

Electronic Supplementary Information

Colloidal properties of water dispersible magnetite nanoparticles by photon correlation spectroscopy.

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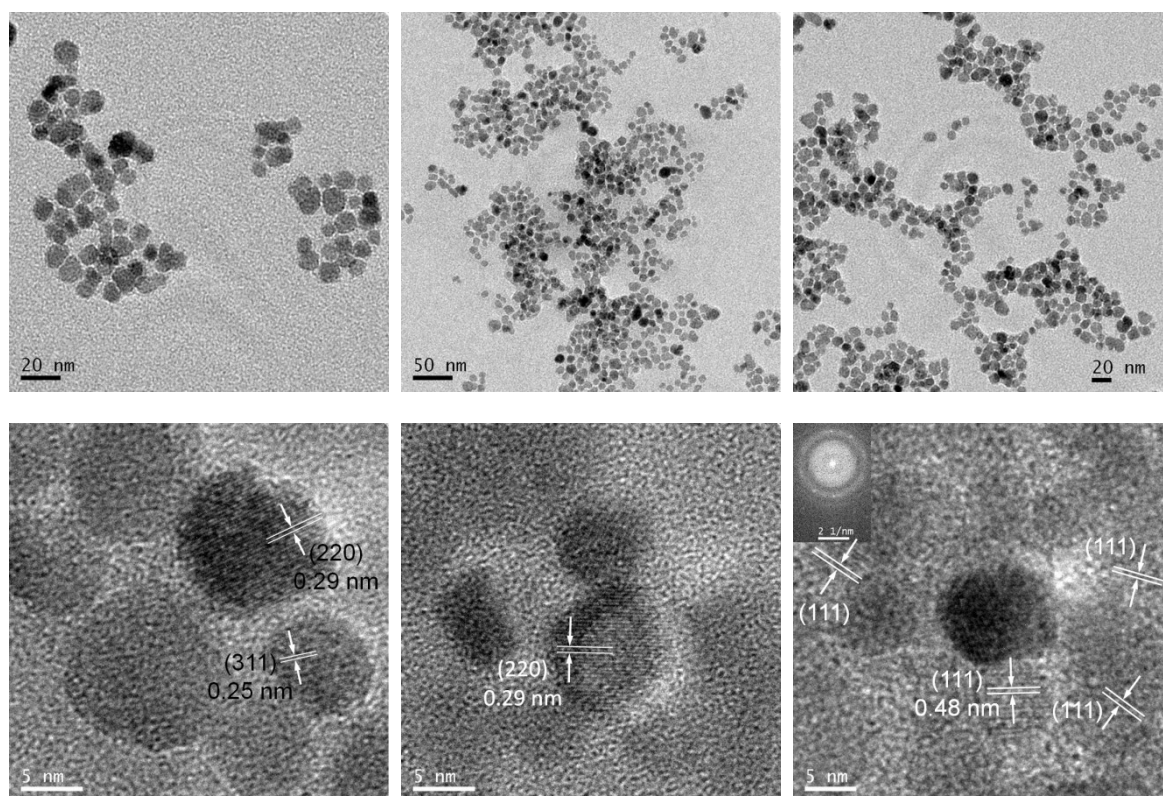


Fig. S1 Bright field as well as high resolution TEM images of TMAH coated magnetite nanocrystals.

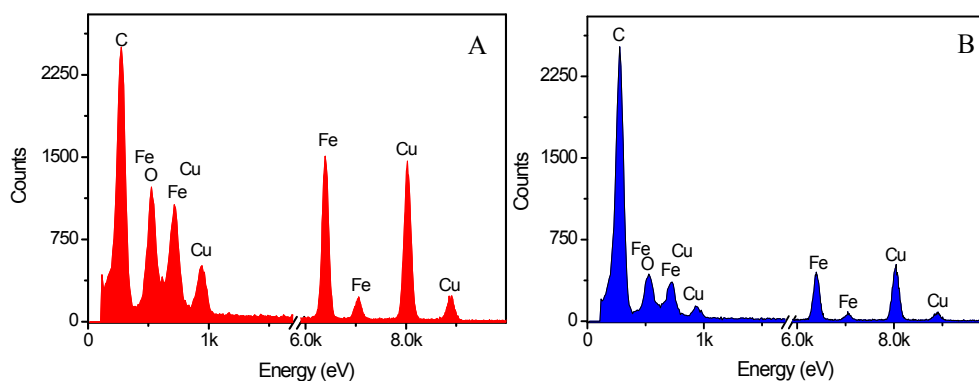


Fig. S2 Energy dispersive spectra of synthetic magnetite A) AM as well as B) coated sample TMA over the TEM grid

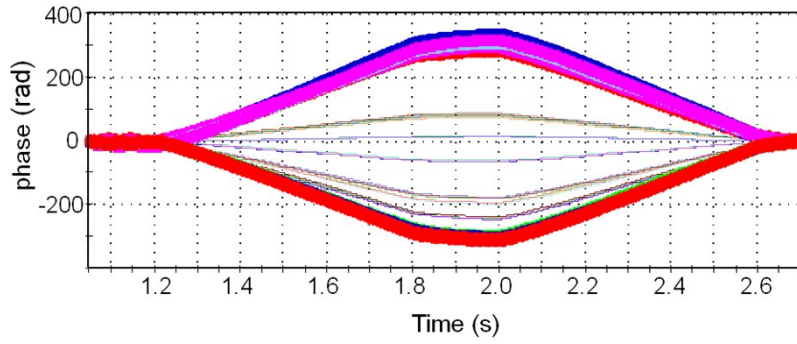
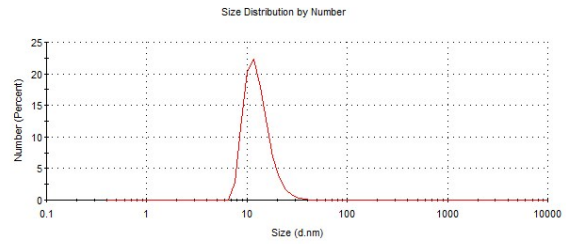
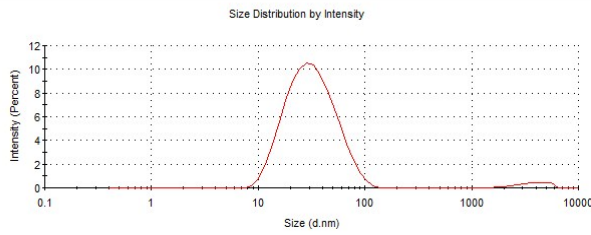
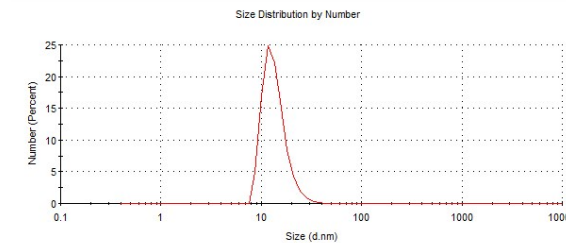
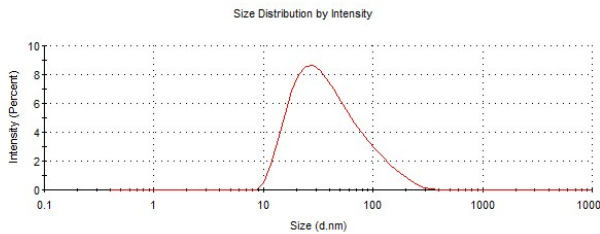


Fig. S3 The associated phase changes from negative to positive with zeta potential of magnetite nanocrystals suspension while varying the pH of surrounding medium from 13-2.

| | | | |
|---|---|---|---|
| Temperature (°C): 25.0 Count Rate (kcps): 456.1 Cell Description: Disposable sizing cuvette | Duration Used (s): 60 Measurement Position (mm): 0.85 Attenuator: 6 | Temperature (°C): 25.0 Count Rate (kcps): 456.1 Cell Description: Disposable sizing cuvette | Duration Used (s): 60 Measurement Position (mm): 0.85 Attenuator: 6 |
| Z-Average (d.nm): 28.28 Pdl: 0.228 Intercept: 0.927 Result quality : Good | Size (d.nm): Peak 1: 34.66 Peak 2: 3814 Peak 3: 0.000 | % Intensity: 97.3 2.7 0.0 | St Dev (d.nm): 18.21 1145 0.000 |
| Z-Average (d.nm): 28.28 Pdl: 0.228 Intercept: 0.927 Result quality : Good | Size (d.nm): Peak 1: 12.96 Peak 2: 0.000 Peak 3: 0.000 | % Number: 100.0 0.0 0.0 | St Dev (d.nm): 4.116 0.000 0.000 |



| | | | |
|---|---|---|---|
| Temperature (°C): 35.0 Count Rate (kcps): 538.7 Cell Description: Disposable sizing cuvette | Duration Used (s): 50 Measurement Position (mm): 0.85 Attenuator: 6 | Temperature (°C): 35.0 Count Rate (kcps): 538.7 Cell Description: Disposable sizing cuvette | Duration Used (s): 50 Measurement Position (mm): 0.85 Attenuator: 6 |
| Z-Average (d.nm): 31.35 Pdl: 0.255 Intercept: 0.908 Result quality : Good | Size (d.nm): Peak 1: 48.61 Peak 2: 0.000 Peak 3: 0.000 | % Intensity: 100.0 0.0 0.0 | St Dev (d.nm): 41.36 0.000 0.000 |
| Z-Average (d.nm): 31.35 Pdl: 0.255 Intercept: 0.908 Result quality : Good | Size (d.nm): Peak 1: 13.76 Peak 2: 0.000 Peak 3: 0.000 | % Number: 100.0 0.0 0.0 | St Dev (d.nm): 4.009 0.000 0.000 |



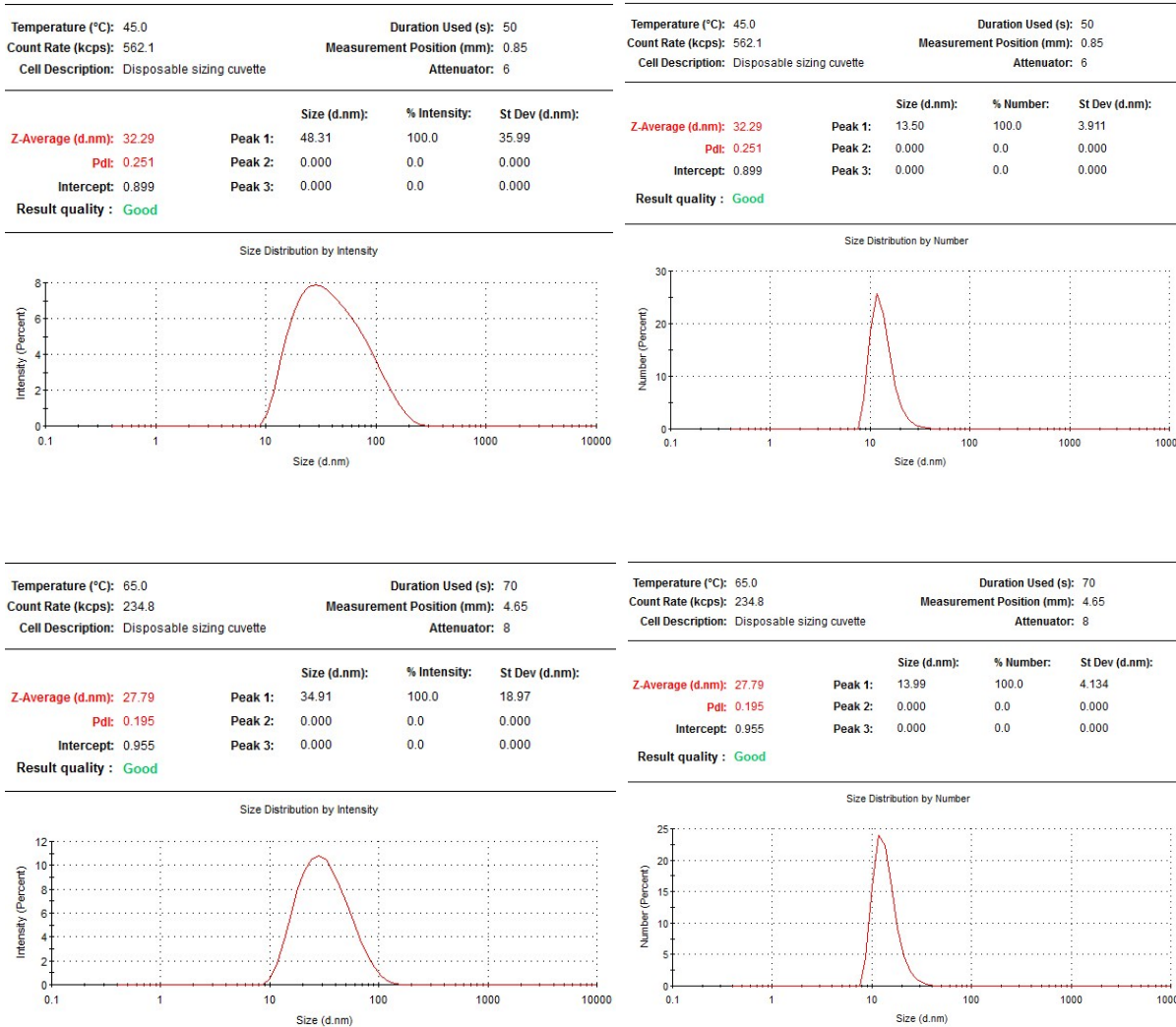


Fig. S4 Few snap shots of aqueous magnetite suspension recored at variuos temperatures 25, 35, 45, 65 °C by photon correlation spectroscopy showed unimodal typical guassian type. Right side is the intensity (%) based size distribution and the left is the number (%) size distribution which was calculated from the corresponding intensity.

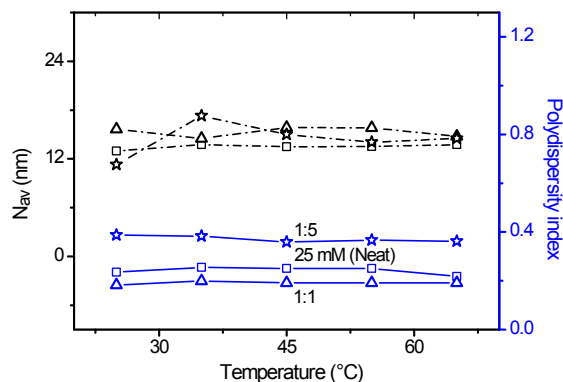


Fig. S5 Hydrodynamic size as N_{av} and the colloidal stability as a function of temperature for MNPs suspension examined at various concentrations, the mean particle size (dotted layer) plotted against polydispersity index (solid layer) with different concentrations neat (box), 1:1 (triangle), 1:5 (star) dilutions.