

Facile preparation of Ag/ZnO nanoparticles via photoreduction

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Abstract Ag/ZnO nanoparticles can be obtained via photocatalytic reduction of silver nitrate at ZnO nanorods when a solution of AgNO₃ and nanorods ZnO suspended in ethyleneglycol is exposed to daylight. The mean size of the deposited sphere like Ag particles is about 5 nm. However, some of the particles can be as large as 20 nm. The ZnO nanorods were pre-prepared by basic precipitation from zinc acetate di-hydrate in the ionic liquid 1-butyl-3-methylimidazolium bis(trifluoromethanesulfonyl)amide. They are about 50–300 nm in length and 10–50 nm in width. Transmission electron microscopy (TEM), energy-dispersive X-ray analysis (EDS), X-ray powder diffraction (XRD), UV–Vis spectroscopy, X-ray photoelectron spectroscopy (XPS), and photoluminescence (PL) were used to characterize the resulting Ag/ZnO nanocomposites.

