

SUPPLEMENTARY MATERIALS

One-step synthesis of metallic and metal oxide nanoparticles using amino-PEG oligomers as multi-purposes ligands: size and shape control, and quasi-universal solvent dispersability.

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Figure captions:

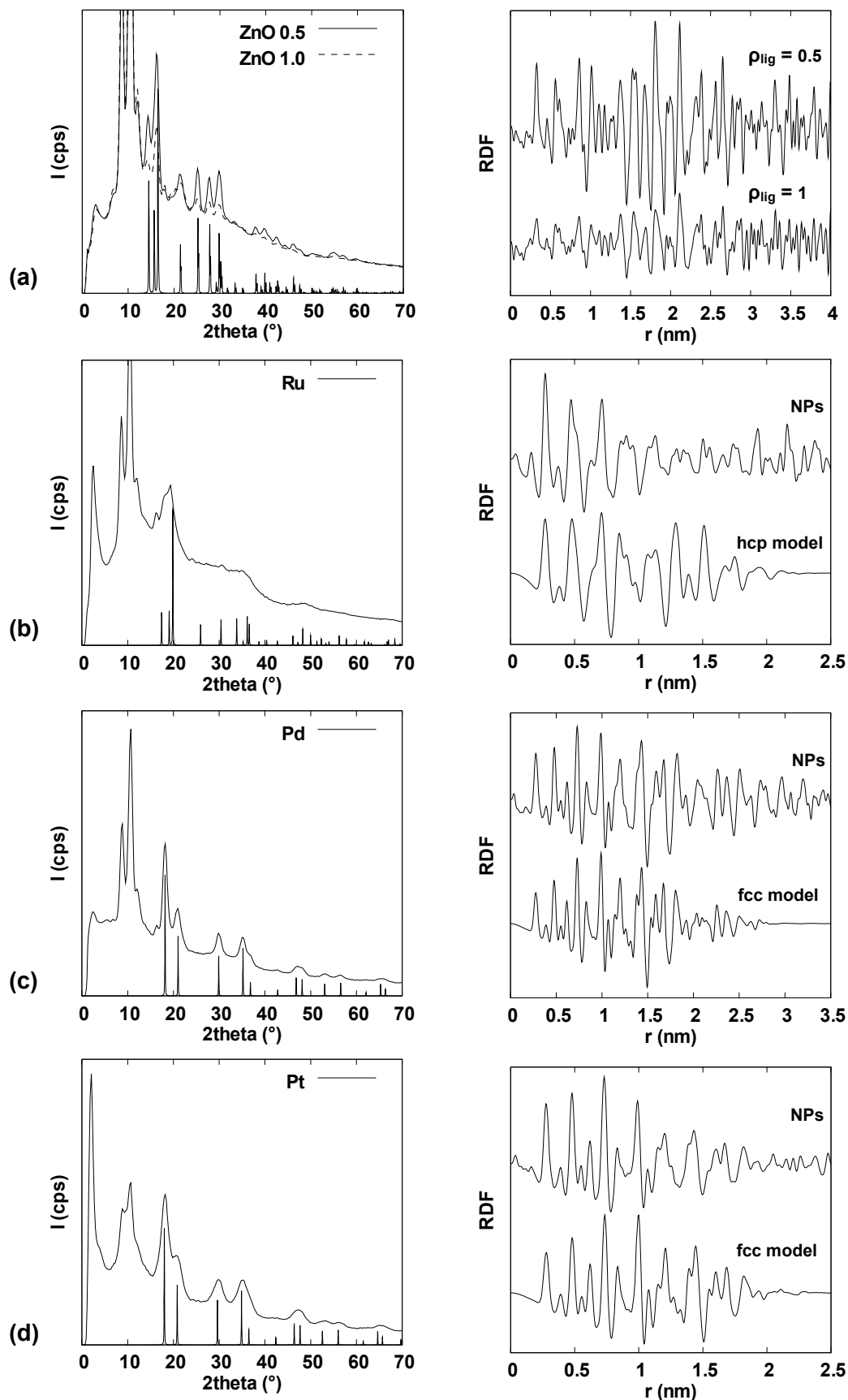
S1 : WAXS (left) and Fourier Transform (right) of (a): ZnO NPs synthesized in presence of bis-propylamine-PEG1500 oligomer ($\rho_{\text{lig}} = 0.5$ and 1.0); (b): Ru NPs synthesized in presence of bis-propylamine-PEG1500 oligomer; (c) and (d): Pd and Pt NPs respectively synthesized in presence of a mixture of ethylamine-PEG750 and carboxymethyl-PEG3000. Reference diffractograms from bulk phases are displayed below the ones of NPs.

S2: NMR spectra of (I-a): mixture of ethylamine-PEG750 and carboxymethyl-PEG3000 oligomers in absence of NPs; (I-b): in presence of Pd NPs; (I-c): in presence of Pt NPs. (II-a): ethylamine-PEG750 oligomer in absence of NPs; (II-b): in presence of Ru NPs; (III-a): ethylamine-PEG750 oligomer in absence of NPs; (III-b): in presence of ZnO NPs ($\rho_{\text{lig}} = 2$); (III-c): in presence of ZnO NPs ($\rho_{\text{lig}} = 1$).

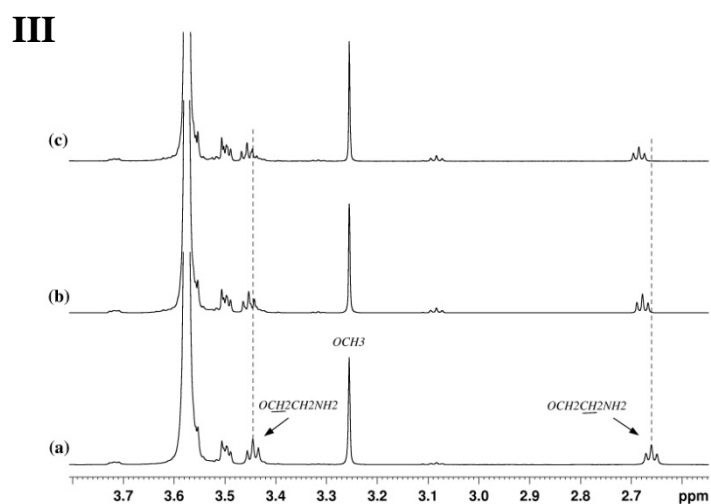
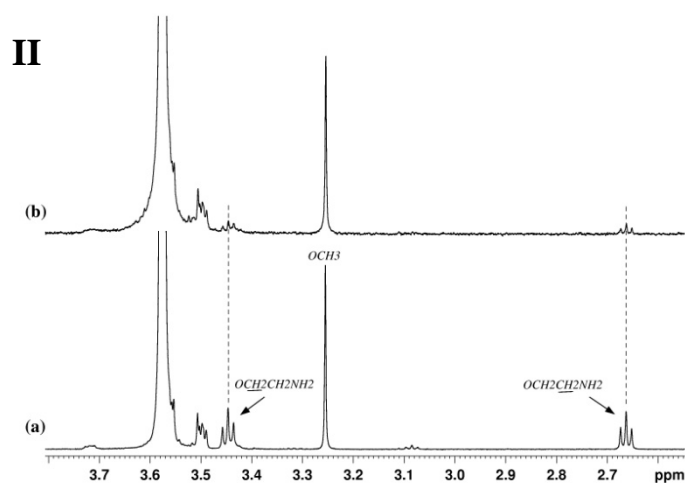
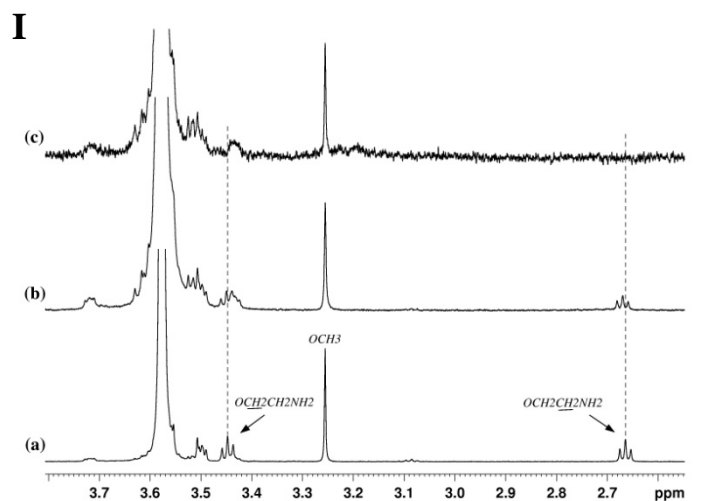
S3: (a) Emission and (b) excitation spectra for ZnO nanoparticles ($\rho_{\text{lig}} = 1$ bis-propylamine-PEG1500) dispersed into THF; (c) Pictures of the same ZnO nanoparticles, dispersed in water under illumination with (left) $\lambda = 320$ nm or (right) $\lambda = 380$ nm.

S4: Amount of ligand (bis-propylamine-PEG1500 oligomer) used in the synthesis and the corresponding size of the ZnO NPs. ^(a) mean diameter and standard deviation.

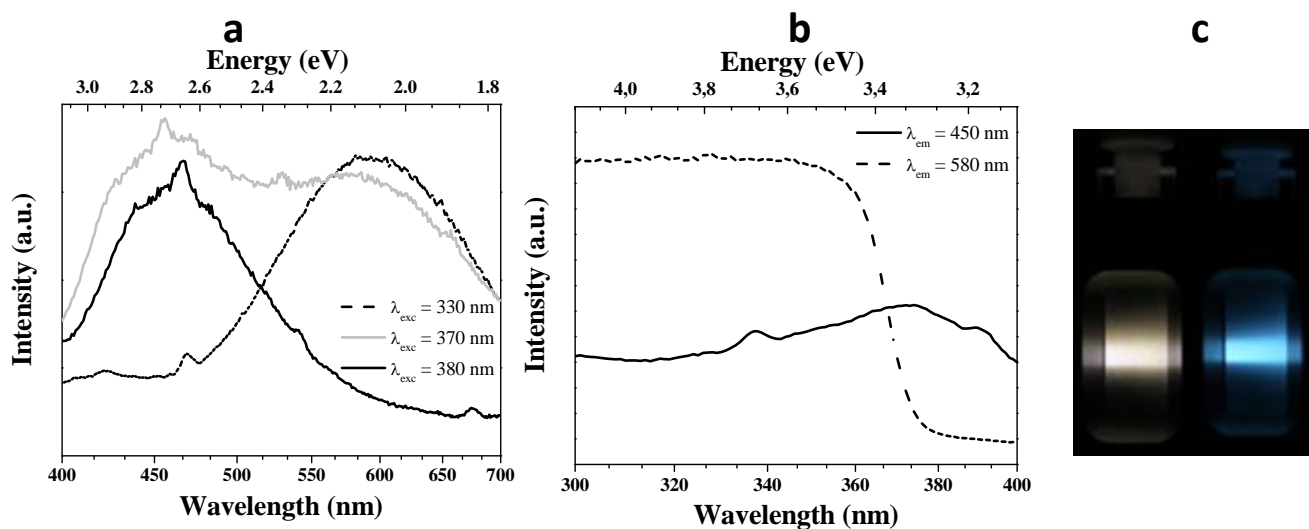
S5: Organometallic synthesis of metallic NPs using bis-propylamine-PEG1500 molecule ($n \sim 30$) or ethylamine-PEG750 molecule ($n \sim 15$).



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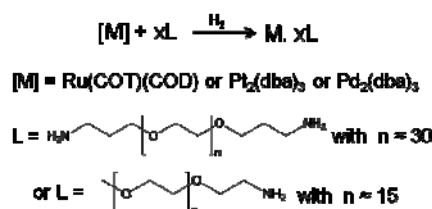
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Amount of ligand	diameter ^a (nm)
$\rho_{\text{lig}} = 0.05$	7.2 ± 2.3
$\rho_{\text{lig}} = 0.1$	5.2 ± 1.6
$\rho_{\text{lig}} = 0.5$	4.9 ± 0.9
$\rho_{\text{lig}} = 1$	4.0 ± 1.0
$\rho_{\text{lig}} = 2$	3.9 ± 0.8

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S5: Organometallic synthesis of metallic NPs using bis-propylamine-PEG1500 molecule ($n \sim 30$) or ethylamine-PEG750 molecule ($n \sim 15$).