

46. Title: Terahertz Waveforms Manipulation by Two Orthogonal-Polarized Femtosecond Pulses

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Abstract: We present a method of terahertz generation in which both the amplitude and polarity of the terahertz pulse can be manipulated. A pair of temporally separated and orthogonally polarized collinear propagating femtosecond pulses with the same central frequencies are focused onto a (110) oriented ZnTe crystal. By adjusting the relative time delay between the pulses, the amplitude and polarity of the generated terahertz pulse based on difference frequency generation can be controlled. Theoretical derivation and simulation based on the one-dimensional propagation equation of the terahertz wave are carried out under simplified conditions of perfect phase matching, plane-wave approximation and no absorption.