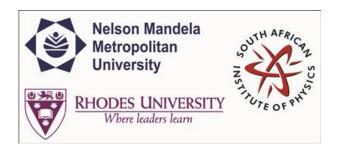
## **SAIP2015**



Contribution ID: 307

Type: Poster Presentation

## Structural and photoluminescence properties of LaV<sub>1-x</sub>P<sub>x</sub>O<sub>4</sub>:1 mol % Dy<sup>3+</sup> phosphor powder prepared by solution combustion method

Tuesday, 30 June 2015 16:10 (1h 50m)

Abstract content <br/> &nbsp; (Max 300 words)<br/> dry-<a href="http://events.saip.org.za/getFile.py/starget="\_blank">Formatting &<br/> &classed chars</a>

LaV<sub>1-x</sub>P<sub>x</sub>O<sub>4</sub>: 1.0 mol % Dy<sup>3+</sup> (x=0.0, 0.25, 0.5, 0.75, and 1.0) phosphor powders were prepared by combustion method with different vanadate to phosphate molar concentration. The phosphor powder samples were characterized using x-ray diffraction (XRD) for phase identification. The XRD results for samples with x = 0.0 and x = 1.0 revealed a standard monoclinic structure of LaVO4 and LaPO4 respectively. The diffuse reflectance spectra indicates a broad absorption band around the UV region ranging from 200 nm to 550 nm. The photoluminescence properties were investigated using a Cary Eclipse fluorescence spectrophotometer at the excitation wavelength of 227 nm. Two characteristic emission peaks of Dy<sup>3+</sup> were observed at  $\lambda$  = 478 nm (blue) and  $\lambda$  = 572 nm (yellow) corresponding to <sup>4</sup>F<sub>9/2</sub> - <sup>6</sup>H<sub>15/2</sub> and <sup>4</sup>F<sub>9/2</sub> - <sup>6</sup>H<sub>15/2</sub>, respectively. Furthermore, the PL intensity is the highest when x = 0.5.

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Session Classification: Poster1

Track Classification: Track A - Division for Physics of Condensed Matter and Materials