Optics and Spectroscopy (English translation of Optika i Spektroskopiya) 2014 vol.116 N6, pages 849-857

Crystal field and magnetoelastic interactions in Tb2Ti 2O7

Klekovkina V., Malkin B.
Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

In terms of a semiphenomenological exchange charge model, we have obtained estimates of parameters of the crystal field and parameters of the electron-deformation interaction in terbium titanate Tb2Ti 2O7 with a pyrochlore structure. The obtained set of parameters has been refined based on the analysis of spectra of neutron inelastic scattering and Raman light scattering, field dependences of the forced magnetostriction, and temperature dependences of elastic constants. © 2014 Pleiades Publishing, Ltd.

http://dx.doi.org/10.1134/S0030400X14060137