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S E M I N A R
on
Semiconductor Physics and Nanotechnology

Mo, 15.05.2023, 11:15 Uhr,

Seminar in person in the Physics lecture hall *or* via Zoom

"Iron oxide nanocrystals: synthesis, characterization, and application"

Dr. Artur Feld

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The synthesis and development of colloidal nanocrystals still proceed by trial and error.[1] Insufficient knowledge of fundamental reaction mechanisms, especially the role of reaction intermediates during the formation of colloidal nanocrystals, prevents the expansion of the application potential of many nanoparticle systems. Using the synthesis of iron oxide nanocrystals as a model system, it is shown that key aspects of the basic reaction mechanism can be elucidated using matrix-assisted laser desorption ionization time-of-flight mass spectrometry (MALDI-ToF-MS).[2]

Iron oxide nanocrystals are used as contrast agents, tracers, and core building blocks of nanohybrids and composites. The production of advanced nanohybrids and composites requires a sophisticated and robust encapsulation method. By synthesizing homogenous magneto-responsive nanocomposites and functional nanohybrids, we demonstrate the universality of our advanced encapsulation technique.[3-5]

Zoom – Link:

https://zoom.us/j/96375934537?pwd=RTlKTWhSdzRHU211YTY1bGFxTUtpZz09

Meeting-ID: 963 7593 4537

Kenncode: =r=4YQ

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4. Ostermann, J.; Merkl, J.-P.; Flessau, S.; Wolter, C.; Kornowksi, A.; Schmidtke, C.; Pietsch, A.; Kloust, H.; Feld, A.; Weller, H. Controlling the Physical and Biological Properties of Highly Fluorescent Aqueous Quantum Dots Using Block Copolymers of Different Size and Shape. *ACS Nano* **2013**, 7 (10), 9156–9167.
5. Feld, A.; Merkl, J.-P.; Kloust, H.; Flessau, S.; Schmidtke, C.; Wolter, C.; Ostermann, J.; Kampferbeck, M.; Eggers, R.; Mews, A.; et al. A Universal Approach to Ultrasmall Magneto-Fluorescent Nanohybrids. *Angew. Chemie Int. Ed.* **2015**, 54 (42), 12468–12471.