

## THE PROBLEM OF DISPERSION OF NONLINEAR SUSCEPTIBILITIES IN CRYSTALS

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### S u m m a r y

The structure of the functions  $\chi_{ijk}(E)$  of nonlinear crystals is considered. These functions represent an interlink between the microscopic quantum-mechanical description (band spectra) and macroscopic (experimental) parameters of materials. Their study is the central problem of nonlinear optical materials science. In this work, we investigate such nonlinear crystals as KTP (KTiOPO<sub>4</sub>), proustite (Ag<sub>3</sub>AsS<sub>3</sub>), etc. The matrix elements of the corresponding dipole transitions and the parameters of nonlinear optical oscillators are determined. The possibilities of purposeful variations of nonlinear crystal parameters by means of doping, changes of the composition of solid solutions, and radiation processing are analyzed. This opens new prospects for the development of programmable technologies of synthesis of new nonlinear optical materials for laser radiation converters.