

RAMAN STUDIES OF RADIATION-INDUCED
MODIFICATIONS IN THE CRYSTALLINE
STRUCTURE OF SILICA

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S u m m a r y

The influence of neutron irradiation on the crystalline structure of silica has been studied by the Raman scattering method. Nonlinear variations of the spectral characteristics have been found for a number of normal vibration modes in the crystalline lattice of silica subjected to high doses of neutron irradiation. The regularities in the radiation kinetics of the corresponding characteristics have been established for certain fully symmetric and degenerate vibration modes. The results obtained are compared with the data concerning the modification of the structural parameters and Raman spectra of thermally treated crystals. A conclusion has been made about the relation between the features revealed in the dose dependences of the parameters of the Raman spectrum modes and the $D_3^4 \rightarrow D_3^6$ reconstruction of the silica crystalline structure.