

# Synthesis, Characterization and Manipulation of Transition Metal Oxide Nanocrystals

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Nanocrystals of magnetic materials can show interesting behaviors stemming from the combination of chemistry and magnetic performance, which also determines or directs their final purpose.

Different examples of magnetic nanocrystals of transition metal oxides, synthesized and manipulated by wet-chemistry methods, will be detailed describing the magnetic behavior and the possible diversity of the ultimate functionalities (magneto-optical activity, exchange bias, spin dynamics, etc. or heat delivery and magnetic guidance of self-propelled swimmers).

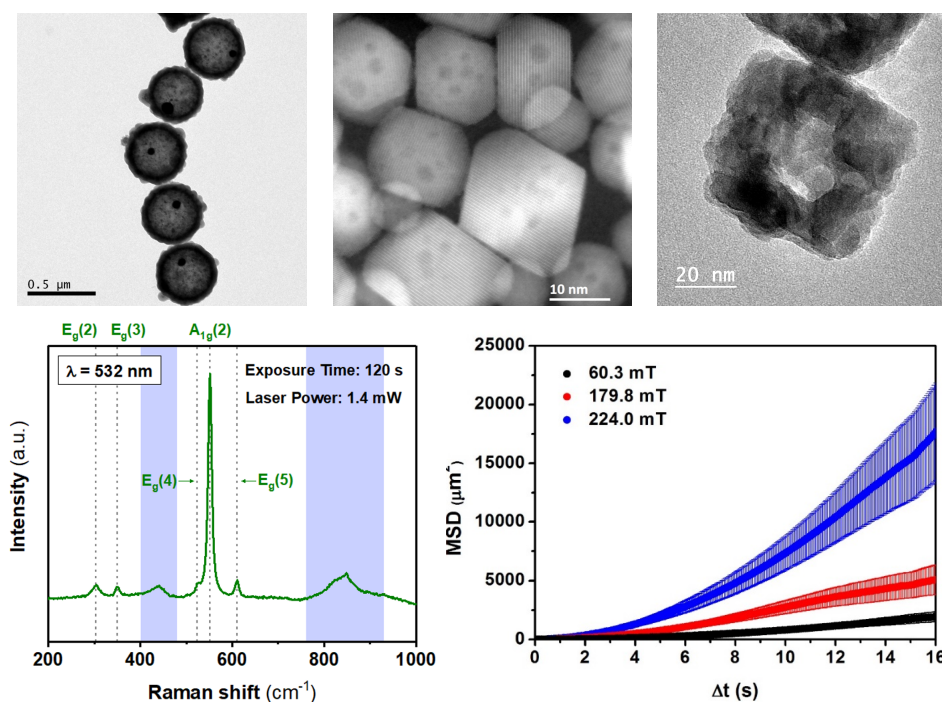


Figure 1. (top) TEM images of silica capsules including several CoFe<sub>2</sub>O<sub>4</sub> nanoparticles and a single Au nanoparticle, of truncated octahedron shaped ZnFe<sub>2</sub>O<sub>4</sub> nanocrystals, and of a mixed Co<sub>x</sub>Mn<sub>y</sub>Fe<sub>2</sub>O<sub>4</sub> nanocage. (bottom) Raman spectrum from Cr<sub>2</sub>O<sub>3</sub> nanoparticles and mean-squared displacement of magnetic swimmers in the presence of a magnetic field gradient.

## References

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