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摘要: Temperature-dependent terahertz conductivity of tin oxide (SnO2) nanowire films was measured from 10 to 300 K using terahertz time-domain spectroscopy. The optical parameters, including the complex refractive index, optical conductivity and dielectric function, were obtained using a simple effective medium theory. The complex conductivity was fitted with the Drude-Smith model and the plasmon model. The results show that the carrier density (N) and plasmon resonance frequency (omega(0)) increase while the scattering time decreases with increasing temperature. The reduced carrier mobility compared with bulk SnO2 indicates the presence of carrier localization or trapping in these nanowires.
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