

Supporting Information

Facile Synthesis of Hybrid Nanostructures from Nanoparticles, Nanorods and Nanowires

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Synthesis of Pt nanorods (NRs)

Pt(acac)₂ (200mg), sodium oleate (150mg) were added to oleylamine (OAm) (20 mL) under Ar and stirring for about 5 minute. The mixture was then heated to 120°C for 15 min. As the solution turned clear yellow, a drop of Fe(CO)₅ was quickly injected into the hot solution. The solution turned dark in color quickly. The temperature was further heated to 250°C and kept at this temperature for 30 min before it was cooled down to room temperature. The sample was centrifuged in excess isopropanol to separate the NRs. The NRs were dispersed in 10 mL toluene and precipitated out by adding ethanol. The process was repeated one more time to purify the NRs. The final product was dispersed in 10 mL of hexane for further use.

Typical method for synthesis of hybrid nanomaterials:

Nanobuilding blocks (nanoparticles, nanorods, or nanowires) are dissolved in toluene and heated at 60-80°C. Au precursor in oleylamine was injected in to the above hot solution and stirred for 30 minutes. The temperature was cooled down to room temperature. The sample was centrifuged in excess ethanol to achieve black precipitates. This precipitates were dispersed in 10 mL toluene and precipitated out via centrifugation by adding ethanol. The process was repeated one more time. The final product was dispersed in 10 mL of hexane for TEM analysis.

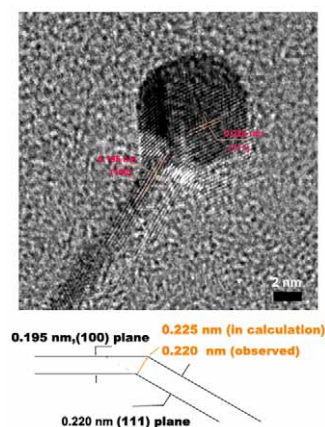


Figure S1. High resolution TEM image of Pt-Au tadpole-like nanostructure and plane distance analysis

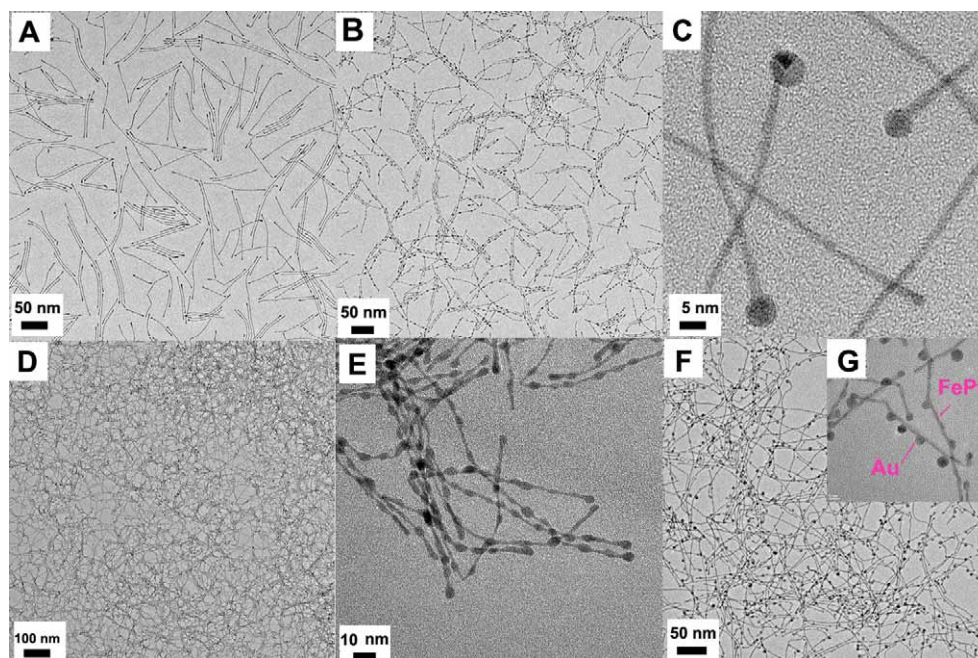


Figure S2, TEM images of Pt Nanorods (A) and Pt/Au heterostructures (B, C); TEM images of FePt Nanowires (D) and FePt/Au heterostructures (E, F). (insert: high resolution TEM image of Au nanoparticles grew on the side of FePt nanowires).

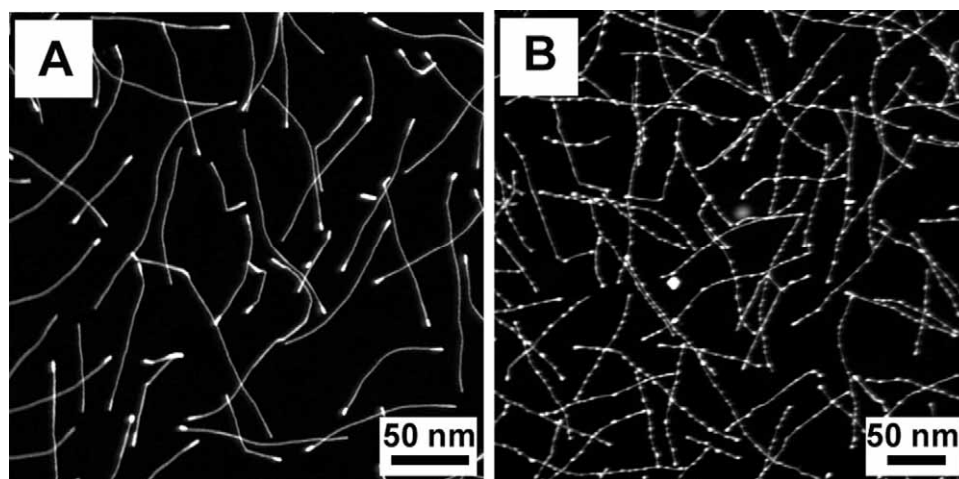


Figure S3, STEM image of FePt nanorods (A) and FePt-Au (B) necklace like nanostructure