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摘要: A theoretical framework is presented that calculates the conductivity of polar semiconductors at terahertz frequencies without resorting to phenomenological fit parameters, using an expression derived from the Boltzmann transport equation. The time-dependent photoconductivity of InAs and the temperature dependent conductivity of n-doped GaAs are found experimentally by terahertz time-domain spectroscopy. The observed deviation from the Drude-Lorentz conductivity in these model systems is accounted for by this approach, which calculates the energy-dependent electron scattering time. (C) 2012 American Institute of Physics. [http://dx.doi.org/10.1063/1.3695161]
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