

STUDY OF LUMINESCENT EFFECTS ON PMMA FILMS WITH EU3+ /AG NANOPARTICLES

Reference	Presenter	Authors (Institution)	Abstract
01-192	Duclerc Fernandes Parra	Lima, V.d. (Instituto de Pesquisas Energéticas e Nucleares); Parra, D.F. (Instituto de Pesquisas Energéticas e Nucleares);	Lanthanides, which are part of rare earths, have attracted attention due to their optical properties, not only in the field of research, but also in industrial and technological areas. Eu ³⁺ ions are among the most studied of rare earth complexes because they have higher luminescence due to the structures of their energy levels. Combination with high molar absorptive ligands may promote higher emission of rare earth ions. The luminescent polymer system used as markers was obtained from doping with rare earth complexes, incorporating a Europium complex containing trifluoroacetate anion (TTA) in the process of encapsulating silver nanoparticles in methyl polymethacrylate (PMMA). The study will show that by introducing metallic nanoparticles, such as silver, it is possible to enhance the emission intensity in the luminescence processes of lanthanide compounds. The study of luminescence properties was performed by the spectrofluorimetry technique, showing that by introducing silver nanoparticles it will be possible to verify an increase of luminescence of the material in low concentrations of Europium complex. It will also be possible to observe an increase in material thermal stability through Thermogravimetric Analysis (TGA / DTG) performed under N ₂ atmosphere.

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