

# SUPPORTING INFORMATION

## Dynamic growth modes of ordered arrays and mesocrystals during drop-casting of iron oxide nanocubes

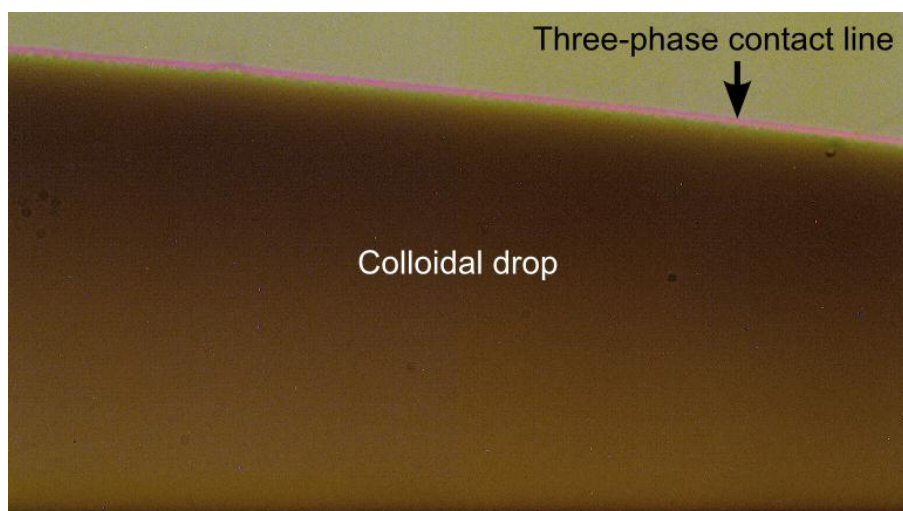
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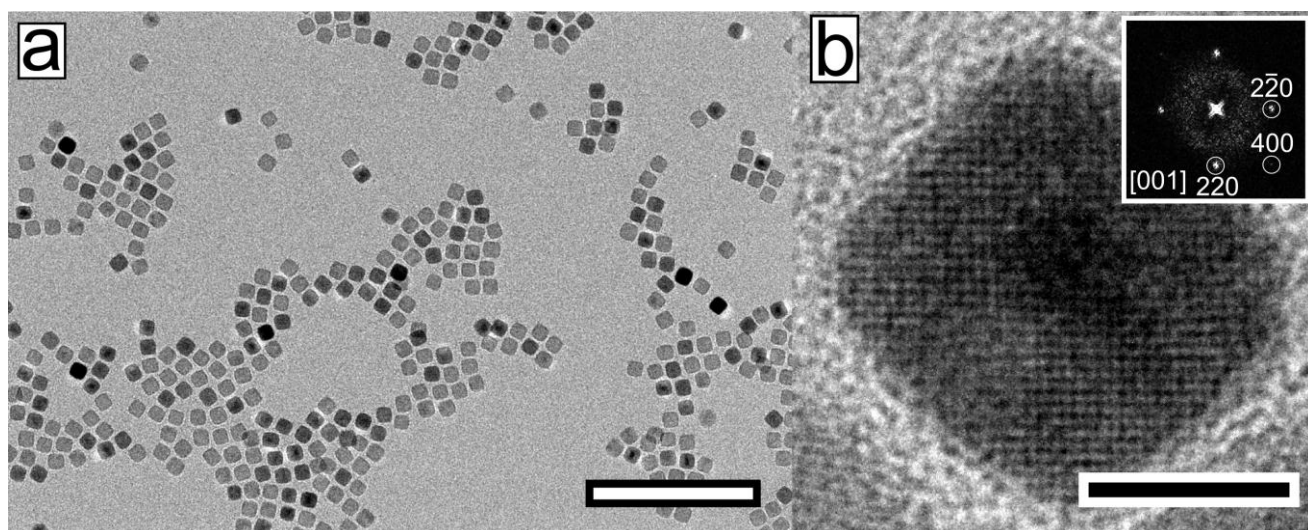
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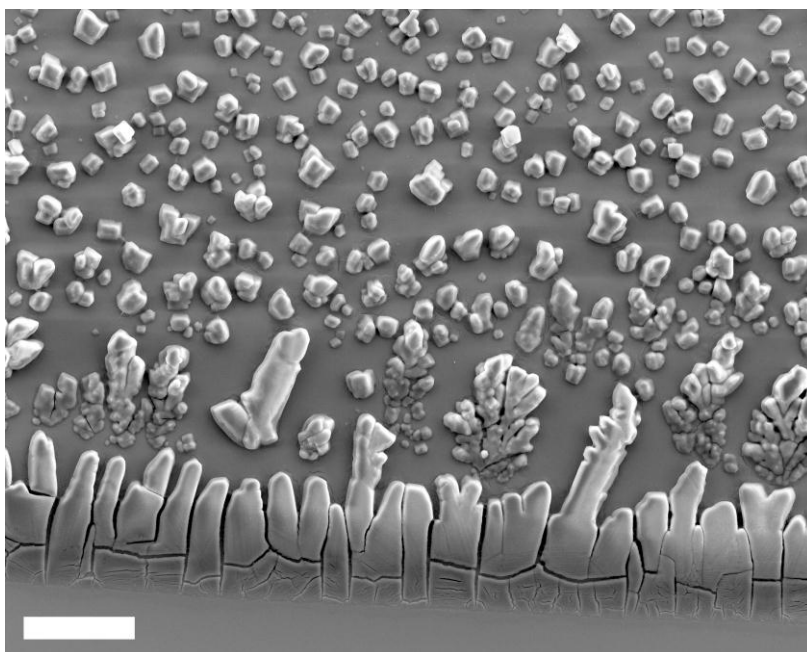
<sup>\*</sup>To whom correspondence should be addressed



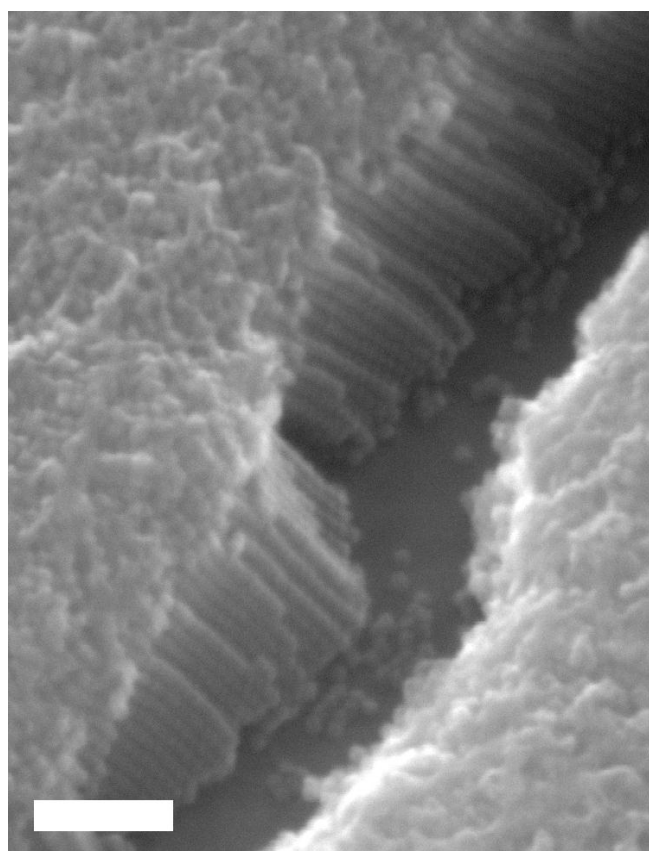
**Fig. S1** Time lapse video (23× original speed) of different mesocrystal growth modes during the controlled solvent evaporation of a toluene dispersion of iron oxide nanocubes. Field of view is 212×120 μm.



**Fig. S2** TEM imaging of iron oxide nanocubes shows monodispersed size distribution of the cubes in (a) and the slightly truncated nanocube shape in (b). The inset in (b) corresponds to the FFT of the image where the spots are indexed according to the spinel structure. Scale bars indicate (a) 100 nm and (b) 5 nm.



**Fig. S3** SEM image showing an overview of the morphologies observed during a typical solvent evaporation experiment. The different structures obtained during the three growth modes can be observed: Coffee-ring shaped assemblies formed at the droplet perimeter (bottom of the image), followed by dendritic-like growth and finally diffusion-driven mesocrystallisation (top of the image). Scale bar corresponds to 30  $\mu\text{m}$ .



**Fig. S4** SEM image demonstrating the ordered structure found in the vicinity of the droplet's contact line. Although the top surface is disordered, the relatively thick array is composed of several, well-ordered regions. Scale bar indicates 100 nm.