

Light bluish persistent luminescence of a Gadolinium-doped silicate matrix

L. C. V. Rodrigues¹, R. Stefani¹, H. F. Brito¹, C. A. A. Carvalho² and M. C. F. C. Felinto³

¹*IQ, Universidade de S. Paulo, S. Paulo, SP, Brazil*

²*Dequi, Universidade Federal de Ouro Preto, Brazil*

³*CQMA, Instituto de Pesquisas Energéticas e Nucleares, S. Paulo, SP, Brazil*

The matrix CdSiO_3 doped with Rare Earths has demonstrated the property of the persistent luminescence¹. Using Tb^{3+} and Pr^{3+} ions as dopants, the persistent luminescence showed colors related with their atomic transitions. On the other hand, the Gd^{3+} ion does not present any transition in visible light, and it is mostly used to determinate the matrix transition. In this matrix, although, the ion gadolinium acted as an activator of the persistent luminescence, since the undoped matrix does not present this phenomenon. The goal of this work is to study the luminescence properties of the doped and undoped matrix with the photoluminescence spectra (Fig. 1). Their structures are also studied with SEM (Fig. 2) and X-ray diffraction (Fig. 3).

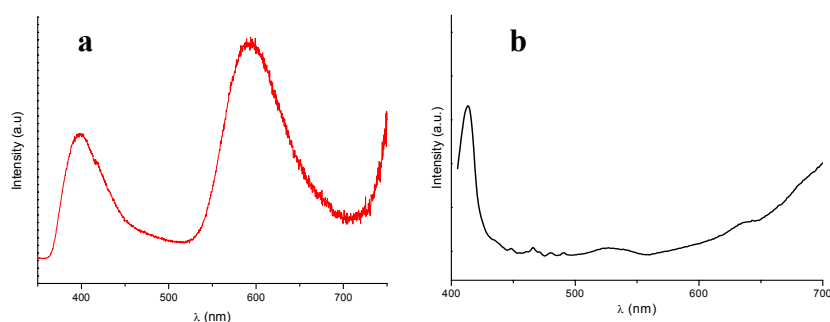


Fig. 1: Emission spectra of a) undoped matrix and b) doped matrix

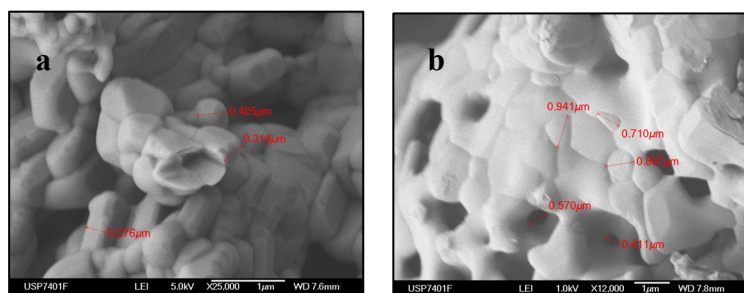


Fig. 2: SEM images of a) undoped matrix and b) Gd^{3+} doped matrix

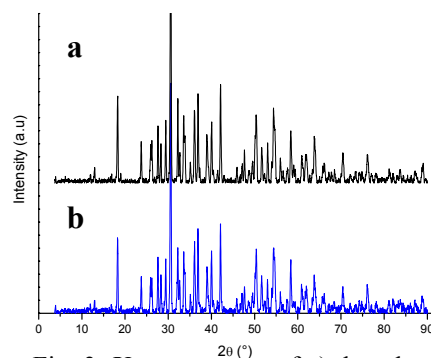


Fig. 3: X-ray patterns of a) doped and b) undoped matrix

Work supported by CNPq, FAPESP, RENAMI, IMMC, Rhodia.

[1] T. Aitasalo, P. Dereń, J. Hölsä, H. Jungner, J. C. Krupa, M. Lastusaari, J. Legendziewicz, J. Niittykoski and W. Strek, *J. Solid State Chem.* **171**, 114 (2003)

Keywords: Persistent Luminescence, Silicate, Gadolinium.

lucascvr@iq.usp.br

Av. Lineu Prestes 748, Cidade Universitária – São Paulo – SP - Brazil