

From Structure to Function: Understanding Synthetic Conditions in Relation to Magnetic Properties of Hybrid Pd/Fe-Oxide Nanoparticles

Alexandra Maier ¹, Rogier van Oossanen ^{2,3}, Gerard C. van Rhoon ^{2,3}, Jean-Philippe Pignol ⁴, Iulian Dugulan ³, Antonia G. Denkova ³ and Kristina Djanashvili ^{1,*}

¹ Department of Biotechnology, Delft University of Technology, Van Der Maasweg 9, 2629 HZ Delft, The Netherlands

² Department of Radiotherapy, Erasmus MC Cancer Institute, University Medical Center, 3008 AE Rotterdam, The Netherlands

³ Department of Radiation Science and Technology, Delft University of Technology, Mekelweg 15, 2629 JB Delft, The Netherlands

⁴ Department of Physics and Atmospheric Sciences, Dalhousie University, Sir James Dunn Bldg., Halifax, NS B3H 4J5, Canada

* Correspondence: k.djanashvili@tudelft.nl; Tel.: +31-15-27-85092

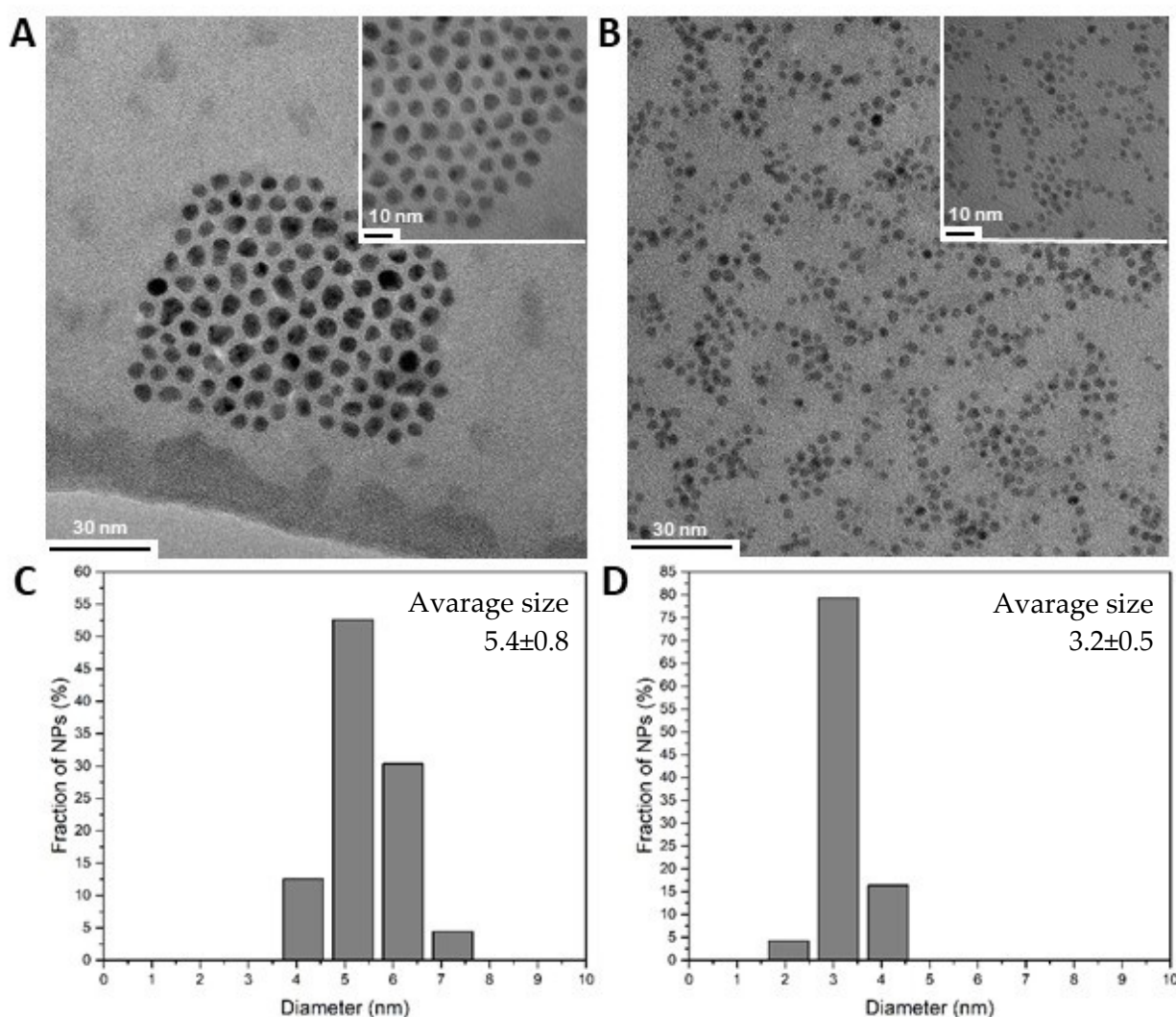


Figure S1. Characterization of OAm-capped (left) and nDS-capped (right) Pd-seeds: (A,B) TEM images and (C,D) size distributions.

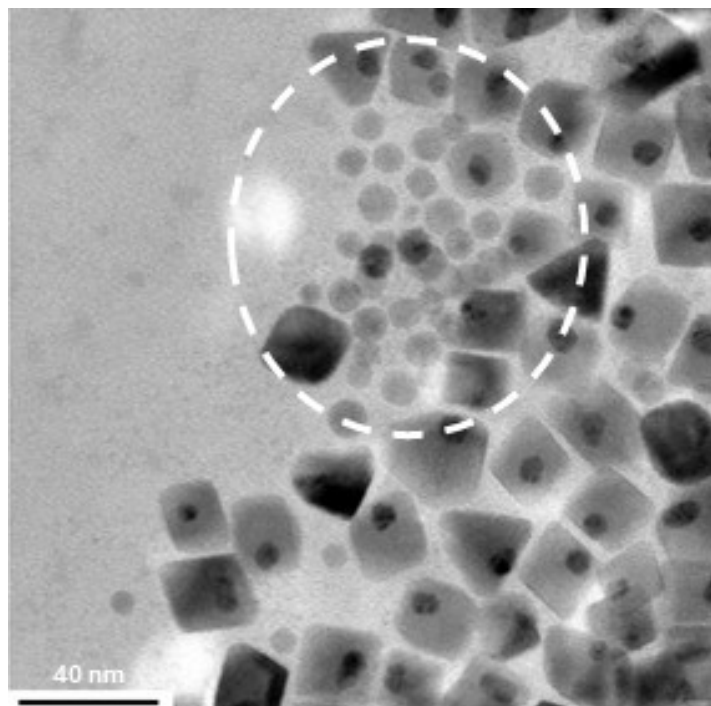


Figure S2. Second population of small iron oxide nanocrystals found in Exp_10mg.

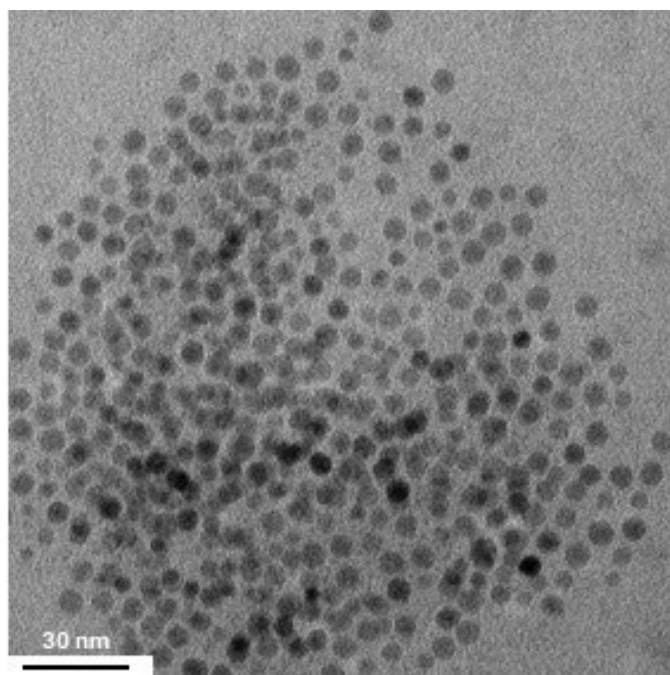


Figure S3. Homogeneous nucleation in the form of Fe-oxide NPs found in Exp_7 °C.

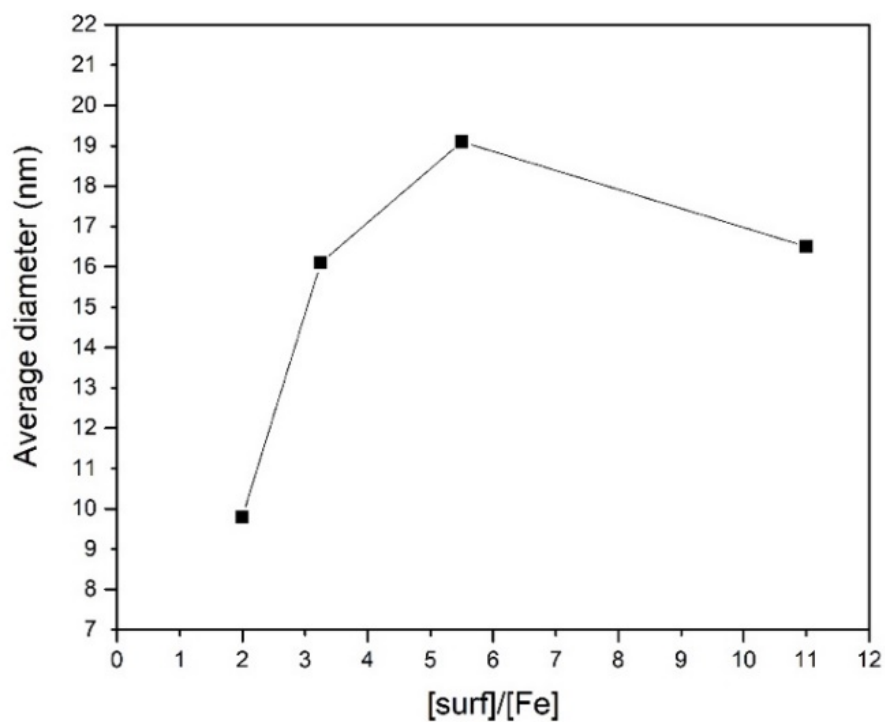


Figure S4. Average diameter of the Pd/Fe-oxide hybrid NPs as a function of the ligand/precursor molar ratio.

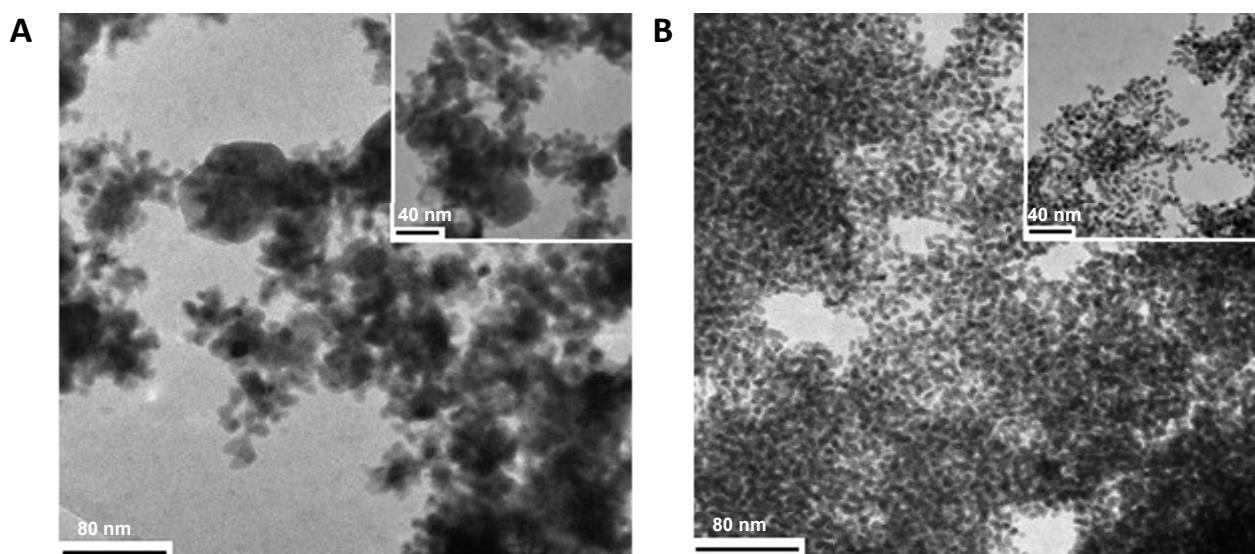


Figure S5. TEM images of NPs prepared with (A) only OAm (Exp_OAm) and (B) only OA (Exp_OA).

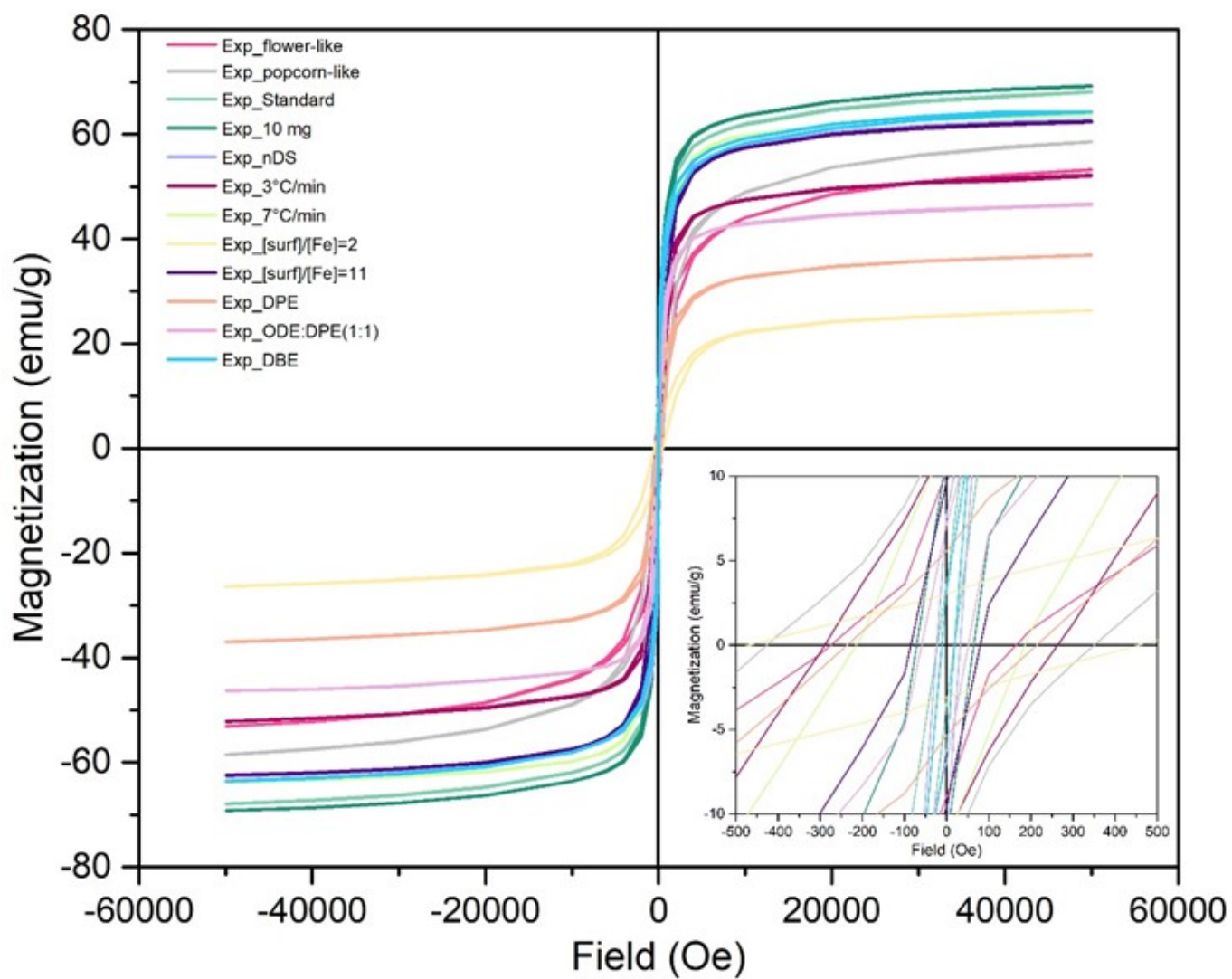


Figure S6. SQUID measurements at $T = 5$ K and coercivity (H_c) in the inset.

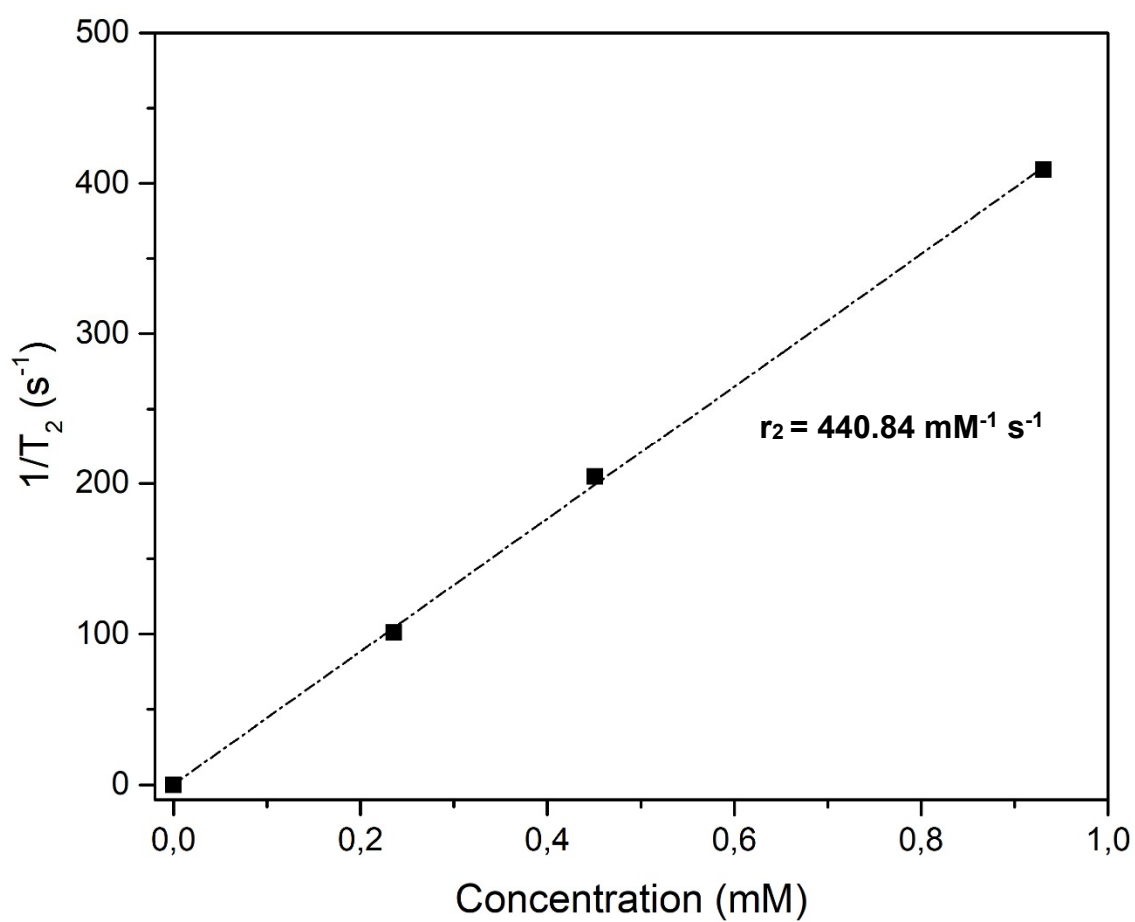


Figure S7. Inverse of the T_2 -relaxation times as a function of iron concentration (determined by ICP-OES) for Exp_10mg.