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Hollow-Core Optical Fibers: Recent Advances and Applications

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Message from the Guest Editors

This Special Issue aims to provide a comprehensive overview of the developments, understanding, and diverse applications of hollow-core fibers, fostering further research and addressing the challenges faced by modern optical fiber systems. We invite authors to submit research articles covering the following topics:

- Fundamentals of HCF optical properties and design;
- Developments in HCF fabrication technology, fluid dynamics modeling of fiber drawing, and long-term reliability;
- Advanced fiber characterization techniques and performance optimization;
- Nonlinear optics in gas- or liquid-filled HCFs, and management of nonlinear effects;
- Low-latency communications, long-haul, and large-capacity optical communication systems enabled by HCFs;
- Sensing, spectroscopy, and imaging with or in HCFs;
- AI/machine learning for microstructure optimization in HCFs and related applications;
- HCFs filled with metals, nanocrystals, or other solids for novel applications;
- High-power laser delivery, and mid-infrared applications using HCFs;
- Biomedical applications of HCFs, such as surgery, diagnostics, and therapy.

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