Effect of concentration on spectroscopic properties of Ce- doped silica gel-glasses.

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The spectroscopic properties of Ce 3+ ions in inorganic compounds have been studied for many years. This ion gives rise to absorption and emission spectra which consist of structureless broad bands at room temperature (RT). Recently great interest has been shown in new materials doped with Ce +3 ions which exhibit efficient scintillation properties I1 I. In this paper we report on the absorption, excitation, and luminescence spectra of Ce-doped silica glasses obtained by means of sol-gel technology. This technology permits us to obtain good optical-quality glasses with a high concentration of active ions 12-4 I. Preliminary results on the spectroscopic properties of Ce-doped silica glasses obtained by sol-gel technology were reported earlier by Malashkevich et al. [5 I. It was found that both Ce 3+ and Ce 4+ ions are present in the glass. The purpose of present work was to answer the question of how the concentration of Ce ions influences the optical properties of the glasses and, in particular, the distribution of Ce 3+ and Ce 4+ ions.

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