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标题: Compact and Portable Terahertz Source Based on Frequency Mixing Using Dual-Frequency Solid-State Laser
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摘要: We review the recent progress made by us on power scaling of terahertz (THz) waves and development of compact and portable THz sources. By reversely stacking GaP plates, we were able to improve the photon conversion efficiency from 25% to 40%, which is the record-high value. As the number of the stacked GaP plates was increased from 4 to 5, the output power was decreased. This is the evidence on back conversion. In order to make our THz source truly compact and portable, we investigated a new route to THz generation by mixing two frequencies generated by a single Nd:YLF solid-state laser. After two Nd:YLF crystals were introduced in the laser cavity, the output power was scaled up to 4.5 mu W. Such a configuration exhibits versatile characteristics such as the generation of different THz frequencies by combining two different laser crystals. Our recent investigation of THz generation based on passively Q-switched dual-frequency pulses may help us with further reducing the dimension of our compact and portable THz source.
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