

Infrared Lattice Vibrations of TI_3AsS_4

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Abstract

Infrared reflectivity spectra of TI_3AsS_4 single crystals are measured at room temperature in the wavenumber range from 30 to 4000 cm^{-1} for the polarization directions $E \parallel c$ and $E \parallel a$. An analysis of the spectra with the Kramers-Kronig method reveals 10 infrared active modes for each of the polarization directions. On the basis of theoretical estimates the modes due to TI-S and As-S bond vibrations are identified.