Wettability modification of graphene oxide thin film through the photocatalytic reduction

R Aram and R Rasuli
Department of Physics, Faculty of Science, University of Zanjan, Zanjan, Iran
Email: r_rasuli@znu.ac.ir

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Abstract
In this paper, the effect of photocatalytic reduction on hydrophilicity of graphene oxide nanosheets is presented. The graphene oxide nanosheets were prepared by oxidation and exfoliation of natural graphite. The prepared samples were exposed to UV irradiation in presence of TiO₂ nanoparticles. Raman spectroscopy and atomic force microscopy show that roughness of the surface is increased due to increasing irradiation. Also, the hydrophilicity of samples by measuring the contact angle of micro-liter droplets of deionized water, showed that by increasing exposure time up to 8 hours the contact angle of samples in crease from about 27 degrees to about 89 degrees.

Keywords: contact angle, graphene oxide, photocatalytic reduction, TiO₂ nanoparticles

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