On the exact crystal structure of exchange-biased Fe₃O₄-CoO nano-aggregates produced by seed mediated growth in polyol



Supporting information

Figure S1: Particle size distribution inferred from statistical analysis of TEM micrographs using SAISAM software and assuming a spherical shape. The average diameter and the standard deviation of each kind of oxide was deduced from a log-normal fitting: (a) in-situ composite powder, (b) ex-situ composite and (c) seed powder.

Magnetometry



Figure S2: FC and ZFC thermal variation of the dc-magnetic susceptibility of the a) asrecovered iron oxide powder from polyol reaction solution by centrifugation and b) that of the slightly reddish supernatant solution. A net superparamagnetic behaviour is evidenced in the former sample while a paramagnetic one is observed in the latter when a small magnetic field of 200 Oe is applied. The measurements were carried out down to 2 K, the lowest temperature limit available in the used SQUID magnetometer.

Mössbauer spectroscopy data



Figure S3 ⁵⁷Fe Mossbauer spectra of iron oxide nanoparticles recorded at 77 K as dried powder (down) or as a polyol suspension (up). These nanoparticles serve as seeds for the production of the ex-situ and in-situ composites, respectively. The dots represent the experimental data and the continuous lines represent the fitted curves.