

Luminescence spectra of Ho^{3+} in a monoclinic elpasolite

Aleksandr Sergeevich Aleksandrovsky^{1,2}, Aleksandr Sergeevich Krylov¹, Aleksandr Valentinovich Malakhovskii¹, Vladimir Nikolaevich Voronov¹, and Maxim Sergeevich Molochev¹

¹*L.V.Kirensky Institute of Physics, Krasnoyarsk, Russia (E-mail: aleksandrovsky@kirensky.ru)*

²*Siberian Federal University, Krasnoyarsk, Russia*

Low temperature luminescence spectrum of holmium ions in monoclinic Rb_2KHoF_6 crystal was found to be well analyzable by the comparison with earlier studied cubic $\text{Cs}_2\text{NaHoF}_6$. Monoclinic crystal shows distinct increase of zero phonon lines that is typical for non-centrosymmetric environment of parity forbidden ions. XRD shows, however, no evidence of existence of such kind of environment for holmium ion. In the absence of structural data, the local symmetry of holmium in Rb_2KHoF_6 is proved to be a non-centrosymmetric one. Hencefore, observed luminescence at ZPL transition must be ascribed to certain amount of holmium ions that are positioned at the boundaries of domains that are typical for monoclinic rare earth elpasolites but cannot be detected by XRD.