

Solid state photochromism of pyrano[3,2-*c*]chromen-5-one moiety with the assistance of localized surface plasmons

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Supplementary Materials:

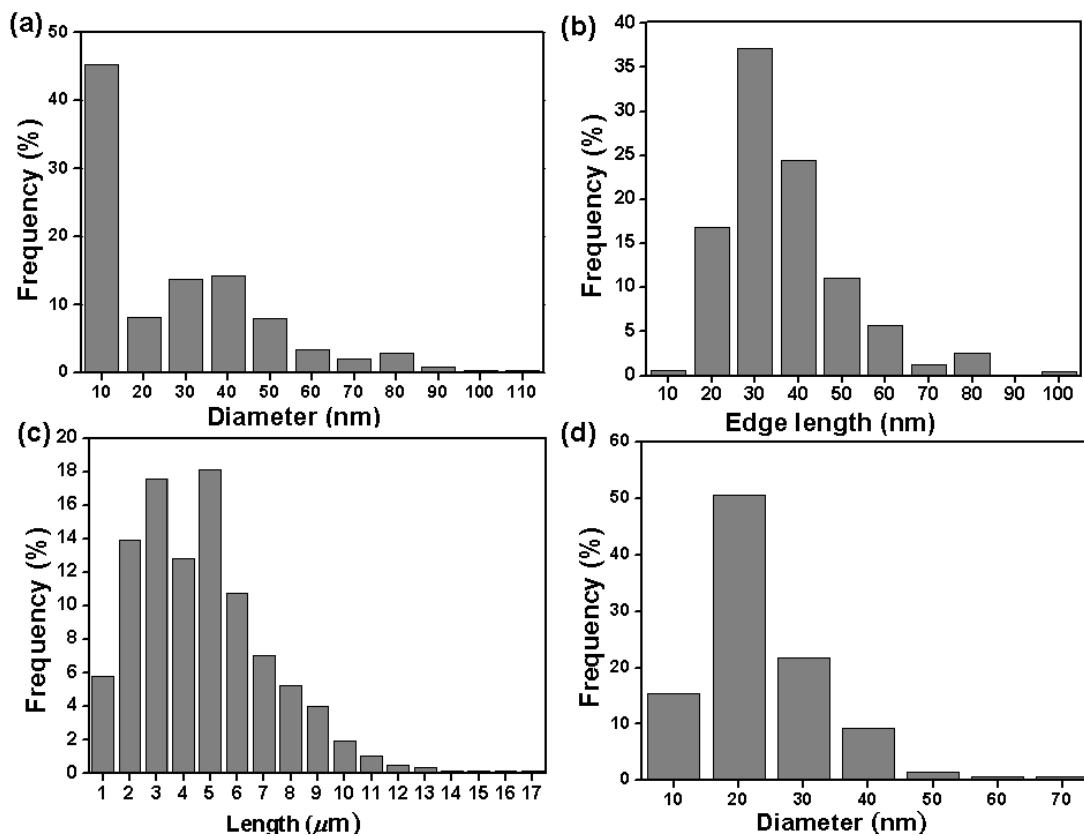


Figure S1. The histogram analysis of (a) AgS, (b) AgP, (c) AgW, and (d) AgD. Histograms showing the particle size distribution are constructed based on TEM photographs. A total of (a) 571, (b) 471, (c) 568, and (d) 142 particles are used in this histogram.

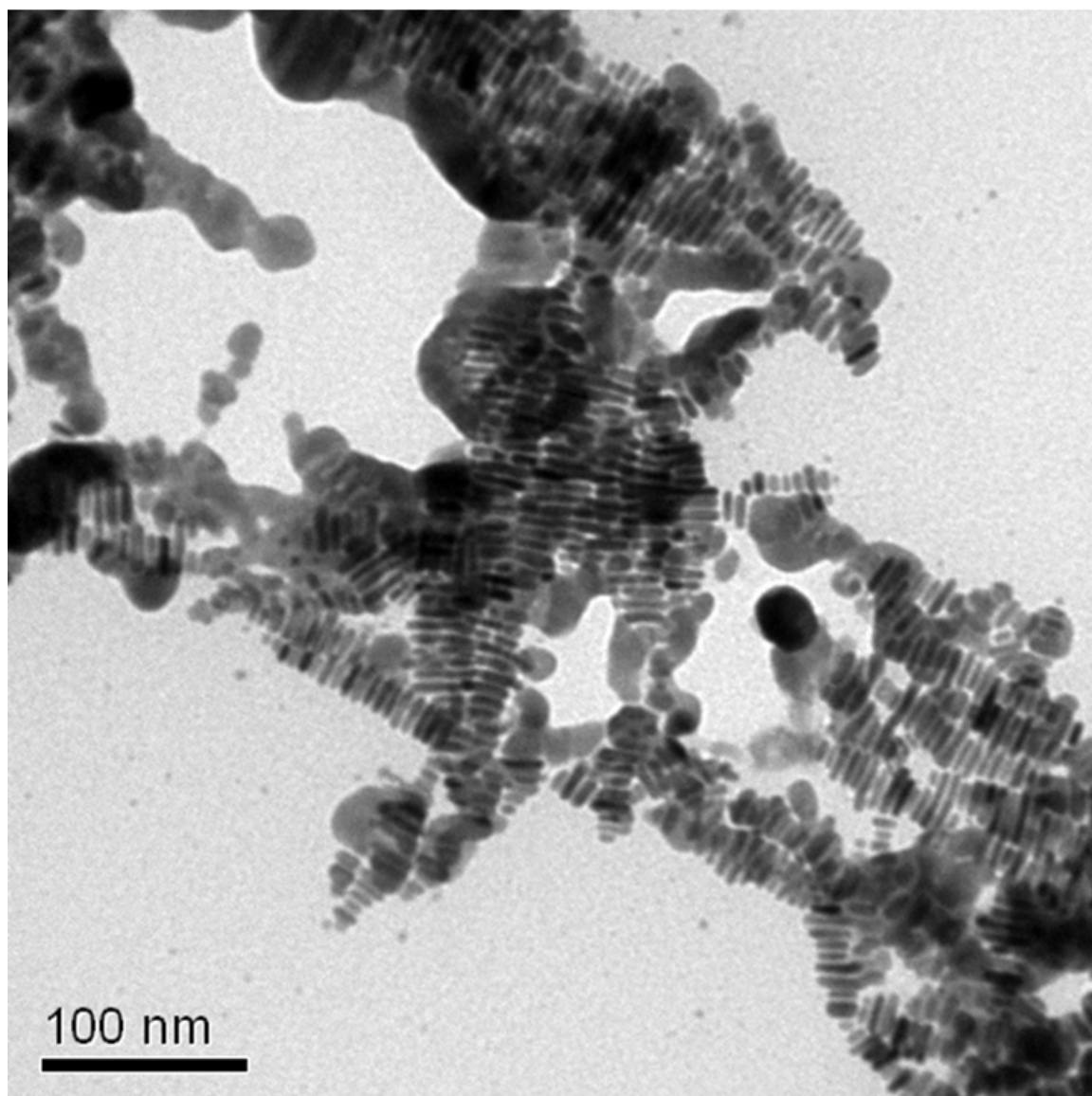


Figure S2. Stacks of AgP assembled in a top-to-base manner.

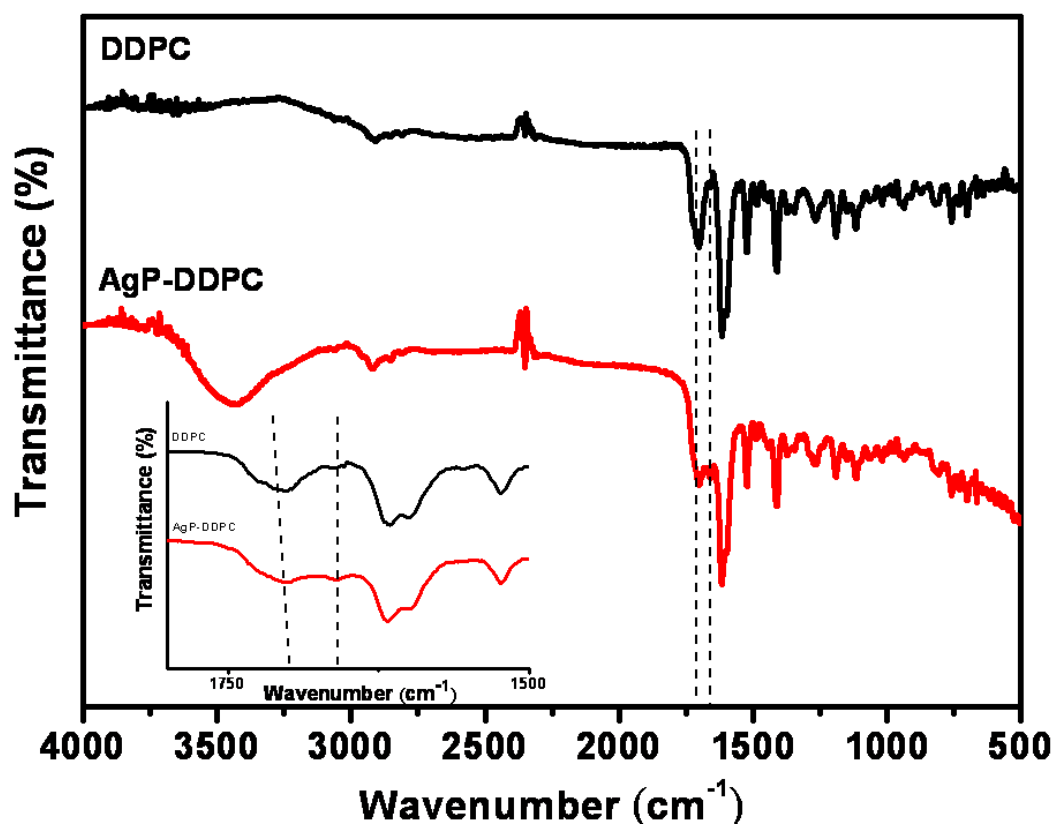


Figure S3. FT-IR spectra of **DDPC** and **AgP-DDPC**. Inset: FT-IR spectra of **DDPC** and **AgP-DDPC** from 1500 to 1800 cm⁻¹.

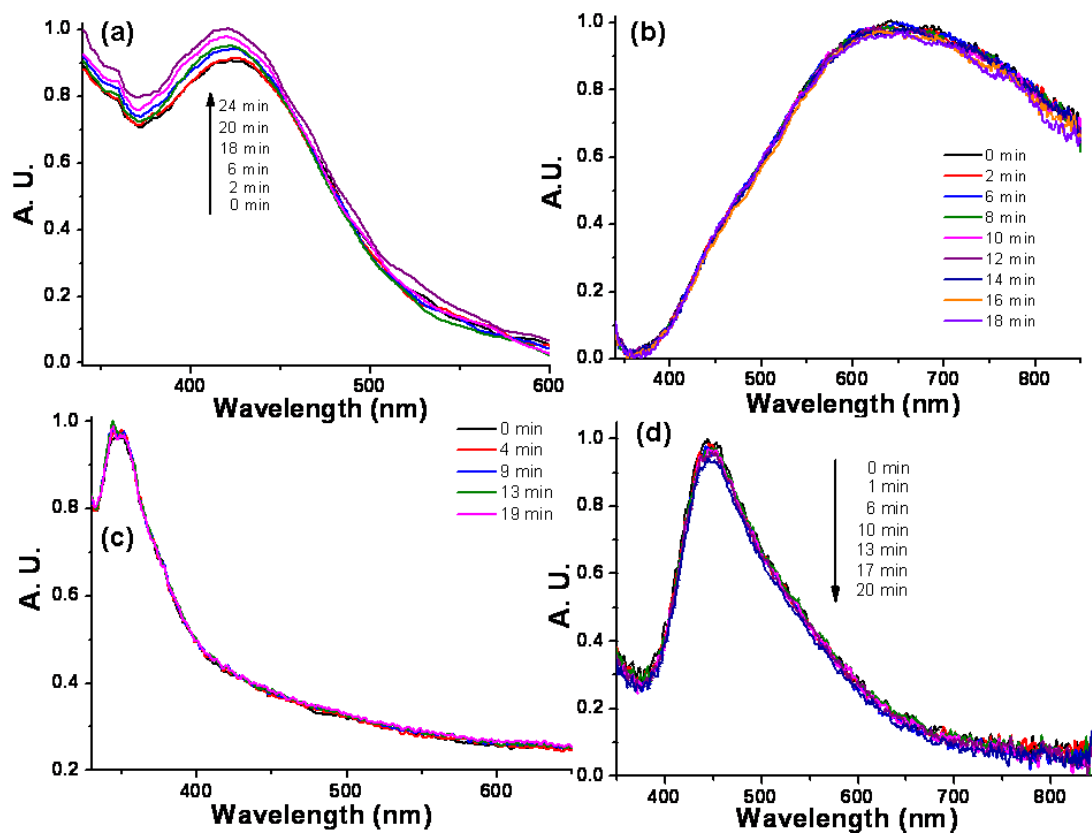


Figure S4. Absorption of (a) AgS, (b) AgP, (c) AgW, and (d) AgD on glass under 390 nm excitation as a function of exposure time.

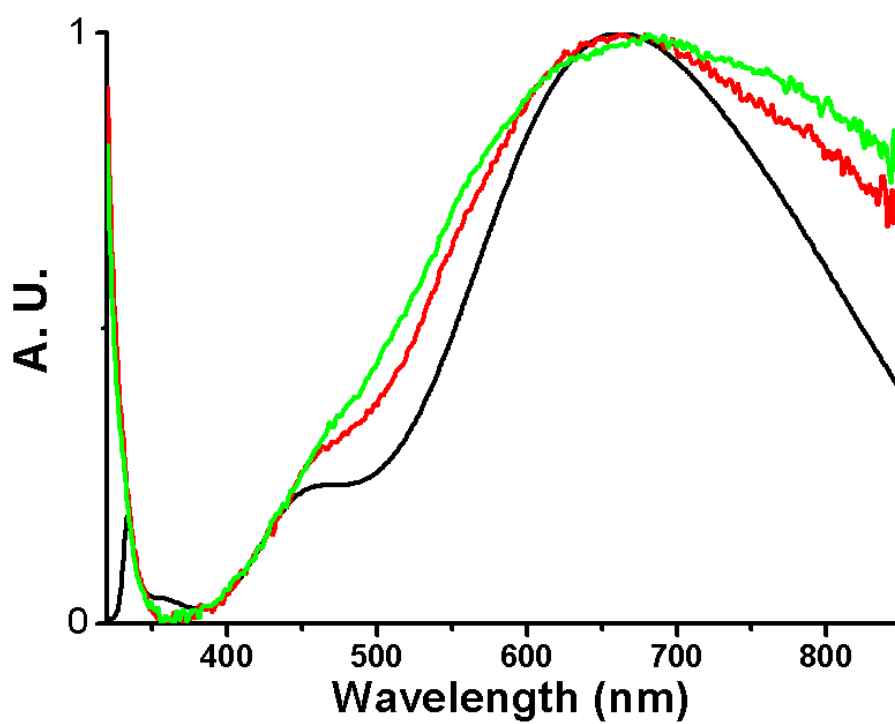


Figure S5. The absorption of AgP (dilute solution $\sim 10^{-6}$ M, black) in water, in glass ($\sim 10^{-5}$ M, red) and in glass (10^{-4} M, green).

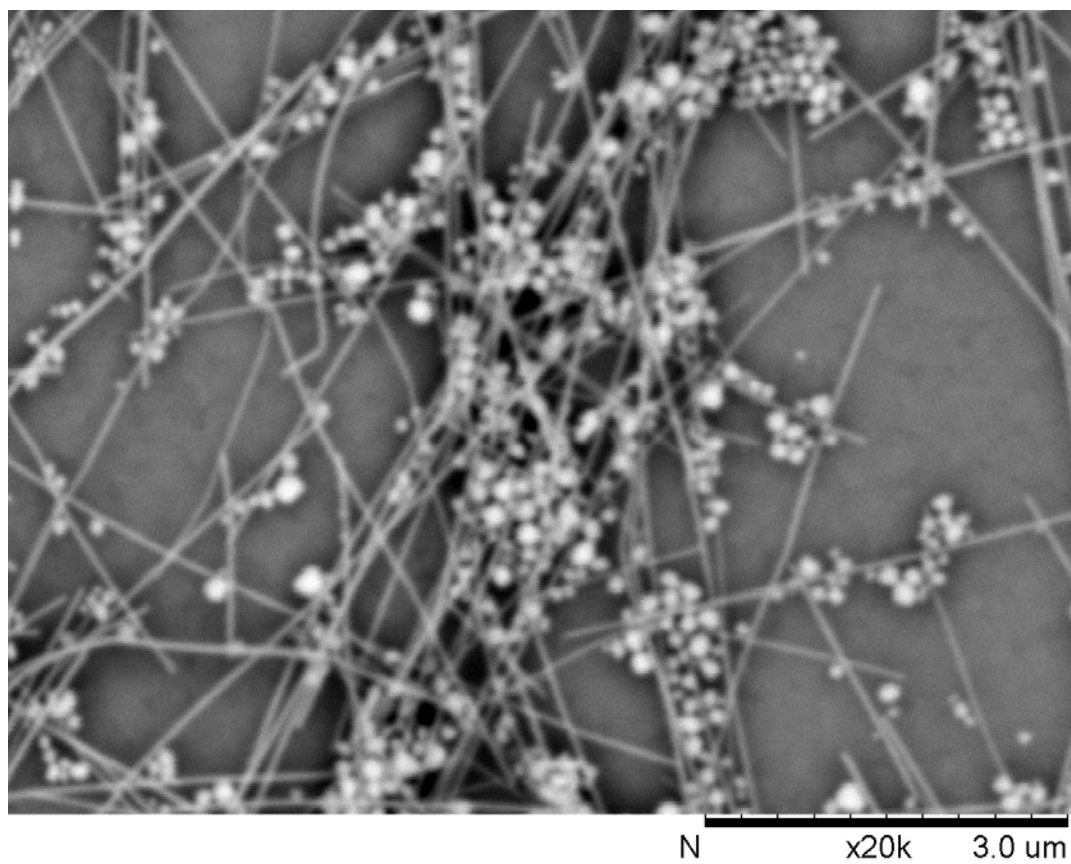


Figure S6. SEM image of **AgW-DDPC** obtained at exposure time >20 min under continuous irradiation of 390 nm.

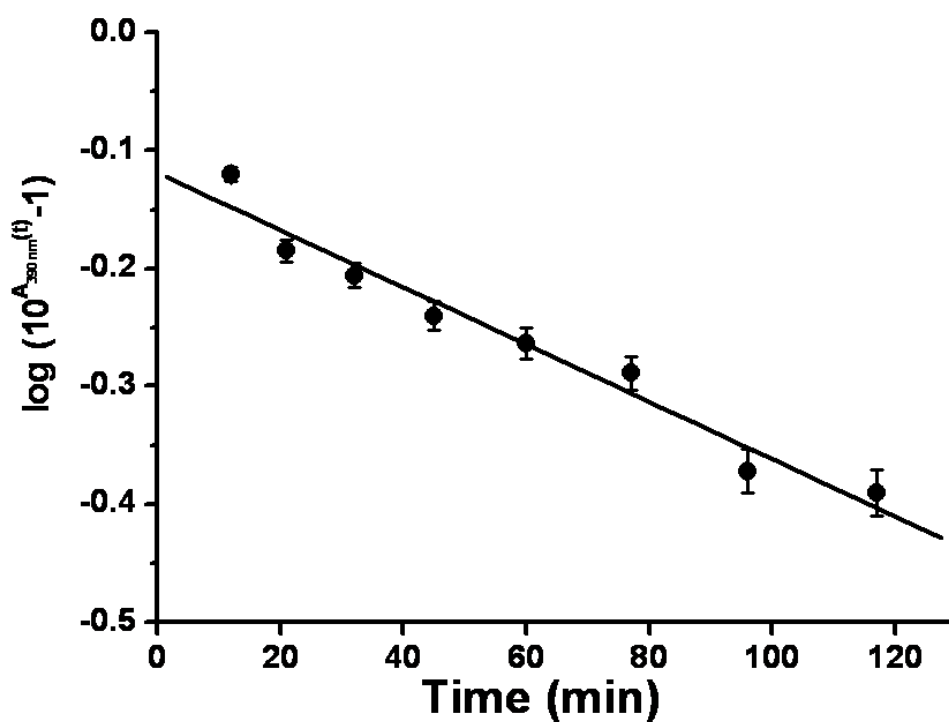


Figure S7. The plot of $\log(10^{A_{390}(t)} - 1)$ against irradiation time of **DDPC** upon irradiation at 390 nm.

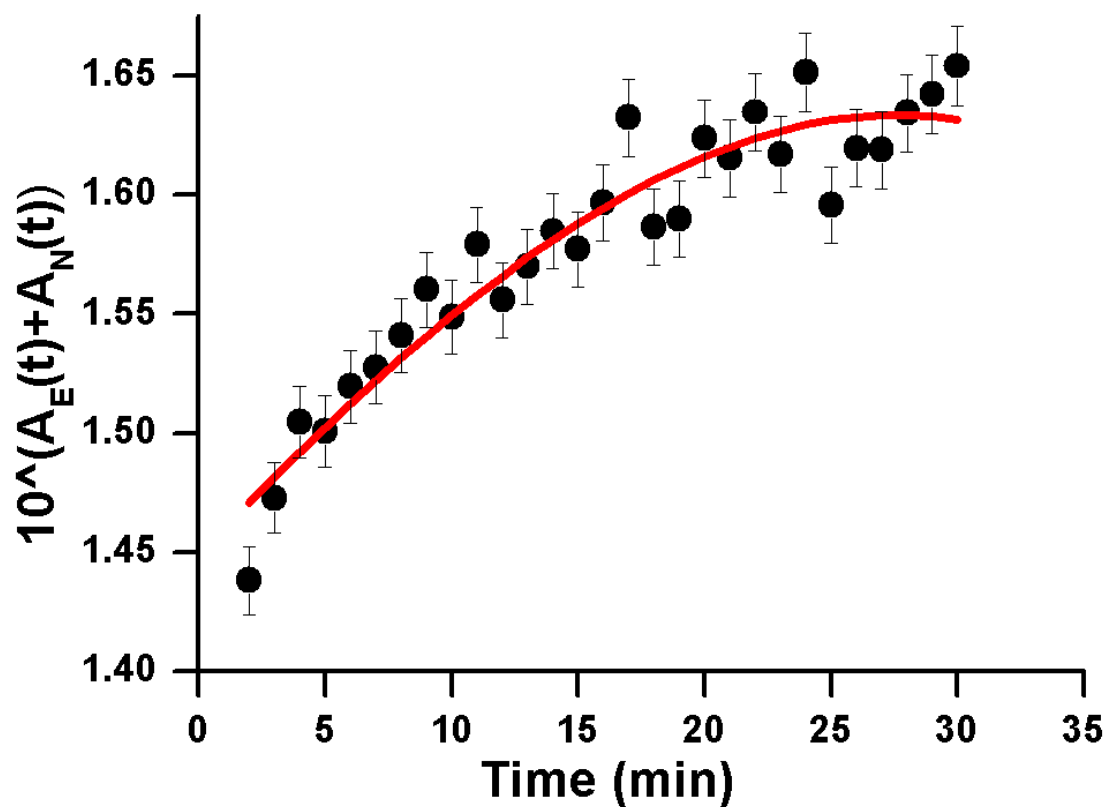


Figure S8. The plot of $\log(10^{A_E(t)+A_N(t)})$ against irradiation time using eqn (4) of AgD-DDPC upon irradiation at 350 nm.

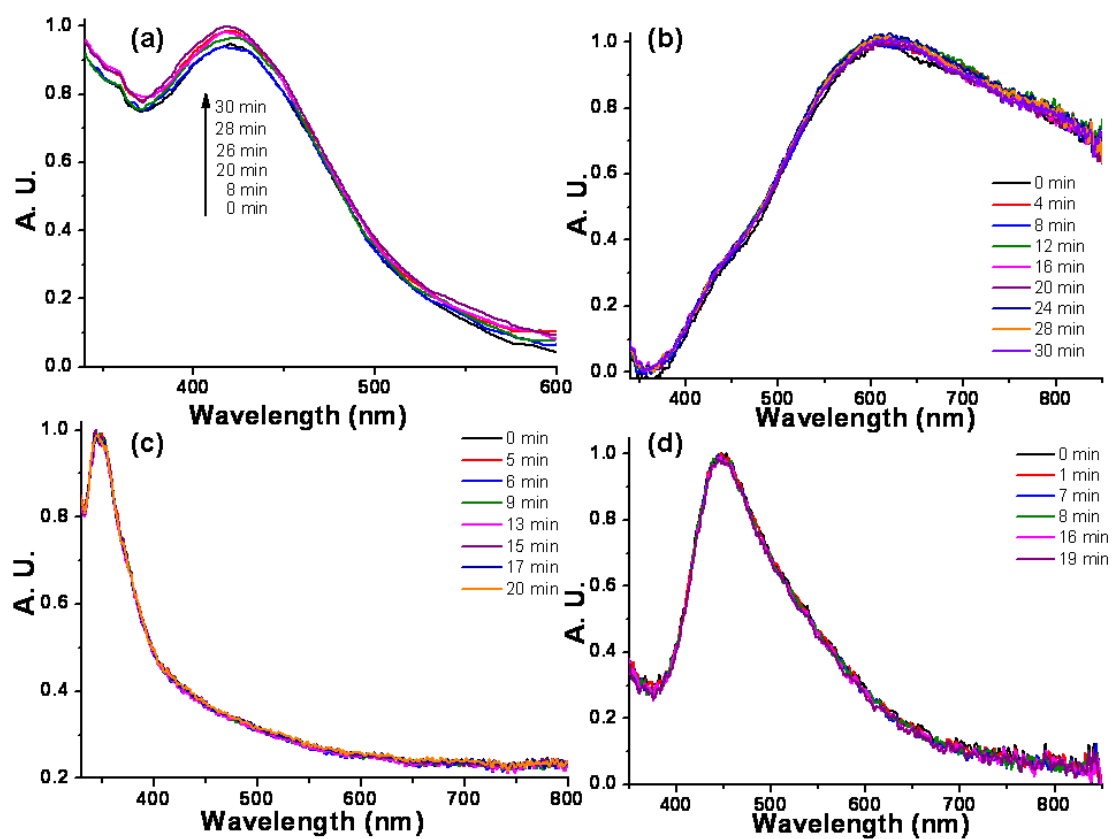


Figure S9. Recovery reaction (reversible backward ring closed reaction) of (a) AgS, (b) AgP, (c) AgW, and (d) AgD at room temperature obtained at different exposure times under continuous irradiation of 470 nm, 650 nm, 500 nm, and 550 nm, respectively.

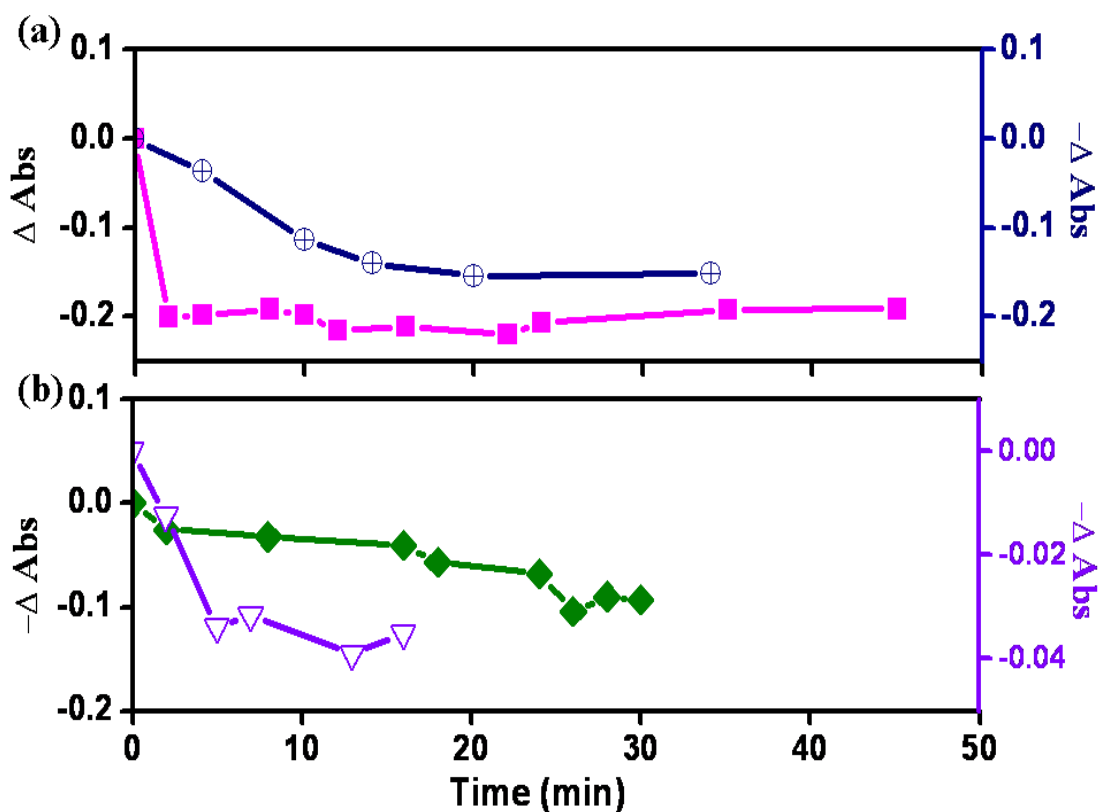


Figure S10. Change in difference absorption spectra at 397 nm of (a) forward (-■-) and backward (-⊕-) reaction for AgP-DDPC; (b) forward (-◆-) and backward (-▽-) reaction for AgD-DDPC. The forward reaction is irradiation with 390 nm, while the backward reaction for AgP-DDPC is 650 nm and for AgD-DDPC is 550 nm at room temperature at various irradiation times and until the photo-stationary state.