Electronic Supplementary Material (ESI) for RSC Advances.


# Synthesis of ionic liquid-modified $BiPO_4$ microspheres with hierarchical flower-like architectures and enhanced photocatalytic activity

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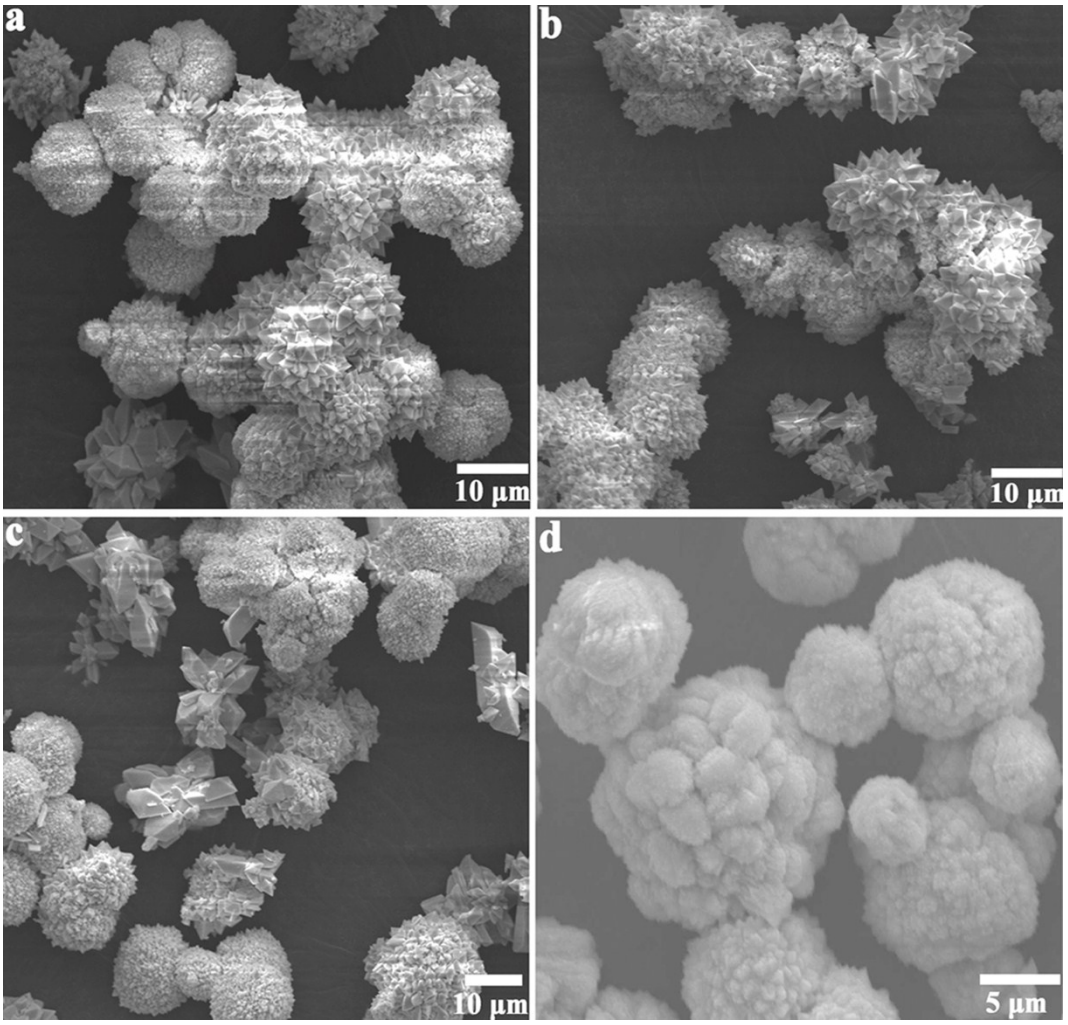


Fig. S1 SEM images of $BiPO_4$ prepared in the presence of (a) 1-Butyl-1-methylpyrrolidinium hexafluorophosphate, (b) 1-Butyl-1-methylpiperidinium hexafluorophosphate, (c) 1-ethyl-3-methylimidazolium hexafluorophosphate, (d) 1-octyl-3-methylimidazolium hexafluorophosphate.

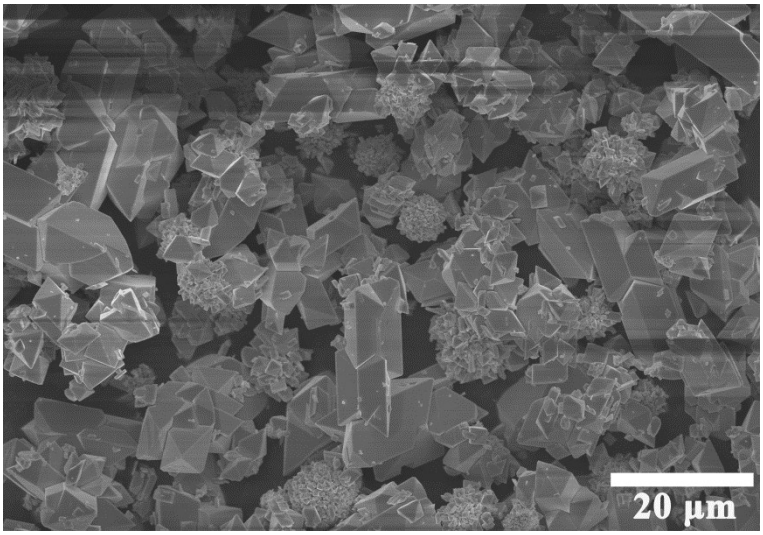


Fig. S2 SEM image of $BiPO_4$ synthesized with the molar ratio of [[$C_4$mim][$PF_6$]] : [$Bi(NO_3)_3$] = 1.5:1.

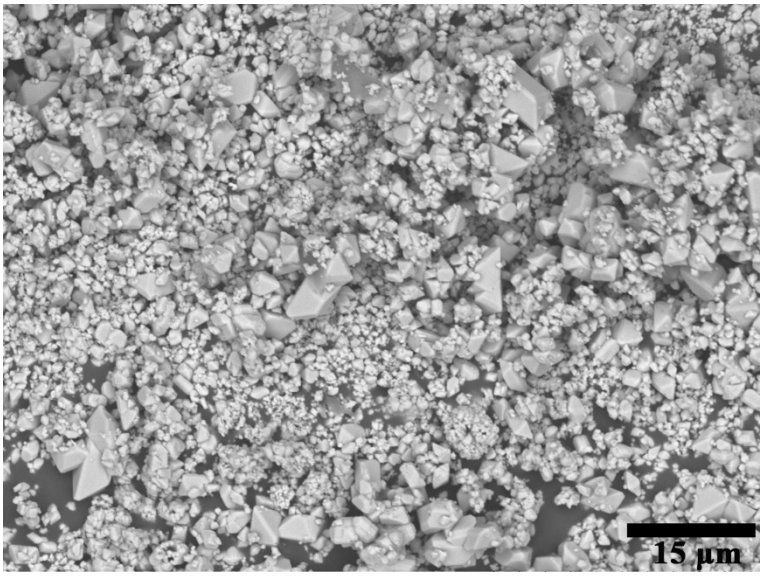


Fig. S3 SEM image of $BiPO_4$ prepared by hydrothermal reaction of bismuth nitrate with $[C_4mim][PF_6]$ in water at 160 $^oC$ for 24 h.

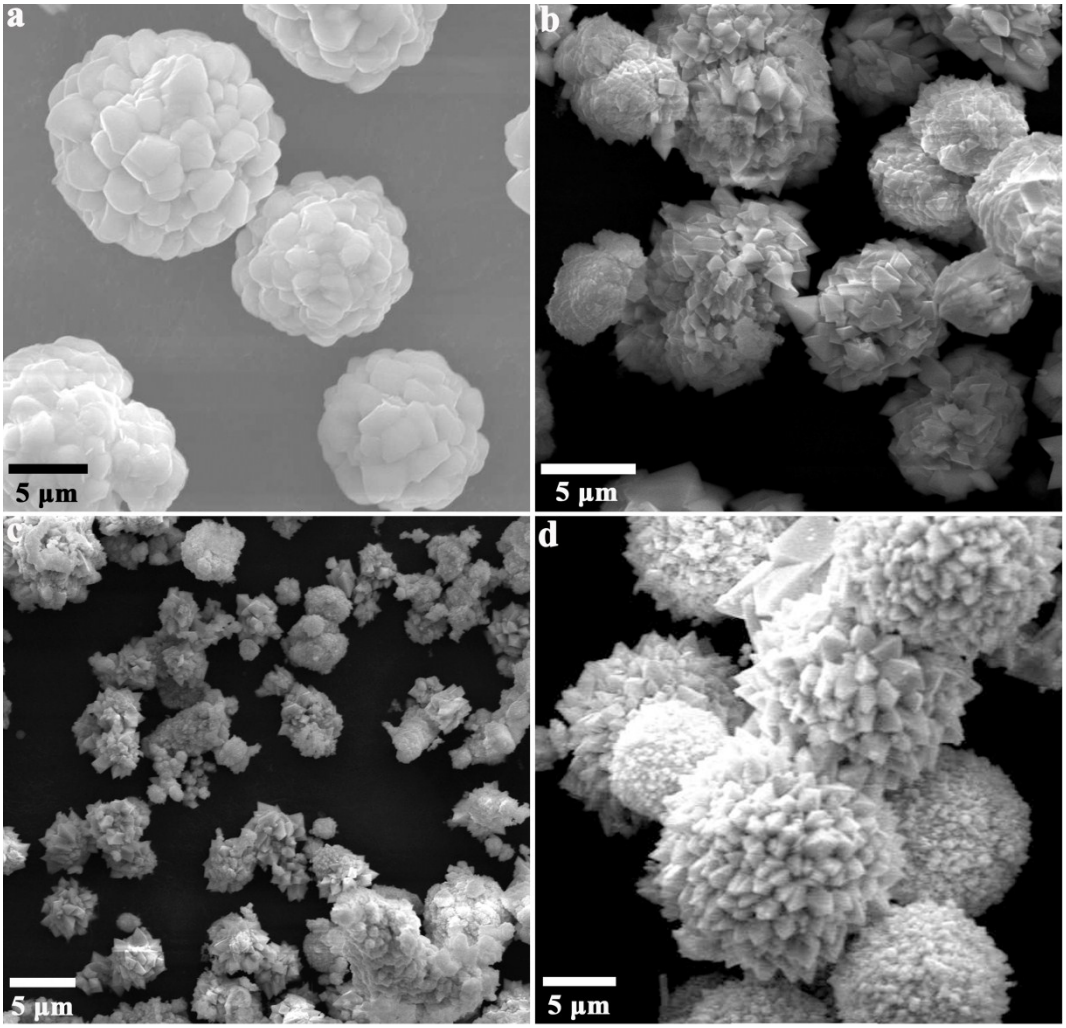


Fig. S4 SEM image of IL-$BiPO_4$ prepared at 160 $^oC$ for (a) 1 min, (b) 5 min, (c) 10 min (d) 15 min.

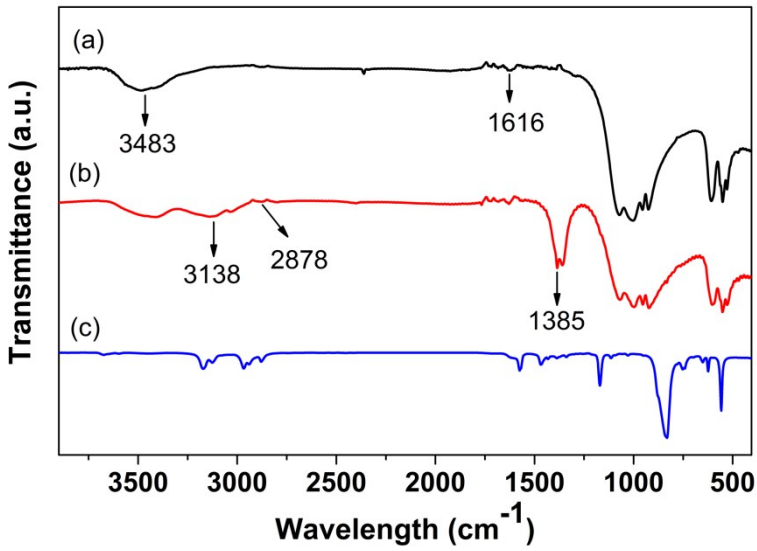


Fig. S5 FT-IR spectra of (a) NH-$BiPO_4$, (b) IL-$BiPO_4$ and (c) [$C_4$mim][$PF_6$].

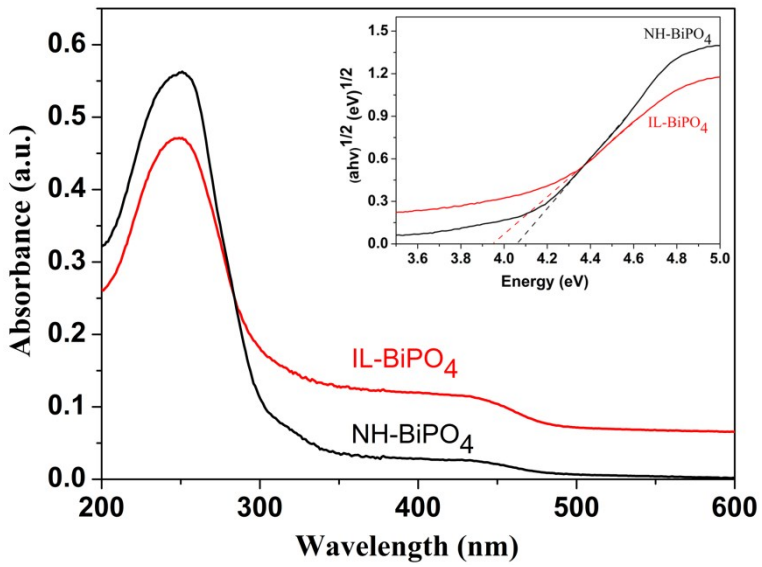


Fig. S6 UV-vis diffuse reflectance spectra and $(\alpha h\nu)^{1/2}$ *versus* the energy of absorbed light (inset) of IL-$BiPO_4$ and NH-$BiPO_4$.

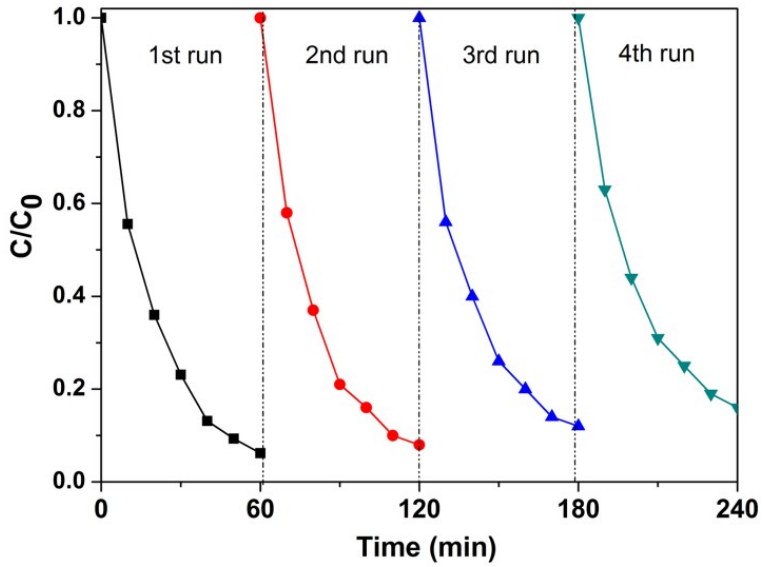


Fig. S7 Cycling runs in photocatalytic decolorization of RhB by IL-$BiPO_4$.