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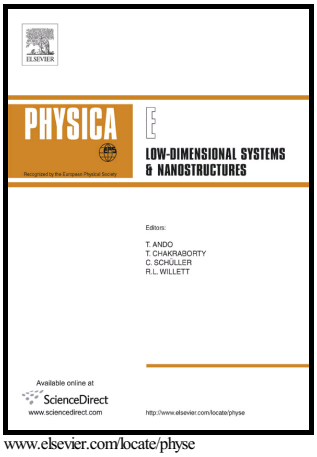

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Microwave synthesis of Nitrogen doped Ti_4O_7 for photocatalytic applications

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Abstract

The nitrogen (N) doped Ti_4O_7 photocatalyst was prepared from urea as a nitrogen source by a microwave method. The resulting photocatalyst was characterized by X-ray diffraction (XRD), Field Emission Scanning electron microscopy (FESEM), Fourier transform infrared spectroscopy (FTIR), UV-visible diffuse reflectance spectroscopy (UV-Vis DRS) and UV–vis spectroscopy (UV-Vis). 0.1M N doped Ti_4O_7 photocatalyst exhibited methylene blue decomposition efficiency of 100% which was prepared by microwave treatment for above 30 min. Rate constant was found to be 0.028910min^{-1} in the first order kinetic.

Keywords: Titanium oxide; Nitrogen; Photocatalyst; Methylene blue; Ultra-violet (UV) light.

1. Introduction