ESI:

Facile one-pot synthesis of uniform TiO$_2$-Ag hybrid hollow spheres with enhanced photocatalytic activity

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Experimental Section:

Synthesis of P25-Ag hybrids: In a typical experiment, 0.02 g P25 and 0.005 g AgNO$_3$ were dissolved in 40 mL of distilled water with the assistance of ultrasonication for 10 min. Successively, the mixture was transferred into a 50 mL Teflon-lined autoclave, and maintained at 150 °C for 10 h. After collected by centrifugation, the products were washed with ethanol and distilled water three times, before dried at 80°C for more than 6 h.

Synthesis of TiO$_2$-Ag hybrids: In a typical procedure, 0.096 g of Ti(SO$_4$)$_2$, 0.288 g of urea and 0.005 g AgNO$_3$ were dissolved in 40 mL of distilled water with the assistance of ultrasonication for 10 min. Successively, the mixture was transferred into a 50 mL Teflon-lined autoclave, and maintained at 150 °C for 10 h. After collected by centrifugation, the products were washed with ethanol and distilled water three times, before dried at 80°C for more than 6 h. The final hybrid hollow spheres were obtained after calcination the above samples at 400 °C in static air for 2 h.
**Fig. S1.** The photocatalytic degradation of RhB using different photocatalysts.