

Fabrication of 3D structured ZnO nanorod/reduced graphene oxide hydrogel and its use in photo-enhanced organic dye removal

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The 3D structured reduced graphene oxide hydrogels (rGOHs) and ZnO nanorods (ZNRs) were fabricated using zinc (Zn) ions and in-situ growth of ZNRs. The chemical bonding between graphene oxide (GO) and Zn^{2+} was formed by the chemical reaction of Zn precursor with the function groups in GO, such as carboxylic acid, hydroxyl groups at low temperature for 12h. The Zn metal was then converted to ZNRs by hydrothermal process in the solution of zinc nitrate salt and HMTA. rGOH-ZNR showed improved removal efficiency of organic dye by the UV illumination than that of rGOH-Zn due to the enhanced photocatalytic effect.