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Title:High-contrast imaging of graphene via time-domain terahertz spectroscopy
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Abstract:We demonstrate terahertz (THz) imaging and spectroscopy of single-layer graphene deposited on an intrinsic Si substrate using THz time-domain spectroscopy. A singlecycle THz pulse undergoes multiple internal reflections within the Si substrate, and the THz absorption by the graphene layer accumulates through the multiple interactions with the graphene/Si interface.We exploit the large absorption of the multiply reflected THz pulses to acquire high-contrast THz images of graphene. We obtain local sheet conductivity of the graphene layer analyzing the transmission data with thin-film Fresnel formula based on the Drude model. © Springer Science+Business Media, LLC 2012.
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Controlled terms:Graphene - Interfaces (materials) - Silicon - Terahertz waves
Uncontrolled terms:Drude models - Fresnel formula - Graphene layers - High contrast - High contrast imaging - Multiple interactions - Multiple internal reflections - Si substrates - Single cycle - Single layer - Terahertz imaging - THz pulse - THz time domain spectroscopy - Time domain spectroscopy - Time-domain terahertz spectroscopy - Transmission data
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