



# Investigation of the local environment of Eu<sup>3+</sup> in a silicophosphate glass using site-selective spectroscopy and Molecular Dynamics simulations

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Titre	Investigation of the local environment of Eu <sup>3+</sup> in a silicophosphate glass using site-selective spectroscopy and Molecular Dynamics simulations
Type de publication	Article de revue
Auteur	Ben Slimen, F. [1], Haouari, M. [2], Ben Ouada, H. [3], Guichaoua, Dominique [4], Raso, P. [5], Bidault, Xavier [6], Turlier, J. [7], Gaumer, Nathalie [8], Chaussedent, Stéphane [9]
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Résumé en anglais	Silicophosphate glasses (SiO <sub>2</sub> -P <sub>2</sub> O <sub>5</sub> ) doped with Eu <sup>3+</sup> ions were synthesized by the sol-gel process. Optical properties of these glasses were investigated by means of emission spectra and lifetime measurements. The Fluorescence Line Narrowing (FLN) technique was also used to explore the local structure around the Eu <sup>3+</sup> ions in this host and to understand the role of phosphate as a codopant. As it is the case for aluminum, the ability of phosphate to avoid the rare earth clustering was investigated, and the role of this codopant in modifying the local order around the rare earth ion was evidenced. The analysis of the FLN spectra and lifetime measurements is consistent with this interpretation. Molecular Dynamics simulations were performed to evaluate and confirm these structural features. Two classes of europium sites were distinguished in agreement with the experimental characterization.
URL de la notice	<a href="http://okina.univ-angers.fr/publications/ua15616">http://okina.univ-angers.fr/publications/ua15616</a> [15]
DOI	10.1016/j.optmat.2017.01.002 [16]
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## Liens

- [1] <http://okina.univ-angers.fr/publications?f%5Bauthor%5D=15427>
- [2] <http://okina.univ-angers.fr/publications?f%5Bauthor%5D=26204>
- [3] <http://okina.univ-angers.fr/publications?f%5Bauthor%5D=26205>
- [4] <http://okina.univ-angers.fr/d.guichaoua/publications>
- [5] <http://okina.univ-angers.fr/publications?f%5Bauthor%5D=26206>
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- [16] <http://dx.doi.org/10.1016/j.optmat.2017.01.002>
- [17] <http://www.sciencedirect.com/science/article/pii/S0925346717300022>

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