

Special Issue

Long-Wave Infrared Lasers and Applications

Message from the Guest Editors

Long-wave infrared (LWIR) (8–14 μm) lasers have wide applications in areas such as strong-field physics, molecular spectroscopy diagnostics, laser annealing, and coherent detection Lidars. In strong-field physics, guiding an LWIR ultra-short laser in a high-pressure gas can generate ultrahigh harmonics, allowing the generation of pulses as short as several attoseconds over regions of the X-ray spectrum. Spectroscopy in the LWIR region provides essential information about the structure of materials, offering valuable insights for physical, chemical, and biological sciences. Due to the longer wavelength, the LWIR lasers are the commercial lasers in laser annealing, used to avoid pattern effects, and they are the more suitable candidates in coherent detection Lidars as they have a larger field of view compared to the near-infrared wavelength. High peak power, narrow linewidth, and wide tunable range are critical for improving precision in molecular diagnostics and extending detection range in LWIR Lidar systems.

This Special Issue aims to publish selected contributions on long-wave infrared lasers and applications.

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