

# Supporting Information

## Facile Organometallic Synthesis of Fe-Based Nanomaterials by Hot Injection Reaction

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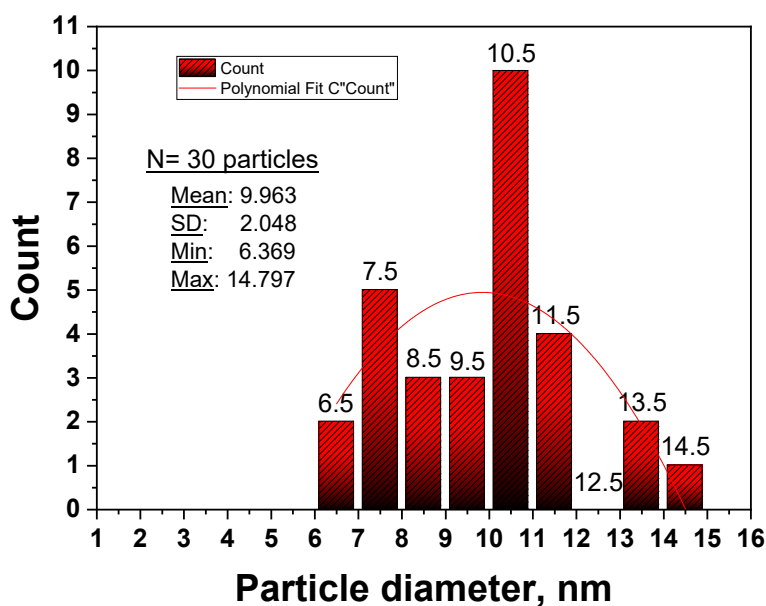
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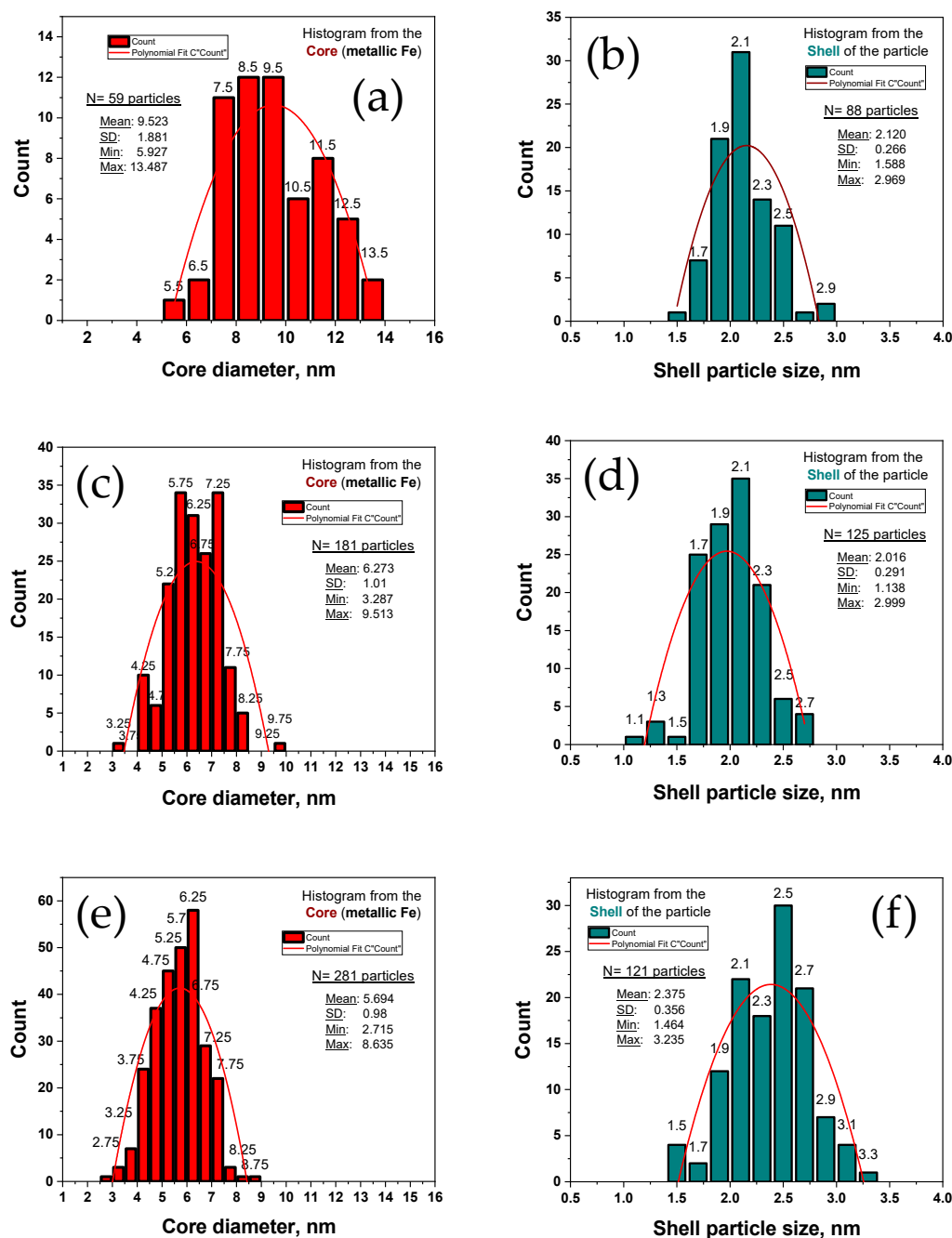
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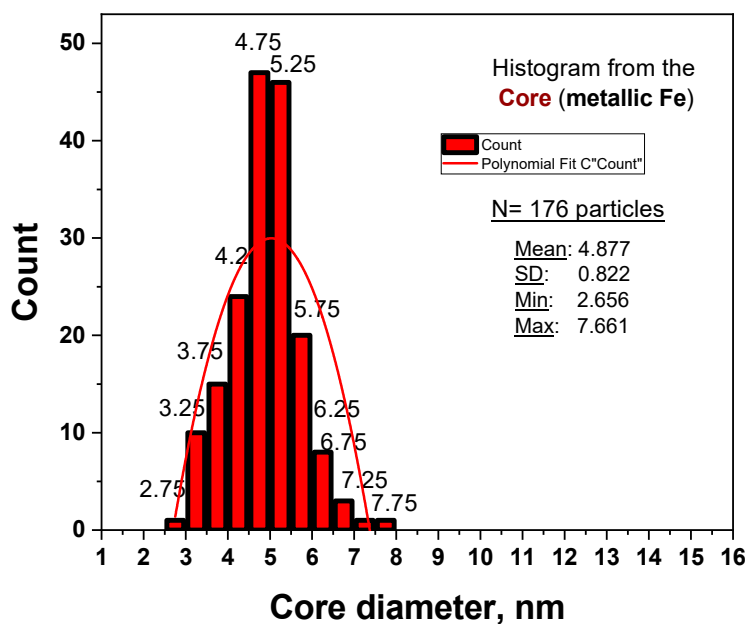
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**Figure S1.** Histogram of overall particle (Fe/Fe-oxides) size with core/shell morphology derived from the TEM image in Figure 1a, which corresponds to nanoparticles synthesized by hot injection of Fe(CO)<sub>5</sub> at 315 °C.



**Figure S2.** Histogram of core size (on the left) and shell (on the right) from Fe/Fe-oxides nanoparticles with a core/shell morphology, derived from: a,b: the TEM images of Figure 1(b,c,d) for the nanoparticles synthesized by hot injection of  $\text{Fe}(\text{CO})_5$  at 285 °C (a, b), from c, d: the TEM image of Figure 1(e) for the nanoparticles synthesized at 260 °C (c, d), and from e, f: the TEM image of Figure 1(f), d for the nanoparticles synthesized by hot injection of  $\text{Fe}(\text{CO})_5$  at 240 °C (e, f).



**Figure S3.** Histogram of metallic Fe/core particles in the Fe/Fe-oxides size with core/shell morphology derived from the TEM image in Figure 1g, which corresponds to nanoparticles synthesized by hot injection of  $\text{Fe}(\text{CO})_5$  at 220 °C.

**Table S1.** Summarized data extract from Histograms in Figure S1-S3.

Sample	Reaction Temperature	Particles	Parameters obtained by the histograms <sup>1</sup>			Mean size (nm)		
			Minimum Size (nm)	Maximum Size (nm)	SD	Overall particle (Fe/Fe-oxides)	Core (metallic Fe)	Shell
Figure S1-3.	T <sub>hot injection</sub> (°C)	N						
S1	315	30	6.369	14.797	2.048	<b>9.963</b>	-	-
S2 (a,b)	285	59	5.927	13.478	1.881	-	<b>9.523</b>	2.12±0.266
S2 (c,d)	260	181	3.287	9.513	1.01	-	<b>6.273</b>	2.016±0.291
S2 (e,f)	240	281	2.715	8.635	0.98	-	<b>5.694</b>	2.375±0.356
S3	220	176	2.656	7.661	0.822	-	<b>4.877</b>	-

<sup>1</sup> Correspond to overall particle size (Fe/Fe-oxides) or to the core (metallic Fe) of the particles.