Supporting Information

Phase transfer of noble metal nanoparticles from ionic liquids to an organic/aqueous medium

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Table S1. Size, and size distribution of noble metal nanoparticles (NMNPs) transferred from IL/water with different volume ratios into toluene.

NMNPs	IL/water volume ratios	$\overline{d}$ (nm)	σ (nm)	$\overline{\sigma}$ (%)
Pt	0/100	4.6	3.1	67.4
	20/80	4.4	2.8	63.6
	40/60	3.2	1.4	43.7
	60/40	2.6	0.61	23.4
	80/20	1.7	0.24	14.1
	100/0	1.2	0.11	9.17
Pd	0/100	/	/	/
	20/80	8.2	2.9	35.4
	40/60	7.6	2.5	32.9
	60/40	5.6	1.3	23.2
	80/20	4.2	0.94	22.4
	100/0	2.8	0.41	14.6
Au	0/100	7.2	1.1	15.3
	100/0	5.9	0.82	13.9

$$\overline{d} = \frac{\sum_{i=1}^{N} x_i}{N}, \quad \sigma = \sqrt{\frac{\sum_{i=1}^{N} (x_i - \mu)^2}{N}}, \quad \overline{\sigma} = \frac{\sigma}{\overline{d}}$$

where $\overline{d}$ = mean particle size, *x* = the size of one particle, *N* = the total number of the particles counted, σ = standard deviation, $\overline{\sigma}$ = relative standard deviation.

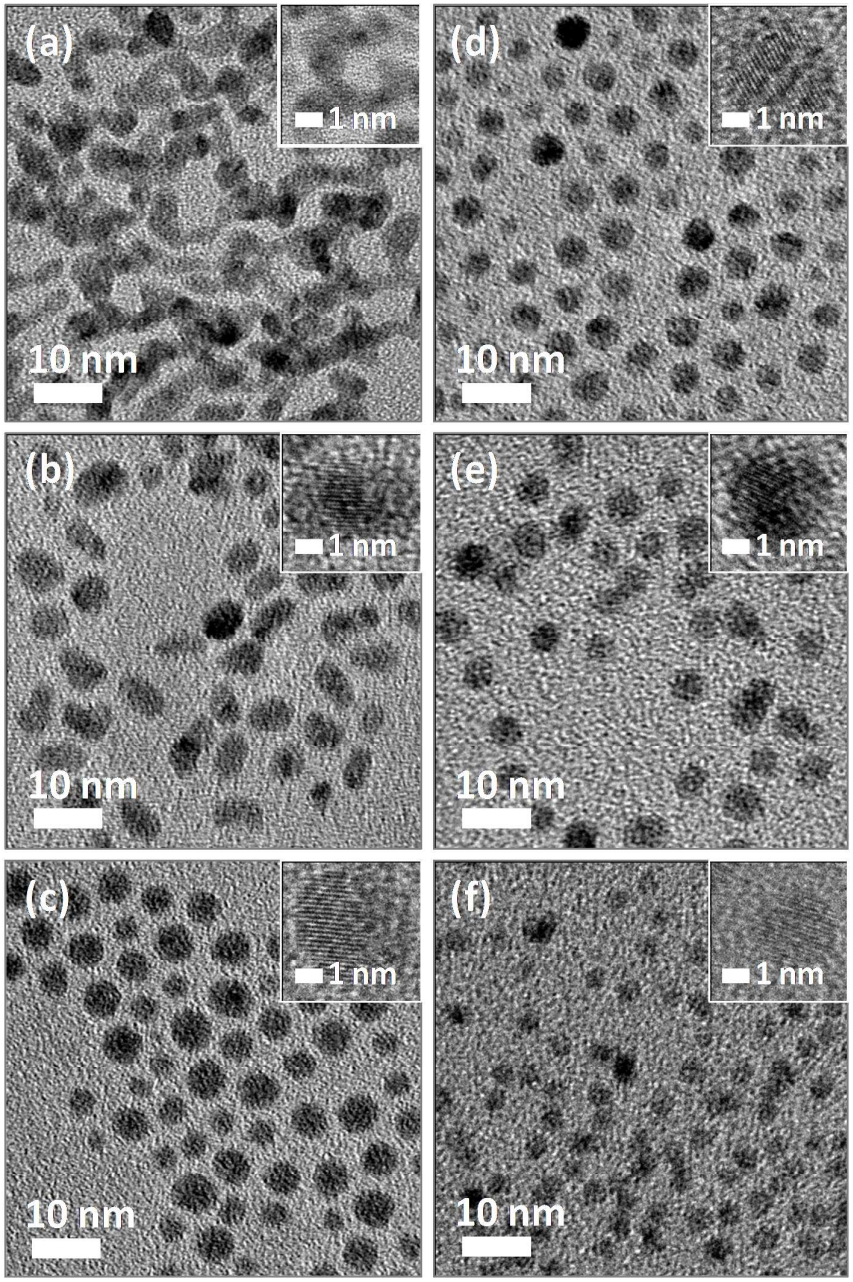

Figure S1. TEM images and corresponding HRTEM images (inserts in each TEM image) of Pd nanoparticles transferred from IL/water with volume ratios of 0/100 (a), 20/80 (b), 40/60 (c), 60/40 (d), 80/20 (e), and 100/0 (f), respectively.

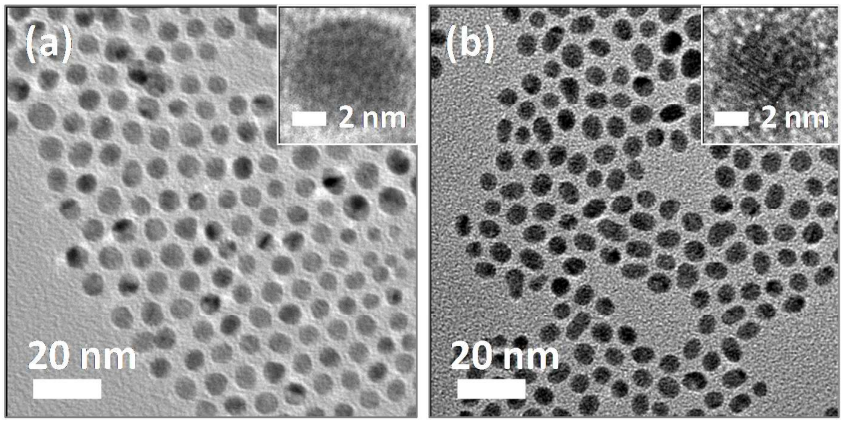

Figure S2. TEM images and corresponding HRTEM images (inserts in each TEM image) of Au nanoparticles transferred from IL/water with volume ratios of 0/100 (a) and 100/0 (b), respectively.

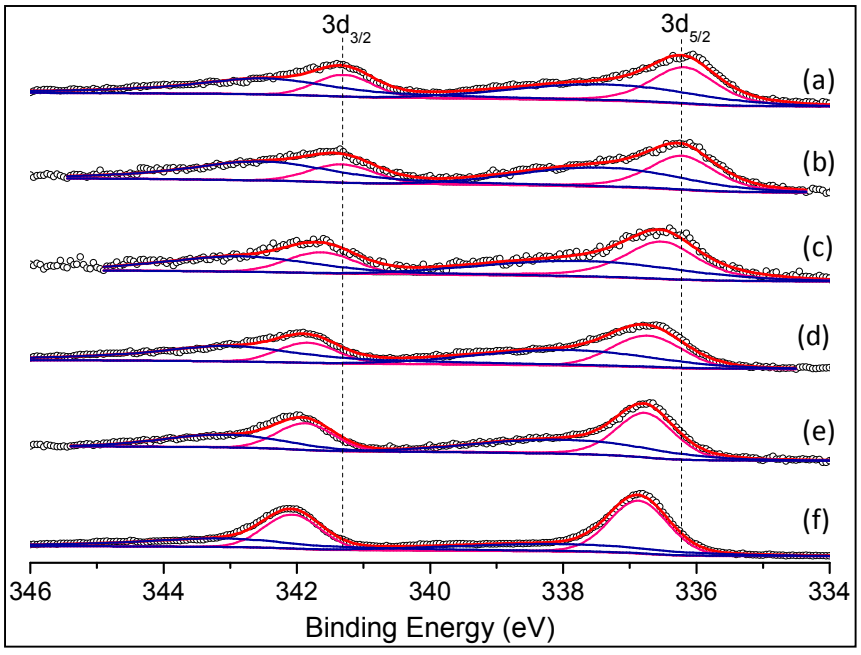

Figure S3. 4f XPS spectra of Pd nanoparticles transferred from IL/water with volume ratios of 0/100 (a), 20/80 (b), 40/60 (c), 60/40 (d), 80/20 (e), and 100/0 (f), respectively.

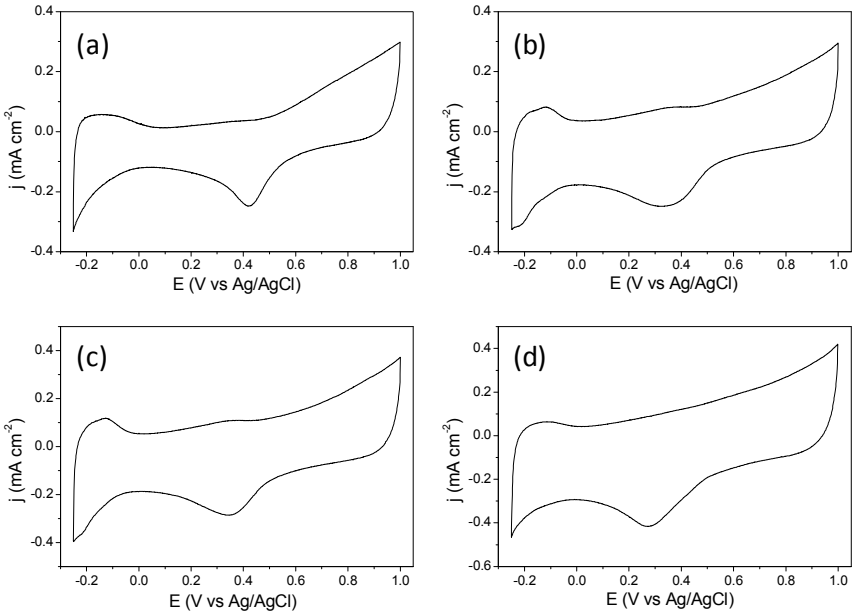

Figure S4. Cyclic voltammograms of Pt nanoparticles transferred from IL/water mixtures with volume ratios of 0/100 (a), 20/80 (b), 60/40 (c), and 100/0 (d), respectively, in argon-purged $HClO_4$ (0.1 M) at 50 mV/s. The electrolyte is methanol (1 M) in perchloric acid (0.1 M).

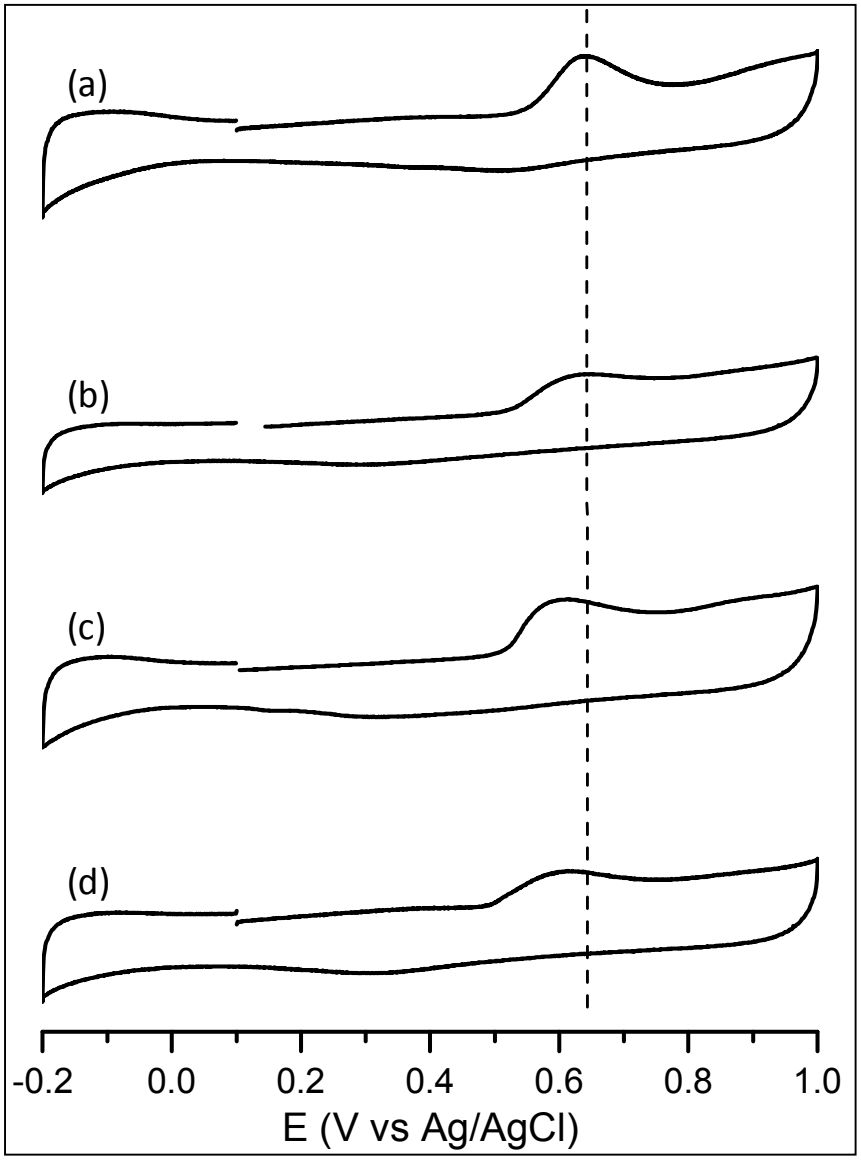

Figure S5. Room-temperature CO stripping from the Pt nanoparticles transferred from IL/water mixtures with volume ratios of 0/100 (a), 20/80 (b), 60/40 (c), and 100/0 (d), respectively, in $HClO_4$ (0.1 M).