

Special Issue

Advances in Optical Frequency Comb Generation and Applications

Message from the Guest Editor

Optical frequency combs have become essential apparatuses in science and technology.

The versatility of optical frequency combs in the time domain to discover the attosecond regime, microwave domain from megahertz to millimeter-wave and terahertz, and optical domain from ultraviolet to mid-infrared facilitated many applications, including comb-based spectroscopy, time/frequency transfer, microwave generation, photonic radar/lidar, precision ranging, calibration of spectrographs, coherent communications, and very-long baseline interferometry.

As they move beyond precision metrology and toward commercial applications, advances in robustness, tuneability, scalability, and performance have become important. Recent advances in nonlinear amplifying loop-mirror-based mode-locked laser and semiconductor saturable absorber mirror-based mode-locked laser have significantly improved the robustness of optical frequency combs in field applications. Innovations in microresonator-based comb generation have significantly reduced the size and power requirements, enabling optical frequency combs to be more compact and chip-compatible.

Guest Editor

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