



UNIVERSITEIT VAN PRETORIA  
UNIVERSITY OF PRETORIA  
YUNIBESITHI YA PRETORIA

Contribution ID: 349

Type: **Poster Presentation**

## Synthesis and Characterisation of Ag/Cu co-doped nano TiO<sub>2</sub>

Thursday, 12 July 2012 17:30 (2 hours)

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

Among many oxides that have a suitable band gap for photocatalysis, titanium dioxide (TiO<sub>2</sub>) has been the focus of recent attention due to its superior properties such as being environmentally compatible, chemically stable and less expensive. It has recently been found that co-doping with suitable amounts of more than one type of metals further improves the photocatalytic properties of titanium oxide [1].

In the present study, two co-dopants (Ag and Cu) have been introduced in TiO<sub>2</sub> following the standard sol gel methods. Structural characterization was carried out using X-ray diffraction (XRD) and Raman Spectroscopy and surface studies by Scanning Electron Microscope (SEM) and SEM incorporated Energy Dispersive Spectroscopy (EDS). Optical properties were studied using the UV-Vis spectroscopy. The results of the lattice parameter calculations from the XRD patterns of metal loaded titanium dioxide are almost the same as for the undoped. Ag dopant alone did not affect the anatase to rutile transformation whereas, Cu resulted in a lower transformation temperature. Co-doping (Ag/Cu) further reduced the transformation temperature.

#### References

[1] V Stengl, S Bakardjieva and J Bludska, J. Mater. Sci. (2011) 46:3523

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

No

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

Prof KE Rammutla  
erasmus.rammutla@ul.ac.za  
University of Limpopo

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

Yes

**Primary authors:** Prof. RAMMUTLA, Erasmus Koena (University of Limpopo); Mr NUBI, Olatunbosun (University of Limpopo); Dr MOSUANG, Thuto (University of Limpopo)

**Presenters:** Prof. RAMMUTLA, Erasmus Koena (University of Limpopo); Mr NUBI, Olatunbosun (University of Limpopo); Dr MOSUANG, Thuto (University of Limpopo)

**Session Classification:** Poster Session

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