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## **Synthesis and characterization of luminescence properties of $\text{CaAl}_2\text{O}_4:\text{Eu}^{2+},\text{Tm}^{3+}$ phosphors powder**

*Tuesday, 9 July 2013 17:40 (1 hour)*

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

Photoluminescent powders of  $\text{CaAl}_2\text{O}_4$  co-doped with  $\text{Eu}^{2+}$  and  $\text{Tm}^{3+}$  ions prepared by combustion method were studied. The reaction temperature used was about  $500^\circ\text{C}$ . The effect of different excitation wavelength on the luminescent properties of the phosphor is discussed. The as prepared samples were compared with the samples annealed in air at the temperature of  $450^\circ\text{C}$ . The annealing temperature of  $450^\circ\text{C}$  used was estimated from the TGA curve of the  $\text{CaAl}_2\text{O}_4:\text{Eu}^{2+},\text{Tm}^{3+}$  sample. Red emission peaks from the unreacted  $\text{Eu}^{3+}$  ions were measured. The emission spectra of the as prepared and annealed samples were compared. Wavelength selective excitations show that the 200 and 360 nm give the intense emission from  $\text{Tm}^{3+}$  ions. Bright emission from all emitting centers ( $\text{Tm}^{3+}$ ,  $\text{Eu}^{3+}$  and  $\text{Eu}^{2+}$  ions) was measured when the excitation wavelengths of 250, 260, 285 and 300 nm were used. The most intense red emission from  $\text{Eu}^{3+}$  ions was observed at the excitation wavelength of 230 nm.

Corresponding author: e-mail dhlamm@unisa.ac.za Fax: +27 12 429 2716, Tel: +27 12 429 3643

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

No

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

N/A

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

N/A

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

No

**Primary author:** Prof. DHLAMINI, Mokhotjwa Simon (University of South Africa)

**Co-authors:** Dr MOTHUDI, Bakang Moses (University of South Africa); Dr MHLONGO, Gugu Hlengiwe (Council for Scientific and Industrial Research); Prof. SWART, Hendrik (University of the Free State); Prof. NT-WAEABORWA, Odireleng Martin (University of the Free State); Prof. HILLIE, Thembela (Council for Scientific and Industrial Research)

**Presenter:** Prof. DHLAMINI, Mokhotjwa Simon (University of South Africa)

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