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SnO₂/Graphene Quantum Dots Compositing Photocatalyst for Efficient Nitric Oxide Oxidation under Visible Light

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ABSTRACT: In the present work, we have prepared tin oxide (SnO₂)/graphene quantum dots (GQDs) composites and applied them for photocatalytic removal of nitric oxide (NO). In contrast to SnO₂ alone, SnO₂/GQDs composite has exhibited a remarkably enhanced activity under both full spectrum and visible light illumination. The crystal structure, morphology and surface state of the composite was further studied by X-ray diffraction, transmission electron microscopy, Fourier-transformed infra-red spectroscopy and X-ray photoelectron spectroscopy. Moreover, diffraction and reflectance spectra and photoluminescence spectra together with the photoelectrochemical tests show that the presence of GQDs in the composite could promote the visible light response as well as charge separation efficiency of the system. This makes SnO₂/GQDs composite generate more active species ($\bullet\text{O}_2^-$ and

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