Call for Papers

IEEE Journal of Selected Topics in Quantum Electronics

Special issue on Emerging Topics for Nanophotonics, Metamaterials and Plasmonics

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Scope and Topics

The IEEE Journal of Selected Topics in Quantum Electronics (JSTQE) invites manuscript submissions in Emerging Topics for Nanophotonics, Metamaterials and Plasmonics. Nanophotonics offers not only the potential for the continued miniaturization of optical, photonic, and optoelectronics devices and systems, but also offers opportunities to explore novel phenomena and device architectures at or below the diffraction limit. Achieving nanphotonic and/or subwavelength or sub-diffraction limit functionality requires mechanisms to confine, generate, absorb, or in some way manipulate light to or in ultra-small volumes. Plasmonics, leveraging collective charge oscillations in metal films coupled to electromagnetic waves offers one approach to engineering light at the nanoscale. At the same time, Metamaterials and Metasurfaces, composites with engineered electromagnetic or elastic response, are opening new horizons in materials science, engineering, photonics, quantum electronics, sensing, and computing. Recent advances in meta-structures, leveraging dielectric, metallic, or even phononic components, where the ability to mold waves at both diffraction-limited and deep subwavelength domains offer new opportunities for applications in imaging, optical computing, sensing and communication.

The purpose of this issue of JSTQE is to highlight the recent progress and trends in developing leading-edge research. Areas of interest include (but are not limited to):

Advances in metamaterials design and fabrications

- Emerging trends in understanding the response of complex multiscale systems, including effective medium theories, performance limits, optimization of materials
- Artificial intelligence-based approaches to designs of metamaterials and metasurfaces nonlinear response?
- Novel approaches to fabrication and characterization of complex materials
- Novel materials for plasmonic and metamaterial design, designed for low loss, electro-optic functionality, or nonlinear response across the electromagnetic spectrum.
- Spatial and temporal beam and pulse shaping enabled by metamaterials 4D metamaterials
- Multifunctional metamaterials
- Bioinspired metamaterials

Novel applications of metamaterials, metasurfaces, and metadevices

- State of the art meta-devices with state of the art SWaP metrics
- Meta-devices for high throughput AI processing
- Trapping with metamaterials
- Biomedical applications
- Novel nonlinear optical devices and pulse shapers
- Quantum optics and quantum information with meta-devices

Submission Guidelines
Submissions will be reviewed in accordance with the normal procedures of the Journal and papers must be formatted according to the Information for Authors found at:
https://ieeephotonics.org/publications/journal-of-selected-topics-in-quantum-electronics/

- Manuscript and Graphical Abstract Submissions should be made online at https://ieee.atyponrex.com/journal/jstqe-pho**.** Graphical abstracts are strongly suggested.
- Select the paper type "**Special Issue on Emerging Topics for Nanophotonics, Metamaterials and Plasmonics**."

Important Dates
Open for Submissions: February 1, 2025
Submission Deadline: August 1, 2025
Tentative Publication: May/June 2026
EARLY ACCESS: *DOI-citable articles will be published online after acceptance upon submission of final files and rights selection – sometimes well in advance of issue publication*.

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