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## A new white light emitting phosphor

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### Abstract content <br> &nbsp; (Max 300 words)

The objective of this study was to prepare a new aluminates host for rare-earth ions and evaluate it for application in white lighting.  $\text{CaAl}_2\text{O}_4\text{:Tb}^{3+}\text{Eu}^{3+}$  nanocrystalline phosphors with good crystallinity were successfully synthesized by a combustion method using urea as fuel and metal nitrates as precursors at a relatively low temperature of  $500^\circ\text{C}$ . The XRD diffraction patterns showed single monoclinic phase of the  $\text{CaAl}_2\text{O}_4$  as referenced to standard JCPDS data files No. 70-134. As confirmed from the scanning electron microscopy (SEM) images, the characteristic platelet-like particles of the combustion method were formed. The diffusion reflectance spectra were recorded from 800-200 nm by using a UV-Vis spectrometer. Photoluminescence (PL) spectroscopy, excitation and emission spectra of  $\text{CaAl}_2\text{O}_4\text{:Tb}^{3+}\text{Eu}^{3+}$  were also recorded. A simultaneous emission of blue, green and red PL was observed from  $\text{CaAl}_2\text{O}_4\text{:Tb}^{3+}\text{Eu}^{3+}$  phosphor that was excited at 230 nm. The blue and green emissions were respectively attributed to  $^5\text{D}_3 \rightarrow ^7\text{F}_6$  and  $^5\text{D}_4 \rightarrow ^7\text{F}_4$  transitions of  $\text{Tb}^{3+}$  while the red emission was attributed to  $^5\text{D}_0 \rightarrow ^7\text{F}_4$  transitions of  $\text{Eu}^{3+}$ .

### Apply to be<br> consider for a student <br> &nbsp; award (Yes / No)?

Yes

### Level for award<br>&nbsp;(Hons, MSc, <br> &nbsp; PhD)?

PhD

### Main supervisor (name and email)<br>and his / her institution

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

Yes

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