

Luminescent Enhancement with Morphology Controlled Gd₂O₃:Eu Phosphors

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Abstract : Eu doped Gd₂O₃ phosphors are synthesized via co-precipitation method using ammonia as a precipitating agent. The concentration of the Eu was set as 4 mol% for all the samples. The effect of the surfactants (CTAB, PEG, and SDS) on the structural, morphological and luminescent properties has been studied in details. The as-synthesized phosphors were characterized by X-ray diffraction technique, Field emission scanning electron microscopy, Fourier transformed infrared spectroscopy and photoluminescence technique. It was observed that the surfactants have not changed the crystal structure, but influenced the morphology of as-synthesized phosphors to a great extent. The as-synthesized phosphors are expected to be promising candidates for optoelectronic devices, biosensors, MRI contrast agents and various biomedical applications.

Keywords : co-precipitation, Europium, photoluminescence, surfactants

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