Master thesis available

Microwave Response of 3D Nanomagnets

Extending nanomagnets into the third dimension has become a vibrant research avenue in modern magnetism. It encompasses investigations of 3D frustrated systems, topology- and curvature-induced effects in complex-shaped architectures, and the dynamics of spin waves in 3D magnonic systems. Recently, we developed a spatially-resolved approach for microwave probing of individual magnetic elements with volumes down to down to about 10^{-3} μm^3 [1]. This technique is now to be extended towards probing of 3D magnetic nano-architectures.

We are currently searching for a master student to work on a research project that aims at the experimental investigation of complex magnetic states in 3D curved magnetic nanostructures. In your master thesis you will design microwave transmission lines and probe the spin-wave dynamics in 3D nanomagnets under normal and cryogenic conditions. You will design and model your microwave devices using modern CAD tools and multiphysics simulation software. You will be working in a team with a postdoc and two PhD students, as well as with international collaborators from the Goethe University Frankfurt am Main and the Helmholtz-Zentrum Dresden-Rossendorf.

We offer a cutting-edge research program at the interface of magnetism and microwave engineering, that offers plenty of room for the implementation of your ideas. **You are** a highly curious and motivated student with hands-on mentality. Attendance of solid-state physics courses and programming skills are of advantage.

For more information, please inquire Oleksandr Dobrovolskiy (oleksandr.dobrovolskiy@univie.ac.at) at your earliest convenience.

The Superconductivity and Spintronics Laboratory is part of the Nanomagnetism and Magnonics Group at the Faculty of Physics of the University of Vienna.

[1] O. V. Dobrovolskiy, *et al.* Nanoscale 12 (2020) 21207

Der Wissenschaftsfonds.

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