

## **Nanocrystalline ZnO Flakes for Photovoltaic Device Applications**

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### **Abstract:**

Nanocrystalline ZnO flakes were synthesized via solution process using zinc acetate and diethyl amine under refluxing at 85 °C for 4 hrs. The crystalline and wurtzite hexagonal phase of the synthesized ZnO flakes were characterized by UV-visible, FTIR and Raman-scattering. For the photovoltaic device applications, the ZnO flakes were used as photo-anode materials to fabricate dye-sensitized solar cells (DSSCs). The fabricated DSSC exhibited an overall light to electricity conversion efficiency ( $\eta$ ) of 0.99 %. A short-circuit current (JSC) of 2.33 mA/cm<sup>2</sup>, open-circuit voltage (VOC) of 0.670 V and fill factor (FF) of 0.59, was achieved from the fabricated nanocrystalline ZnO flakes based DSSCs.

***Advanced Science Letters 3, 543-547 (2010)***