Optics and Spectroscopy (English translation of Optika i Spektroskopiya) 2013 vol.114 N6, pages 822-826

Optical properties of UV-induced color centers in a KY3F 10:Ce3+ crystal

Tselishcheva E., Naumov A., Tselishchev D., Morozov O., Korableva S.
Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

The evolution of color centers induced in a KY3F 10:Ce3+ crystal by UV radiation has been observed and interpreted. It has been revealed that, initially, the UV irradiation of the KY3F10:Ce3+ crystal induces the formation of color centers predominantly of the F-type, which, in a short time period of about ten minutes, are transformed into complex color centers of the F 2-type, as well as into impurity color centers. Based on the data obtained, a diagram of energy states of the crystal, dopant, and color centers has been constructed, on which most probable processes that are caused by electronic transitions occurring in the KYF:Ce3+ crystal after its UV irradiation have been indicated. © 2013 Pleiades Publishing, Ltd.

http://dx.doi.org/10.1134/S0030400X13060210