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## Synthesis and characterization of Ce<sup>3+</sup> doped NaMPO<sub>4</sub> (M= Mg, Ca, Sr and Ba) phosphors

Wednesday, 5 July 2017 17:10 (1h 50m)

Cerium (Ce<sup>3+</sup>) doped alkaline-sodium-phosphate or NaMPO<sub>4</sub> (where M= Mg, Ca, Sr and Ba) phosphors were prepared by solution combustion method with different doping concentrations of Ce<sup>3+</sup> (0.5 mol %, 1.0 mol % and 1.5 mol %). X-ray powder diffraction (XRD) and scanning electron microscope (SEM), were used to analyse the crystalline structure and particle morphology of the samples, respectively. The optical properties including reflectance, excitation and emission were investigated using UV-Vis absorption spectroscopy and photoluminescence (PL) spectroscopy while stretching modes and electronic and chemical composition were analyzed using Fourier transform infrared spectroscopy and X-ray photoelectron spectroscopy. The XRD and SEM results confirm that the samples contain mixture of phases of crystals. The excitation spectrum of the phosphors were characterized by broad band extending from 250 to 400 nm. The PL emission spectrum of the sample showed a broad band located between 310 and 400 nm in the UV range, which is due to the allowed 4f<sup>0</sup>1

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

Yes

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

MSc

### 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)?

No

Primary author:Ms MALEKA, Prettier Morongoa (Yes)Presenter:Ms MALEKA, Prettier Morongoa (Yes)Session Classification:Poster Session 2

Track Classification: Track C - Photonics