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Synthesis and Characterization of Structural and Luminescent properties of long afterglow CaAl₂O₄: Eu²⁺, Nd³⁺, Dy³⁺ nano-scaled phosphors by solution – combustion technique.

Wednesday, 13 July 2011 11:30 (15 minutes)

<p>Long afterglow calcium aluminate phosphors doped with Eu<sup>

2+</sup> and co-doped with Nd³⁺ /or Dy³⁺ (CaAl₂O4:Eu²⁺, Nd³⁺, Dy³⁺) were fabricated by urea-nitrate solution – combustion method at 500 ℃. The effects of varying concentrations of Ca:Al and co-dopants molar ratio (Nd³⁺:Dy³⁺) on the structural and luminescent properties of the phosphor were investigated. It was observed that Ca:Al molar ratios greatly affect the crystalline structure of the material. The results of the X-ray diffraction (XRD) analysis reveal that the formation of several crystalline phases depends on the molar ratios of the host material. The peaks show the presence of other phases such as Ca₃Al₂O₆ and CaAl₄O₇ but the predominant phase formed was that of CaAl₂O₄. As the concentration of Ca ions increase, the peak intensity increase which led to formation of monoclinic CaAl₂O₄ as a single phase for the 1.5PL studies revealed a general rise in intensity with increase in the mole ratio of Ca:Al . The highest PL intensity was observed with 1.5

Level (Hons, MSc,
   PhD, other)?

M.Sc

Consider for a student
   award (Yes / No)?

Yes

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

Yes

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