

Optics in 2023



This special issue of *Optics & Photonics News* highlights exciting peer-reviewed optics research that has emerged over the past year.

Our panel of editors reviewed 115 summaries of work by researchers from around the world. They selected for publication 30 stories that they felt communicated breakthroughs of particular interest to the broad optics community. OPN thanks all who submitted summaries, as well as our panel of guest editors.

PANEL CHAIR

John Zavada, *Catholic University of America, USA*

GUEST EDITORS

Kate Bechtel, *Rockley Photonics, USA*

Felipe Beltrán-Mejía, *PadTec, Brazil*

Rocío Borrego-Varillas, *Consiglio Nazionale delle Ricerche-IFN, Italy*

Alvaro Casas Bedoya, *University of Sydney, Australia*

Mihaela Dinu, *LGS Labs - CACI, USA*

Giovanni Milione, *NEC Laboratories America, USA*

Anca Sala, *Kettering University, USA*

Joel Villatoro, *University of the Basque Country, Spain*

An artistic illustration of a quantum electro-optical device. The scene is dominated by deep blue and purple hues, with a bright, glowing white and yellow spiral structure resembling a galaxy or a complex optical path in the upper center. A bright red laser beam enters from the bottom left, intersecting with other light paths. The overall composition is abstract and futuristic, suggesting advanced photonic technology.

SUMMARIES

- 28** High-power quasi-PT-symmetric edge-emitting lasers
- 29** Si- and SiN-integrated hybrid electro-optic modulators
- 30** Multilevel nonvolatile programmable units in silicon
- 31** On-chip, laser-integrated quantum light source
- 32** Quantum computing reaches a new dimension
- 33** Quantum electro-optics
- 34** World's thinnest photon-pair source
- 35** 3D printing of colloidal nanocrystals using light
- 36** Coatings for gravitational-wave detectors
- 37** Plasma microcavities
- 38** Photonic snake states
- 39** Tuning optical cavities with liquid-crystalline networks
- 40** Resonant light confinement in air
- 41** Vibrational spectroscopy for single-cell fingerprinting
- 42** Rapid, stain-free quantification of viral plaques
- 43** Photoacoustic fiberscope for gastroenterology
- 44** Optical signatures of liquids
- 45** Light folding improves sensor efficiency
- 46** Microwave photonics boosts interferometry
- 47** Sampling-free substrate for "Place & Play SERS"
- 48** Long-lived photons in forbidden states
- 49** Berry phases in optical Möbius-strip microcavities
- 50** NLOS optical communication with structured light
- 51** Distortion-free forms of structured light
- 52** Ptychography of highly periodic structures
- 53** Imaging of moving objects in complex media
- 54** Synthesis of ultrafast spatiotemporal pulses
- 55** Extraordinary incandescence in time-varying media
- 56** Fast measurement of spherical refractive error
- 57** Birefringence enables white coloration in shrimp

Artist's view of a quantum electro-optical device. (see Qiu et al., p. 33).

[Illustration by E. Krantz, Krantz NanoArt]