

Contribution ID: 493

Type: Poster Presentation

Microstructural and electrical evaluation of ZnO solgel films

Tuesday, 10 July 2012 17:30 (2 hours)

Abstract content
 (Max 300 words)

ZnO thin films have been produced using a solgel method. The zinc acetate, methoxyethanol and ethanolamine (also known as MEA) were mixed together for a maximum of 2 hours at temperatures between 60°C and 80°C using a magnetic stirrer/hot plate with a temperature controller which controls the temperature to within 1°C. After stirring at temperature, the solution is left for 48 hours, and after which the thin films were spin-coated onto the glass substrates. Multiple layers were deposited on the substrates, and these layers were dried at 200°C for 3 minutes between each spin-coated layer. After deposition the samples were heat treated in the temperature range 300°C to 500°C.

The microstructures of the various layers before and after heat treatment were studied using AFM and SEM. X-ray diffraction and Raman spectroscopy was used to determine the phases present and the crystallinity of the film. The electrical properties (current-voltage) of the films were measured as a function of the heat treatment temperature.

The effect of the heat treatment on the microstructural properties and electrical properties will be discussed.

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

Y

Level for award
%nbsp;(Hons, MSc,
 PhD)?

3rdYr

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

J M Nel, UP jackie.nel@up.ac.za

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

No

Primary author: Mr STEYN, Ruhann (University of Pretoria)

Co-author: Dr J M NEL, Jackie (University of Pretoria)Presenter: Mr STEYN, Ruhann (University of Pretoria)Session Classification: Poster Session

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