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标题: THz emission control by tuning density profiles of neutral gas targets during intense laser-gas interaction
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摘要: Ionization currents generated from two-color or few-cycle intense femtosecond laser pulses interaction with neutral gas targets can emit strong THz waves. Here it is found that the initial non-uniformity of the gas density can significantly affect the ionization currents and subsequent THz emission both in amplitude and in spectrum. Density profile effects on the forward and backward emissions have been studied in details by particle-in-cell simulations, in which the field ionization module is included. Increasing the gas density gradient length, the emitted forward THz spectrum shifts from high to low frequency, and the spectrum width reduces, which offers a way to obtain a tunable THz emission source by laser-gas interaction. (C) 2012 American Institute of Physics. [http://dx.doi.org/10.1063/1.4765365]
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