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Special Issue Reprint

Advances in Solid-State Laser Technology and Applications

Edited by: Zhen Qiao

Solid-state lasers remain a cornerstone of modern photonics, driving innovation across scientific research, industrial manufacturing, biomedical therapy, optical communications, and quantum information science. This Special Issue brings together cutting-edge contributions that advance the frontiers of solid-state laser technology and explore their diverse applications. The collected papers present novel achievements in relation to high-power laser systems, ultrafast mode-locked sources, nonlinear frequency conversion, structured light generation, and advanced laser materials. Additional topics include precision laser metrology, sensitive laser sensing, materials processing, medical laser treatment, and emerging quantum optical applications. These works reflect the recent progress being made in the field, with enhancements in laser performance, beam quality, wavelength tunability, and operational stability, as well as in relation to compact light sources for next-generation technologies. A Reprint of this Special Issue will provide a comprehensive reference for researchers and engineers seeking the latest developments in solid-state laser science and its broad impact on photonics technology.

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