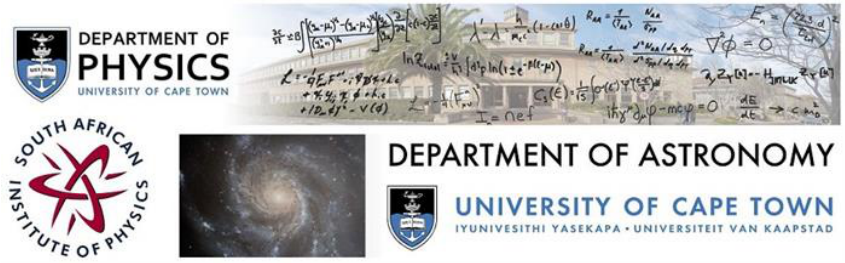

Contribution ID: **70** Type: **Poster Presentation**

Facile hydrothermal synthesis of Ni(OH)₂-graphene foam composite for supercapacitor application

Wednesday, 6 July 2016 16:10 (1h 50m)

Abstract content
   (Max 300 words)
Formatting &
Special chars

Recently, one of the greatest scientific and engineering problems is the realization of a highly efficient energy and storage systems. Electrode materials are key to enhancing performance in a number of important energy storage technologies such as supercapacitors and batteries. Electrochemical capacitors also known as supercapacitors or ultracapacitors have become attractive and suitable in energy storage systems due to their extremely high power performance, moderate energy density and excellent cycle life. Ni(OH)₂ has been identified as one of the most interesting transition metal hydroxide material owing to its easy synthesis, low cost and high theoretical capacitance. Thus, the design and synthesis of the nanoscale Ni(OH)₂ based electrodes for high performance supercapacitors ha attracted many attentions. In this work, we explore the synthesis of Ni(OH)₂-graphene foam (GF) composite via a facile hydrothermal reflux technique, and have investigated its potential use for supercapacitor application. The results obtained from the scanning electron microscopy showed that Ni(OH)₂ spheres were uniformly distributed on the surface of the graphene foam. The specific capacitance of Ni(OH)₂-GF composite electrode was found to be 2420 F/g at a current density of 1 A/g with a coulombic efficiency of ˜93% after 1000 charge/discharge cycles, demonstrating excellent cycle stability in 6.0 M KOH aqueous electrolyte. These results suggest that Ni(OH)₂-GF composite could be a potential electrode material for high performance electrochemical applications.

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

yes

Level for award
 (Hons, MSc,
   PhD, N/A)?

PhD

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

Prof Ncholu I. Manyala,manyalancholu@gmail.com, University of Pretoria

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

No

Please indicate whether
this abstract may be
published online
(Yes / No)

Yes

Primary author: Mr KHALEED, Abubakar (University of Pretoria)

Co-authors: Mr BELLO, Abdulhakeem (Department of Physics University of Pretoria); Mr MOMODU, Damilola (UNIVERSITY OF PRETORIA); Dr DANGBEGNON, Kouadio Julien (University of Pretoria); Dr MANYALA, Ncholu (University of Pretoria)

Presenter: Mr KHALEED, Abubakar (University of Pretoria)

Session Classification: Poster Session (2)

Track Classification: Track F - Applied Physics