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摘要: Time-domain terahertz spectroscopy was used to study the dielectric and conductive properties of thin films of four phase-change materials: GeTe, GeSb2Te4, GeSbTe2, and AgInSbTe. Both amorphous and crystalline phases were studied, and the spectra were analyzed by a model including a harmonic oscillator and the Drude term. Spectra in the crystalline phase of AgInSbTe are dominated by free-carrier motion with a scattering time of 50 fs. In the Ge-containing compounds, we observed a phonon mode and a conductive contribution of free charge carriers with a much shorter scattering time. The conductivity appears to be linked to the distortions of the crystal unit cell from cubic symmetry. 
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