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Title

Terahertz Emission Dependence on the Fundamental Optical Intensity in Generating Terahertz Waves from Two-color Laser-induced gas Plasma

Source

Chinese Physics Letters, vol.28, no.10, Oct. 2011, 104201 (3 pp.). Publisher: Chinese Physical Society, China.

Abstract

A transient photocurrent model is used to explain terahertz emission from gas plasma irritated by two-color laser pulses, with one the second harmonic of the other. Taking multiple degrees of ionization into account, the gas ionization process at different laser intensities from 10¹⁴ W/cm² to 10¹⁵ W/cm² is discussed. The results show that when I >= 6 x 10¹⁴ W/cm², double ionization plays an important role in producing electrons. The corresponding terahertz spectra and waveforms are calculated, showing that increasing laser intensity can broaden the spectra to high frequencies and enhance the terahertz field. (23 References).