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IR-Dielectric functions of ZnBeTe alloys determined by spectroscopic ellipsometry NIRAJAN MANDAL, FRANK PEIRIS, Physics, Kenyon College, OLEG MAKSIMOV, MARIA TAMARGO, Chemistry, CUNY — Using spectroscopic ellipsometry, we have determined the complex dielectric function of a series of ZnBeTe II-VI semiconductor alloys between a spectral range of 2000 nm and 40,000 nm. A standard inversion technique was used to obtain the dielectric functions from the measured ellipsometric spectra. By modeling the dielectric functions as a collection of oscillators, representing longitudinal and transverse optical phonons associated with the ZnBeTe lattice, we were able to recover the phonon spectra for this alloy system. It is argued that the the additional phonon modes that are obtained from ellipsometry are best understood from the recently-proposed percolation model.

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