natural Scientific Lyceum on top of my class, I moved to Berlin, Germany, to continue my education. As I received my university entrance qualification from the Technical University of Berlin, I started my bachelor's degree in biophysics at Humboldt University of Berlin. In the meantime, I work as a student assistant in the research group "Fundamentals of Optics and Photonics" of Prof. Arno Rauschenbeutel at the Department of Physics, Humboldt University of Berlin. We work on the experimental study of the interaction of light and matter and chiral quantum optics. In addition to that, I am receiving training from various groups at the Institute of Biophysics at the same university, focusing on biophotonics and imaging.



Maimuna Nagey, 2022
Creighton University, United States

My name is Maimuna Nagey, and I hail from Kenya, where I was born and raised. In 2022, I was honored to receive the Optica Women Scholar award, a recognition that underscored my dedication to academic excellence and my aspirations in the field of medical physics. My educational journey began with a Bachelor of Science degree obtained in Kenya, laying the foundation for my pursuit of

higher learning. Currently, I am a graduate student in Medical Physics at Creighton University, where my passion for scientific exploration and healthcare innovation thrives. As a researcher and teaching assistant, I focus on skin cancer detection, aiming to develop non-invasive methods that can improve patient outcomes. My ultimate ambition is to become a certified medical physicist, equipped with the skills to contribute meaningfully to healthcare. I am profoundly grateful for the support and guidance I have received from Optica, as well as from mentors like Dr. Baran Timothy and Dr. Turan Erdogan. Their mentorship has been instrumental in shaping my academic and professional journey, and I am committed to honoring their investment in me by making a positive impact in the field of medical physics and beyond.



Urja Nandivada, 2022
University of Waterloo, Canada

Hello! I am a graduate student pursuing an MSc (and a PhD) in Physics for Physics Education Research on Undergraduate Lab Pedagogy. Specifically, I am working to make use of ultrafast lasers in undergraduate lab courses! I have the thrill and pleasure of working under the supervision of Nobel

Laureate Dr. Donna Strickland and Pioneer of Physics Education Research Dr. Karen Cummings, and for my PhD, Dr. Joanne O'Meara. Together, we are working to determine how students in undergraduate physics labs learn best all while bringing ultrafast lasers into labs that usually don't have access to them. When I'm not in the lab or the office (or on campus in general), I can be found learning to figure skate, practicing Meibukan Goju Ryu Karate Do, reading, painting, knitting, or hanging out with my friends and family, and lovely spouse Cameron. Eventually, I want to put my career to developing a museum of light as well as a plethora of informal and formal educative curricula on optics where learners can "n_u-times-lambda" (or ****see****) the wonderful phenomena that we physicists get to explore every day.



Svenja Nerreter, 2023
University of Regensburg, Germany

Svenja Nerreter is a PhD student at the University of Regensburg, Germany, focusing on ultrafast nanoscopy of quantum materials. During her Bachelor's thesis in Prof. Rupert Huber's group, she contributed to resolving an exciton Mott transition on the nanoscale in van der Waals

heterostructures, sparking her interest in the field. She then pursued a three-month research internship with Prof. Michael Johnston at the University of Oxford, deepening her knowledge of ultrafast optics and THz spectroscopy before commencing her Master's thesis. In a collaboration between Prof. Huber's and Prof. Johnston's group, she investigated the nanoscale interplay of structure and carrier dynamics in metal halide perovskites. Being selected as an Optica Women Scholars 2023 recipient enabled her to conduct a research visit to the Center for Quantum Nanoscience in Seoul, South Korea, where she learned about single-spin control using combined scanning tunneling microscopy and electron spin resonance. Since January 2024, she has been pursuing her PhD and takes part in advancing ultrafast nanoscopy to the shortest possible length and time scales.



Sofía Obando-Vásquez, 2023
Universidad EAFIT, Colombia

My name is Sofía Obando-Vásquez, and I am a master's student in Applied Physics at Universidad EAFIT in Colombia. I am deeply passionate about optics and believe that it holds the key to solving many of the problems that our society faces today. In 2021, I graduated from the same university with a Bachelor's degree in Physics Engineering, where I specialized in optics and took part in various research projects and national optics conferences. During the spring of 2021, I had the opportunity to intern at the University of Memphis, where I designed and implemented a polarization-sensitive microscopy system. Despite my love for plastic arts and crime novels, I am now focusing on biomedical applications of optics, particularly in digital holographic microscopy (DHM) applications, as part of my master's degree program.



Eleanor Richard, 2024
Cornell University, United States

I am a junior at Cornell University majoring in Engineering Physics. My goal is to lead research that uses light-matter interactions, such as the optical control of materials, to create next-generation computing hardware. I have been in Dr. Ankit Disa's lab at Cornell for the past two years. During my time in the group, I designed and built an optical set-up based on the magneto-optic Kerr effect to study light-induced magnetization of magnetic materials. I also used terahertz spectroscopy to study other light-induced properties in materials. In the summer of 2023, I worked in Dr. David Hsieh's lab at Caltech investigating novel quantum phenomena in a 1D cuprate material using terahertz spectroscopy. Outside of class, I am the president of the Applied and Engineering Physics Undergraduate Society and help organize events for students in the major during the semester. I am also on the Cornell triathlon team and you can usually find me running or biking around Ithaca.



Malley Richardson, 2024
University of British Columbia, Canada

In 2023, I graduated from the University of British Columbia Okanagan (UBCO) with a degree in mechanical engineering and a specialization in biomedical engineering. During my undergraduate studies, I worked as a research student in the UBCO Photonics Lab and completed a research internship in Germany, where I researched automation processes in 3D bioprinting. Currently, I am a Master of Applied Science student in electrical engineering at UBCO working under Dr. Christopher Collier. My past research in biomedical sciences influenced me to focus my master's research on the biomedical applications of microchip capillary electrophoresis and fluorescence spectroscopy. I am an active volunteer at my local hospital, enjoy participating in numerous STEM outreach activities, and love playing every sport under the sun! I am sincerely grateful and humbled to be named an Optica Women Scholar, and I am excited to continue this academic journey with this newfound community of women scholars.



Maisie Russell, 2024
University of Auckland, New Zealand

I was originally from Scotland but grew up in Rotorua, New Zealand. When I was 16, I moved to Auckland to pursue a physics degree. Unfortunately, this was in 2021, a year spent mainly in lockdowns. To try and find a community, I joined Auckland University Women in Science (AUWS). At the time, the

society had only a dozen or so members; now, there are over 1000, and I currently serve as a postgraduate and outreach ambassador. At the end of my second year, I was fortunate enough to work as a summer research assistant in a photoacoustic lab, a project I have continued since. I'm currently working towards my honors degree with a project focusing on using a Copper and Nickel salt mixture as a stand-in for blood in photoacoustic imaging. In the future, I would love to continue this project. On the rare occasion I am not at university, I enjoy cooking and hanging out with friends!



María Sánchez-Hernández, 2023
Universidad de Salamanca, Spain

María Sánchez-Hernández is currently a Physics PhD student at EFO-Lab, within the Applied Photonics Group at the University of the Basque Country / Euskal Herriko Unibertsitatea (APG UPV/EHU), in Spain. Here, her research is related to anti-resonant hollow-core fibers, as a medium to address several challenges in quantum photonics, such as quantum frequency conversion or the manipulation of entangled photon pairs while maintaining their correlation over large distances. On the other hand, María is currently a member of the OSAL student chapter in Salamanca, in which she started to take part during her undergraduate studies. The support, the possibilities and the bonding in the chapter community have filled her from the beginning, that is why she was a member of the board when she was still in Salamanca, and that is why she is looking forward to bringing this atmosphere to Bilbao, where she is currently working. She enjoys outreach, but also tries to organize and participate in activities of inclusivity, especially in feminism. She loves traveling and reading, especially novels and theater in verse. Among her readings, fantasy, thriller and historical genres capture her attention, although she is lately becoming fond of philosophical essays. Her other passion is sports, especially water sports. She confesses that she feels particularly comfortable in this environment, and that water helps her to disconnect while it gives her energy and revives her inside. That is why she trains swimming, although she has started playing rugby, too, since she loves team sports. So, in general, she is always open to trying new things, from learning to play the guitar or crochet to familiarizing herself with German.



Lucía Tasende Rodríguez, 2023
Ghent University, Belgium

Lucía Tasende Rodríguez was born in Montevideo, Uruguay, in 1998. At four years old, she moved to Spain with her family, where she grew up. Since she was a little girl, she has loved mathematics and physical sciences and started to participate in different scientific contests early in school. When she finished high school, she pursued two bachelor's degrees and finally graduated as a physicist and chemist from Santiago de Compostela University in 2021. She found her passion during the last years of her bachelor's degree when she discovered the powerful world of nanomaterials and the importance of combining both chemistry and physics to understand phenomena at the nanoscale. For this reason, she worked on nanomaterials for light emission in her two bachelor's dissertations. Amazed by this area, she moved to Belgium to study for a Master's in Materials and Nano Chemistry at Ghent University, the school where she had already studied and conducted one research project as an exchange student in the last year of her bachelor's studies. There, she selected courses that combined both disciplines the most and carried out a complete research project covering both the synthesis and spectroscopy study of exciton species in 2D perovskites. After presenting her Master's thesis, she continued her journey in The Netherlands, where she conducted an internship in optical materials, which ended up with a new patent application. Lucía is

passionate about science, innovation, and the real-world applications of technological advancements. With a solid background in physics and chemistry, she is driven to explore and develop new applications for various materials. Her commitment to excellence is reflected in her projects, and she looks forward to continuing research and development in this exciting field.



Trulani van der Heyde, 2022
University of Auckland, New Zealand

I was born in South Africa but have spent more than the last decade in New Zealand, where I completed high school and university studies. I enjoy going on long drives to explore the beautiful country or walking in nature in my free time. There are always new places to explore and enjoy the views whilst away from city life. I am a master's student in medical physics at the University of Canterbury in New Zealand. With my research for my master's work, I am looking into the optimization of total body irradiation methods, including imaging and dosimetry. My previous study includes a short research project in developing a spectrometer optimized for light in the infrared range and another project assisting in developing a microchannel-based system using an integrated optical fiber for the detection and enumeration of bacterial cells. I have also completed my honor's project in the application of optical coherence tomography to in-vivo imaging of gut tissue. I was particularly looking at the feasibility of this imaging modality for the diagnosis of health conditions such as coeliac disease. The wide range of applications of photon beams continues to fascinate me and form the connection between all the work I have been involved in. My passion lies in the application to the health industry, as the direct impact of research and development is hugely encouraging. I am excited to continue my studies and to see where it may lead in the future.



Gabrielle Vaz, 2024
Universidade Federal de Pernambuco, Brazil

My name is Gabrielle Vaz, and I am a Master's Student at the Department of Physics of Universidade Federal de Pernambuco, Brazil, where I also received my Bachelor's Degree. My main research interests are the construction of lasers, structured light, and nonlinear optics. I am also interested in materials science, particularly the synthesis of silver nanoparticles and the use of such particles in various optical systems.



Jenna Veugen, 2023
University of Waterloo, Canada

I am currently a master's student in Systems Design engineering at the University of Waterloo in Canada. Last year, I graduated from Western University, where I completed a bachelor's degree in Integrated Science with an honors specialization in Physics. Through an internship and research placements, I have explored working with optical systems, modeling optical phenomena, and utilizing medical imaging technology. My passion for medical imaging and newfound love of optics led me to join the PhotoMedicine Labs where I am now working on developing an optical microscopic imaging system that leverages Photon Absorption Remote Sensing. I enjoy optics' challenging aspects, from thinking through the theory and modeling of optical phenomena to working hands-on with optical systems and performing experiments. My main interests lie in the field of optical imaging, where I believe there is a vast amount of potential for growth and impact, with revolutionary technology arising from such state-of-

the-art research. In my spare time outside of the lab, I love to cook new cuisines, explore the outdoors, and read a good book.



Yingchu Xu, 2023
Nanyang Technological University, Singapore

Yingchu Xu is a research assistant from the School of Electrical and Electronic Engineering (EEE) at Nanyang Technological University (NTU). She graduated from the School of EEE in June 2023 with the highest distinction.

With a keen interest in nonlinear and ultrafast optics, Yingchu is currently immersed in research on passively mode-locked fiber lasers. Specifically, her focus lies in investigating dissipative soliton dynamics in all-normal dispersion Ytterbium-doped fiber laser oscillators, where she has successfully demonstrated intriguing pump-power dependent soliton molecules. In addition, Yingchu is actively involved in developing a fiber laser oscillator capable of emitting femtosecond blue pulses with kilowatt-level peak power. Yingchu's academic journey has been distinguished by outstanding achievements. She was honored with both the prestigious 2022 Undergraduate Research Excellence Award and the 2023 EEE Excellence Award at Nanyang Technological University. Furthermore, she has been recognized as one of the twenty 2023 Optica Women Scholars.

Optica Women Scholar Recipients

In 2021, the Optica Foundation launched a pilot project to support two women demonstrating enthusiasm and passion for optics and photonics enrolled in the James C. Wyant College of Optical Sciences at the University of Arizona. Thanks to a group of generous donors, we expanded this program in 2022 and now provide 20 US\$10,000 scholarships annually to young women worldwide.

Following are all winners to date. Please visit optica.org/WomenScholars for more.

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