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Photocatalytic Applications of Doped Zinc Oxide Porous Films Grown by Magnetron Sputtering

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Undoped, Al-doped and Sn-doped ZnO was sputter-deposited on glass substrates and on trenched Si substrates and some properties of these samples were evaluated. It was shown that the photocatalytic performance of the thin layers is improved by doping with Sn and Al. The samples doped with Al-doping provided a more pronounced effect compared to the control sample, as well as compared to the greater volume of undoped ZnO deposited on Si substrates. Morphology of produced particles was studied using transmission electron microscopy. Electron diffraction patterns were taken to confirm lattice parameters of the materials. Size and shape variations were monitored for un-doped, Al-doped and Sn-doped ZnO. EDX spectroscopy was utilized to assay chemical composition for doped and un-doped samples.