Contribution ID: **435**   Type: **Poster Presentation**

Characterisation of Aluminium/Yttrium Double-doped Tin Oxide Nanoparticles using XRD Patterns.

Tuesday, 8 July 2014 17:10 (1h 50m)

Abstract content
   (Max 300 words)
Formatting &
Special chars

In this report, prepared SnO_2 nanoparticles were characterized using XRD patterns. A PW1830 system X-ray diffractometer with anode of Co (wavelength of 1.7889Å of Co Kα) and also that of Cu (wavelength of 1.5405Å of Cu Kα) was used to characterize the samples. Four samples of aluminium/yttrium double-doped tin oxide were previously synthesized at different temperatures (200 oC, 400 oC, 600 oC, 800 oC and 1000 oC). The powder samples were loaded into glass sample holders taking care not to have them in preferred orientations. X-ray diffraction patterns were recorded over 2θ angular ranges of 50 – 80o for Co anode and 4.3050 – 67.2190o for Cu anode with a step size of 0.025o. The crystallinity was shown to improve with an increase in temperature. Results also revealed that double doping significantly reduced the grain growth of SnO_2. The lattice parameters (the d-spacing) were calculated using a computer program. The shape of the XRD patterns showed the tetragonal structure of SnO_2 nanoparticles with the help of theoretical deductions.

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

Yes

Level for award
 (Hons, MSc,
   PhD)?

Hons

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

J K Kirui, Joseph.Kirui@univen.ac.za, University of Venda

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

Yes

Primary author: Mr DANGAISO, Tichawona (University of Venda)

Co-author: Dr KIRUI, Joseph (University of Venda)

Presenter: Mr DANGAISO, Tichawona (University of Venda)
Session Classification: Poster1

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