

In-Depth Investigation of the Magnetically Related Properties of Iron Oxide Nanospheres

Author: Basile Bouvet¹

Co-authors: Jean-Michel Siaugue¹; Laurent Michot¹; Vincent Dupuis¹

¹ *Laboratoire Phenix - Sorbonne université*

Advances in synthesis of Iron oxide nanoparticles have enabled precise control of size and dispersity, shifting focus toward their physical properties, including interparticle interactions, colloidal organization, and magnetic response under external fields.

Despite recent progress in gram-scale production of controlled IONPs, significant challenges remain in achieving precise characterization of their composition, their colloidal state and their magnetic properties.

Thus, we adapted a solvothermal method to obtain monodisperse spherical IONPs of controlled size. These particles were further functionalized with a novel fluorescent catechol ligand (Nitro-DOPA-FITC).

These objects have been characterized by several methods as SAXS-WAXS measurements (performed at the SOLEIL synchrotron), dynamic susceptibility, dynamic hysteresis, and direct temperature measurements under the action of an AC magnetic field.

Type:

Poster