

FINE STRUCTURE OF BANDS IN VIBRATIONAL SPECTRA OF C₆₀ FULLERITE

*M.E. Kornienko, M.P. Kulish, S.A. Alekseev,
O.P. Dmytrenko, O.L. Pavlenko*

Taras Shevchenko National University of Kyiv
(64, Volodymyrs'ka Str., Kyiv 01601)

S u m m a r y

We investigated the fine structure of low-frequency vibrational bands in the Raman, infrared absorption, and diffuse reflectance spectra of C₆₀ fullerite. It is related to the components of the overlapping Davydov and isotope splittings, as well as to a possible splitting of vibrations due to a reduction of the symmetry. It is shown that the splittings for the Raman $H_g(1)$ and $A_g(1)$ bands and the IR $F_u(1,2)$ bands at room temperature are larger than those in the low-temperature phase. The intensification of the intermolecular interaction at higher temperatures is explained by the nonequilibrium vibrational excitation of the medium due to the nonlinear interaction of vibrational modes and a change of energy states.