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## **Carbon-Nickel Oxide Nanocomposite coatings: Preparation and characterization**

*Wednesday, 13 July 2011 13:45 (15 minutes)*

Nanocomposite materials have wide range of applications in solar energy conversion. In this work, C-NiO nanocomposite coatings are prepared using sol-gel synthesis and deposited on aluminium substrates using a spin coater. The coatings are prepared from alcoholic sols based on Ni-acetate using diethalonamine as a chelating agent and polyethylene glycol (PEG) as organic template. Sucrose is used as a carbon source. Sols with different PEG and sucrose concentrations are prepared and coated on aluminium substrates. The effect of heat temperature on the properties is also investigated. The optical and structural changes of the nanocomposite coatings are characterized by UV-Vis, FTIR, thermal emissometer, Raman, and SEM techniques. It has been shown that the solar absorption increases with increasing the heating temperature in the temperature range 300 – 550 °C due to the increase in carbon content in the composite material. Preliminary durability studies on these samples will also be presented

**Level (Hons, MSc, <br> &nbsp; PhD, other)?**

MSc

**Consider for a student <br> &nbsp; award (Yes / No)?**

Yes

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

Yes

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