Group of Multifunctional Nanomaterials and Nanoparticles (Dr. Dominika Zákutná)

Dr. Dominika Zákutná's group focuses on the **synthesis and study of multifunctional nanostructures** with emphasis on magnetoplasmonics, magnetoelectric materials, exchange magnets, and spin-exciton systems. These materials with advanced **magnetic and optical properties** find applications in **technological and biomedical fields**.

The team operates at the intersection of **chemistry**, **physics**, and **theoretical simulations**, fostering a truly interdisciplinary research environment. Chemists develop expertise in physics and physical characterization, physicists master synthetic techniques, and all members strengthen both their theoretical understanding and experimental skills. The group specializes in **advanced characterization of nanomaterials**, particularly using **neutron and synchrotron radiation**. Through close collaborations with leading research facilities in France and the UK, the team accesses state-of-the-art instrumentation that reveals nanoscale structural and magnetic details inaccessible to conventional methods.

The group's research advances fundamental understanding of how nanomaterials behave at the atomic and nanometer length scales, bridging the gap between basic science and practical applications in **next-generation technologies and medicine**.
Since 2025, Dr. Dominika Zákutná has been a research scientist specializing in small-angle neutron scattering (SANS), co-responsible for the operation and methodological development of the D11 beamline at the **Institut Laue-Langevin (ILL) in Grenoble**. Since 2019, she has served as an Assistant Professor and the head of the **MultiFuN research group**.

She completed her PhD jointly at the **Institut Laue-Langevin** and the **University of Cologne**, where her research focused on the spin structure of magnetic nanoparticles and advanced neutron and X-ray scattering techniques.

In her teaching, she bridges **theoretical foundations with current research**, providing students with **hands-on experience in modern experimental methods**. Through **collaborations with international research centers**, she fosters the development of a new generation of scientists in the fields of materials science and nanomaterials.
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