Special Issue

Progress in Specialty Optical Fibers and Future Prospects

Message from the Guest Editors

Specialty optical fibers are an established and versatile platform with a multitude of applications across telecommunications, astronomical instrumentation, healthcare, and high-power applications. Fabrication capabilities and improvements have been instrumental in propelling the progress of specialty optical fibers, enabling them to exhibit intricate geometries and complex refractive index profiles inspired by a deeper theoretical understanding. This innovation has led to the fabrication of novel hollow-core fibers with intricate geometries that, in turn, have resulted in exceptional attenuation properties and inherent features such as mode-filtering and polarization control. It has also led to the creation of complex-refractive-index fibers for high-power transmission and multicore fibers tailored for exoplanet detection, among other noteworthy breakthroughs. The ongoing exploration and research into these fibers hold substantial promise for fueling future advancements in these fields.

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