Contribution ID: **245** Type: **Poster Presentation**

Metal oxides for photovoltaic devices

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

Abstract content
   (Max 300 words)
Formatting &
Special chars

Metal oxides are emerging as important materials for various applications such as memory capacitors, transistors, photovoltaic (PV) devices due to their attractive properties such as wide band gap, high permittivity, chemical stability and physical properties. Metal oxides provide superior electrical isolation properties, reducing interface recombination. In PV devices, metals oxides have potential as conducting electrodes, window layers, light absorbing layers or antireflection coatings. The quality of the interface layers within the device plays a very important role in regard to the performance of many devices. Deposition of suitable metal oxides (dielectric material) can enhance optical properties and interfacial properties of PV devices. While different metal oxides are under consideration for applications in PV devices, materials with high dielectric constant (high-k) are preferable. However, high-k materials present performance degrading issues such as high density of interfacial defects, low band gaps and smaller band offsets. A combination of high-k material and high band gap material appears as a promising solution. A lot of effort is required on the choice of materials and understanding of interface engineering schemes of multicomponent structures. This work is an effort towards the same and a review of recent advances on metal oxides for PV devices is presented.

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

YES

Level for award
 (Hons, MSc,
   PhD)?

PhD

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

Mmantsae Diale, mmantsae.diale@up.ac.za
University Of Pretoria

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

NO

Primary author: Ms MAABONG, Kelebogile (University Of Pretoria)

Co-author: Dr DIALE, Mmantsae (University Of Pretoria)

Presenter: Ms MAABONG, Kelebogile (University Of Pretoria)

Session Classification: Poster1

Track Classification: Track F - Applied Physics