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Type: **Poster Presentation**

Synthesis and Characterization of $\text{Y}_{2}\text{O}_{2}\text{S}:\text{Eu}$ Nanophosphors Using Sol-combustion Method

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Rare earth oxysulfide materials exhibit high luminescence efficiency as well as excellent chemical stability. These materials are widely used as luminescent host materials of several commercially available red emitting phosphors. However, there still remain issues affecting the operational parameters such as luminescence efficiency, stability against temperature, high color purity and long afterglow. $\text{Y}_{2}\text{O}_{2}\text{S}:\text{Eu}$ nano powders were prepared by low-temperature synthesis method using sulfur-contained organic fuel in an ethanol-aqueous solution. The prepared nano powders were characterized by Scanning electron microscope, X-ray diffraction, photoluminescence spectra and X-ray photoelectron spectroscopy. It is shown that the assistant fuel ethanol has the effect of decreasing the water needed, simplifying the experiment procedure by dissolving rare earth nitrate and sulfur-contained organic fuel into an even solution, and prompting the formation of rare earth oxysulfide by igniting first during heating that leads to combustion decomposition reaction. $\text{Y}_{2}\text{O}_{2}\text{S}:\text{Eu}$ nano crystallines with strong photoluminescence and X-ray luminescence are obtained using thiourea as organic fuel. Mixtures of $\text{Y}_{2}\text{O}_{2}\text{S}:\text{Eu}$ and $\text{Y}_{2}\text{O}_{2}\text{S}:\text{Eu}$ are acquired using thiourea as fuel, and the content of $\text{Y}_{2}\text{O}_{2}\text{S}:\text{Eu}$ increases until reaches to about half of the $\text{Y}_{2}\text{O}_{2}\text{S}:\text{Eu}$ with the increasing amount of thiourea. $\text{Y}_{2}\text{O}_{2}\text{SO}_{4}:\text{Eu}$ emerges when $\text{S}/\text{Y}=6$ and increases with increasing thiourea content.

Level (Hons, MSc, PhD, other)?

PhD

Consider for a student award (Yes / No)?

Yes

Would you like to submit a short paper for the Conference Proceedings (Yes / No)?

Yes

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