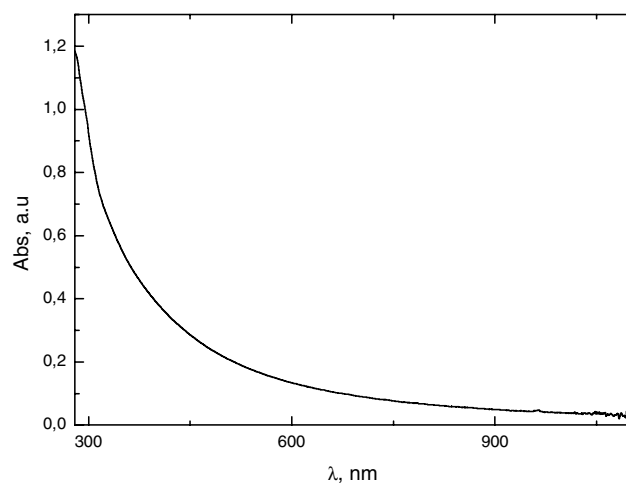
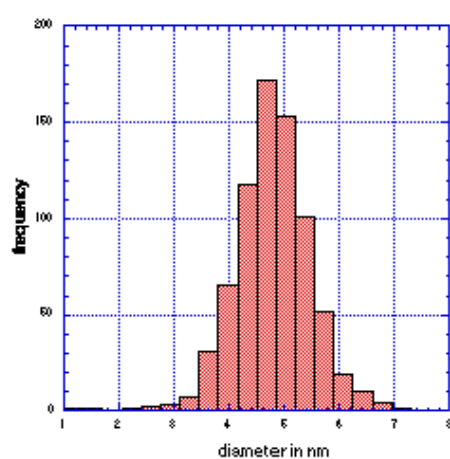


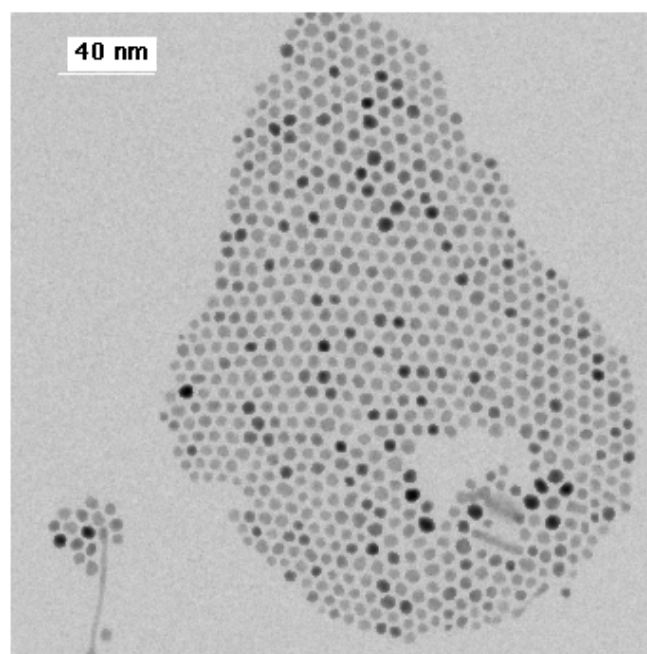
**Supporting Info:**



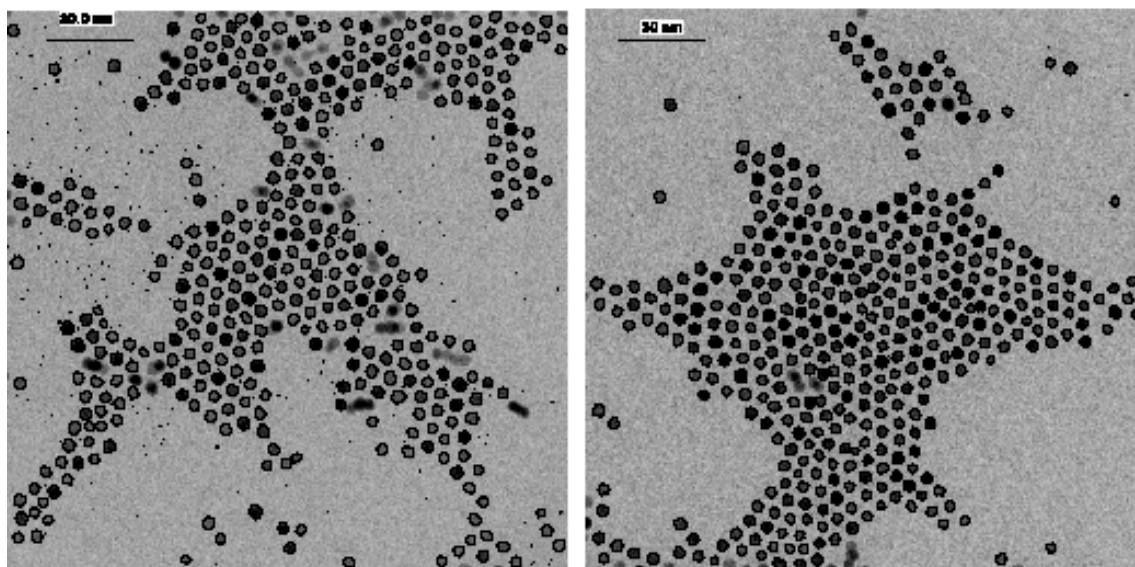
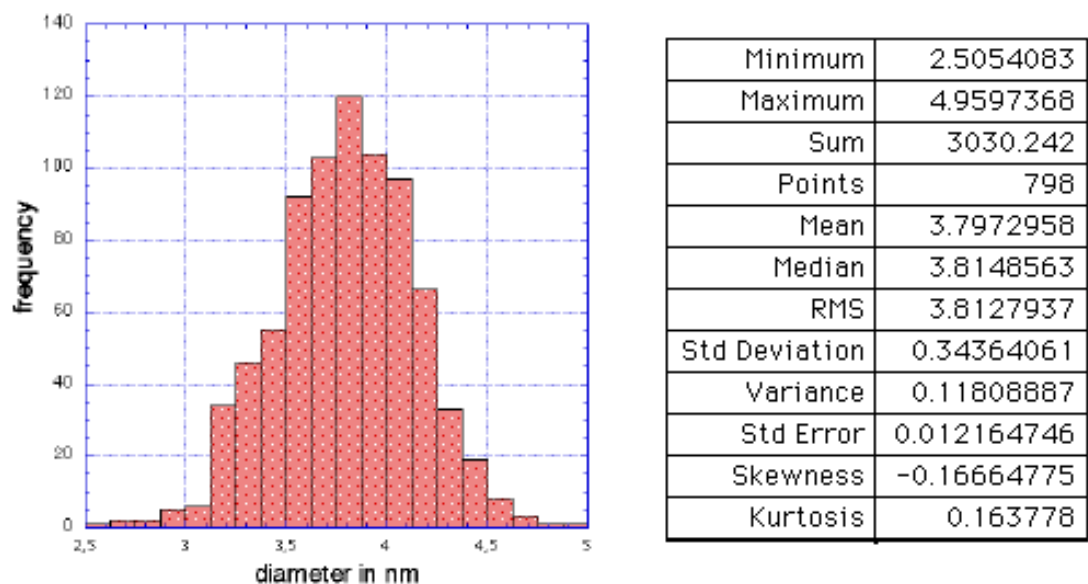
**Figure S1.** Absorption spectrum of 4.8 nm CoPt<sub>3</sub> nanocrystals dissolved in hexane



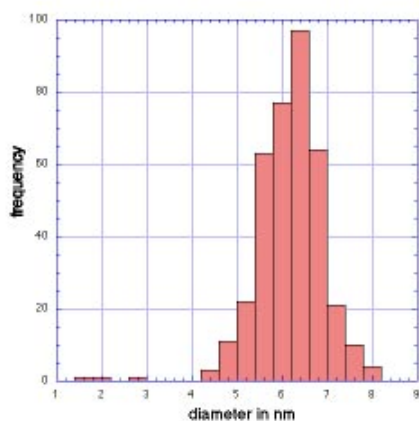
Minimum	1.2766153
Maximum	7.1729779
Sum	3551.0194
Points	741
Mean	4.792199
Median	4.7886372
RMS	4.8404683
Std Deviation	0.68234227
Variance	0.46559097
Std Error	0.02506647
Skewness	-0.25412548
Kurtosis	1.831369



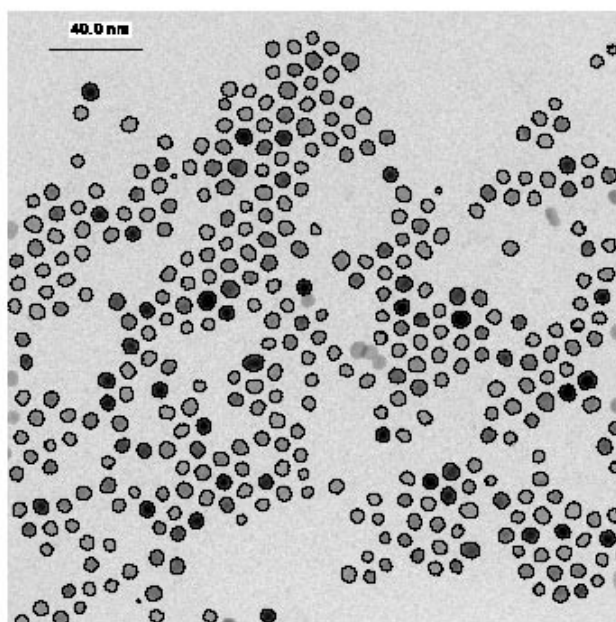
**Figure S2a.** Size histogram of CoPt<sub>3</sub> nanocrystals by injection of cobalt stock solution at 100°C into HDA-diphenyl ether coordinating mixture.



**Figure S2b.** Size histogram of as-prepared  $\text{CoPt}_3$  nanocrystals by injection of cobalt stock solution at  $170^\circ\text{C}$  into HDA-diphenyl ether coordinating mixture.

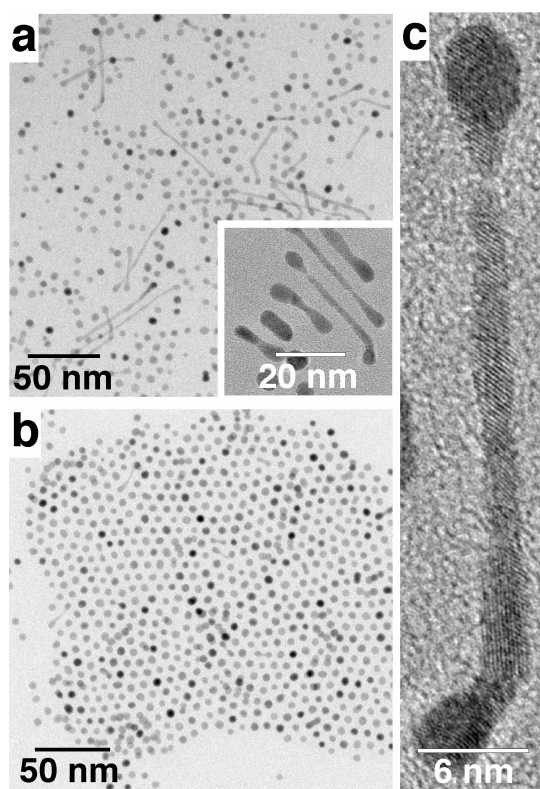


Minimum	1.6273715
Maximum	8.066925
Sum	2316.8908
Points	375
Mean	6.1783754
Median	6.2551298
RMS	6.2226866
Std Deviation	0.74227695
Variance	0.55097507
Std Error	0.038331017
Skewness	-1.288306
Kurtosis	6.6744184



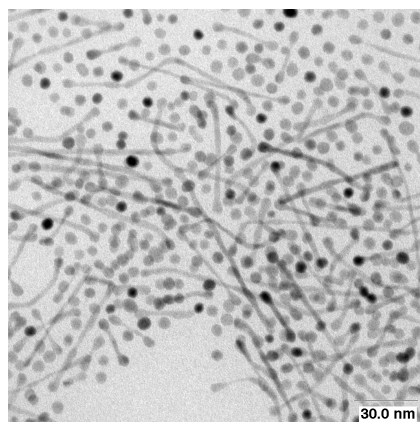
**Figure S2c.** Size histogram of as-prepared  $\text{CoPt}_3$  nanocrystals obtained by additional injection of platinum and cobalt precursors from 4.0 nm  $\text{CoPt}_3$  nanocrystals.

**CoPt<sub>3</sub> nanowires.** Injection of cobalt stock solution into HDA - diphenyl ether coordinating mixture at 100°C (refluxing for less than 40 min) yielded CoPt<sub>3</sub> nanowires as side-product of the spherical ~ 4.8 nm CoPt<sub>3</sub> nanocrystals (Figure S3a). The time of refluxing influence on the amount of nanowires (Figure S3b). The length of the wires varied from 6 nm up to 150-200 nm. The wires were not uniform in length, but typically comprised two ‘heads’ at the ends which were of approximately the same size as the spherical particles in the same sample, and a ‘body’ with some bulges (Figure S3a, *inset*, S3c). The mechanism of formation and decomposition of nanowires requires further careful investigations.

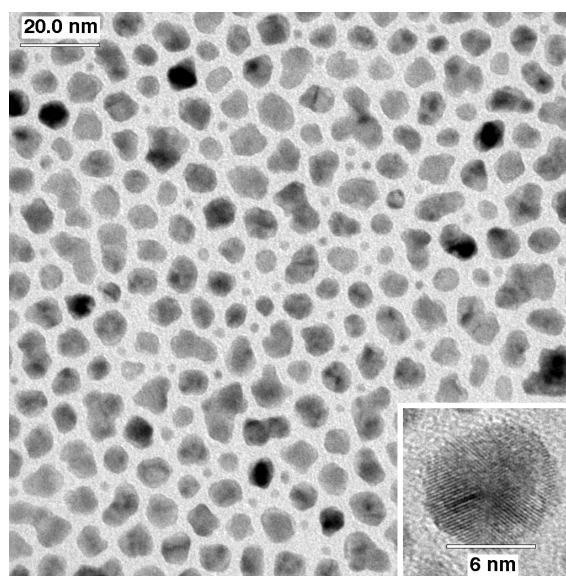


**Figure S3.** TEM images of as-prepared CoPt<sub>3</sub> nanocrystals grown in the HDA – diphenyl ether mixture: (a) 40 min refluxing, inset shows an enlarged view of non-uniformly shaped nanowires; (b) refluxing for 3 h, almost no nanowires are seen. (c) HRTEM image of a CoPt<sub>3</sub> nanowire illustrating differently oriented crystalline domains.

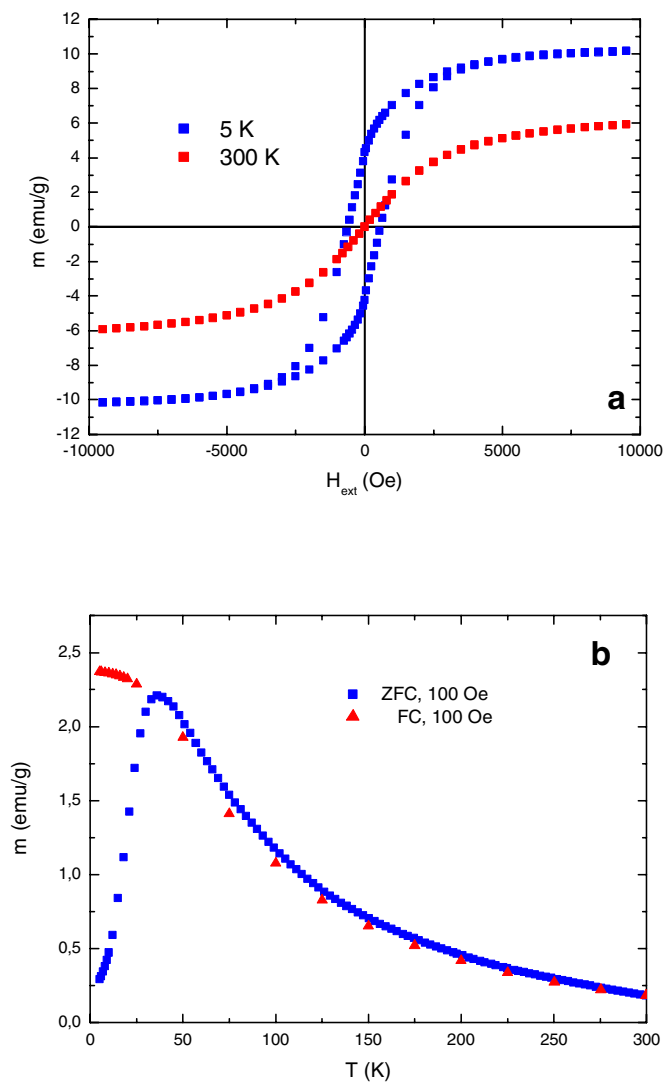
CoPt<sub>3</sub> nanowire-rich fractions can be isolated by high-speed centrifugation of colloidal solution(see Supporting Info).



**Figure S4.** A typical TEM image of nanowires-rich CoPt<sub>3</sub> fraction.



**Figure S5.** TEM image of as-prepared CoPt<sub>3</sub> nanocrystal obtained by three addition of precursors solution into reaction flask HRTEM image (inset) indicates polycrystalline structure



**Figure S6.** Magnetization vs. field measurements (a) and ZFC/ZF temperature dependencies (b) of the magnetization in a field of 100 Oe measured on ~6.2 nm CoPt<sub>3</sub> nanocrystals