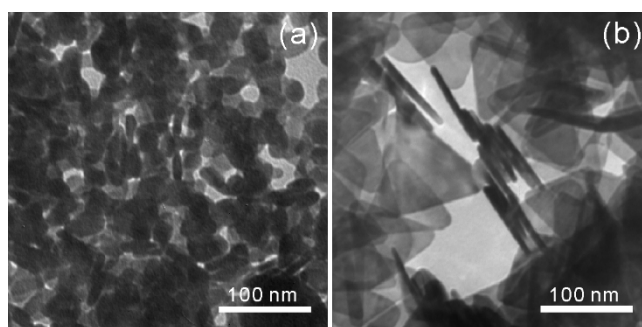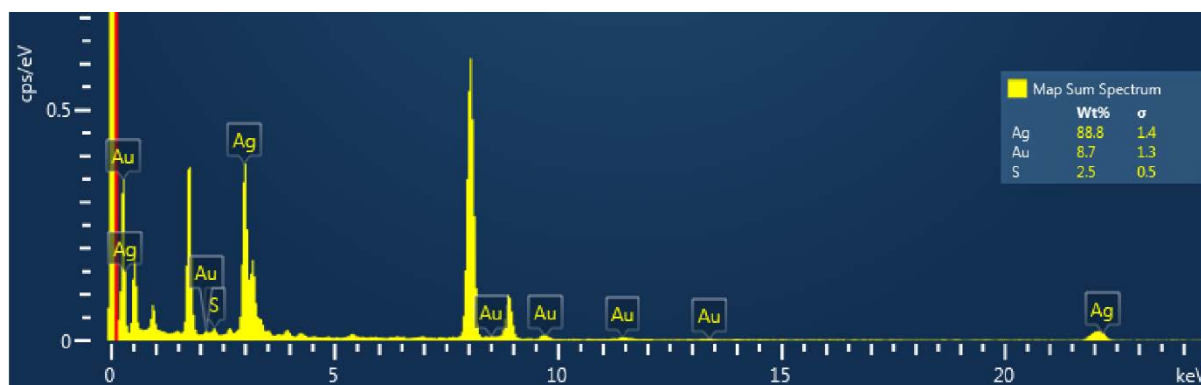# Electronic Supplementary Information

Colloidal system of polythiophene-grafted edge-gold-coated silver nanoprisms with enhanced optical properties and stability

Sugyeong Jeong, Dongki Lee, Joon Ki Kim, and Du-Jeon Jang[*]
Department of Chemistry, Seoul National University, Seoul 08826, Korea

**Fig. S1**   TEM images of (a) Ag-PRs and (b) AuAg-PRs.

Fig. S2   EDX analysis spectrum of P3HT@AuAg-PRs, where the molar percentages of silver, gold, and sulfur have been observed to be 88.8%, 8.7%, and 2.5%, respectively.

Table S1 Binding energies in eV for the deconvoluted curves of S 2p XPS spectra.

Sample	S $2p_{1/2}$	S $2p_{3/2}$	S´ $2p_{1/2}$	S´ $2p_{3/2}$
P3HT	164.76 (26.3%)	163.58 (52.5%)	164.13 (7.1%)	162.95 (14.1%)
P3HT@AuAg-PR	164.72 (20.8%)	163.54 (41.7%)	164.25 (12.5%)	163.07 (25.0%)

Table S2 Binding energies in eV for the deconvoluted curves of Ag 3d and Au 4f XPS spectra.

| Sample	Ag´ $3d_{5/2}$	Ag $3d_{5/2}$	Au $4f_{7/2}$	Au´ $4f_{7/2}$
AuAg-PR	368.95 (5.2%)	367.72 (94.8%)	83.80 (52.6%)	83.39 (47.4%)
P3HT@AuAg-PR	368.15 (19.3%)	367.14 (80.7%)	83.32 (61.9%)	82.80 (38.1%)
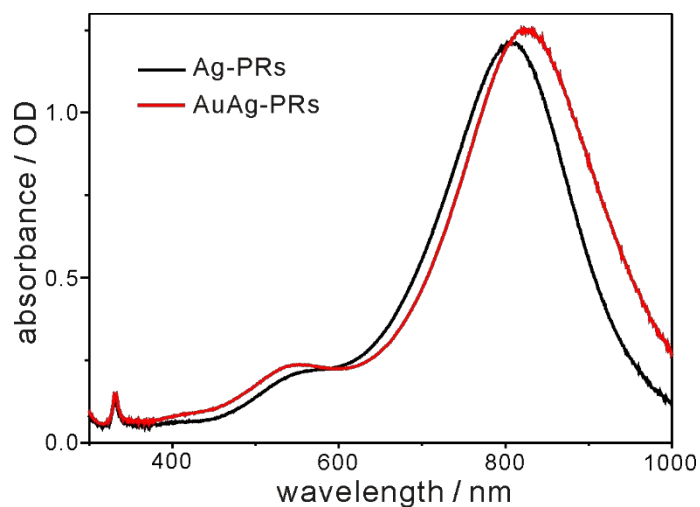
Fig. S3 Absorption spectra of Ag-PRs and AuAg-PRs dispersed in water.

Table S3 Spectral positions of four Gaussian curves extracted from the subtracted absorption spectrum of Figure 5b.

λ_1 / nm	λ_2 / nm	λ_3 / nm	λ_4 / nm
506±9 (4%)[a]	522±14 (14%)	556±26 (50%)	606±22 (32%)

[a]Absorbance percentage of each curve.

Table S4 Half lifetimes ($t_{1/2}$) for the morphology deformation of nanoprisms via H_2O_2.

Samples	$t_{1/2}$ / min
Ag-PR	6
AuAg-PR	13
P3HT@AuAg-PR	290
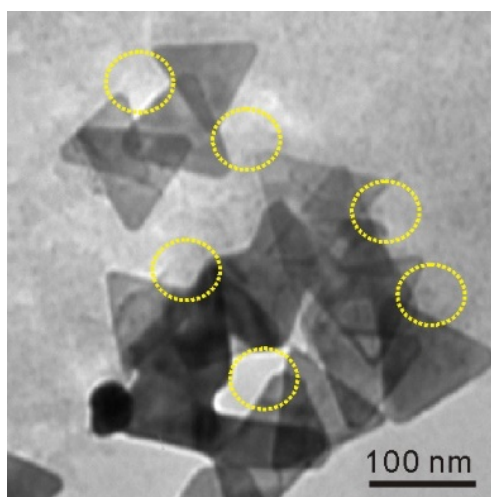
Fig. S4 TEM image of P3HT@AuAg-PRs and hot spots marked with yellow-dotted circles.