

Synthesis, Characterization, Photocatalytic and Photovoltaic Performance of Ag-Doped ZnO₂ Loaded on the Pt-Carbon Spheres

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Abstract : Ag-doped ZnO₂ loaded on the Pt-carbon spheres have been synthesized and characterized by standard analytical techniques. i.e., UV-Vis spectroscopy, X-Ray Diffraction (XRD) and Scanning Electron Microscopy (SEM). In order to find the effect of loading of Ag doping on ZnO₂, the concentration of Ag was varied from 0-3.5%. The XRD analysis showed that the obtained particles are anatase phase. The SEM images showed Ag-doped ZnO₂ are loaded on the surface of the Pt-carbon spheres. The photocatalytic activity of the synthesized particles was tested by studying the degradation of methyl orange dye and 4-chlorophenol as a function of time on irradiation in aqueous suspension. Ag-doped ZnO₂@Pt-carbon sphere particle with platinum concentration of 3.0 % showed the highest photocatalytic activity as compared to the other Ag concentrations for the degradation of methyl orange and 4-chlorophenol.

Keywords : Ag-ZnO₂, Pt-carbon spheres, degradation, methyl orange, 4-chlorophenol

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