

## In the news



Credit: Getty Images/Robert Downie/EyeEm

Attracting more than 1,300 attendees, the Optical Society's (OSA's) Frontiers in Optics conference held in Washington DC, USA, in September brought together students and Nobel Laureates alike to discuss the wide-ranging fields of optics and photonics. Focused on four themes — autonomous systems, nanophotonics and plasmonics, virtual reality and quantum technologies — the meeting reflects the breadth of research topics in which optical phenomena play a significant role.

Optimism was evident regarding the applications of optical technologies — the hard-won fruition of decades of research — with many talks focusing on the fabrication and refinement of optical devices. In a highly attended talk, Jelena Vukovic (Stanford University, USA) asked how to bring to photonics the miniaturization and integration that heralded the revolution in electronic devices. To do so, she argues, requires departing from traditional architectures, presently lossy and inefficient, towards non-intuitive devices born from inverse design principles.

Recently identified photonic and quantum systems may soon add to the optical toolbox. An alternative to pure silicon, silicon carbide, was praised for holding potential as the 'ideal photonic material' if only thin-film fabrication could be commercialized. Furthermore, the reliance of existing quantum algorithms on nearly ideal quantum elements may be overcome by developing quantum dot single-photon sources, superconducting nanowire detectors and quantum memories based on colour centres. Such emergent quantum technologies received perhaps the most enthusiastic reception, framed by a plenary talk from Ronald Hanson (TU Delft, Netherlands) anticipating the dawn of the quantum internet.

Beyond assisting technological revolution, OSA demonstrated a commitment to promoting diversity and supporting early-career researchers. Forty per cent of OSA's 23,000 members are junior scientists and, as put by Ursula Gibson, OSA President 2019, "that's a big deal!" Recognition given to OSA members for their work advocating for diversity and inclusion was presented on equal footing with prestigious scientific awards. By interspersing technical sessions with ally and bystander training workshops, a 'Women of Optics Wikipedia Edit-a-thon' and a thought-provoking meeting organized by Jie Qiao of the Rochester Institute of Technology and founder of WiSTEE (Women in Science, Technology, Engineering, and Entrepreneurship) Connect, designed at identifying challenges, recognizing recent progress and networking, Frontiers in Optics declared that inclusion and diversity drives dynamic science.

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