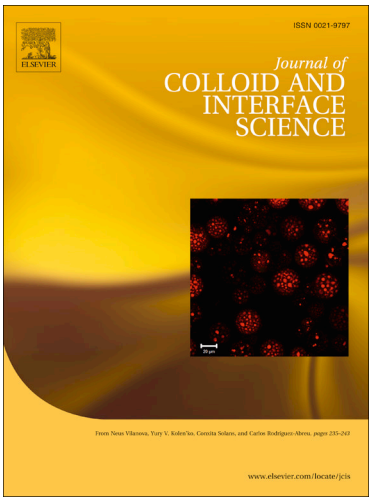

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Graphene Oxide and Carbon Nanodots Co-modified BiOBr Nanocomposites with Enhanced Photocatalytic 4-Chlorophenol Degradation and Mechanism Insight

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ABSTRACT: Non-metallic graphene oxide (GO) and carbon nanodots (CDots) co-doped BiOBr ternary system (GO/CDots/BiOBr) were successfully synthesized via a simple one-step solvothermal process. The compositional characterization, optical and electrical properties of photocatalysts were investigated in detail. The prepared ternary photocatalysts possessed the excellent visible-light driven photocatalytic 4-chlorophenol (4-CP) degradation. Additionally, the 4-CP removal efficiencies decreased in the order of GO/CDots/BiOBr (88.9%) > CDots/BiOBr (62.9%) > GO/BiOBr (60.5%) > pristine BiOBr (46.9%) in 6h under visible light irradiation. The dissolved organic carbon (DOC) removal and the dechlorination efficiency by the GO/CDots/BiOBr were 58.4% and 78.2%, respectively, much higher than pristine BiOBr. The co-existence of GO and CDots on the BiOBr greatly promoted visible light harvesting and utilizing ability and inhibited the recombination of photogenerated electron/hole pairs. The synergistic effect between GO, CDots and BiOBr was expounded, and the photocatalytic