

Oblique Phonons in Raman Scattering and IR Reflection of TeO₂ Crystal

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Abstract

The Raman scattering and IR reflectivity have been investigated for different crystal configurations. The contours of reflectivity spectra have been calculated. The angle dependence of polar vibrational modes in both reflectivity and Raman spectra have been investigated. The peculiarities of the transition from longitudinal mode to transverse one and vice versa both with and without changing of symmetry have been obtained. The phonon parameters and effective ionic charges of the anions and cations have been determined. It has been shown that there exists an effective ionic charge anisotropy of the oxygen and tellurium ions.