Synthesis and characterization of Heterostructures of CdS Nanoparticle/WO_3 Nanowhisker

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A novel heterostructure of CdS nanoparticles/WO3 nanowhiskers was synthesized using a simple two-step process; thermal evaporation and chemical bath deposition (CBD). First, WO3 nanowhiskers were grown on a tungsten substrate by thermal evaporation of WO3 powder in a tube furnace at 1050 oC. Sequentially, CdS nanoparticles (NPs) were deposited on WO3 nanowhiskers (NWs) by chemical bath deposition (CBD). CdS nanoparticles modified WO3 nanowhiskers showed enhanced visible light absorption compared to bare WO3 nanowhiskers. Also CdS NP/WO3 NW heterostructures showed increased photodecomposition efficiencies compared to bare WO3 nanowhiskers.