

Supporting Information for:

# Photopolymerization of Conductive Polymeric Metal Nanoparticles

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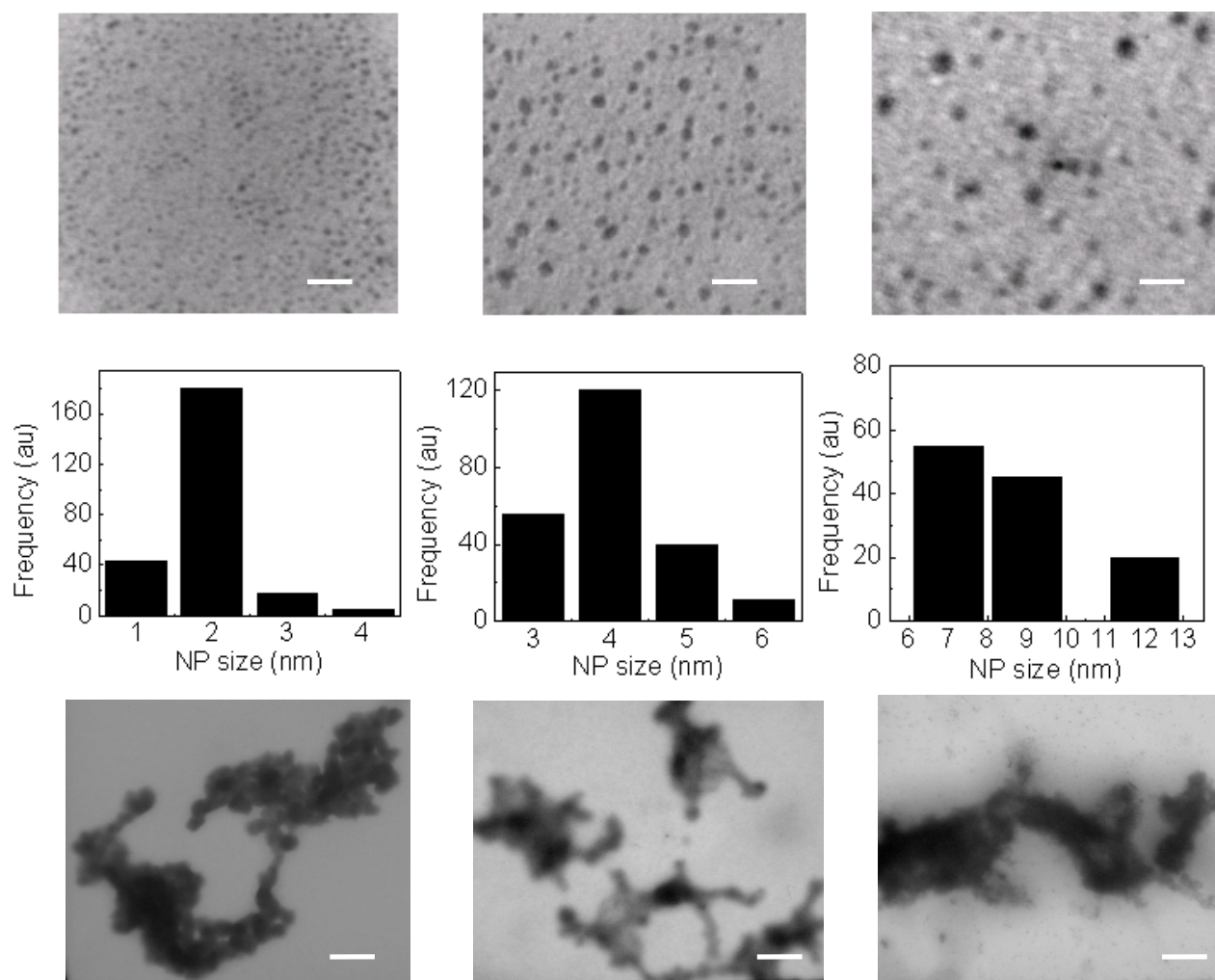
**C, Short and long time values of the kinetic decay at 530 nm, Table S1.**

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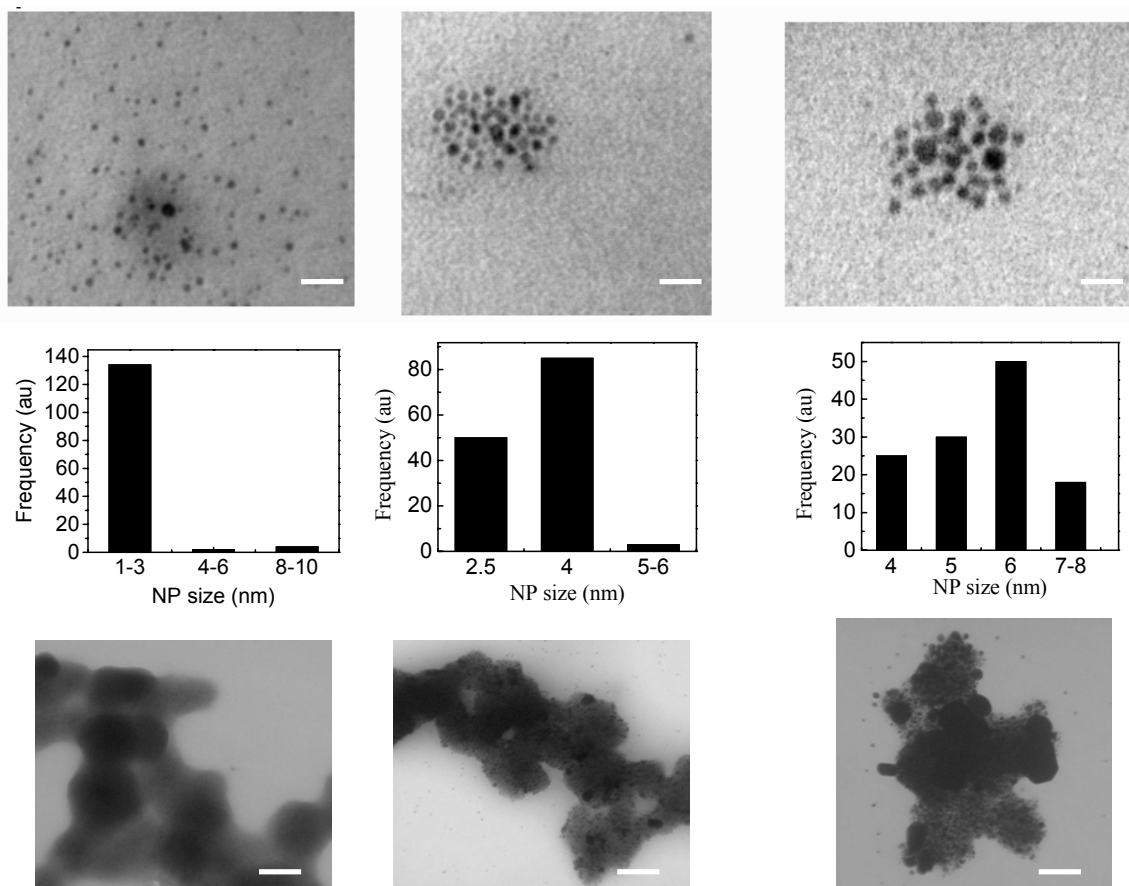
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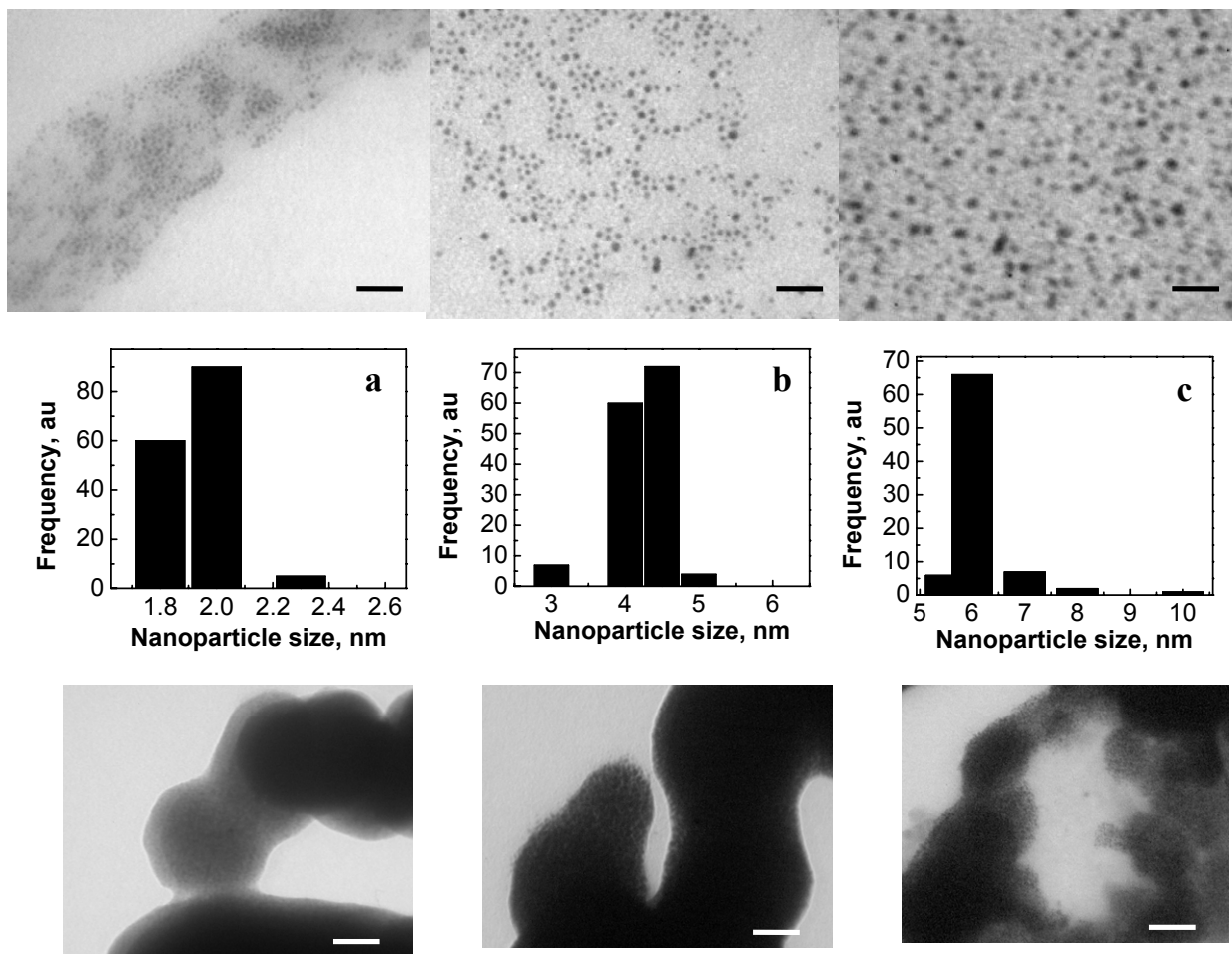
### A, TEM images and nanoparticle size distribution



**Figure S1.** TEM images of BTSCu before (above) (Scale bar = 10 nm) and after (below) (Scale bar = 200 nm) 350-nm light irradiation (25 minutes), nanoparticle size distribution.

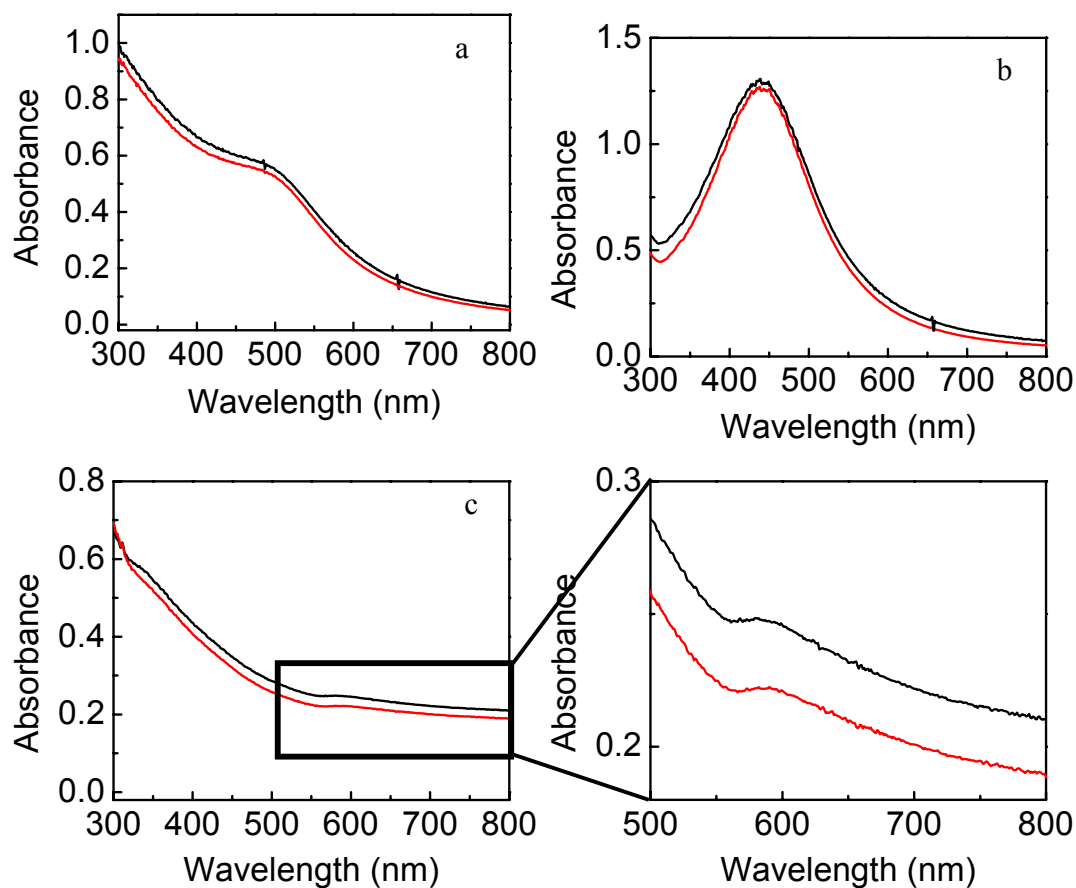


**Figure S2.** TEM images of BTSAg before (above) (Scale bar = 10 nm) and after (below) (Scale bar = 80 nm) 350-nm light irradiation (25 minutes), nanoparticle size distribution.



**Figure S3.** TEM images of BTSAu before (above) (Scale bar = 20 nm) and after (below) (Scale bar = 20 nm) 350-nm light irradiation (25 minutes), and nanoparticle size distribution.

**B: Control experiments with 1-dodecanethiol ( $C_{12}H_{25}SH$ ) as the ligand under similar conditions.**



**Figure S4.** UV spectra of 4-nm  $C_{12}H_{25}SAuNPs$  (a), 4-nm  $C_{12}H_{25}SAgNPs$  (b), and 8-nm  $C_{12}H_{25}SCuNPs$  (c) in toluene before (black line) and after (red line) 350-nm light irradiation. Irradiation time was 25 minutes using RPR-3500 Å lamp, Southern New England Ultraviolet Co. No polymerization was observed.

### C, Short and long time values of the kinetic decay at 530 nm.

The short time value was obtained from fs experiments, the long time value was obtained from ns experiments. No all experiments were carried out using ns system because of weak signal of Cu and Ag and their light sensitivity. The long time values are estimated to be similar with those of Au.

**Table S1.** The short time (T1) and long time (T2) values.

<b>BTSM</b>	<b>BTSCu</b>			<b>BTSAg</b>			<b>BTSAu</b>		
<b>Size (nm)</b>	<b>2</b>	<b>4</b>	<b>8</b>	<b>2</b>	<b>4</b>	<b>6</b>	<b>2</b>	<b>4</b>	<b>6</b>
<b>T1 (ps)</b>	1.4±	12.8±	26.5±	48.2±	37.6±	30.8±	28.2±	26.5±	-
	0.50	0.60	2.45	8.56	8.35	1.65	1.35	3.33	-
<b>T2 (ns)</b>	-	-	-	-	-	-	~130	~130	~130