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TiO_2/sulfonated graphene oxide/Ag nanoparticle membrane: in situ separation and photodegradation of oil/water emulsions

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ABSTRACT

Water pollution has led to increased attention on wastewater treatment and renewable industries. Various materials have been developed for removing pollutants from water. However, materials capable of emulsion separation and soluble-contaminant degradation in a single step are rare. We report a TiO_2/sulfonated graphene oxide/Ag nanoparticle (TSA) membrane, which possesses useful wettability and photocatalytic properties. A photocatalytic TiO_2 nanorod array-based mesh with favorable wettability properties is integrated with a sulfonated graphene oxide/Ag layer, to