International Journal of Optics

Special Issue on

Advances in Lasers and Optical Amplifiers: Materials, Components, and Systems

Call for Papers

The advances in lasers and optical amplifiers enable a tremendous potential to satisfy a lot of nowadays human needs by playing a fundamental and strategic role in the development of the current and future optical systems, designed to be employed in the field of communication, medical diagnostics and therapy, remote sensing, material processing, directed energy application, and a lot of other areas. The investigation and application of nonlinear optics will allow to increase the laser performance, for example, by exploiting pulse compression, ultrafast pulse techniques, harmonic generation, and wavelength conversion. Therefore, the development of novel optical materials and the application of novel ideas in optics will permit the fabrication of innovative high-performance active devices, in both fiber and planar technology, by reducing their size and cost, with disruptive effects on the day to day life. Worldwide research efforts are nowadays focused on new/future and existing materials, novel modeling approaches, and fabrication and characterization techniques, with the aim to improve the characteristics of the active optical devices and systems operating in UV, NIR, and Mid-IR wavelength ranges.

We invite investigators to contribute original research articles as well as review articles that explore advances in lasers and optical amplifiers: materials, design and characterization, nonlinear optics and other components for laser systems and amplifiers, optical laser sensing for quality of life, health, food safety, ecosustainable technologies, navigation, environmental monitoring and security, and so forth. Potential topics include, but are not limited to:

- Recent development on photonic materials and laser fabrication techniques, microstructured fiber laser, multicore fibers, and beam combining techniques
- Advances in nonlinear optics for laser systems: nonlinear glasses and crystals, nonlinear devices, wavelength conversion, slow light, pulse shaping, supercontinuum generation, and soliton propagation
- High-performance active devices: rare-earth, Raman and Brillouin fiber lasers and amplifiers, microsphere amplifiers and lasers, and surface plasmon amplification by stimulated emission SPASER
- Novel ideas and challenges

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