

# DAVID HAGAN

Pegasus Professor, Dean and Director, CREOL, The College of Optics and Photonics  
University of Central Florida, USA

## Education

- Ph.D., Physics, Heriot-Watt University, Edinburgh, Scotland.

## Technical Activities/Interests

Nonlinear Optics of Semiconductors, Organics, Nanomaterials, Semimetals. Development of new methods for characterization of nonlinear optical properties. Precision measurement of refractive indices of liquids.

## Services to the Technical Community

- Principal Editor, Journal of Materials Research (2001-2006)
- Founding Editor-in-Chief, Optical Materials Express (2010-2015)
- Advisory Board, Rose-Hulman Institute of Technology, (2012-Current).
- Program Chair/ General Chair, OSA, Frontiers in Optics Conference, (2013/2015)
- SPIE Traveling Lecturer (2015-2019)
- Executive Editor-in-Chief, Chinese optics letters (2016-2019)
- Program Chair/ General Chair, OSA Meeting on Nonlinear Optics, (2017/2019)
- Member of Board of Directors, OSA (2019-2020)
- Board of Directors, Florida Photonics Cluster (2021-current)

## Service to SPIE

- Program Committee, Conf. on Nonlinear Optical Liquids & Limiting, SPIE, San Diego, (1996-2002)
- Advisor, CREOL SPIE Student Chapter, (2010-2014)
- Member Joint SPIE-IEEE committee on ABET Accreditation for Optics (2010-2011)
- Member, SPIE Education and Outreach Committee, (2016-2019)
- Member, SPIE Accreditation subcommittee, (2016-2020)
- ABET Program Evaluator (2016-Current)

## Professional Honors

- Fellow of OSA (2007)
- Fellow of SPIE (2016)
- ISI "Highly Cited researcher" (2001)
- R&D 100 Award (2001)

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## 2022 Election Statement

I have worked as a researcher and educator in the field of Optics and Photonics for over 35 years, and I have been an SPIE Member and regular attendee at SPIE conferences throughout. In 2016, I was proud to be elected as an SPIE Fellow. In addition to my service for SPIE as a conference organizer, member of the Education and Outreach Committee and as an ABET program evaluator, I have also had experience working with our sister professional society, OSA (now Optica). I served as the Founding Editor-in-Chief of *Optical Materials Express* and later as Publications Council chair and on the OSA board of directors.

Although most of my career has been devoted to research on nonlinear optical properties of materials, I also devoted time to developing the optics education programs in CREOL at the University of Central Florida, serving as the associate dean for Academic Programs for many years, before becoming dean. I take pride in the programs we have built there as a team, and in particular I am happy that we have created a thriving program in Photonic Science and Engineering, in which 30% of our students are female and more than half are members of underrepresented minority groups. SPIE plays a strong role in undergraduate optics programs in the US through its coordination of Optics and Photonics Engineering Accreditation through ABET, and also plays a strong international role through its Education and Outreach committee and support of the Education and Training in Optics and Photonics (ETOP) conference, which I will help to host in Florida next year.

As dean of our college, I have worked to maintain strong interactions with industry. CREOL has been a major driver of the photonics ecosystem in Central Florida, mostly through educating a workforce, but also through the innovative research and intellectual property generated by our faculty and students. As the need for highly skilled workers in the photonics industry grows, it is important for a university to adapt and grow to ensure that the needs of industry are met. I am convinced that Optics and Photonics is a discipline in its own right, and in the next few years, I hope to see this recognized through the development of more degree programs in both photonics engineering and photonics technology. The global photonics industry will continue to need qualified engineers and technicians for many years.

SPIE has a role to play in encouraging young minds from all backgrounds to pursue careers in our field, and to help overcome cultural and gender barriers that limit our ability to recruit the finest minds into science and engineering in general, and specifically into Optics and Photonics. We can and should do better to reach out to the broader community to spread the word about our wonderful field. It may be hard to imagine when walking the exhibit halls of Photonics West, but almost no one in the general public knows that photonics is a thing! It is not as though we don't know this, yet we never seem to arrive at long-term solutions. Concerted effort is needed. Solutions should transcend national boundaries and should involve the combined, sustained efforts of all the professional societies and industry consortia devoted to Optics and Photonics. If we work together, large fractions of schoolchildren around the globe should be able to cite "Optical Engineer" as an exciting career choice, right alongside "Mechanical Engineer" or "Civil Engineer." SPIE is well-positioned to achieve this.

If elected as an SPIE Director, I would champion an ambitious effort in which SPIE teams with sister professional societies to develop coordinated, global, and sustained outreach programs to increase awareness of the field of photonics and associated career paths, amongst schoolchildren, teachers and parents. At the same time, I will be a voice for continuing to serve all constituencies and geographical regions equitably, promoting international collaboration and mobility while remaining focused on its core vision and mission. Finally, as a board member I will strive to ensure that SPIE remains an organization that encourages diversity in its leadership and membership, and fosters an environment that is welcoming to all.