Composition dependence of luminescence of Eu and Eu/Tb doped silicate glasses for LED applications

Titre	Composition dependence of luminescence of Eu and Eu/Tb doped silicate glasses for LED applications
Type de publication	Article de revue
Auteur	Zhu, Chaofeng [1], Chaussedent, Stéphane [2], Liu, Shujiang [3], Zhang, Yanfei [4], Monteil, André [5], Gaumer, Nathalie [6], Yue, Yuanzheng [7]
Editeur	Elsevier
Type	Article scientifique dans une revue à comité de lecture
Année	2013
Langue	Anglais
Date	Jan-04-2013
Pagination	232-236
Volume	555
Titre de la revue	Journal of Alloys and Compounds
ISSN	09258388
Mots-clés	energy transfer [8], Glasses [9], LED [10], luminescence [11]
Résumé en anglais	The Eu and Eu/Tb doped silicate glasses are good candidates for light emitting diode (LED) applications. But the optical performance of these glasses is sensitive to variations in chemical composition. In this paper we report our recent findings about the effect of addition of minor components such as B2O3, Al2O3 and CaF2 on the luminescent properties of the above-mentioned glasses. We explore the role of Eu3+ ions as a structural probe of the glasses by determining the asymmetry factor, i.e., the ratio of the emission intensity of the 5D0→7F25D0→7F2 transition to that of the 5D0→7F15D0→7F1 transition. The results show that the asymmetry factor and luminescence lifetimes of as-prepared materials are dependent on composition. White fluorescence is achieved in Eu/Tb co-doped glasses, which can be attributed to the simultaneous generation of red, green and blue wavelengths from Eu3+ and Tb3+ ions. The variation of the excitation wavelength can tune the emission spectra as well as Commission Internationale de L'Eclairage (CIE) chromaticity coordinates of Eu/Tb co-doped glasses for specific applications. The energy transfer from Tb3+ to Eu3+ ions is investigated by analyzing fluorescence spectra and decay curves.
URL de la notice	http://okina.univ-angers.fr/publications/ua7516 [12]
DOI	10.1016/j.jallcom.2012.12.052 [13]
Titre abrégé	Journal of Alloys and Compounds

Liens

[1] http://okina.univ-angers.fr/publications?f[author]=8776

[2] http://okina.univ-angers.fr/stephane.chaussedent/publications

[3] http://okina.univ-angers.fr/publications?f[author]=11251
[4] http://okina.univ-angers.fr/publications?f[author]=11252
[5] http://okina.univ-angers.fr/publications?f[author]=8745
[6] http://okina.univ-angers.fr/n.gaumer/publications
[7] http://okina.univ-angers.fr/publications?f[author]=11254
[8] http://okina.univ-angers.fr/publications?f[keyword]=4980
[9] http://okina.univ-angers.fr/publications?f[keyword]=9562
[10] http://okina.univ-angers.fr/publications?f[keyword]=11743
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[12] http://okina.univ-angers.fr/publications/ua7516
[13] http://dx.doi.org/10.1016/j.jallcom.2012.12.052