

Synthesis of CeF₃:Sm³⁺ Nanophosphor for Biological Applications

Authors : Mayuri Gandhi, Nayan Agrawal, Harshita Bhatia

Abstract : In the present work, cerium fluoride (CeF₃) was selected as the host material because of its high density, fast response and high radiation resistance, efficient absorption and energy transfer by host (to activator). For the synthesis of CeF₃ nanoparticles doped with Sm³⁺ ion, co-precipitation route was employed. Thus for optimum results, concentration dependent studies of the fluorescence of Sm³⁺ was carried out. The photoluminescence gave emissions in both visible as well as the NIR region and therefore it can have its application in solar cells, where it can absorb a large spectrum of energy. CeF₃:Sm³⁺ nanoparticles were carefully incorporated in a suitable polymer matrix in order to demonstrate a variety of applications to improve the performance of the polymer materials and use it to develop high grade optoelectronic devices such as LEDs, security labelling, lasers, displays, biological imaging, etc.

Keywords : bioimaging, cerium fluoride, NIR emission, samarium

Conference Title : ICNB 2014 : International Conference on Nanotechnology and Biotechnology

Conference Location : Istanbul, Türkiye

Conference Dates : October 27-28, 2014