

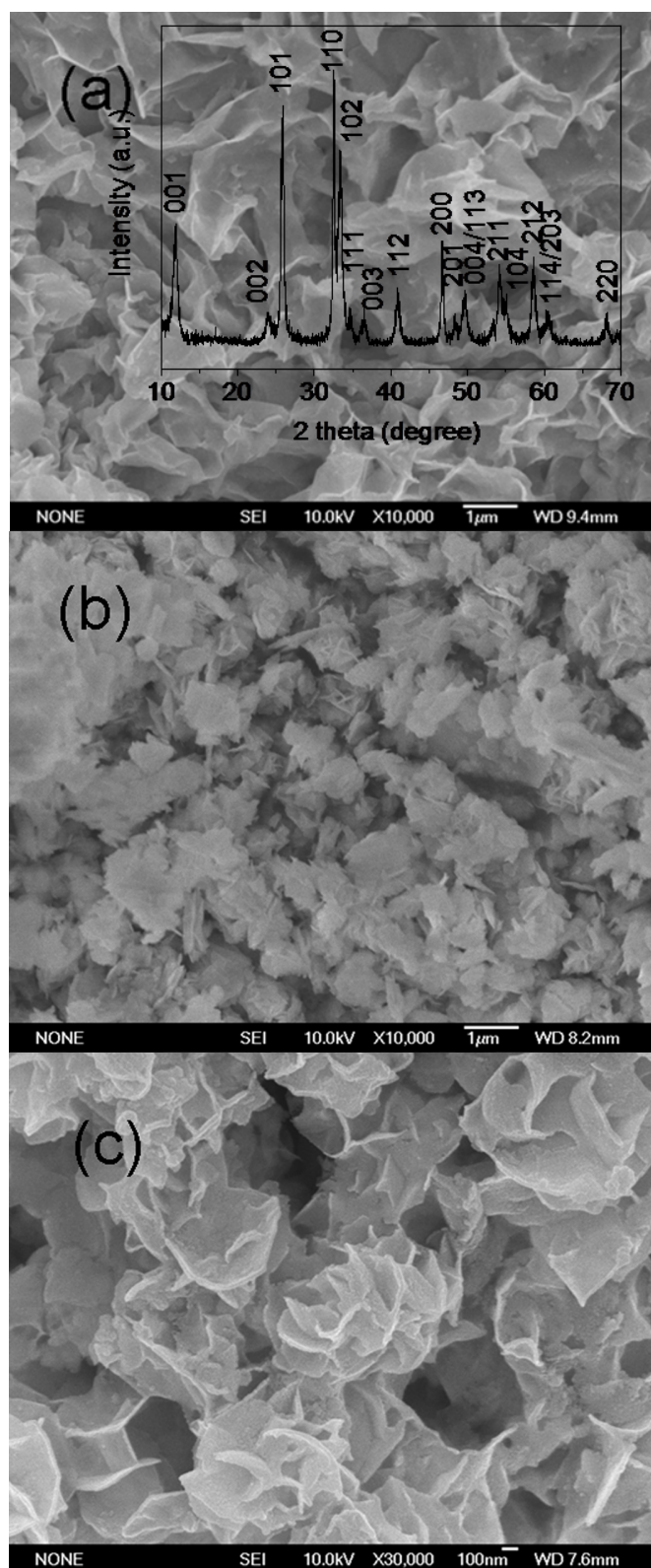
## Supporting Information

# Ionic Liquids-Assisted Synthesis and Electrochemical Properties of Bi<sub>2</sub>S<sub>3</sub> Nanostructures

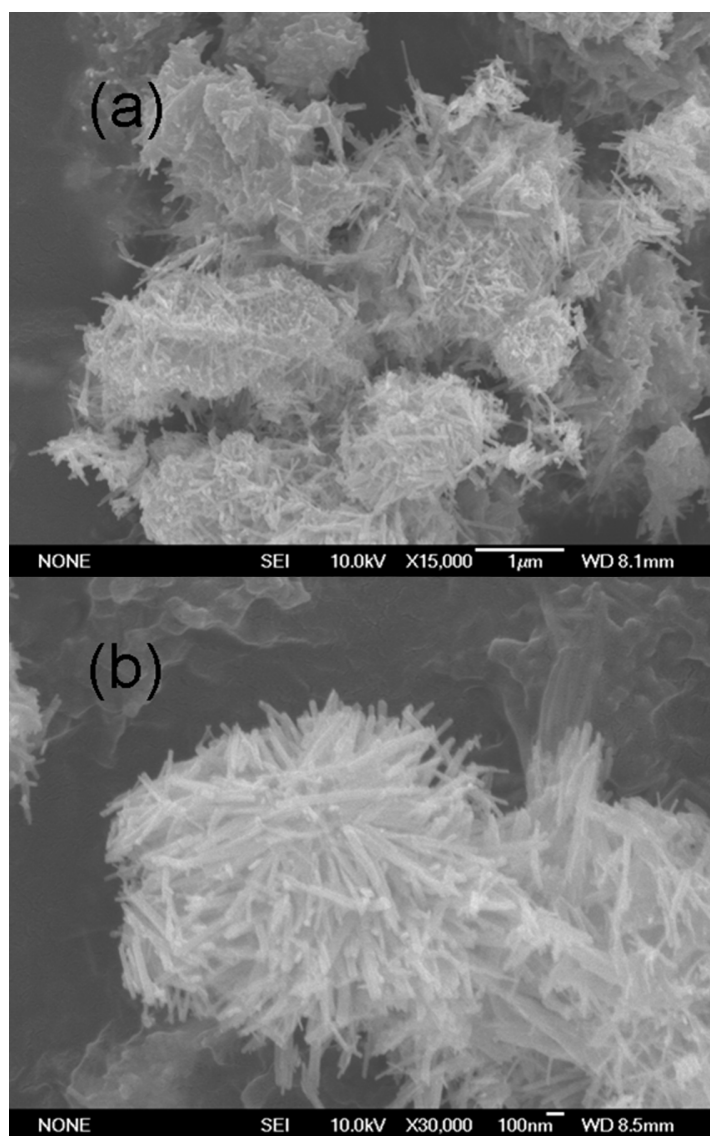
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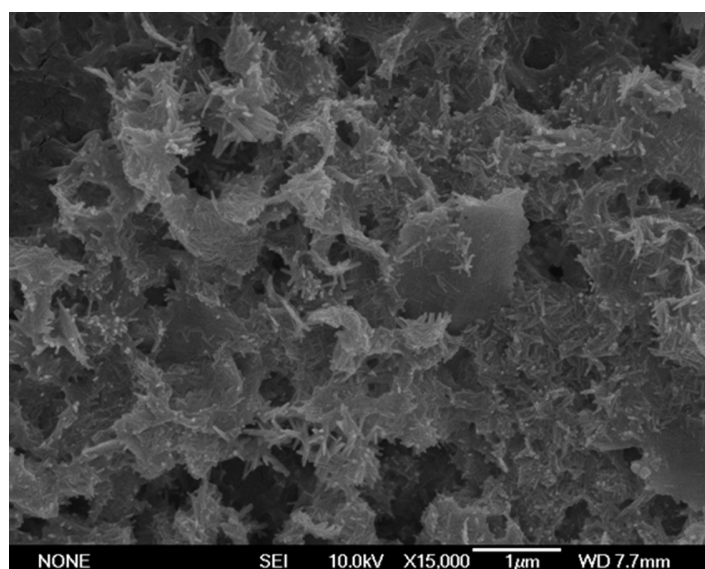
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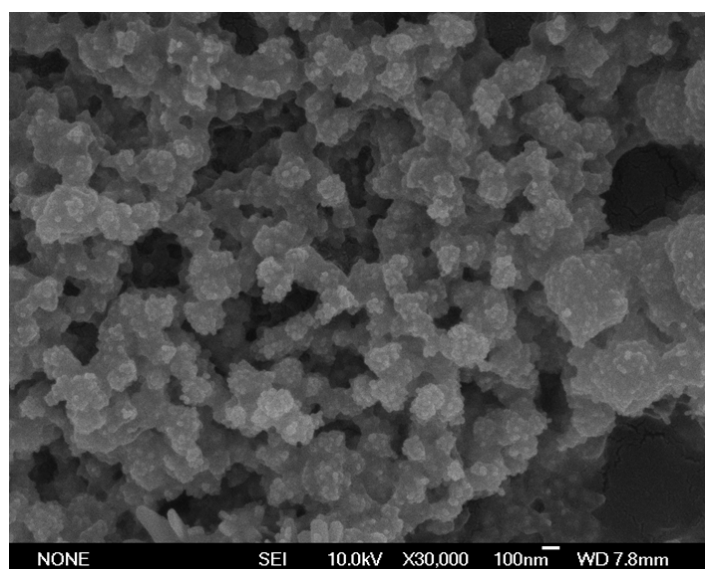
**Fig. S1** BiOCl nanostructures aged for different time: (a) nanoplates for 3 min and XRD pattern of BiOCl (the inset of Fig. S1); (b) nanopaltes for 1 min and (b) aggregations of nanoplates for 30 min.



**Fig. S2** (a) SEM image of the aggregation of nanorods synthesized in the presence of 0.04 mol/L of ionic liquid [mimSbu]Cl at 180 °C for 5 h (aging BiOCl for 1 min at room temperature); (b) SEM image of the aggregation of Bi<sub>2</sub>S<sub>3</sub> nanorods synthesized in the presence of 0.4 mol/L ionic liquid [mimSbu]Cl at 120 °C for 5 h (aging BiOCl for 1 min at room temperature).



**Fig. S3** SEM image of Bi<sub>2</sub>S<sub>3</sub> nanofabrics synthesized in the presence of 0.4 mol/L ionic liquid [mimSBu]Cl at 180 °C for 5 h (aging BiOCl for 3 min at room temperature).



**Fig. S4** SEM image of Bi<sub>2</sub>S<sub>3</sub> nanoparticles synthesized without any ionic liquid at 120 °C.