Call for Papers

Announcing an Issue of the IEEE JOURNAL OF SELECTED TOPICS IN QUANTUM ELECTRONICS on Power and Efficiency Scaling in Semiconductor Lasers

Submission Deadline: June 1, 2024
Hard Copy Publication: March/April 2025

The IEEE Journal of Selected Topics in Quantum Electronics (JSTQE) invites manuscript submissions in Power and Efficiency Scaling in Semiconductor Lasers.

After initial proof-of-concept demonstrations, power- and efficiency-scaling are a central goal of semiconductor laser development, for broad societal benefits, reducing energy consumption and enabling new applications, and rapid progress is currently seen in a broad range of semiconductor lasers, enabled by new insights from studies in device physics and material science and by innovation in device design, materials and technology. The IEEE Journal of Selected Topics in Quantum Electronics therefore invites manuscript submissions in the area of Power and Efficiency Scaling in Semiconductor Lasers. The purpose of this issue of JSTQE is to summarize current trends, analyze critical limits and present anticipated next steps in research. Areas of interest include all forms of semiconductor lasers across the span of achievable wavelengths, with examples listed below:

- **High power lasers**
- Nano-scale, sub-wavelength plasmonic lasers, polariton lasers
- **Topological lasers**
- Surface emitting lasers (vertical cavity: VCSEL and photonic crystal: PCSEL)
- Quantum Cascade lasers (inter-subband and inter-band)
- Lasers with novel gain materials (e.g., deep UV emitting, MIR, transition-metal dichalcogenides)
- Heterogenous and other integrated (e.g., Si-based) lasers
- **Tunable and/or single-mode lasers**
- Ultra-Low-Noise, -narrow-linewidth, dynamically modulated lasers for pulse-generation, modulation, locking
- Lasers with innovative resonators (e.g. VCSELS, MIXELs)

The Primary Guest Editor for this issue is Dr. Paul Crump, Ferdinand-Braun-Institut, Berlin. The Guest Editors are: Prof. Luke Mawst, University of Wisconsin-Madison, USA; Dr. Stewart McDougall, Trumpf GmbH, Germany; Prof. Susumu Noda, Kyoto University, Japan; Prof. Stefan Reitzenstein, Technische Universität Berlin, Germany; Prof. Stephen Sweeney, University of Glasgow, UK; Prof. Eric Tournie, University of Montpellier, France; Prof. Yating Wan, King Abdullah University of Science and Technology, Saudia Arabia.

JSTQE will begin accepting submissions for this special issue on December 1, 2023. The deadline for submission of manuscripts is June 1, 2024. Hardcopy publication of the issue is scheduled for March/April 2025.

Unedited preprints of accepted manuscripts are normally posted online on IEEE Xplore within 1 week of the final files being uploaded by the author(s). Poste preprints have digital object identifiers (DOIs) assigned to them and are fully citable. Once available, the preprints are replaced by final copy-edited and XML-tagged versions of manuscripts on IEEE Xplore. This usually occurs well before the hardcopy publication date. These final versions have article numbers assigned to them to accelerate the online publication; the same article numbers are used for the print versions of JSTQE.

For inquiries, please contact:
IEEE Photonics Society JSTQE Editorial Office – Alexandra Johnson (Email: johnson.a@ieee.org)


1) PDF or MS Word manuscript (double column format, up to 12 pages for an invited paper, up to 8 pages for a contributed paper). Manuscripts over the standard page limit will have an overlength charge of $220.00 per page imposed. Biographies of all authors are mandatory, photographs are optional. See the Tools for Authors link: www.ieee.org/web/publications/authors/transjnl/index.html.
2) JSTQE uses the iThenticate software to detect instances of overlapping and similar text in submitted manuscripts and previously published papers. Authors should ensure that relevant previously published papers are cited and that instances of similarity are justified by clearly stating the distinction between a submitted paper and previous publications.