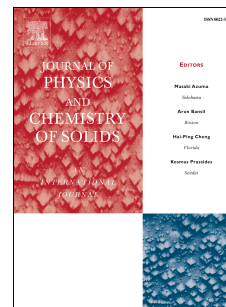


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Synthesis and characterization of titania nanoparticles and enhancement of photochemical and/or electrochemical performance with zirconia nanoparticles

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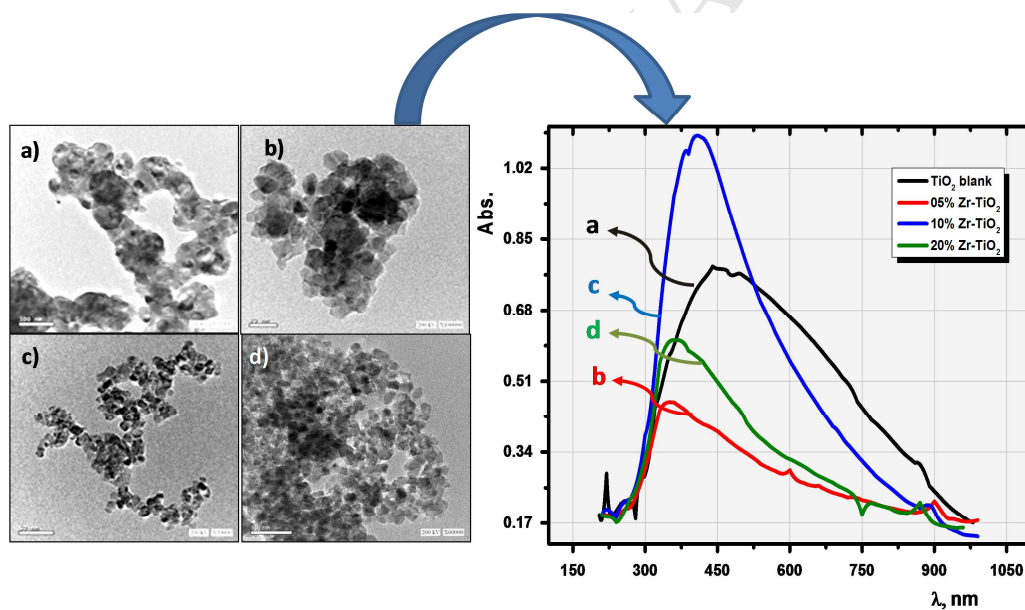
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Graphical abstract



Abstract

Nanosized Zr-doped TiO₂ with improved structural stability and photocatalytic properties was synthesized by the sol-gel method. The physicochemical and morphological properties of the catalyst were investigated by transmission electron microscopy, thermogravimetric analysis, differential thermal analysis, X-ray diffraction, and Brunauer-Emmett-Teller analysis. Zr-doped TiO₂ possessed a mesoporous structure and a noticeably increased surface area (90 m² g⁻¹) as compared with pristine TiO₂ (28 m² g⁻¹). On doping with Zr,

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