Supporting Information

A "concentration-induced self-assembly" strategy for Ag$_x$H$_{3-x}$PMo$_{12}$O$_{40}$ nanorods: synthesis, photoelectric properties and photocatalytic application
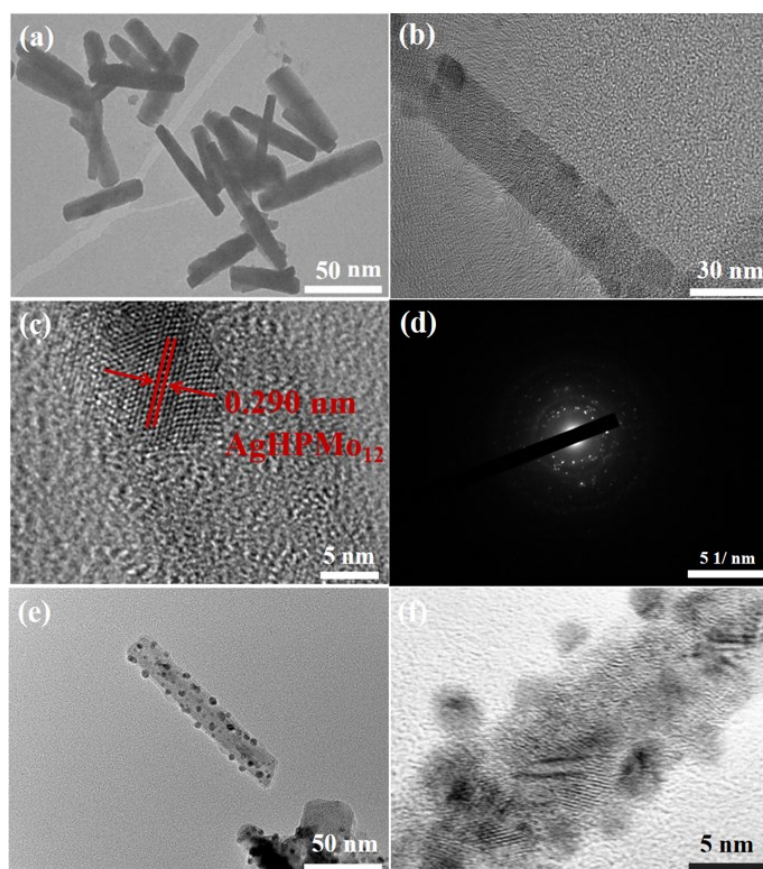
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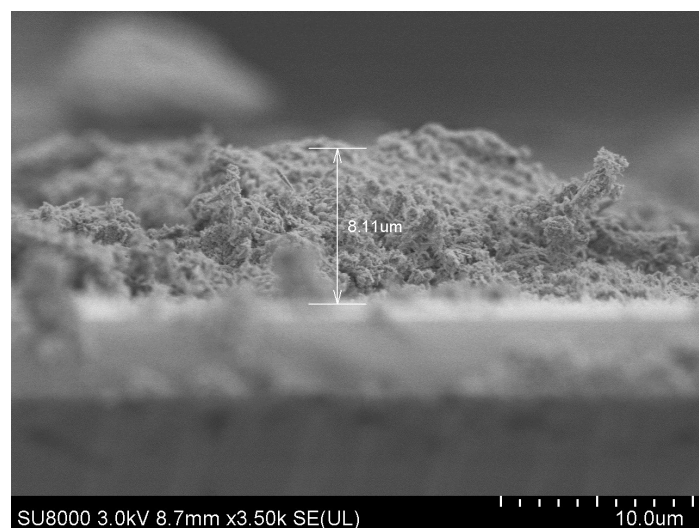* Corresponding author. Tel.: +86-431-85098760; Fax: +86-431-85099765.

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S1. TEM and HRTEM images

Fig. S1. TEM images of AgHPMo$_{12}$ nanorods (a), AgHPMo$_{12}$ nanorods/CuPc (e).

HRTEM photographs of AgHPMo$_{12}$ nanorods (b,c) and AgHPMo$_{12}$ nanorods/CuPc (f).

SAED pattern of the AgHPMo$_{12}$ nanorods (d).

S2. SEM image

Fig. S2. The cross-section diagram of the AgHPMo$_{12}$ nanorods/CuPc fabricated by silkscreen printing on ITO substrate. The membrane with a thickness about 8 μm can be observed from the cross-section diagram.
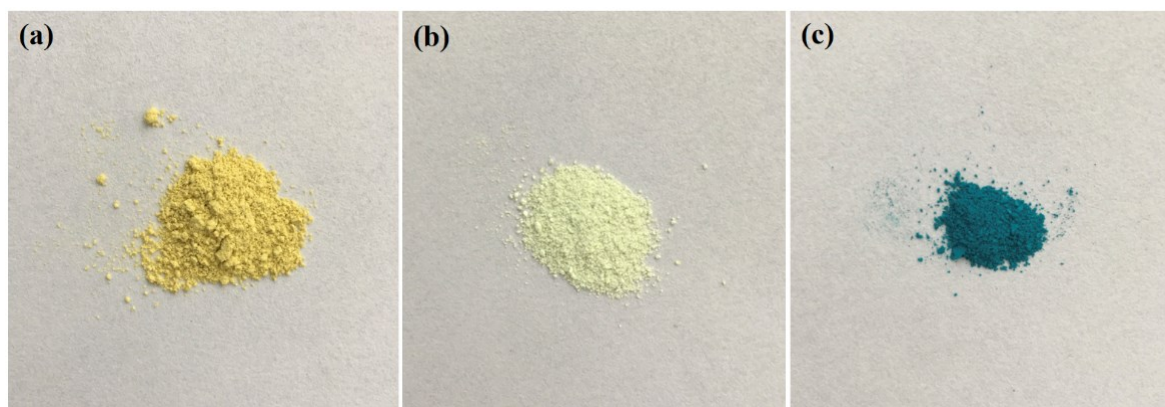
S3. EDX analysis
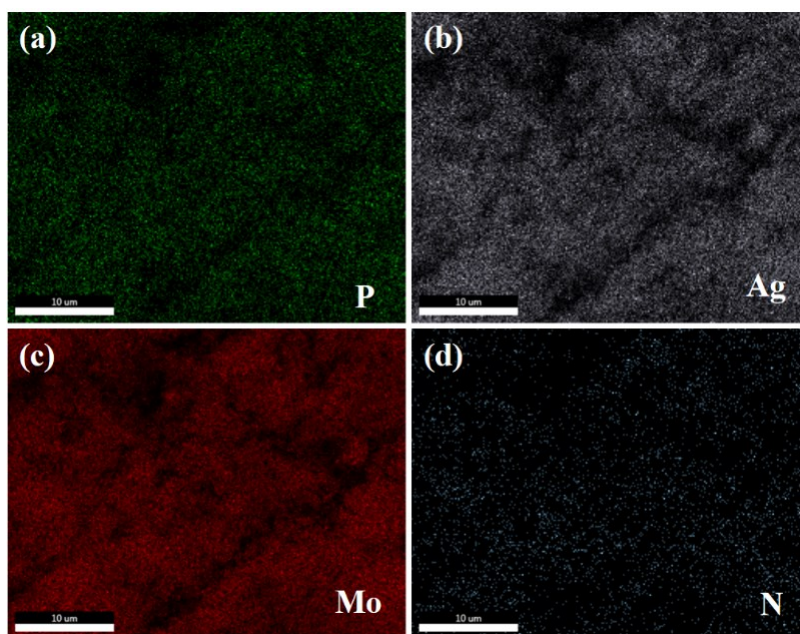
Fig. S3. The corresponding elemental mapping of the AgHPMo$_{12}$ nanorods/CuPc. Elements of P(a), Ag(b), Mo(c), N(d) in the sample.
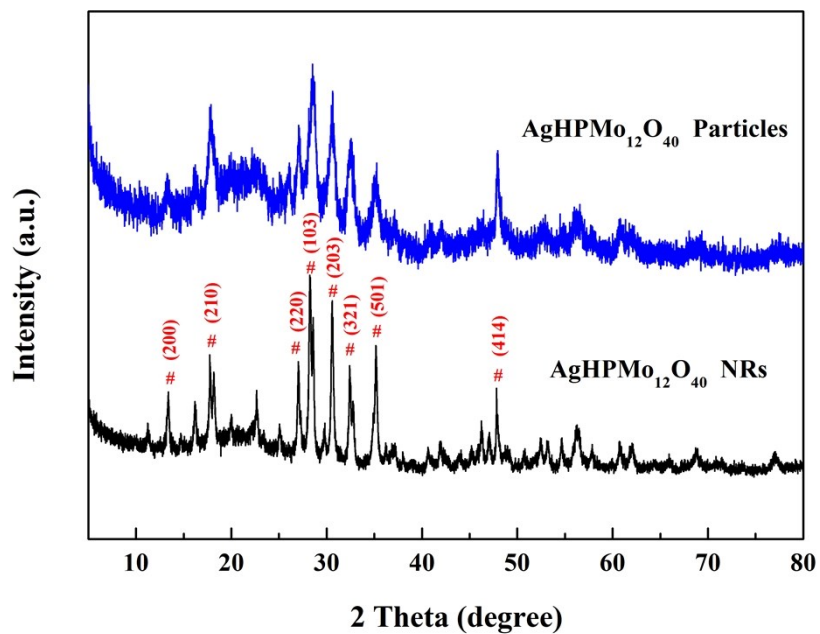
S4. UV-vis spectra of TH solution
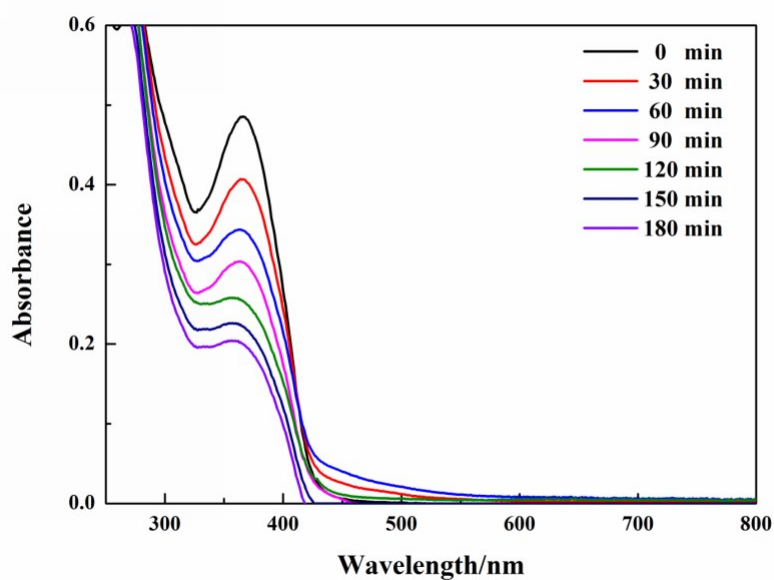
Fig. S4. Photocatalytic degradation of tetracycline hydrochloride for $AgHPMo_{12}$ nanorods/CuPc under UV-vis light irradiation (200nm-800nm).
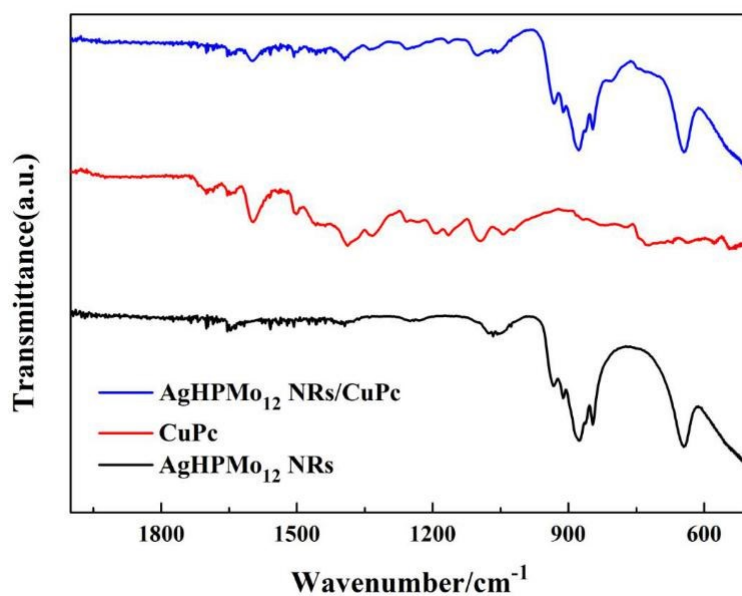
S5. Photo of the samples

Fig. S5. The actual images of three samples: (a) $AgHPMo_{12}$ particles; (b) $AgHPMo_{12}$ nanorods; (c) $AgHPMo_{12}$ nanorods/CuPc.

S6. XRD analysis

Fig. S6. XRD patterns of AgHPMo$_{12}$ particles and AgHPMo$_{12}$ nanorods.

S7. IR spectra

Fig. S7. IR spectra of pure CuPc, AgHPMo$_{12}$ nanorods and the AgHPMo$_{12}$ nanorods/CuPc.

S8. Conductivity measurements

The current-voltage (I-V) measurements were performed on a CHI660C Electrochemical Workstation (Shanghai Chenhua Instrument Corp, China). For I-V measurements, the dried pellet was sandwiched between two clean FTO substrates and the I-V curve of the pellet was collected with a two-electrode setup. The electrical conductivity (σ) of the material was then calculated by the following equation.

$$\sigma = \frac{l}{RA}$$

where R is the electrical resistance estimated from the slope of the I-V curve near zero voltage, l is the thickness of the pellet which is in the range of 0.1-0.3 mm, and A is the cross-section area of the pellet, which is 1.1304 cm^2. The average value of electrical conductivity for each material was calculated from two pellet measurements.
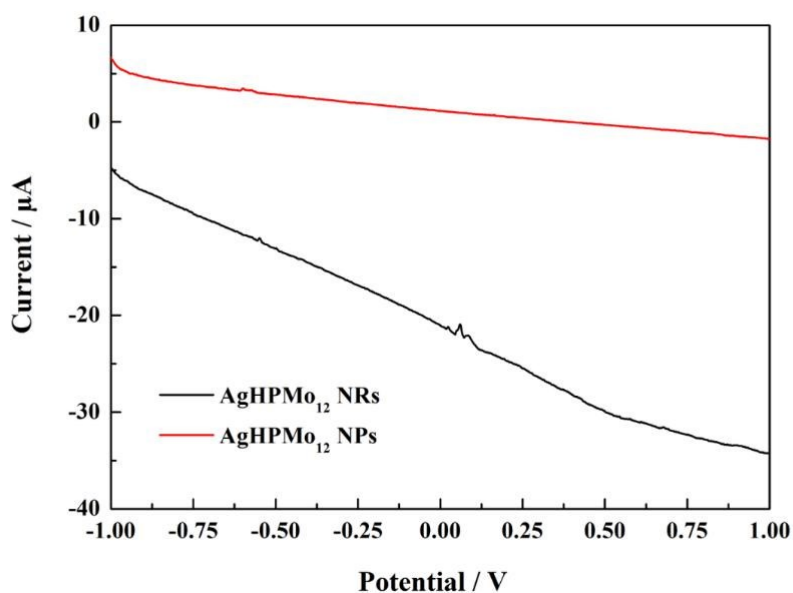
Fig. S8. Representative I-V curves of the AgHPMo$_{12}$ particles and AgHPMo$_{12}$ nanorods.

Table. S1. The thickness of the two pellets and the electrical conductivity (σ) of the

AgHPMo$_{12}$ particles and AgHPMo$_{12}$ nanorods.

	l (mm)	σ (S/m)
AgHPMo$_{12}$ particles	0.315	8.87×10^{-6}
AgHPMo$_{12}$ NRs	0.352	5.10×10^{-5}