

## **Spectroscopic indications of the possible optical cooling effect in fluoride crystals activated by Yb<sup>3+</sup> and Tm<sup>3+</sup> ions**

Nurtdinova L., Semashko V., Naumov A., Abdulsabirov R., Korableva S.  
*Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia*

---

### **Abstract**

The results of spectral kinetic studies of several fluoride crystals activated by Yb<sup>3+</sup> and Tm<sup>3+</sup> ions are presented, and their possible application as cooling elements of optical refrigerators is discussed. Optimum excitation conditions for the laser cooling effect in these crystals are found. The cooling efficiency is established to depend on the degree of order in the active medium. © 2005 Pleiades Publishing, Inc.

<http://dx.doi.org/10.1134/1.2014491>

---