

1 Letter

# 2 Enhanced Photocatalytic Efficiency of TiO<sub>2</sub> 3 Membrane Decorated with Ag and Au Nanoparticles

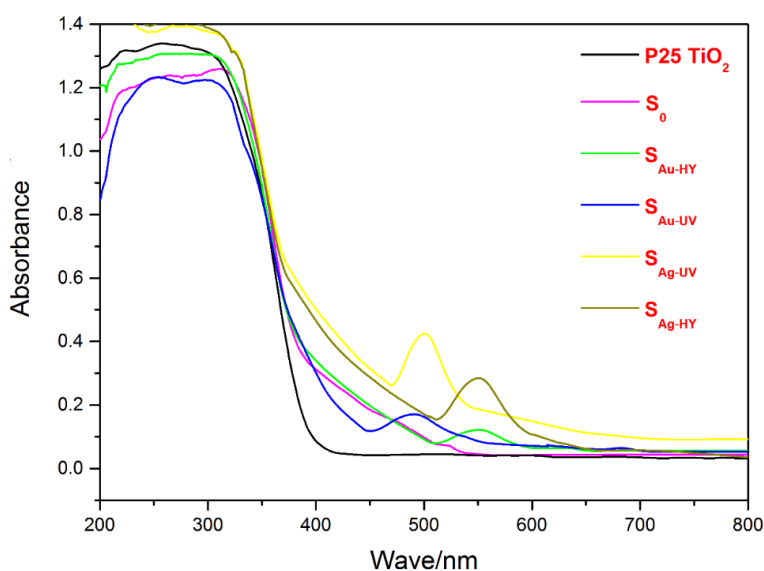
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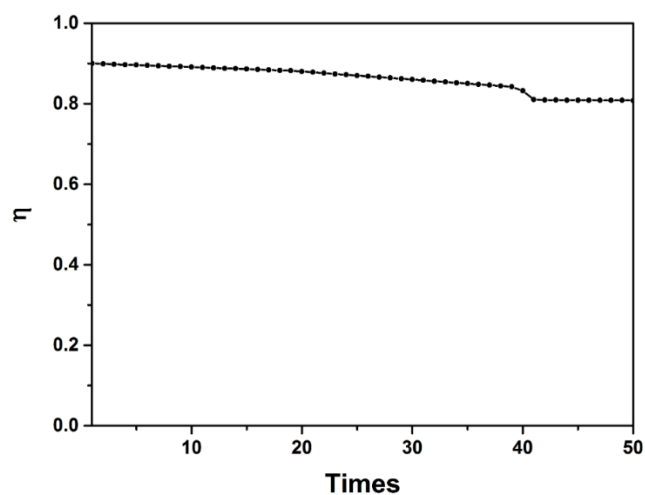
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13 **Figure S1.** UV-Vis diffuse reflectance spectroscopy of S<sub>0</sub>, S<sub>Ag-UV</sub>, S<sub>Ag-HY</sub>, S<sub>Au-UV</sub>,  
14 S<sub>Au-HY</sub> and P25 TiO<sub>2</sub>.

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**Table S2.** Degradation rate constant of Rhodamine B .

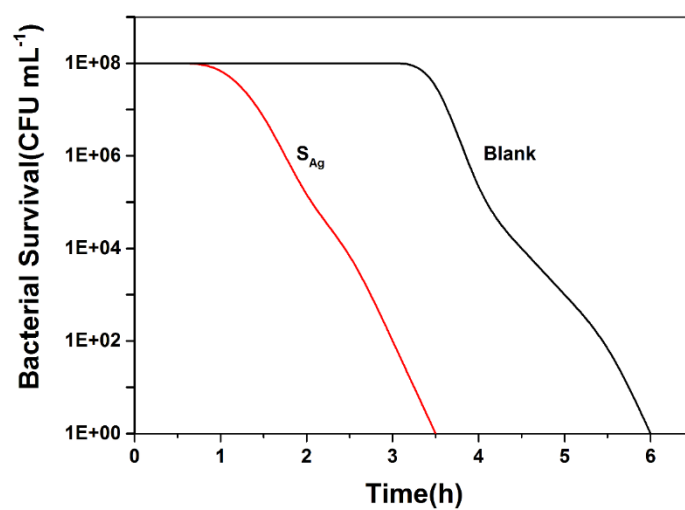
| Name.                | k       | R-squared | Standard error             |
|----------------------|---------|-----------|----------------------------|
| P25 TiO <sub>2</sub> | 0.00113 | 0.95994   | 5.73723 × 10 <sup>-5</sup> |
| S <sub>0</sub>       | 0.00661 | 0.99421   | 1.18416 × 10 <sup>-4</sup> |
| S <sub>Au-HY</sub>   | 0.01505 | 0.95888   | 7.1819 × 10 <sup>-4</sup>  |
| S <sub>Au-UV</sub>   | 0.02025 | 0.92085   | 0.00135                    |
| S <sub>Ag-HY</sub>   | 0.06191 | 0.99249   | 0.00205                    |
| S <sub>Ag-UV</sub>   | 0.07842 | 0.9929    | 0.00279                    |



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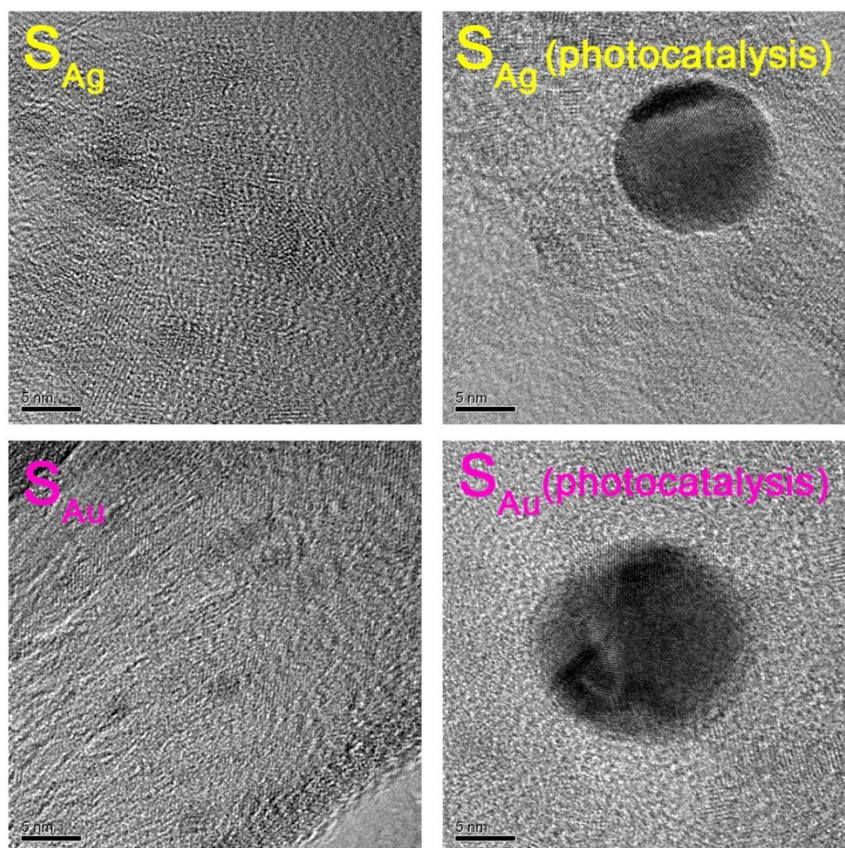
Figure S3. Recycling test of the  $S_{Ag-UV}$  during the degradation of RhB under visible light irradiation.



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Figure S4. *E. coli* inactivation with  $S_{Ag}$  treatment.



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21 **Figure S5.** The evolution of Au or Ag NPs' particle size after the photocatalytic process. The particle  
22 size of Ag and Au NPs increased from  
23  $2.3 \pm 0.1$  nm– $13 \pm 0.3$  nm and from  $2.4 \pm 0.1$  nm– $17 \pm 0.4$  nm, respectively.

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