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Title:Coherently controlled terahertz source for a time domain spectroscopy system via injection current in bulk ZnSe

Authors:L&#252;, Zhihui (1); Zhang, Dongwen (1); Zhou, Zhaoyan (1); Sun, Lin (1); Zhao, Zengxiu (1); Yuan, Jianmin (1)

Author affiliation:(1) Department of Physics, National University of Defense Technology, Changsha, 410073, China

Corresponding author:Yuan, J.(jmyuan@nudt.edu.cn)

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Abstract:We have observed terahertz generation via injection current induced by harmonically related two-color beams in an unbiased ZnSe bulk at room temperature using a femtosecond Ti:sapphire oscillator. The terahertz intensity is just several times smaller than that obtained via optical rectification and further enhancements are believed possible. Experimental results demonstrate that the terahertz radiation is mainly attributed to the transition from the split-off band. This conclusion provides a novel approach to effectively generate a broadband and coherently controlled terahertz radiation, which leads to practical applications of terahertz radiation via this mechanism. &copy; 2012 Optical Society of America.

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Uncontrolled terms:Femtoseconds - Injection currents - Optical rectifications - Room temperature - Split-off band - Tera Hertz - Terahertz generation - Terahertz radiation - Terahertz sources - Ti:sapphire oscillators - Time domain spectroscopy - Two-color

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