



Call for Papers

Announcing a Special Issue of the
IEEE Journal of Selected Topics in Quantum Electronics on
Advances and applications of hollow-core fibers

Submission Deadline: **February 1, 2024**
Hard Copy Publication: November/December 2024

The *IEEE Journal of Selected Topics in Quantum Electronics* (JSTQE) invites manuscript submissions in advances and applications of hollow-core fibers. In 2024, we celebrate (1) the 60-year anniversary of the suggestion by Marcatili and Schmeltzer to use hollow waveguides for long distance optical communication and lasers, and (2) the 25-year anniversary of the first demonstration of a hollow-core photonic bandgap fiber by Cregan et al. The field of hollow-core fibers has flourished immensely since then, with losses at telecom wavelengths now as low as in solid-core fibers, and losses in the ultraviolet and visible even lower than theoretically possible in solid-core silica fibers. Hollow-core fibers enable new studies of light-matter interaction when filled with a liquid or gas. The inherently high damage threshold opens up possibilities of guiding extremely high power, or delivery of mid-IR light for surgery or spectroscopy through a flexible waveguide. The purpose of this special issue is to provide an overview of ongoing progress and trends in the advancement, understanding, and novel applications of hollow-core fibers. Areas of interest include (but are not limited to):

- Nonlinear optics in gas- or liquid-filled hollow-core fibers
- Hollow-core fabrication technology developments, incl. fluid dynamics modelling of fiber drawing
- Fiber characterization techniques
- Hollow-core fibers for low-latency communications
- Sensing and spectroscopy with or in hollow-core fibers
- AI/machine learning for microstructure optimization
- Hollow-core fibers filled with metals, nanocrystals, or other solids
- High-power laser delivery
- Biomedical applications of hollow-core fibers
- Optofluidics in hollow-core fibers
- Studies of chemical reactions inside hollow-core fibers

Primary Guest Editor: Michael H. Frosz, Max Planck Institute for the Science of Light, Germany

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Website submissions: ScholarOne Manuscripts: <http://mc.manuscriptcentral.com/jstqe-pho>

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The following documents are required: 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