

Site selection spectroscopy in Eu³⁺-doped lanthanum fluorozirconate glass and glass-ceramic

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| R sum  en anglais | <p>The optical properties of Eu³⁺-doped glass and transparent glass-ceramic with composition (in mol%) 70.2ZrF₄-23.4LaF₃-0.6AlF₃-5.8GaF₃ were investigated by site selective spectroscopy in order to study the effect of ceramization on the symmetry of Eu³⁺ sites. The glass-ceramic obtained after thermal treatment of the glass ZLAG contains a unique crystalline phase of unknown structure. The analysis and comparison of FLN spectra in these materials are presented and different classes of sites are discussed. We found the presence of two main site distributions for Eu³⁺ ions of equivalent symmetry (C_{2v} or lower) in the glass and two sites of different symmetry (C_{2v} or lower and C_{4v} or lower) in the glass-ceramic (GC). The estimated average crystal field strength for glass and GC decreases with the ⁵D → ⁷F energy. The results suggest that the two kinds of sites identified in the glass correspond to Eu³⁺ ions in and out of the former network. Decay-time measurements of ⁵D level of Eu³⁺ evidenced energy transfer between high and low energy sites and showed an increase of lifetime from the glass to the glass-ceramic.</p> |
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[1] [http://okina.univ-angers.fr/publications?f\[author\]=21298](http://okina.univ-angers.fr/publications?f[author]=21298)

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