Supporting Information

One-pot synthesis of PrPO₄ nanorods/reduced graphene oxide composites and their photocatalytic properties

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**Fig. S1** HRTEM images of PrPO$_4$/RGO nanocomposite.

**Fig. S2** $(\alpha h\nu)^{1/2}$ vs. $h\nu$ curve deriving from UV-vis spectra of PrPO$_4$ nanorods.
**Fig. S3** (a) XPS spectra of GO, PrPO$_4$ and PrPO$_4$/RGO; (b) and (c) C 1s XPS spectra of GO and PrPO$_4$/RGO, respectively; (d)-(f) Pr 3d, P 2p and O 1s regions, respectively.

**Fig. S4** Plots of ln(C/C$_0$) versus irradiation time.
**Fig. S5** The room temperature photoluminescence (PL) spectra of PrPO$_4$ and PrPO$_4$/RGO nanocomposites with different graphene content ($\lambda_{ex} = 468$ nm).

**Fig. S6** Photocurrent response of PrPO$_4$, and PrPO$_4$/RGO nanocomposites with different amount of RGO.
**Fig. S7** (a) Repeated photocatalytic degradation of MB with PrPO₄/RGO-25mg nanocomposite as a photocatalyst; (b) XRD patterns of PrPO₄/RGO-25mg nanocomposites after photocatalytic reaction and different cycling runs.

**Fig. S8** The output wavelength spectrum of tungsten lamp.
Fig. S9 The adsorption-desorption equilibrium experiment of PrPO$_4$/RGO nanocomposites with different graphene content.