

Supporting information

## Fast-generation of $\text{Ag}_3\text{PO}_4$ Concave Microcrystals from Electrochemical Oxidation of Bulk Silver Sheet

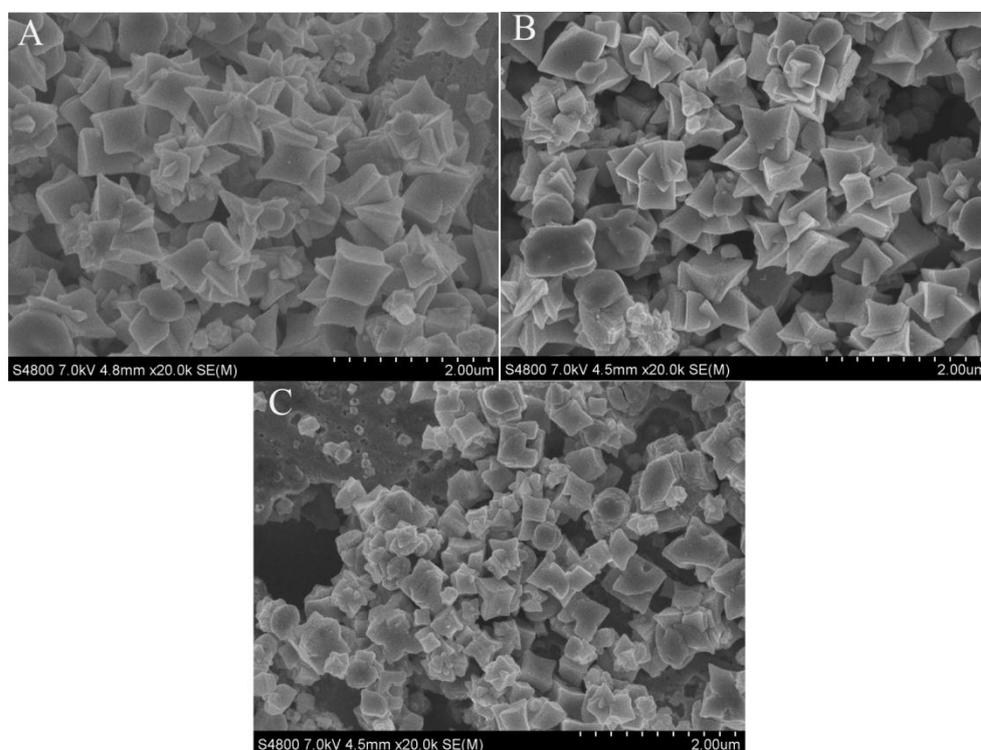
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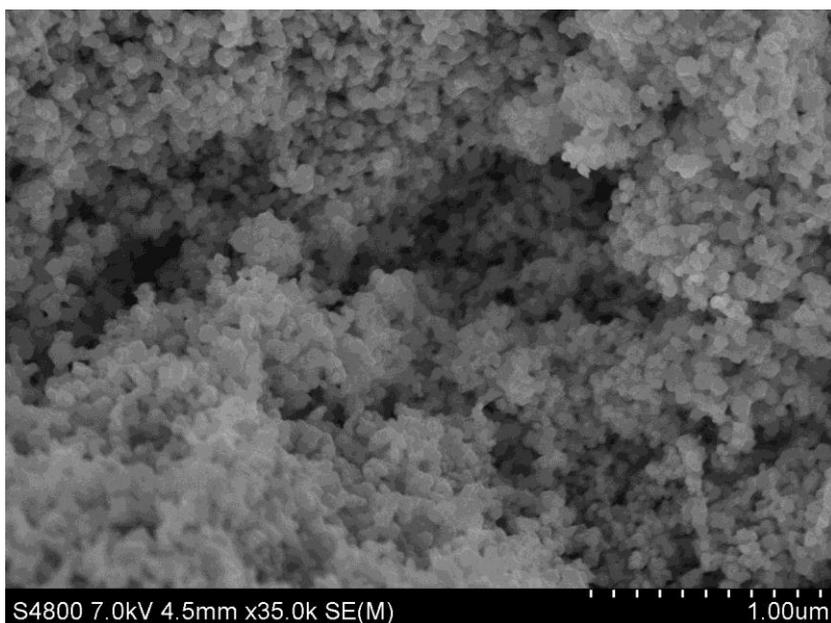
Fax: (+86) 0531-8836-5969.

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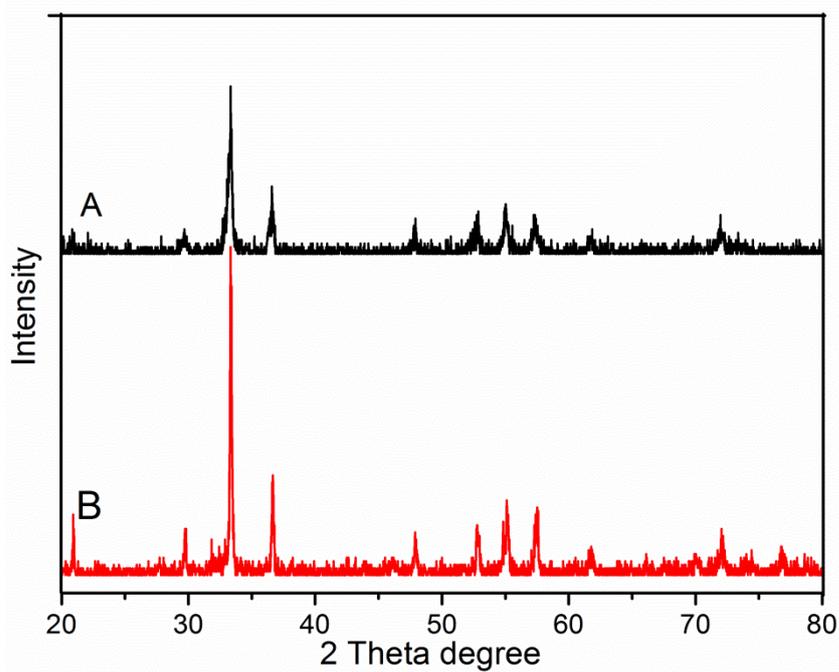
<sup>b</sup> School of Physics, Shandong University, Jinan 250100, P. R. China.



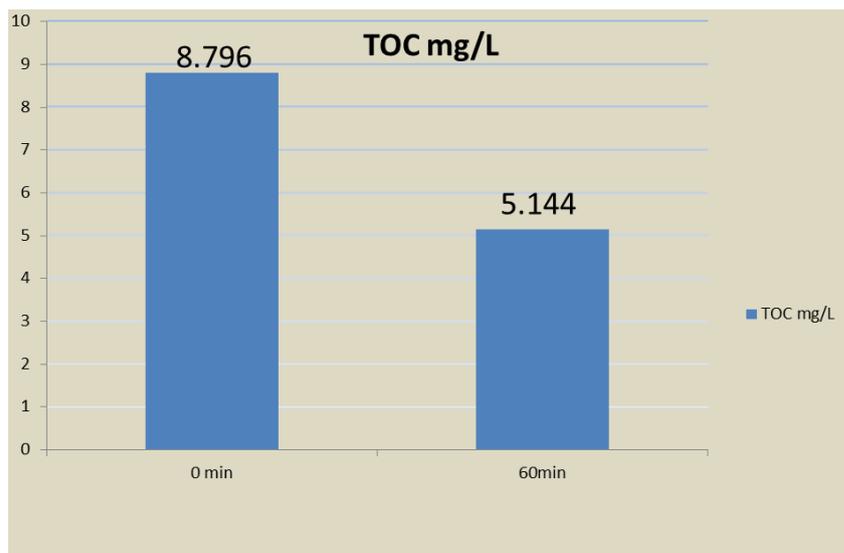
**S1.** SEM images of samples prepared with 2 V voltages added, 4 mM  $\text{Na}_3\text{PO}_4$  and different concentration of  $\text{Na}_2\text{SO}_4$ : 0.05 M (A), 0.1 M (B) and 0.2 M (C).



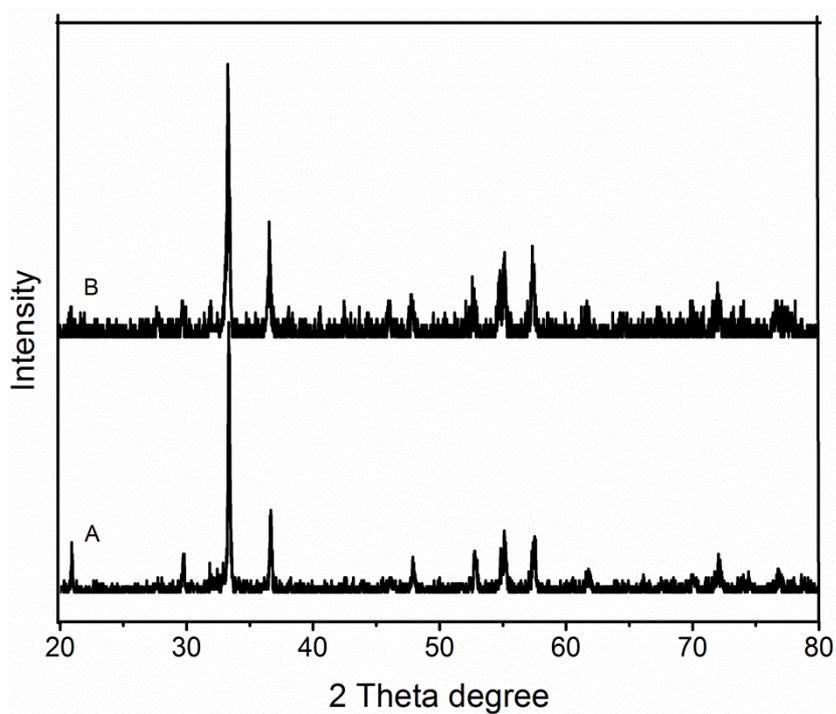
S2. SEM image of  $\text{Ag}_3\text{PO}_4$  irregular-shaped particles prepared by using the traditional precipitation method.



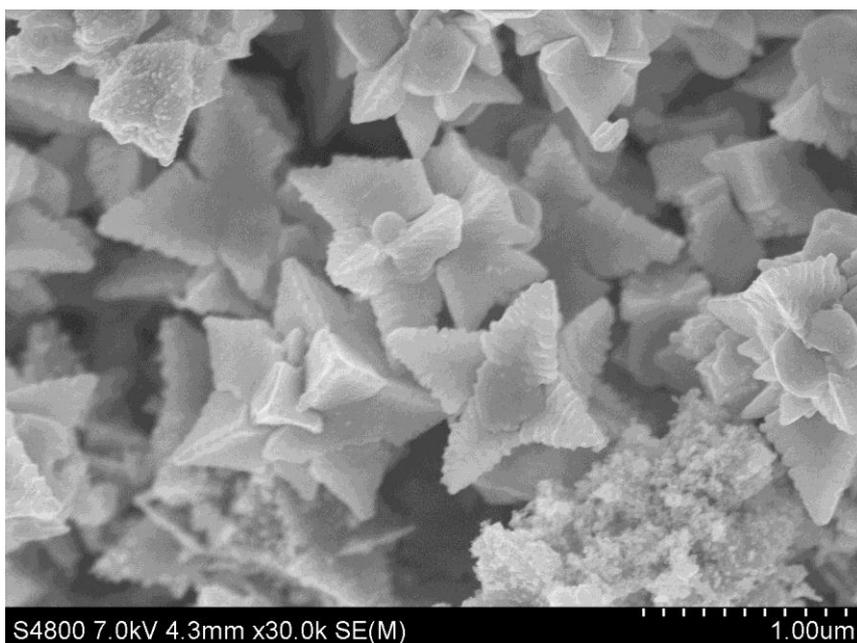
S3. XRD patterns of  $\text{Ag}_3\text{PO}_4$  concave microcrystals (B) and irregular-shaped particles (A).



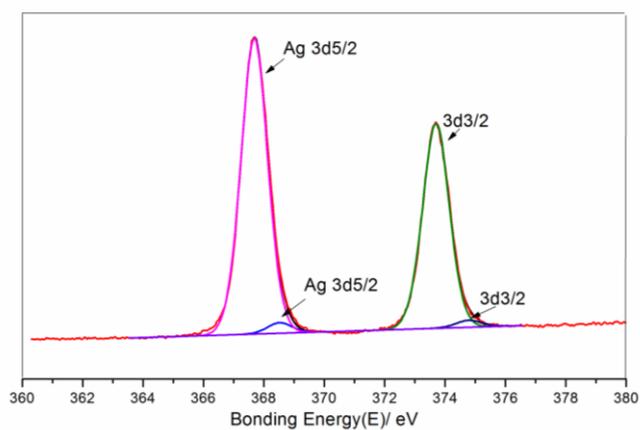
S4. TOC of MB solution during the photocatalytic reaction.



S5. XRD patterns of  $\text{Ag}_3\text{PO}_4$  concave microcrystals before (A) and after (B) photocatalytic reaction.

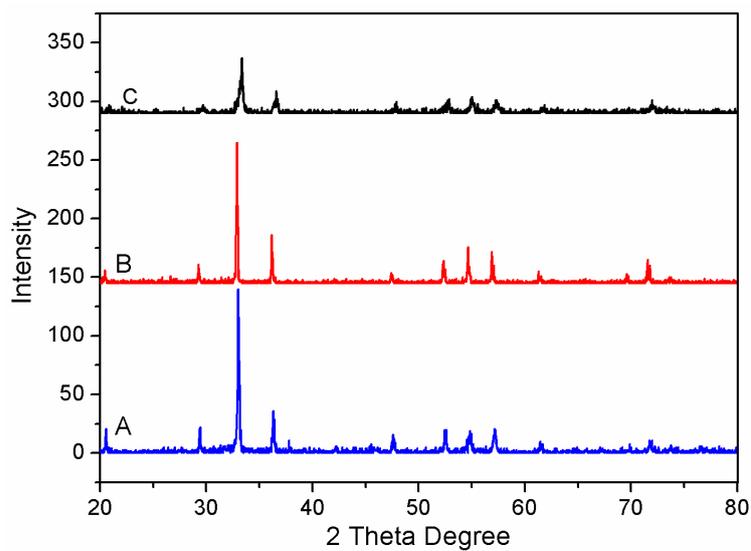


S6. SEM image of  $\text{Ag}_3\text{PO}_4$  concave microcrystals after photocatalytic reaction.

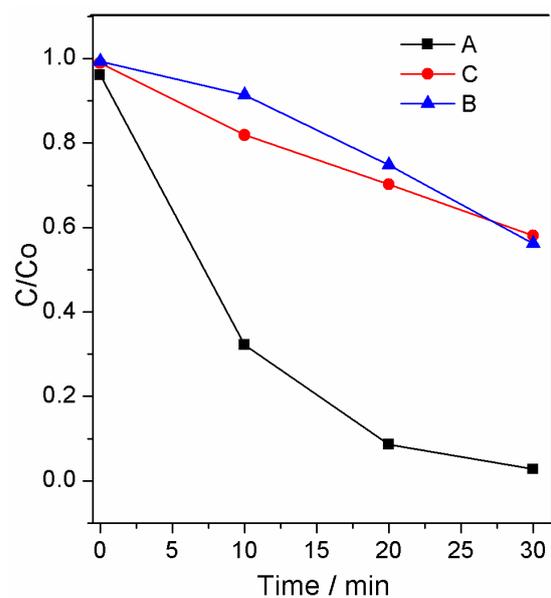


S7. The XPS spectra of Ag 3d of the  $\text{Ag}_3\text{PO}_4$  after photocatalytic reaction

As shown in the figure, Ag 3d spectra of  $\text{Ag}_3\text{PO}_4$  consisted of two individual peaks can be attributed to Ag 3d3/2 and Ag 3d5/2 binding energies, respectively. The Ag 3d3/2 and Ag 3d5/2 peaks can be further divided into two different peaks, respectively.



S8. The XRD patterns of samples: A) concave microcrystals, B) irregular-shaped samples 2 and C) irregular-shaped samples 1.



S9. The decomposition of MB using different photocatalysts : A) concave microcrystals, B) irregular-shaped samples 2 and C) irregular-shaped samples 1 under irradiation of visible light