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INSTITUTE FOR OPTICAL SCIENCE

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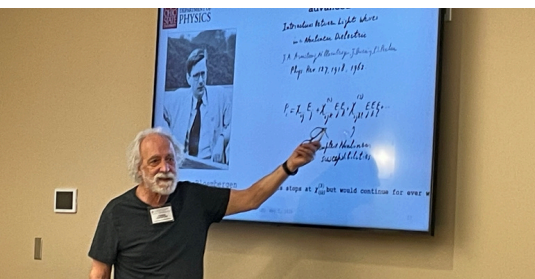
[News](#)

[About Us](#)

[Contact](#)

# IOS Biannual Newsletter

January '26



## In This Issue from the Institute for Optical Science

- A Note from our Director
- Ohio Optical Frontiers Showcase
- Focus on Education & Collaboration
- IOS Member Research Series
- Radiant Recaps
- Collaborations & Partnerships
- Welcoming Our New Members



[opticalscience.osu.edu](http://opticalscience.osu.edu)

 in



## A Note from our Director

I hope everyone enjoyed a relaxing holiday season and celebrated the start of the new year. I'd like to share the latest updates from the Institute for Optical Science. Since our newsletter last winter, IOS has continued to grow through new programs, collaborations, and community-building events.

A major highlight was the first-ever Ohio Optical Frontiers Showcase, which brought together researchers from across the state for lab tours, research talks, and a networking dinner. This new annual event highlighted IOS's role in connecting Ohio's diverse optics community.

Education also remained central to our mission. IOS coordinated the Frontiers in Chemical Physics Series and supported the International Attosecond School in Erice, Italy, ensuring that students and postdocs could learn directly from world leaders in optical and ultrafast science.

Our IOS Member Research Series has provided a platform for faculty and researchers to present their work, sparking conversations across disciplines. Building on that success, we are evolving the series into a mini symposium, where multiple speakers will present on a shared theme. While still in development, this new approach will expand participation beyond IOS members while continuing to foster meaningful opportunities for collaboration.

This fall, IOS partnered with the Gene Therapy Institute to cohost a seminar in their Speaker Series, featuring Profs. Lufang Zhou and X. Margaret Liu on their work with light-induced gene therapy for cancer treatment. The joint event, "*A Mitochondrial-Targeted Gene Therapy (mLumiOpto) for Cancer Treatment*," opened new avenues of connection between optical science and gene therapy.





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INSTITUTE FOR OPTICAL SCIENCE

**[Home](#)**

**[News](#)**

**[About Us](#)**

**[Contact](#)**

---

## **A Note from our Director cont.**

It was also a season of recognition. IOS joined a national NSF pilot grant in quantum science, the X-lites Network launched new international working groups, and Ohio State presented the inaugural Pierre Agostini Prize. Closer to home, the Optica Student Chapter hosted a strong slate of events and announced a new leadership team for the school year.

Finally, I am delighted to welcome our newest IOS members. Their diverse expertise from physics and engineering to the life sciences adds depth to our community and creates new opportunities for collaboration. I encourage all members, both new and longstanding, to take part in IOS programs and to consider sharing their work in the evolving IOS symposium series.

As always, I am grateful for your continued contributions to the Institute and look forward to the next season of discovery and collaboration.

Lou DiMauro  
IOS Director





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INSTITUTE FOR OPTICAL SCIENCE

[Home](#)

[News](#)

[About Us](#)

[Contact](#)

## Ohio Optical Frontiers Showcase

*Fostering statewide connections in optical science*



• *Lab tours* • *Research talks* • *Networking dinner* •

On May 2<sup>nd</sup>, IOS hosted its first-ever Ohio Optical Frontiers Showcase at the ElectroScience Laboratory — an evening that brought together researchers from across Ohio's optics community. Guests enjoyed guided lab tours, engaging research talks (including 2023 Nobel Laureate Pierre Agostini), and a networking dinner that sparked new collaborations.



The Showcase brought together faculty, students, and industry representatives from multiple Ohio institutions, creating new opportunities for collaboration in optical science.

[Read more about the Showcase](#)





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[Home](#)

[News](#)

[About Us](#)

[Contact](#)

---

## Focus on Education & Collaboration



### Frontiers in Chemical Physics Series

This biennial course brought the cutting edge of spectroscopy to Ohio State over the span of the spring semester. IOS coordinated the program, hosting five international leaders who each delivered a 3-day series of lectures. Students and faculty gained direct insight into both fundamental principles and the latest advances shaping the field.



### International Attosecond School - Erice, Italy

The International School on the Frontiers of Attosecond and Ultrafast X-ray Science was held this April in Erice, Italy. This biennial program brings together experts and emerging scholars to explore advances in attosecond physics and ultrafast x-ray science. The 2025 edition was co-directed by IOS Director Louis DiMauro and Mauro Nisoli (Politecnico di Milano), with speakers including leading researchers from Europe and the U.S., as well as Nobel Laureates Pierre Agostini and Anne L'Huillier. IOS provided financial support for student and postdoctoral participation, enabling several attendees from U.S. institutions to take part.

[Learn more](#)



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[Home](#)

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[About Us](#)

[Contact](#)

## IOS Member Research Series

Through the IOS Member Research Series, our community shares cutting-edge research and sparks new connections, with seminars spanning topics from optoelectronics to super-resolution microscopy.



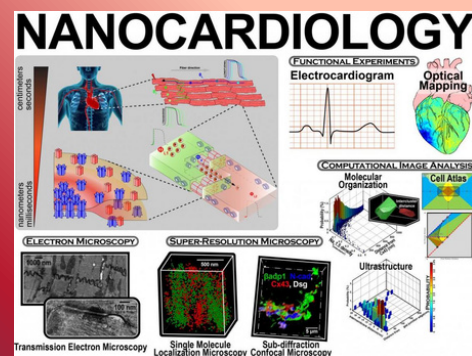
### Multi-Utility Interfaces for Sensing and Actuation in Biological Systems Enabled by Optoelectronic Effects

Jinghua Li, Asst. Professor MSE



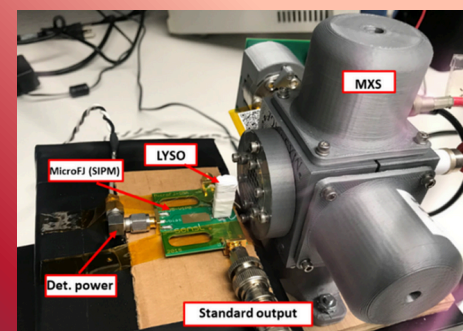
### Non-parametric spatial analysis approaches in continuous and discrete space to maximize the investigative power of super-resolution microscopy

Rengasayee Veeraraghavan, Assoc. Professor BME



### Novel optical systems for sensing and communications applications

Chris Ball, Research Scientist  
Electrosience Laboratory (OSU)







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[Home](#)

[News](#)

[About Us](#)

[Contact](#)

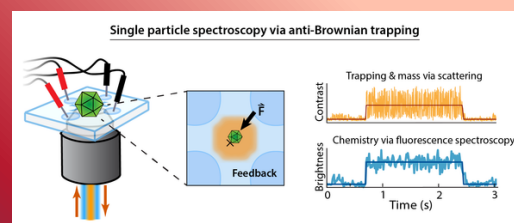
## IOS Member Research Series

Through the IOS Member Research Series, our community shares cutting-edge research and sparks new connections, with seminars spanning topics from optoelectronics to super-resolution microscopy.



### Combined scattering and fluorescence characterization of biomolecular nanoparticles in an anti-Brownian trap

William (Memo) Carpenter, Asst. Professor, Dept. of Chem & Biochem



### Dual-Species Neutral Atom Quantum Processors

Kevin Singh, Asst. Professor  
Dept. of Physics



### Continuous-Wave Electrically Pumped MBE-Grown AlGa<sub>N</sub> UV-A Lasers with Buried Tunnel Junctions

Shamsul Arafin, Assoc. Professor  
Electrical & Computer Engineering







## Radiant Recaps

### Quantum leap: IOS Awarded NSF Funding

IOS researchers have joined a \$1M NSF National Quantum Virtual Laboratory pilot grant, collaborating to develop next-generation quantum devices while training future scientists and positioning Ohio State for leadership in a future \$50M quantum center.

[Read more](#)



### X-lites Launches Working Groups & Welcomes NEXT



The X-lites Network has launched three new working groups—Early Career Development, Facilities and Users, and Science and Technology—while also welcoming NEXT, a European initiative advancing non-linear EUV/X-ray spectroscopies.

[Read more](#)

### Honoring Excellence: First Agostini Prize Recipient

Ohio State awarded the inaugural Pierre Agostini Prize in 2025 to Distinguished University Professor Liang-Shih Fan, honoring his pioneering research in sustainable energy, fuels, and chemical engineering.

[Read more](#)





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INSTITUTE FOR OPTICAL SCIENCE

[Home](#)

[News](#)

[About Us](#)

[Contact](#)

## Radiant Recaps

### IOS's Jessi Foley Presents at AccelNet Roundtable



IOS Admin Jessi Foley, also Director of Communications for X-lites, presented at the NSF AccelNet Roundtable, sharing insights on building research networks through communication and engagement.

[Read more](#)

### Welcoming New Members to the IOS Executive Committee

IOS is pleased to welcome Mike Chini, Jinghua Li, and Rengasayee (Sai) Veeraraghavan to the Executive Committee, where they join current members in helping guide the institute's strategy, grants, and future growth.

[Read more](#)



### Szeged Success: X-lites Workshop Empowers Early Career Researchers

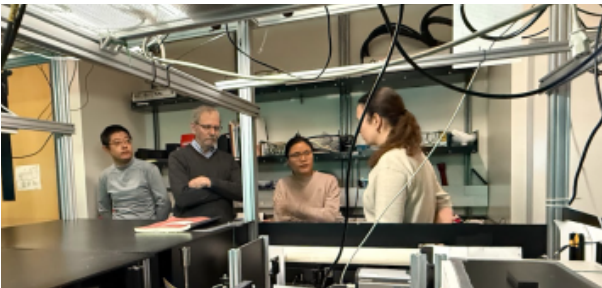


The X-lites Network hosted an Early Career Development Workshop in Szeged, Hungary, bringing together 17 researchers from 14 institutions to build collaboration skills, strengthen leadership, and connect with the international ELI user community.

[Read more](#)



## The Optica Student Chapter



The Ohio State Optica Student Chapter has had an active 2025 so far. Here are a few highlights and a look at the new leadership team.

### Talks

- Dr. Kevin Singh – Dual-Species Neutral Atom Quantum Processors (Jan 29, 2025)
- Dr. William Carpenter – Anti-Brownian Electrokinetic Trapping of Single Molecules and Nanoparticles (Mar 20, 2025)
- Prof. Louis DiMauro – Is There a Strong Field Limit in the X-Ray Regime? (Mar 27, 2025)

### Workshops & Outreach

- Physics of Light Workshop (Apr 2025) – Hands-on demos for local middle school students, engaging the next generation in optics.

### Distinguished Speaker

- OPTICA Traveling Lecturer: Dr. Philip Bucksbaum (May 28, 2025) – Laser Control of Sub-Femtosecond Motion in Atoms and Molecules.

 [Read the full list of Optica Student Chapter highlights](#)

### 2025–2026 Leadership Team

- Santana Garcia – President
- Connor Davis – Secretary
- Ted Busch – Event Coordinator
- Reagan Massey – Treasurer
- Subhajit Das - Social Media Manager





## Collaborations & Partnerships

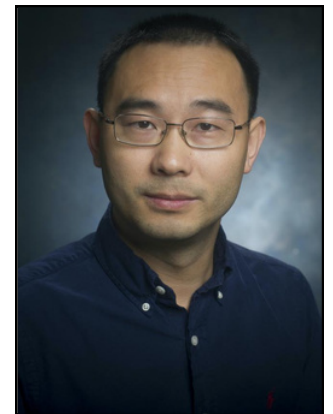
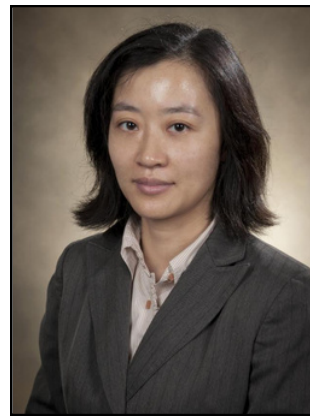


### Dept. of Materials Science and Engineering

IOS met with the Department of Materials Science and Engineering to share how the institute supports research and collaboration across campus. Our discussion highlighted IOS resources—such as seminar programming, visiting scholar travel funds, and workshop support—and explored ways we can partner to advance interdisciplinary work at the intersection of optics and materials science.

### Gene Therapy Institute

IOS partnered with the [Gene Therapy Institute](#) this fall to cohost a seminar in their Speaker Series, featuring Profs. Lufang Zhou and X. Margaret Liu on their work with light-induced gene therapy for cancer treatment. The joint event, “*A Mitochondrial-Targeted Gene Therapy (mLumiOpto) for Cancer Treatment*,” highlighted new interdisciplinary connections between optical science and gene therapy.



### Workshops

- **Geometry-Driven Quantum Phenomena: Principles, Devices, and Applications** (Oct 15–17, 2025) – This workshop received support through an IOS Development Grant, along with administrative assistance to help bring the program to life.
- **Single Molecule Workshop** (Oct 30–31, 2025) – IOS supported the launch of this new workshop, designed to build a single-molecule research community at Ohio State. The two-day program featured flash talks, breakout sessions, and networking, successfully bringing together researchers from across disciplines to foster collaboration and resource sharing.



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[Home](#)

[News](#)

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## Spotlight on New Members



**Seth Shields**

Research Scientist  
NeXUS



**Conner Dykstra**

Research Scientist  
NeXUS



**Michael Bevis**

Professor  
Earth Sciences



**Kiryung Lee**

Assist. Professor  
Electrical & Computer  
Engineering



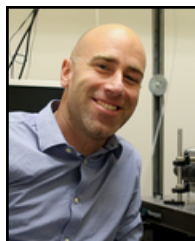
**Betty Lise Anderson**

Professor  
Electrical & Computer  
Engineering



**Christopher Orban**

Assoc. Professor  
Physics



**Michael Poirier**

Professor  
Physics



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[Home](#)

[News](#)

[About Us](#)

[Contact](#)

## Light Up our Inbox!

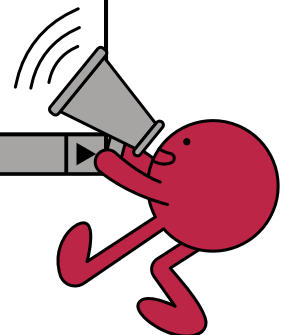
### Amplify your voice:

Please send us **speaker and/or topic suggestions** for future seminars. The speakers may be local or non-local. You may even nominate yourself! Additionally, we welcome any **input and ideas for future events**.

You may reply to Jessi Middleton or Matt Boersma directly, or you may send an email to our Director, Lou DiMauro.

([dimauro.6@osu.edu](mailto:dimauro.6@osu.edu)). Please copy [middleton.85@osu.edu](mailto:middleton.85@osu.edu) & [boersma.11@osu.edu](mailto:boersma.11@osu.edu) if you choose to email the Director.

We look forward to receiving your suggestions!



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The Institute for Optical Science aims to create a community of researchers in the optical sciences extending beyond traditional academic boundaries identifying strengths in interdisciplinary photon science research.

