

THE INSTITUTE OF OPTICS

**INDUSTRIAL
ASSOCIATES**

October 23, 2025



HAJIM
SCHOOL OF ENGINEERING
& APPLIED SCIENCES
UNIVERSITY of ROCHESTER

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Agenda

7:30 – 8:15 AM: Networking Breakfast

Grand Lilac Ballroom

8:15 – 8:45 AM: Welcome from The Institute of Optics

Tom Brown, Director and Professor
University of Rochester | The Institute of Optics
Grand Lilac Ballroom

8:45 – 9:00 AM: Welcome from Rochester Institute of Technology

Jan van Aardt, Director and Professor
Rochester Institute of Technology | Center for Imaging Science
Grand Lilac Ballroom

9:00 – 9:15 AM: STELLAR Regional Innovation Engine

Alexis Vogt & Leah George VanScott
Monroe Community College & Greater Rochester Enterprises
Grand Lilac Ballroom

9:15 – 9:45 AM: PhD Showcase

UR and RIT Students
Grand Lilac Ballroom

9:45 – 10:15 AM: Coffee Break

Grand Lilac Ballroom

10:15 – 10:30 AM: Faculty Showcase

UR and RIT Faculty
Grand Lilac Ballroom

10:30 – 11:00 AM: Optical Processors to Address the Insatiable Demand for AI

William Renninger, Associate Professor
University of Rochester | The Institute of Optics
Grand Lilac Ballroom

11:00 – 11:15 AM: Master Student Showcase

UR and RIT Students
Grand Lilac Ballroom

11:15 – 11:30 AM: Honoring Emery and Tina Kidger-Moore

Grand Lilac Ballroom

11:30 AM – 1:30 PM: Lunch & Optifab

Grand Lilac Ballroom

12:30 – 1:30 – Women in Optics

Aqueduct A/B

1:30 – 2:30 PM – Poster Session

Riverside Court

2:30 – 3:30 PM – Company Introductions

Grand Lilac Ballroom

3:30 – 5:00 PM: Company Connection Showcase

Highland Ballroom

5:30 – 7:30 PM: Reception

Grand Lilac Ballroom

The Institute of Optics Director's Remarks



Welcome to the Fall 2025 edition of The Institute of Optics Industrial Associates Symposium. This year marks the third time we are able to co-locate our gathering with the SPIE OptiFab conference, a biannual conference that represents the premier destination for sharing the latest science and engineering in optical fabrication, optical design, and optical metrology. We are especially thankful to SPIE for sharing the space this year.

Another special event of this week is the finals of the annual Luminate competition. Cohort 8 has been competing for the \$1M prize, and there are some fantastic startups represented this year. Over the years quite a number of companies launched by Institute alumni, students and faculty have shown success in the competition. I am proud to serve on the board of Luminate and pleased that our region can attract such strong competitors for this competition.

At the Institute, I'm thankful to report continuing strength in enrollment at all levels. We welcomed a talented first year PhD class and have continued our steady growth in both the MS and MS-HOME programs to where we are now the largest graduate program on UR's academic campus. One of the unique features of the MS-HOME program is our laboratory

offerings, designed to be as flexible as possible for students studying from a distance while still making sure every HOME student has the opportunity to spend at least a little time here at the Institute, receiving among the best hands-on training in optics available to any MS student worldwide.

In the face of local and national declines in undergraduate enrollment, the Institute has remained steady, with a very high percentage of our undergraduates studying advanced design, participating in research, and experiencing internships. One of the unique features of applied optics and photonics courses at the institute is the opportunity for advanced undergraduates to study side by side with MS and upper level PhD students. Both the level of the material and the opportunity to be part of such a unique team of students is a lasting investment that our students carry forward into their careers.

We continue to be proud of the record of leadership for our faculty and alumni. Jim Kafka (MKS Instruments and Institute Alum) and Turan Erdogan (Plymouth Grating Labs, Institute Alum and former faculty member) are both in the presidential chain of Optica. Peter deGroote is current president of SPIE, and Julie Bentley will begin her presidential term in January of 2026.

In research and major programs, we continue to have a lot of excitement in the face of global and Federal uncertainty. Whether it is our emerging AR/VR initiative led by Barry Silverstein (formerly of Meta, now with the Institute of Optics), our expanding quantum optics and quantum science initiatives, or the STELLAR regional innovation engine, good things continue to happen at the Institute of Optics. STELLAR, in particular, has been named one of fifteen finalists in the national competition, and we are scheduled for a site visit in mid November. Featuring workforce development, entrepreneurship, and use-inspired R&D, we hope to transform the regional and national landscape for lasers and their applications.

Meanwhile individual faculty research has led to recent publications reporting advances in photonics, imaging, optomechanics, structured light, and vision. Our headline talk at this symposium will describe some exciting news out of Prof. Will Renninger's labs that addresses some of the most critical problems in energy consumption for the computational needs of the AI industry.

As always, I am thankful to each of our Industrial Associates members. Your support provides much-needed funding for supplemental teaching through adjunct faculty and upper-level graduate student support, outreach events to reach the next generation of students, travel scholarships to conferences, funding for student events, and funding for extra staff time to support it all. You are part of a fantastic community. Thank you!!!

Welcome

Welcome from The Institute of Optics



Thomas G. Brown
Professor and Director

Biography

Thomas G. Brown is director of The Institute of Optics and is a Mercer Brugler Distinguished Teaching Professor at the University of Rochester. He also holds a secondary appointment as a senior scientist at the Laboratory for Laser Energetics. He has been on the faculty of The Institute since July of 1987, has held the rank of full professor since 2008, and is a Fellow of Optica and SPIE. He serves on the boards of the Luminate business accelerator, the New York Photonics Cluster, and the New York State photonics board, serves as chair of the annual multidimensional microscopy conference (Photonics West) and is the outgoing Editor-in-Chief of the Journal of Modern Optics. He was the founding director of the Robert E. Hopkins Center for Optical Design and Engineering, the architect of the optical engineering curriculum at the Institute of Optics, served as a program co-chair for the centennial program of Optica, and is former president and honorary member of the Rochester Local Chapter of Optica. He was foundational in establishing the plans for the Test, Assembly, and Packaging program within AIM Photonics and serves on the leadership council of AIM Photonics. He led the effort to establish the NSF-funded STELLAR regional innovation engine centered on advancing laser technology in the Rochester, NY region and serves as PI and interim CEO.

Welcome from the Carlson Center for Imaging Science



Jan van Ardt
Professor and Director

Biography

Dr. Jan van Aardt obtained a BSc Forestry degree (biometry and silviculture specialization) from the University of Stellenbosch, South Africa. This was followed by a Hons. Forestry degree with a remote sensing and Geographical Information Systems (GIS) specialization, also from the University of Stellenbosch. Jan then completed MS and PhD Forestry degrees at Virginia Polytechnic Institute and State University, Blacksburg, Virginia - these degrees respectively focused on imaging spectroscopy (hyperspectral) and light detection and ranging (lidar) applications in forestry. Hyperspectral, lidar, and multi-temporal sensing form the core of his efforts, with various ecosystem and forestry projects, e.g., land quality and global change (multi-temporal), forest and savanna structural assessment using discrete and waveform lidar systems, and estimation of foliar chemistry and vegetation state (hyperspectral). He is a professor in the Chester F. Carlson Center for Imaging Science at the Rochester Institute of Technology, following stints at the Katholieke Universiteit Leuven as post-doc and the Council for Scientific and Industrial Research, South Africa, as research group leader.

STELLAR Regional Innovation Engine Update



Leah George VanScott
Executive Vice President, Business Development & Strategy

Greater Rochester Enterprise

Biography

Leah manages relationships with corporate executives, site selectors to attract private capital investment and new jobs to the 9-county Greater Rochester, NY Region. GRE is described as the concierge to the region, providing critical information and connectivity to key business partners to support growth. Leah was directly involved in the attraction and expansion of Coca-Cola Fairlife, EvolvOptic, QED Technologies, Vuzix Corp., Corning, and many other companies. Leah serves on the Board of Directors of the New York Wine & Grape Foundation, St. John Fisher's School of Business Dean's Advisory Council and is a Co-PI on the region's

NSF STELLAR Engine bid. Leah is a recipient of the Rochester Business Journal's Women of Excellence, and 40 Under 40 awards, and St. John Fisher's 'Victor E. Salerno Award for American Enterprise' and Excellence in Management. Prior to joining GRE, Leah spent more than a decade as a broadcast journalist. She graduated from SUNY Geneseo with a B.A. in communications, public relations and business and earned an M.B.A. from St. John Fisher College.



Alexis Vogt, PhD
Endowed Chair & Professor of Optics

Monroe Community College

Biography

Alexis Vogt, PhD is the Endowed Chair and Professor of the Optical Systems Technology program at Monroe Community College (MCC). A visionary leader in optics education and workforce development, Dr. Vogt has secured more than \$13 million in funding to expand and modernize the program. Under her direction, enrollment and completion rates have grown exponentially, establishing MCC as a national model for optics technician training. In addition to her role at MCC, Dr. Vogt serves as Executive Director of Workforce and Higher Education at AmeriCOM, where she is scaling her successful workforce initiatives to partner institutions across the

United States. Before entering academia, Dr. Vogt held key industry positions at Melles Griot and Bausch + Lomb. She earned both her B.S. and Ph.D. in Optics from the Institute of Optics at the University of Rochester. Her contributions have earned international recognition, including the 2023 SPIE María J. Yzuel Educator Award, the 2021 RRPC Leadership Award, and the 2020 IEEE Technical Skills Educator Award.

PhD Showcase



Rushnan Islam
The Institute of Optics

Title

Femtosecond Micromachining in Ophthalmic Hydrogels: Study on the Effect of Water



Christer Everly
The Institute of Optics

Title

On-Chip Optomechanical Resonators from Room Temperature



Anis Idrizovic
The Institute of Optics

Title

Wide – Range High – Precision Eye Tracking Based on Purkinje Reflections

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Zach Manning
The Institute of Optics

Title

Line – Focus LIRIC Enabling Fast Writing via High Pulse Energies



Sagar Lekhak
Carlson Center for Visual Science

Title

No More Deadly Butterflies: A Smart Multi – Sensor Drone and AI Against PFM
– 1 Landmines

Faculty Showcase



Daniel Nikolov
The Institute of Optics

Title

Metaform Optics; Controlling Light Matter Interaction from the Nano to the Centimeter Scale

Biography

Daniel Nikolov is a research faculty at the University of Rochester's Institute of Optics. His research is focused on enabling new optical technologies for imaging systems. As part of his Ph.D. from the Institute of Optics, Daniel led the development of metaform optics, which integrates metasurfaces and freeform optics in a single optical component to achieve enhanced wavefront control. Currently, he is researching design, fabrication, and testing tools and process chains for integrating metasurfaces and freeform optics in optical systems, focusing on applications in augmented and virtual reality displays.



Wayne Knox
The Institute of Optics

Title

Intraoperative Differential Multispectral Polarimetric Imaging to Distinguish Nerves and Tendons in Real Time Surgery

Biography

Institute of Optics in 1984. He went to Bell Laboratories as a postdoctoral member of technical staff in 1984, and was promoted to member of technical staff in 1985. In 1993, he was promoted to distinguished member of technical staff, and in 1997 to director of the Advanced Photonics Research Department. In 2001, he returned to the Institute of Optics in the position of director and professor of optics. He has chaired many international scientific meetings such as the Ultrafast Phenomena Meeting, CLEO, Optica Annual Meeting, Ultrafast Electronics and Optoelectronics, and the Quantum Optoelectronics Topical Meeting, among many others. Professor Knox is a fellow of Optica and fellow and

Life Member of the American Physical Society.

Keynote Talk



William Renninger
The Institute of Optics

Title

Optical Processors to Address the Insatiable Demand of AI

Biography

Will Renninger is an Associate Professor of Optics and Physics at the University of Rochester. He did his postdoctoral work in Applied Physics at Yale University after receiving his PhD degree in Applied Physics from Cornell University. His group is currently developing optical computing platforms designed for high speed and efficiency. Other active research areas include ultrashort pulse generation, bioimaging, rf-photonics, sensing, light-matter interactions, and quantum transduction. Professor Renninger was the recipient of the 2020 CAREER award from the NSF, the 2023 Adolph Lomb Medal from Optica, the 2023 Young Faculty Award from DARPA, and the 2025 Presidential

Early Career Award for Scientists and Engineers (PECASE) from the US Government.

Honoring Tina Kidger and Emery Moore



Tina Kidger and Emery Moore (1939-2025) have both been associated with optics for more than 40 years. Their connection to Rochester dates back more than a century. Dr. Edward Mott Moore was the son of Emery Moore's great, great uncle, Lindley M. Moore. For many years in the mid to late 19th century, Dr. Mott Moore was president of the University of Rochester's Board of Trustees as well as president of the Rochester Parks Commission from its founding in 1888 until his death in 1902. Dubbed the founding father of Rochester's park system, he is memorialized with a statue in Genesee Valley Park.

Tina Kidger and her late first husband Michael J. Kidger also have a connection to the University through their long-standing professional association with Imperial College London (ICL). Early in her career, Kidger met Rudolf and Hilda Kingslake—two of the Institute of Optics' founding faculty members who came from ICL—at an SPIE conference.

Tina was pleasantly surprised when a researcher as distinguished as Hilda Kingslake took an interest in the optical design software she was exhibiting. Kidger would go on to write about the Kingslakes' lasting impact in optics through a paper: SPIE manuscript 10021-22, "The Optical Legacy of Imperial College London."

Throughout their professional lives, the couple has been deeply involved with SPIE. Emery was a former officer and president of the society while Tina has been involved for decades as a volunteer leader. She continues to help SPIE plan symposia and was honored by the organization as an SPIE fellow in 2022. Through the society, they grew to know Jim Wyant, furthering their connections to Rochester.

Tina Kidger annually awards (with administrative support from SPIE) the Michael Kidger Memorial Scholarship to a student engaged in optical design including lens design, illumination design, and computational optical design. Six of the 24 Kidger Scholars to date have come from the University of Rochester.

Emery left us too soon, passing away in September of 2025. During our symposium we will spend some time remembering Emery.

SPIE Student Chapter

SPIE is the International Society for Optics and Photonics. The University of Rochester Student Chapter was established in 2009 and has since grown to be the largest student chapter in North America, with over 70 registered student and alumni chapter members. We promote optical science and engineering while supporting the professional development of our chapter members. To accomplish this, we regularly engage in optics outreach in the Rochester community, invite speakers to visit with students on campus, and schedule tours of local optics companies.

Current Officers:

President: Robert Johnson

Vice President: Connor Hewson

Treasurer: Natalia Sanchez Soria

Secretary: Martín Sanchez

Internal Communications: Ganesh Petterson

External Communications: Rhett Wampler

Web Administrator: Matthew Belzer

If you would like to host a company tour or collaborate with us on outreach or professional development events, please contact urspie@gmail.com

OPTICA Student Chapter

The University of Rochester's Optica student chapter is a pre-professional organization and academic club. Our mission is to promote and advance the science of light amongst the student body of the University of Rochester. One of our largest goals each year is to provide students with professional development opportunities aimed at giving them the skills they need to succeed. We have been working to find creative ways to engage with and teach optics to the campus and community at large, as well as host social events to promote interaction between students. Our biggest event of the year, bringing together Institute undergraduates, graduates, and faculty, is our annual Photon Cup soccer match with the Physics department.

President: Marlena Berger

Secretary: Alexander Frost

Social Chair/Digital Media: Isaac Wing

Business Manager: Linh Khuat

Outreach Chair: Isabelle Settle

Senior Advisor: Trevor Shooshan

Professional Development Chair: Vedant Agrawal

Please contact the chapter at RochesterStudentOSA@gmail.com if you are interested in getting involved in our chapter programming through outreach, event sponsorships, company tours, talks and/or presentations.

Posters

Matthew Belzer, The Institute of Optics PhD (University of Rochester): Designing Nonreciprocal Waveguide QED Systems via Gradient-Descent Methods

Manisha Das Chaity, Imaging Science PhD (Rochester Institute of Technology): Simulating Remote Sensing Spectral Features of Fire-Prone Ecosystems: A Physics-Based Virtual Scene of the Greater Cape Floristic Region

Yiwen Fan, The Institute of Optics PhD (University of Rochester): Two-Level Optimizer for Large-Scale Metasurfaces with Strong Near-Field Coupling

Sherry Yi-Ting Feng, The Institute of Optics PhD (University of Rochester): Research Process in Single-Molecule Localization Microscopy: From Calibration Challenges to Practical Solutions

Matthew Ferguson, The Institute of Optics PhD (University of Rochester): Surface Form Measurements of Mirrors for a Reflective Freeform Microscope

Benjamin Hancock, The Institute of Optics PhD (University of Rochester): CdSe Nanoplatelets, Heterostructures, and Properties of Strongly Coupled Systems

Chi Z. Huang, Vincent D. Ching-Roa, & Connor M. Heckman, Biomedical Engineering PhDs (University of Rochester): High-throughput Hyperspectral Fluorescence Imaging Using a High-speed Silicon Photomultiplier Array

Robert Holcomb, The Institute of Optics PhD (University of Rochester): Dynamics of Supercontinuum Generation in Coupled Nonlinear Optical Systems

Diane Knauf, Imaging Science PhD (Rochester Institute of Technology): Silver Mirroring on Historic Photographs: Documentation and Quantification Utilizing Polarized Imaging

Sagar Lekhak, Imaging Science PhD (Rochester Institute of Technology): No More Deadly Butterflies: A Smart Multi-sensor Drone System for PFM-1 Landmine Detection

Sophia Leonard, Justin Hogancamp, & Alexander Johnson, Imaging Science Undergraduates (Rochester Institute of Technology): Comparison Between Methods of Cloud Segmentation: Color Banding vs Machine

Jose Nazareno Gabriel Macalintal, Imaging Science PhD (Rochester Institute of Technology): Exploring Hypersharpener Algorithms on Cultural Heritage Datasets

Rohaam Nadeem, Imaging Science PhD (Rochester Institute of Technology): Trustworthy Navigation

Tiyasa Sarkar, Imaging Science PhD (Rochester Institute of Technology): Information Measure of Radiance Fields for Neural Representation

I.A. Settle, R. Boni, J.L. Shaw, The Institute of Optics: Metrology of Ultrafast Flying Focus Optics

Gian-Mateo Tifone, Imaging Science Senior (Rochester Institute of Technology): Time To Move On: Analyzing Algorithm Performance on Cultural Heritage Imagery

Yuchen Wu, The Institute of Optics PhD (University of Rochester): Design and Tolerance of Polychromatic Multi-Material Freeform Gradient-index Phase Corrector Plates

Chi Z. Huang, Vincent D. Ching-Roa, & Connor M. Heckman, The Institute of Optics PhD (University of Rochester):
Flash LiDAR System with Metasurface and Freeform Optics

Tianyu Zhao, The Institute of Optics PhD (University of Rochester): Terahertz Generation by a Bright Squeezed Vacuum

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SAVE THE DATE

The spring symposium will be held on April 9, 2026