

Growth of Comb-like ZnO Nanostructures for Dye-sensitized Solar Cells Applications

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Abstract:

Dye-sensitized solar cells (DSSCs) were fabricated by using well-crystallized ZnO nanocombs directly grown onto the fluorine-doped tin oxide (FTO) via non-catalytic thermal evaporation process. The thin films of as-grown ZnO nanocombs were used as photo-anode materials to fabricate the DSSCs which exhibited an overall light to electricity conversion efficiency (ECE) of 0.68 % with a fill factor of 34 %, short-circuit current of 3.14 mA/cm² and open-circuit voltage of 0.671 V. To the best of our knowledge this is first report in which thin film of ZnO nanocombs were used as photo-anode materials to fabricate the DSSCs.

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