Electronic Supplementary Material (ESI) for Journal of Materials Chemistry

Supporting Information for "Novel hierarchically-packed tin dioxide sheets for fast adsorption of organic pollutant in aqueous solution"

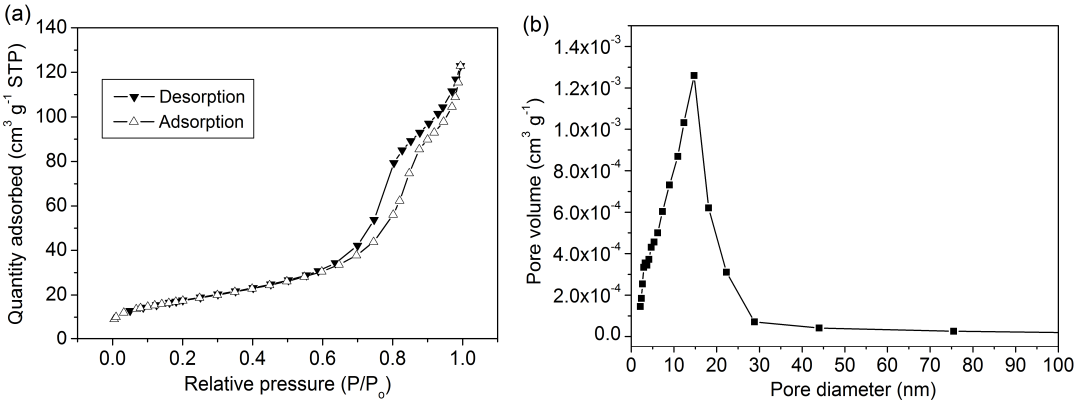

Fig. S1 Typical N_2 adsorption-desorption isotherm and (b) pore-size distribution curve of the porous hierarchically-packed SnO_2 sheets.

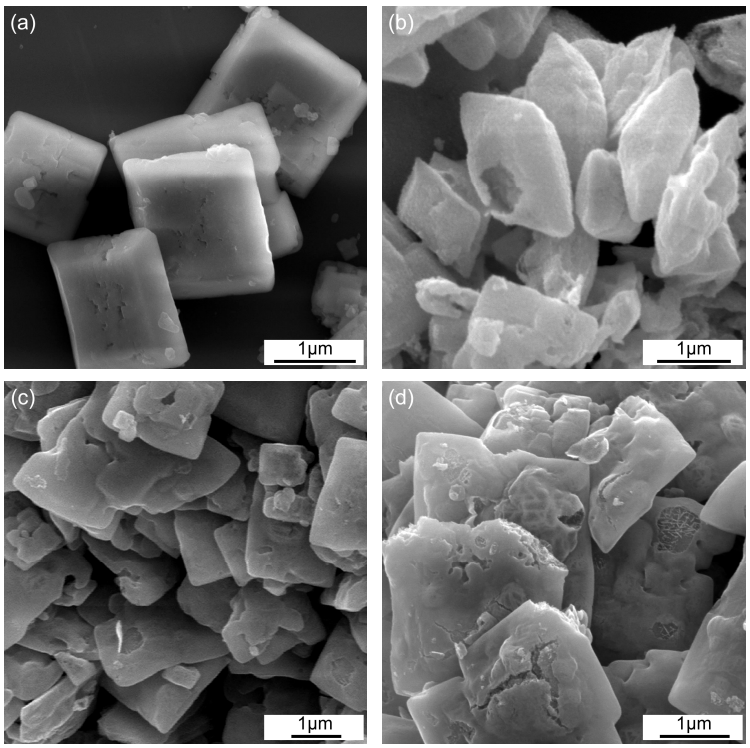

Fig. S2 Low magnification FESEM images of the SnO_2 sheets prepared by annealing SnS_2 precursors synthesized with different reaction time: (a) 6 h; (b) 12 h; (c) 18 h; and (d) 24 h.

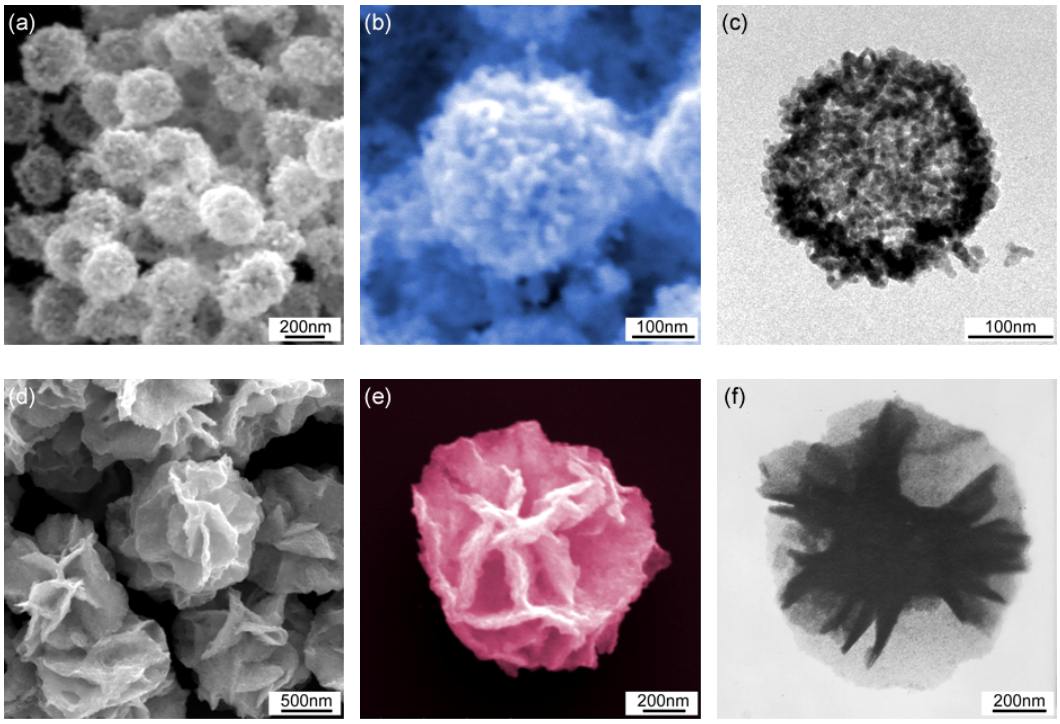

Fig. S3 (a), (b) FESEM and (c) TEM images of the as-prepared hollow SnO_2 spheres; (d), (e) FESEM and (f) TEM images and the flower-like SnO_2 nanostructures.

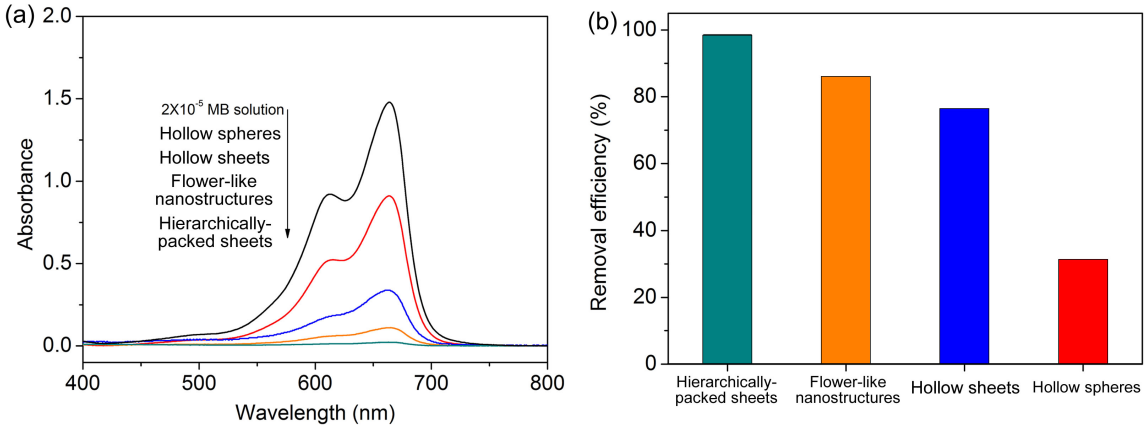

Fig. S4 (a) UV-Vis absorbance spectra of the MB solution before and after being treated by different SnO_2 nanostructures with the same adsorption time of 10 min; and (b) the corresponding removal efficiency of them.

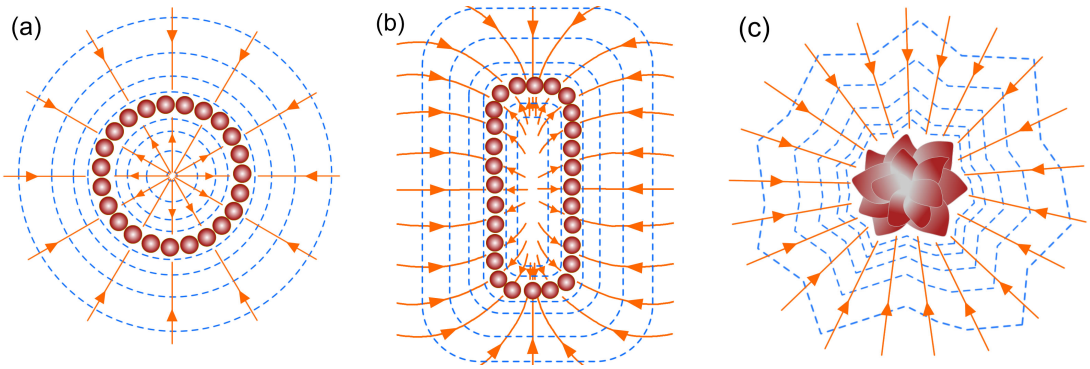

Fig. S5 Illustration of the concentration grads of MB solution formed by the (a) hollow spheres; (b) hollow sheets without hierarchically-packed structure; and (c) flower-like nanostructures.

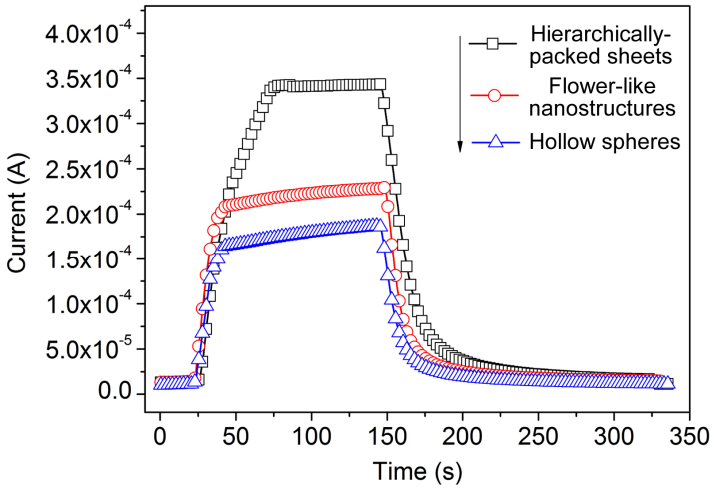

Fig. S6 The real-time gas-sensing curves of the sensors based on different SnO_2 nanostructures including the hierarchically-packed sheets, flower-like nanostructures, and hollow sheets without hierarchically-packed structure. Ethanol at a concentration of 50 ppm was employed as the gas target.

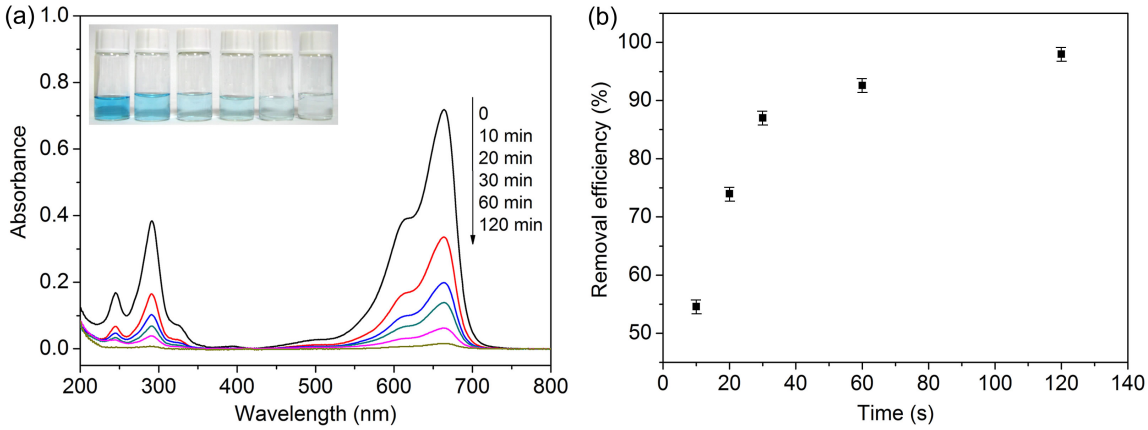

Fig. S7 (a) UV-Vis absorbance spectra and photo (insert) of the MB solution after being treated by active carbon with different adsorption time; and (b) the corresponding relationship between the removal efficiency and time. The initial concentration of MB solution is 1×10^{-5} M.

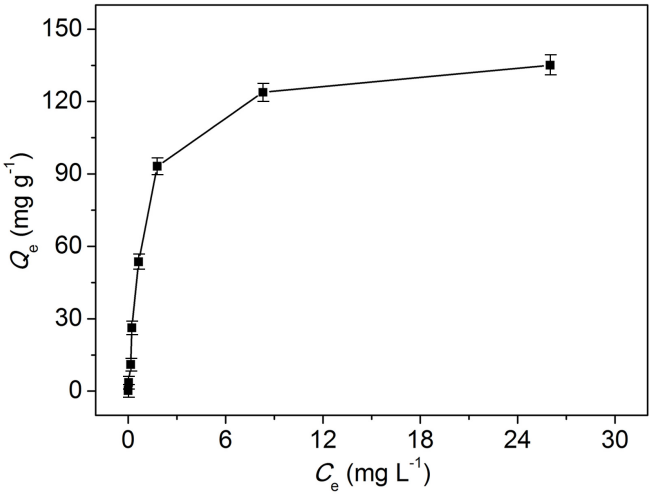

Fig. S8 Adsorption isotherm of MB solution on the hierarchically-packed SnO_2 sheets. In the figure, C_e is the equilibrium concentration of MB solution (mg L^{-1}), Q_e is the equilibrium capacity of MB solution on the adsorbents (mg g^{-1}).