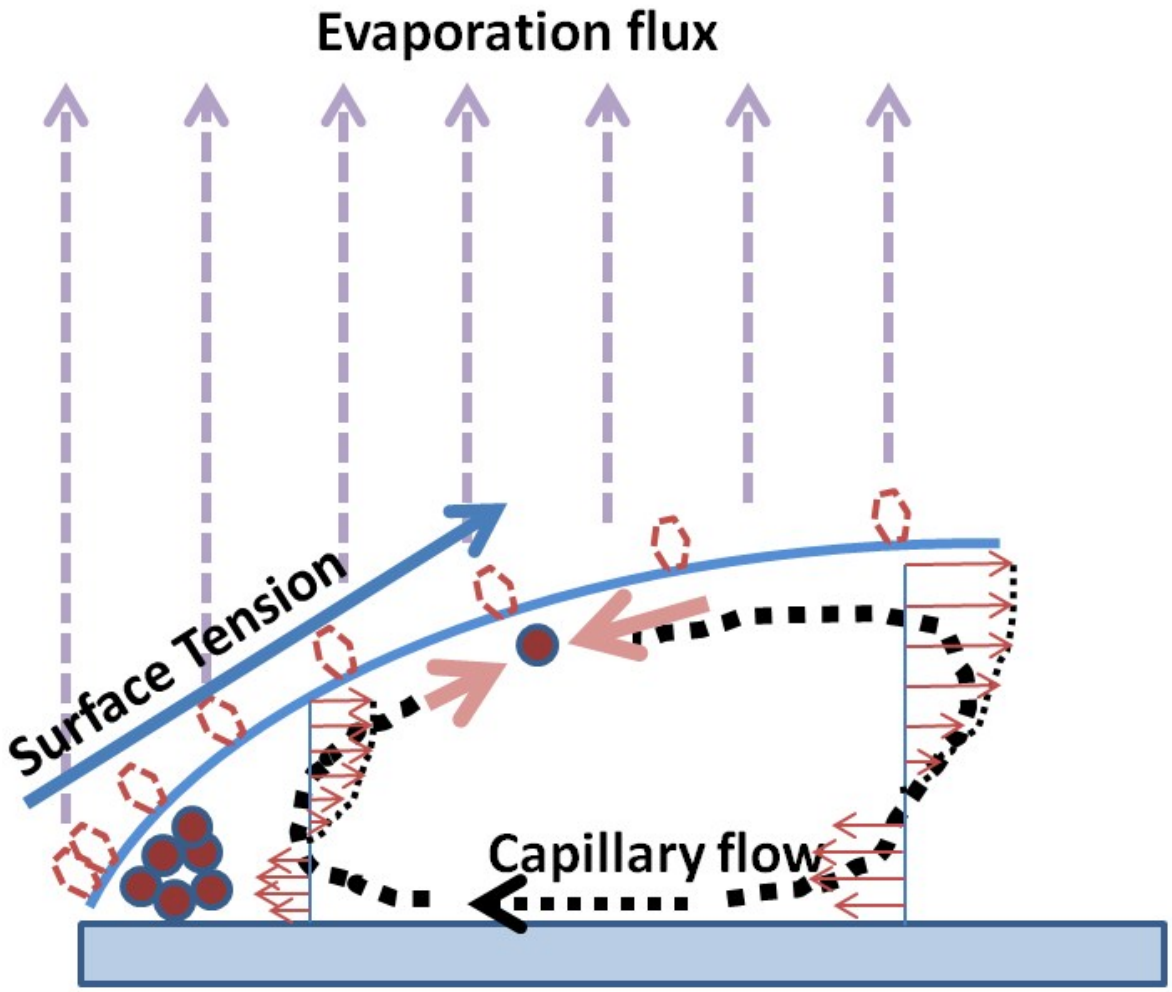
Supporting Information

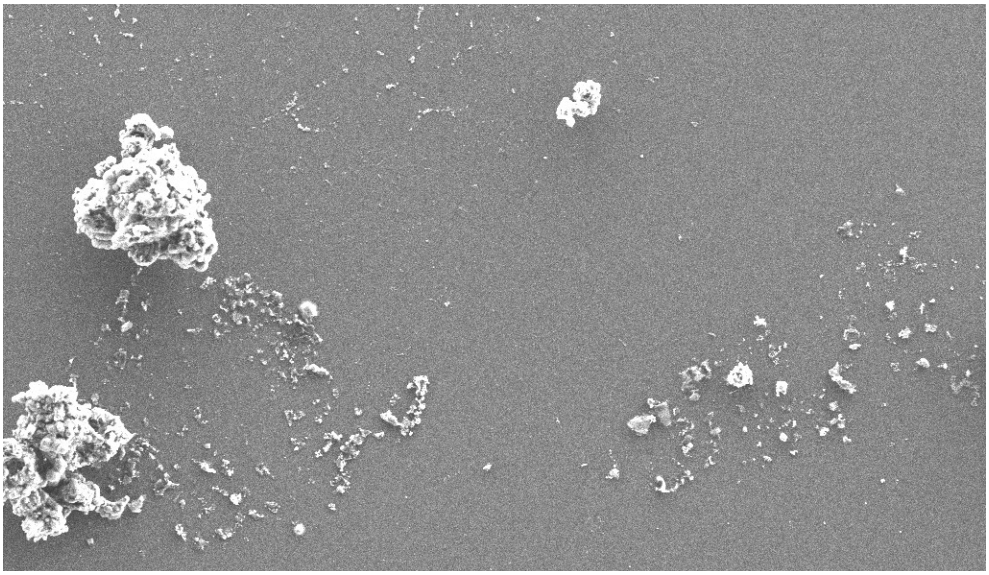
Shape transformation and self-alignment of Fe based nanoparticles

Hong et al.

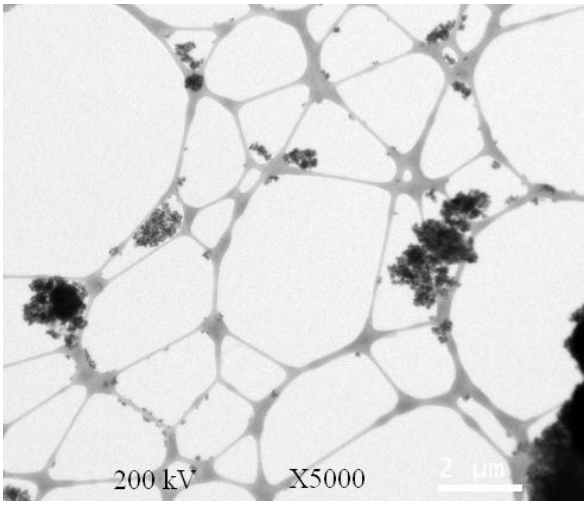
Description of Coffee ring effects

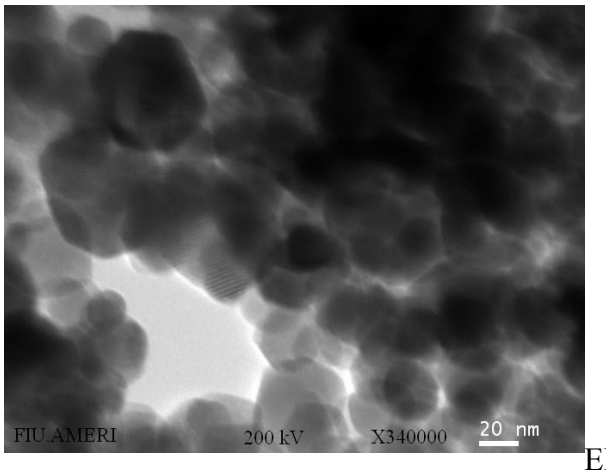


SEM images

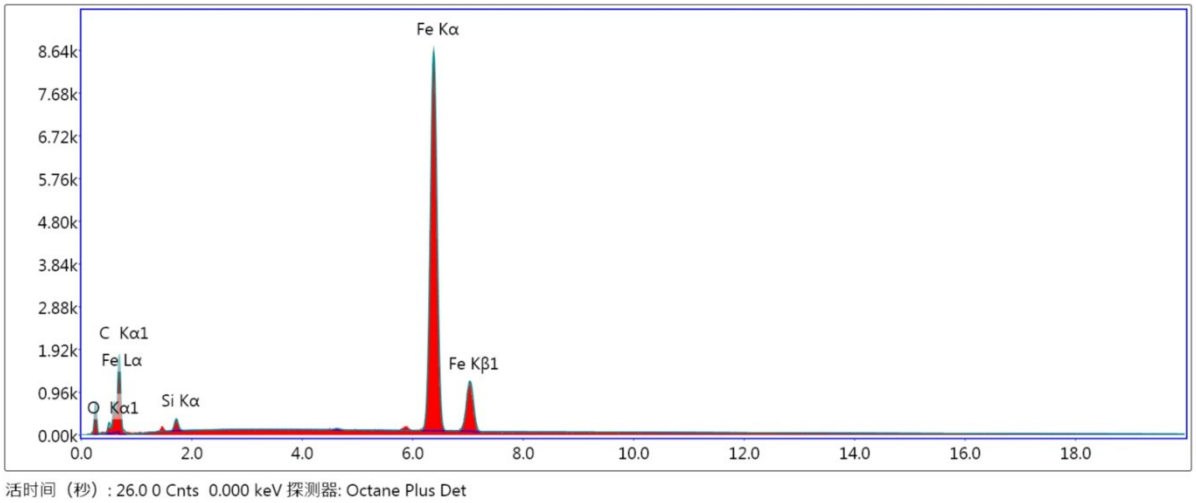


TEM images





EDX patern



元素	重量%	原子%	净强度	Error %	Kratio	Z	R	A	F
C K	20.06	50.70	132.88	10.23	0.06	1.18	0.87	0.25	1
O K	3.76	7.13	59.48	12.40	0.01	1.15	0.9	0.23	1
SiK	1.42	1.53	80.12	12.53	0.01	1.07	0.95	0.34	1.01
FeK	74.76	40.64	4,646.81	1.21	0.70	0.93	1.03	1.01	1

X-ray Diffraction (XRD)

The XRD pattern clearly shows the mixed state of the crystal structures from the three signature materials: α-Fe_2O_3, γ-Fe_2O_3, and Fe_3O_4. Strong peaks are observed at 17 degrees (110) for the square and pyramidal structures together, 50 degrees (024) for the pyramidal structure alone, and 57 degrees (511) for the square structure alone. The peak at 50 degrees (024) is a signature of the 3D pyramidal structure. In addition, we observed that the peak at 17 degrees (110) decays in the circular nanoparticles state. The three peaks at angles of 17°

(110), 50° (024), and 68° (610) indicate the octahedron-tetrahedron lattice structure that is critical for the formation of 3D pyramid-shaped structures.