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Fluorescence behaviour of europium doped Gd2O3 nanosheets

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Abstract content
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Gadolinium is an interesting material for luminescence investigation owing to its characteristics of serving both as host as well as a doping element for different application purposes. It gives a suitable environment for doping elements as a host and strong energy transfer characteristics when used as dopant. Numerous studies have been performed by researchers with lanthanides and/or transition metals doped/codoped gadolinium oxides for strong multicolor emissions via upconversion and downconversion processes. Various synthesis techniques have been adopted for producing gadolinium based nanomaterials in different size and shapes. Whereas the europium is among the best activators to observe fluorescence upon UV excitations that supports host sensitized emission in gadolinium based materials. The formation of sheet like structures and luminescent emission from the europium doped gadolinium oxide powder was the purpose of the study. Characterization techniques such as scanning electron microscopy, electron dispersive spectroscopy and X-ray diffraction have been used to confirm the structural information of the present material. The photoluminescence study showed strong red emission upon UV excitation from the nanosheets. The fluorescence spectroscopy involved is discussed and the purity of light emitted was checked by the calculated color coordinates corresponding to the emitted radiation.

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Main supervisor (name and email)
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