

## **Electronic Supplementary Information (ESI)**

### **Plasmonic Enhancement of Photocatalysis over Ag Incorporated AgI Hollow Nanostructures**

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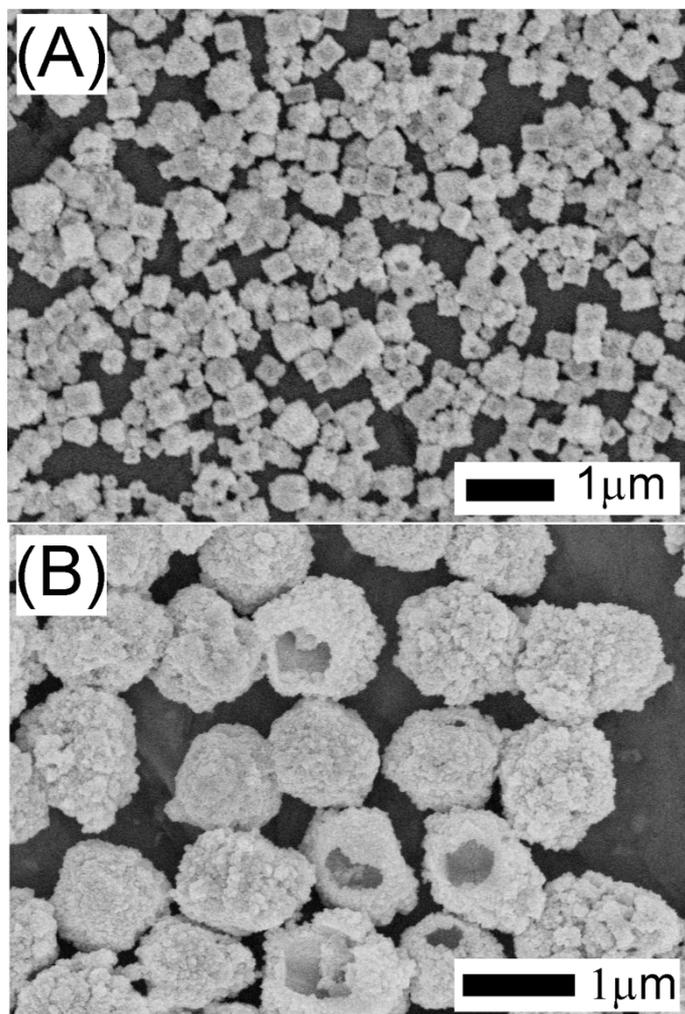


Fig. S1. High-magnification SEM images of AgI nanobox and AgI:Ag cages.

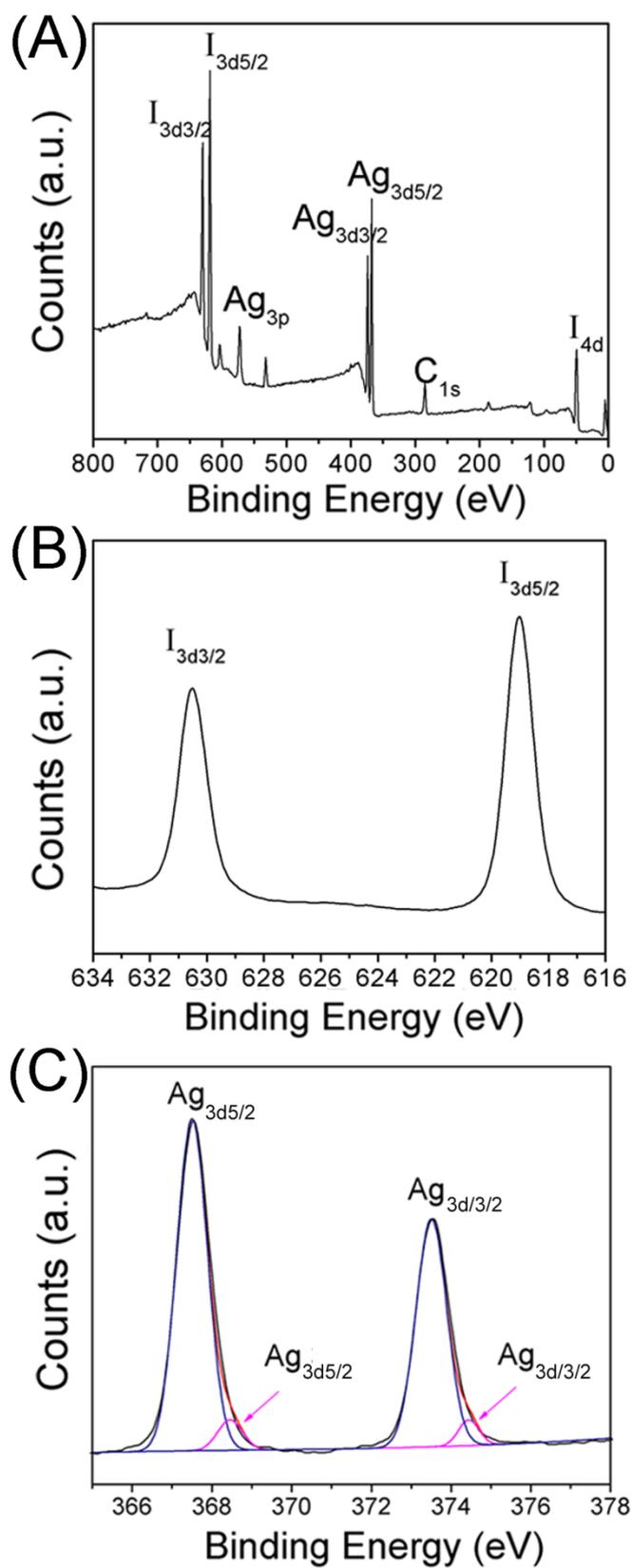


Fig. S2. XPS spectra of the as-prepared hollow cube-tetrapod AgI:Ag cages: (A) survey spectrum, (B) I  $3d$ , (C) Ag  $3d$ .

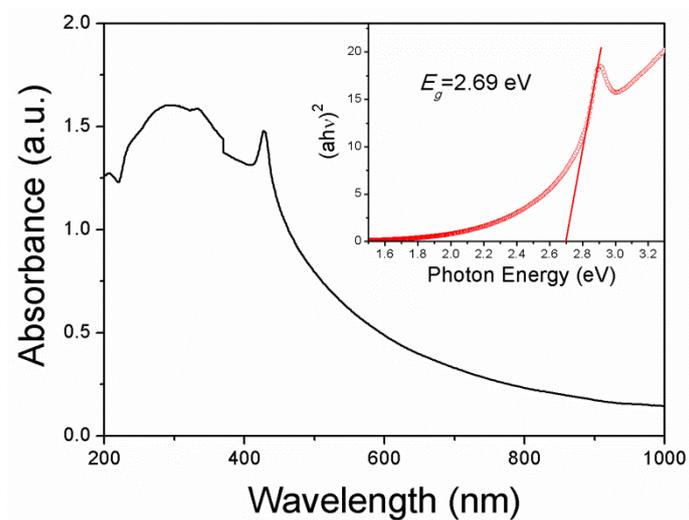


Fig. S3. UV-*vis* spectrum of the as-prepared hollow AgI nanoboxes, the inset highlights the bandgap estimation based on the spectrum.

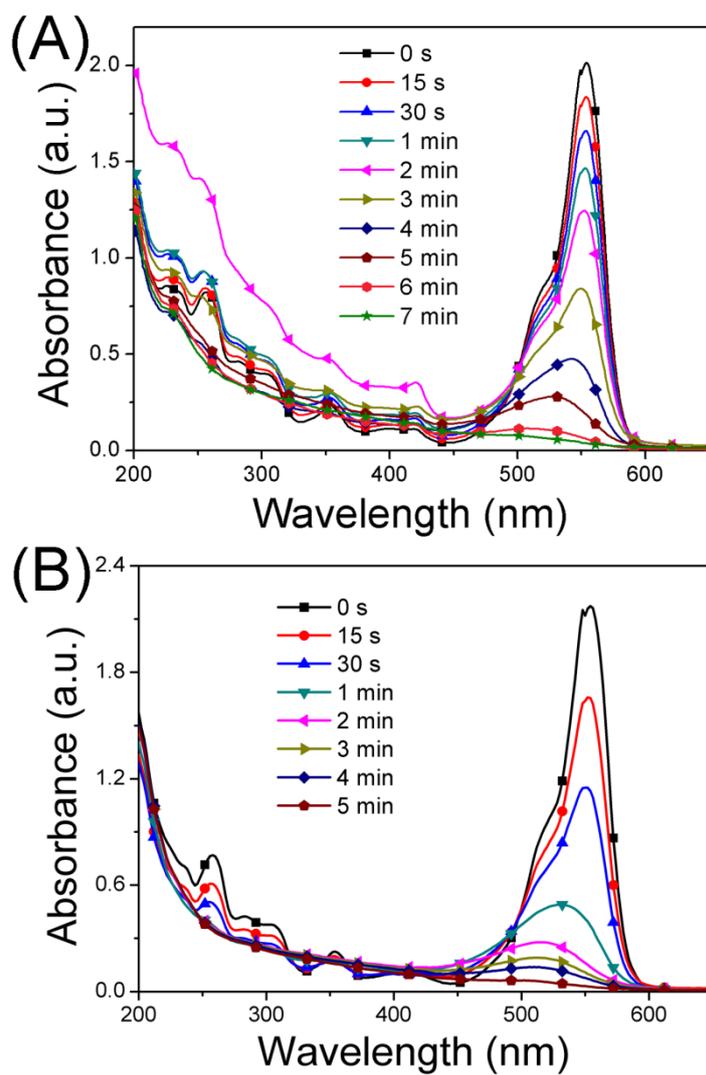


Fig. S4. The variation of absorption spectra of RhB solution after a mixture of the RhB with AgI nanoboxes (A) and hollow cube-tetrapod AgI:Ag cages (B) was exposed to the visible light at different times.

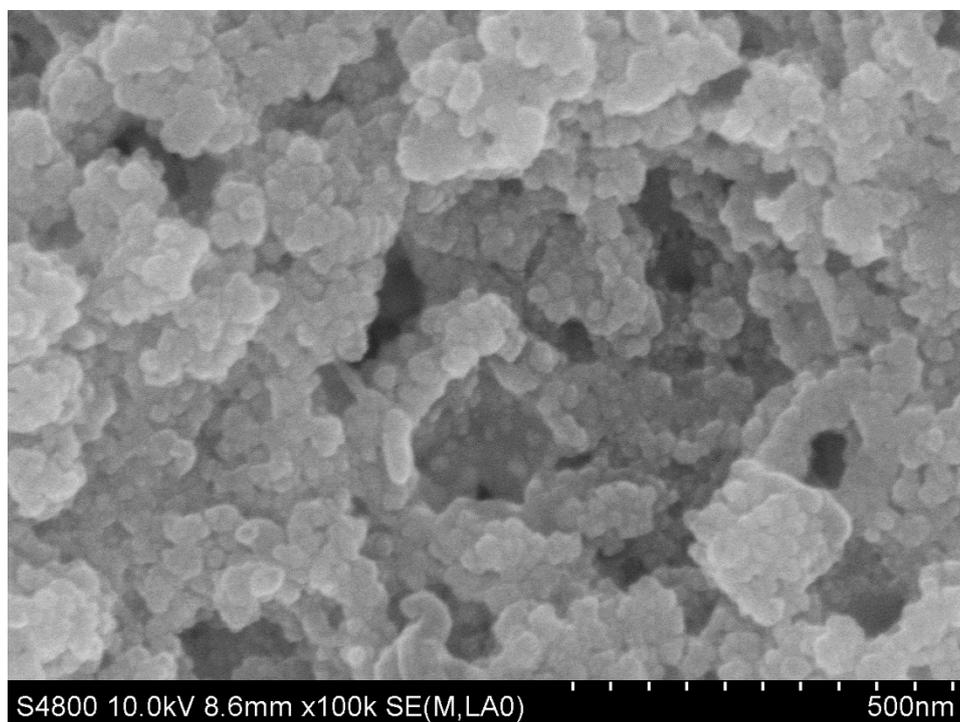


Fig. S5. SEM image of the AgI nanoparticles synthesized through rapid addition of iodide source to the suspension of AgCl nanocubes.

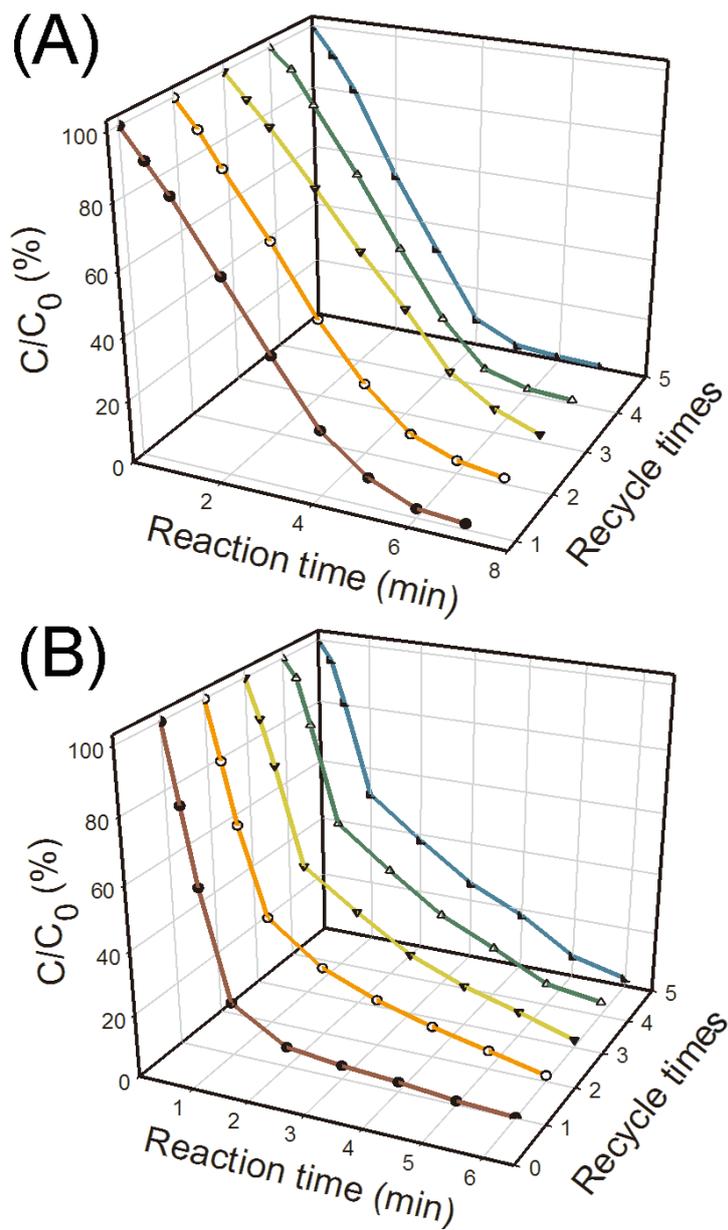


Fig. S6. The degradation curves of RhB solution for 5 successive reactions catalyzed with same batch of photocatalysts of hollow AgI nanoboxes (A) and AgI:Ag cages (B) under visible light irradiation.