143
标题: Pulsed terahertz radiation due to coherent phonon-polariton excitation in < 110 > ZnTe crystal
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摘要: Pulsed terahertz (THz) radiation, generated through optical rectification (OR) by exciting < 110 > ZnTe crystal with ultrafast optical pulses, typically consists of only a few-cycles of electromagnetic field oscillations with a duration about a couple of picoseconds. However, it is possible, under appropriate conditions, to generate a long damped oscillation tail (LDOT) following the main cycles. The LDOT can last tens of picoseconds and its Fourier transform shows a higher and narrower frequency peak than that of the main pulse. We have demonstrated that the generation of the LDOT depends on both the duration of the optical pulse and its central wavelength. Furthermore, we have also performed theoretical calculations based upon the OR effect coupled with the phonon-polariton mode of ZnTe and obtained theoretical THz waveforms in good agreement with our experimental observation. (C) 2012 American Institute of Physics. [http://dx.doi.org/10.1063/1.4764917]
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