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## Thermoluminescence (TL) study of $\beta$ -stimulated $\text{BaAl}_2\text{O}_4:\text{Eu}^{2+}, \text{Dy}^{3+}$ phosphor

**Abstract content &nbsp; (Max 300 words) <a href="http://events.saip.org.za/getFile.py/target="\_blank">Formatting & Special chars</a>**

Thermoluminescence (TL) properties of beta irradiated  $\text{Eu}^{2+}$  doped and  $\text{Dy}^{3+}$  co-doped barium aluminate  $\text{BaAl}_2\text{O}_4:\text{Eu}^{2+}, \text{Dy}^{3+}$  have been studied. The  $\text{BaAl}_2\text{O}_4:\text{Eu}^{2+}, \text{Dy}^{3+}$  phosphors were prepared using solution - combustion synthesis method at initiating temperature of  $500^\circ\text{C}$  technique using urea ( $\text{CH}_4\text{N}_2\text{O}$ ) as a reducing agent and  $\text{Ba}(\text{NO}_3)_2$ ,  $\text{Al}(\text{NO}_3)_3 \cdot 9\text{H}_2\text{O}$ ,  $\text{Eu}(\text{NO}_3)_3 \cdot 5\text{H}_2\text{O}$  and  $\text{Dy}(\text{NO}_3)_3$  as raw materials. The electron-trapping properties in terms of TL glow curves are reported. The TL intensity was recorded for different beta ( $\beta$ ) doses at different heating rates and was observed to increase with increasing  $\beta$  dose. The influence of repeated measurements on the same sample on peak temperature and TL intensity was also investigated so as to ascertain its repeatability and stability. Different kinetic parameters like activation energy (E), frequency factor (S) and geometrical factor were calculated by different methods including initial rise, variable heating rate and peak shape methods.

**Apply to be considered for a student award (Yes / No)?**

Yes

**Level for award (Hons, MSc, PhD, N/A)?**

PhD

**Main supervisor (name and email) and his / her institution**

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

Yes

**Please indicate whether<br>this abstract may be<br>published online<br>(Yes / No)**

Yes

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**Track Classification:** Track F - Applied Physics