IR AND RAMAN SPECTRA OF $CdWO_4$

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Infrared (IR) reflection and Raman spectroscopy have been applied to study the vibrational modes of cadmium tungstate ($CdWO_4$). The IR experimental spectra were analyzed by means of the Lorentz oscillator model. All the symmetry-predicted IR-active ($7A_u+8B_u$) and Raman-active ($8A_g+10B_g$) vibrations of the cadmium tungstate crystal lattice with the space symmetry group C_{2h}^4 (P2/c) have been identified in the experimental spectra. Lattice dynamical behavior of the $CdWO_4$ have been investigated theoretically by means of a first principle calculations. The CRYSTAL17 program was used for the calculations. Accordance between experimental and theoretical results has been established.