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Title:Charge dynamics and electronic structures of monolayer graphene with molecular doping
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Abstract:THz absorption and spectroscopic ellipsometry were used to investigate the charge dynamics and electronic structures of monolayer graphene with doping by triazine. The absorption spectrum of the triazine-doped film shows an optical excitation near 5.1 eV that is blue shifted compared with that of undoped analog. THz conductivity displays a coherent response of itinerant charge carriers at zero frequency and a disorder-induced finite frequency peak around 155 cm⁻¹. Drude plasma frequency (∼4400 cm⁻¹) decreases with decreasing temperature while carrier relaxation time (∼13 fs) is almost temperature independent, implying the semiconducting behavior with thermal activation energy of 3 meV. © 2012 American Institute of Physics.
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