

Supplementary Information

One-pot Synthesis and Characterization of Well Defined Core@Shell

Structure of FePt@CdSe Nanoparticles

Thuy T. Trinh, Derrick Mott, Nguyen T. K. Thanh, and Shinya Maenosono

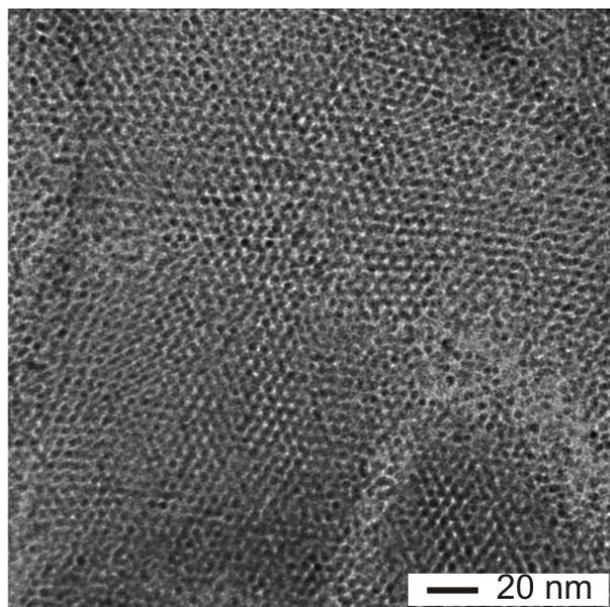


Figure S1. TEM image of the super lattice of 3.2 nm FePt MNPs.

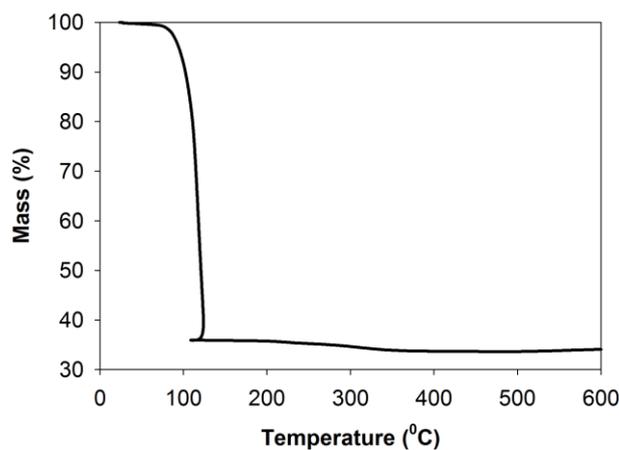


Figure S2. TGA performed for $\text{Fe}_3(\text{CO})_{12}$. The sample was heated under a N_2 atmosphere at a rate of $10\text{ }^\circ\text{C}/\text{min}$ from $25\text{ }^\circ\text{C}$ to $600\text{ }^\circ\text{C}$. The mass loss was 64 % of an initial sample mass, which can be explained based upon formation of 73 % of Fe and 27 % of iron oxide.

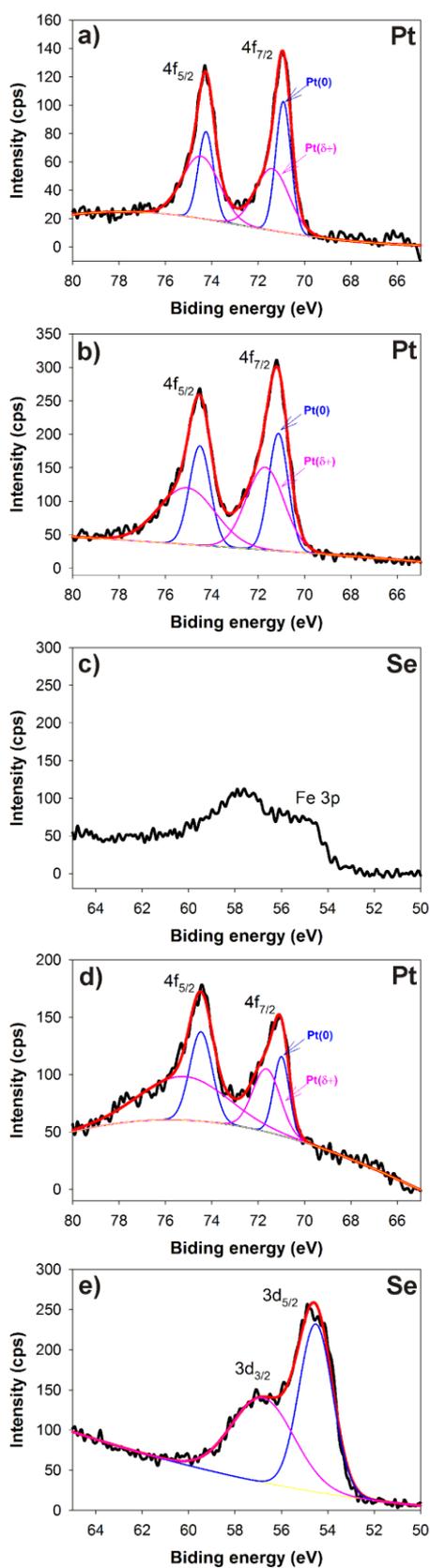


Figure S3. XPS spectra of FePt (A), FePt@CdO_x (B) and FePt@CdSe260 (C) NPs. (a), (b) and (d) are Pt 4f spectra for A, B and C, respectively. (c) and (e) are Se 3d spectra for B and C, respectively.

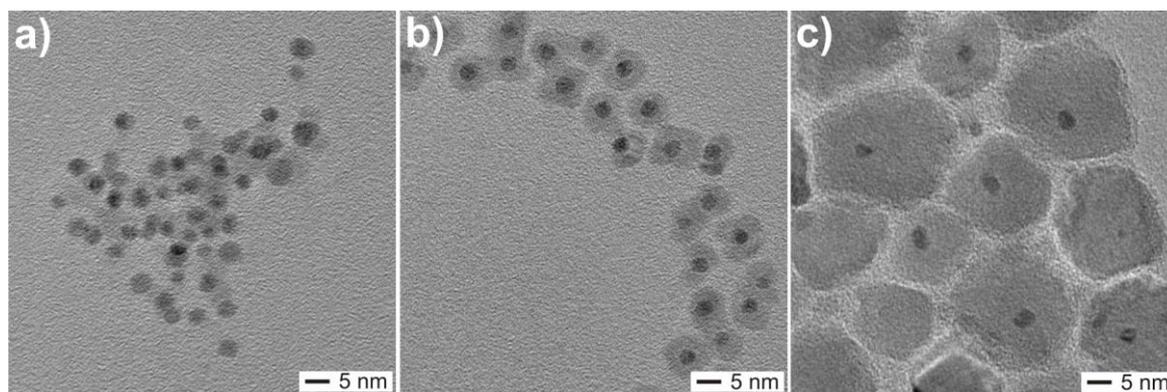


Figure S4. TEM images of FePt@CdSe₂₆₀ NPs formed at different $X = [\text{Cd}(\text{OAc})_2] + [\text{Se-TOP}]$.
a) $X = 0.5$ mmol, b) 1.1 mmol and c) 2.1 mmol.

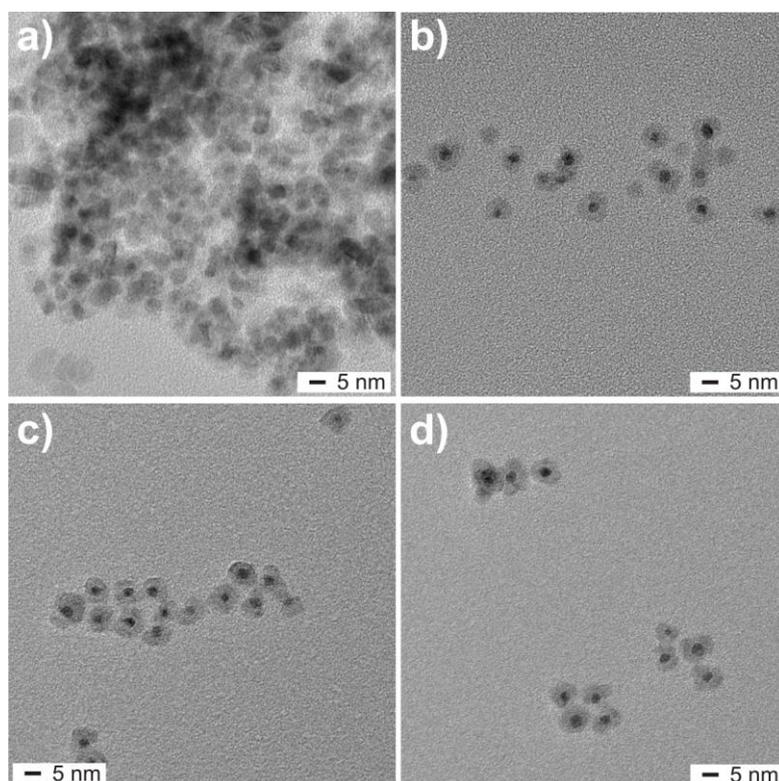


Figure S5. TEM images of FePt@CdSe₂₆₀ NPs formed in reactions lasting a) 5 min, b) 10 min, c) 30 min and d) 60 min