

Supplementary Information

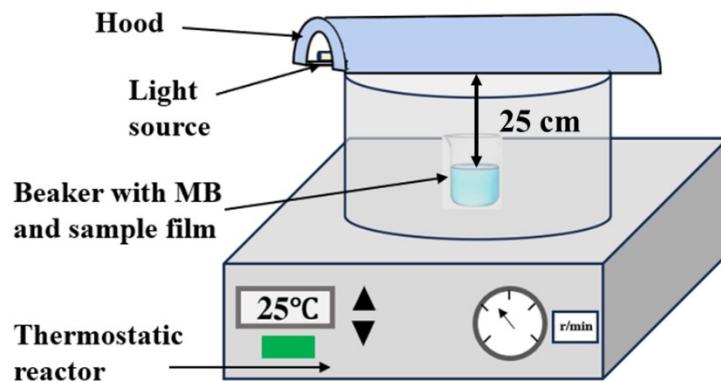


Fig. S1. Schematic illustration of the experimental setup.

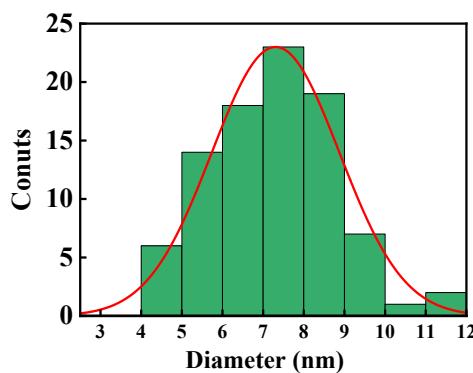


Fig. S2. Size distribution of AuNPs synthesized by one layer of precursor film.

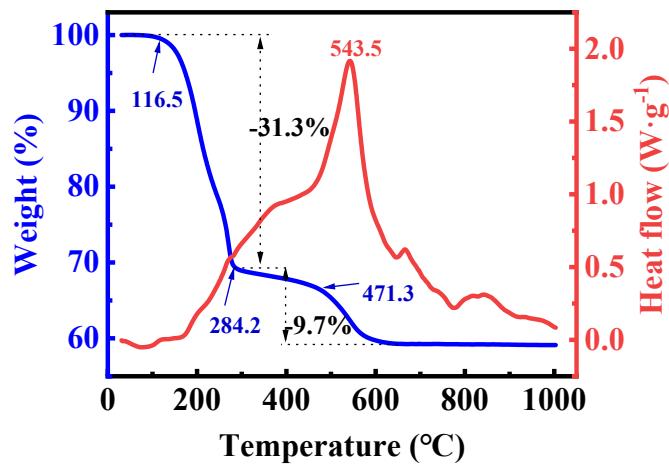


Fig. S3. TGA and DSC curves of gold resinate.

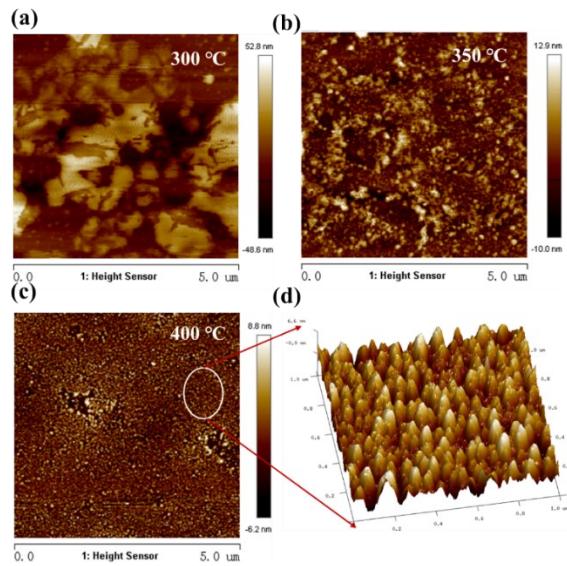


Fig. S4. AFM images of the precursor films after annealing at 300, 350 and 400 °C for 15 min respectively.

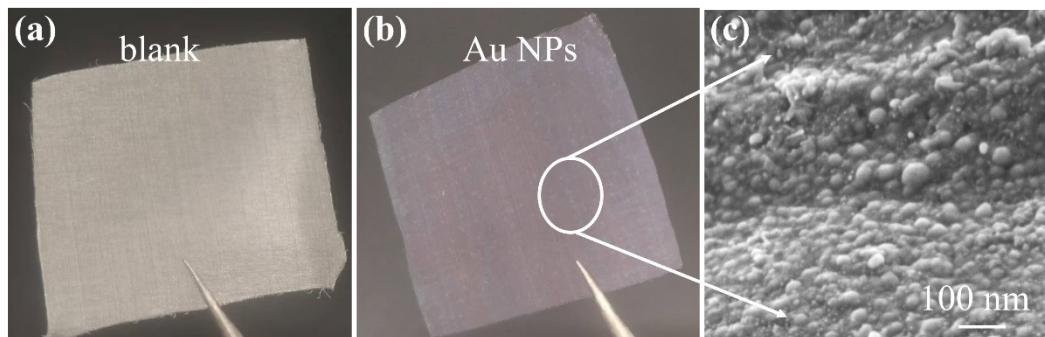


Fig. S5. (a, b) Optical photographs of blank wire mesh and loaded Au NPs wire mesh. (c) SEM images.

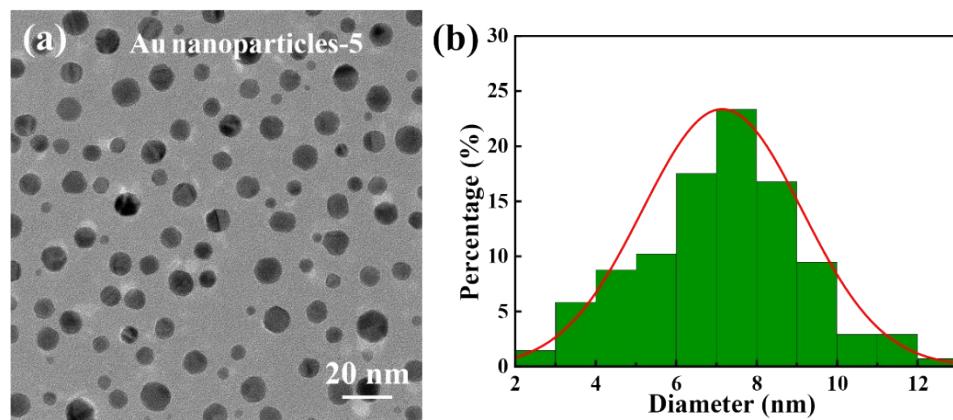


Fig. S6. (a) TEM images of AuNPs prepared by 5 layers of precursor film. (b) Size distribution of AuNPs.

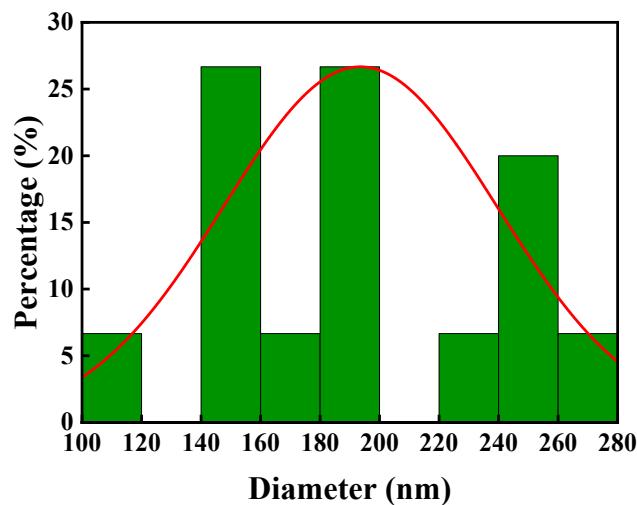


Fig. S7. Size distribution of pure TiO₂ nanoparticles.

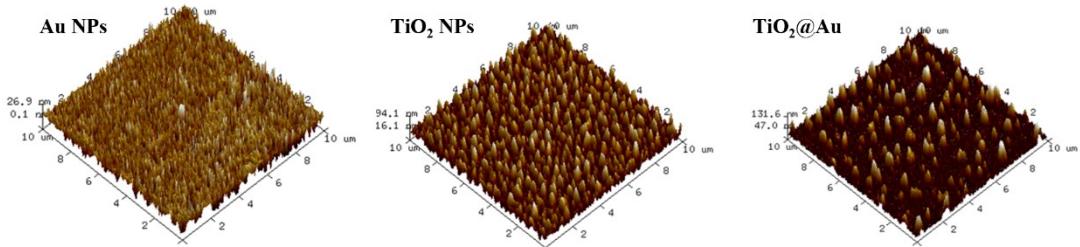


Fig. S8. AFM images of AuNPs, TiO₂ NPs and TiO₂@Au NPs.

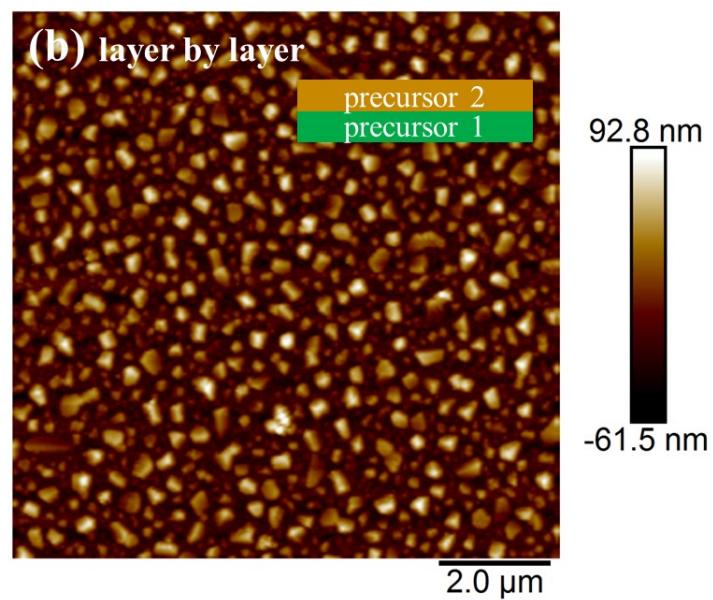


Fig. S9. AFM image of TiO₂@Au film prepared through layer by layer.

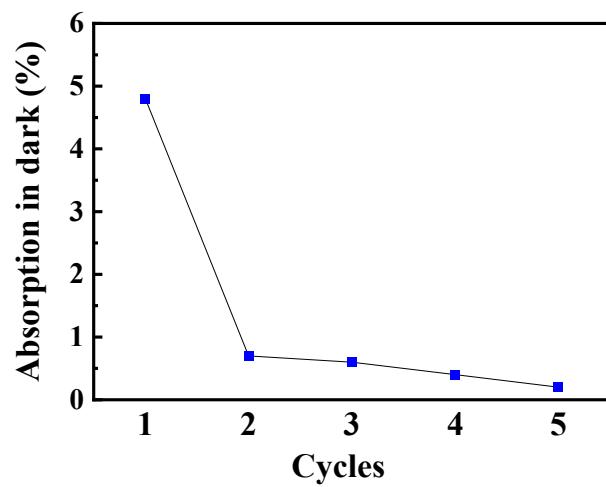


Fig. S10. Dark absorption of photocatalysts in different cycles.