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Title:Generation of sub-mJ terahertz pulses by optical rectification
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Abstract:Recent theoretical calculations predicted an order-of-magnitude increase in the efficiency of terahertz pulse generation by optical rectification in lithium niobate when 500 fs long pump pulses are used, rather than the commonly used ∼100 fs pulses. Even by using longer than optimal pump pulses of 1.3 ps duration, 2.5× higher THz pulse energy (125 μJ) was measured with 2.5× higher pump-to-THz energy conversion efficiency (0.25%) than reported previously with shorter pulses. These results verify the advantage of longer pump pulses and support the expectation that mJ-level THz pulses will be available by cooling the crystal and using large pumped area. © 2012 Optical Society of America.
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