The Collaborative Research Center (SFB) 1143 “Correlated Magnetism: From Frustration to Topology” offers a position as

**Research Associate / PhD student**

(Subject to personal qualification employees are remunerated according to salary group E 13 TV-L)

at the crossover of Materials Chemistry and Solid State Physics starting from **01.01.2020**. The position is limited until the end of the project at 31.12.2022 and entails 50 % of the fulltime weekly hours for the first year with a planned extension to 75 % from the second year. The period of employment is governed by the Fixed Term Research Contracts Act (Wissenschaftszeitgesetz-WissZeitVG). The position aims at obtaining a further academic qualification (e.g. PhD). The PhD project will be conducted at the Faculty of Physics, Institute of Solid State and Materials Physics at the Chair of Neutron Spectroscopy of Condensed Matter (Prof. Dr. Dmytro Inosov).

The Collaborative Research Center SFB 1143 has successfully accomplished the first funding period in 2018 and has been extended for the second funding period 2019–2022. The consortium has achieved national and international impact and visibility via resourceful collaborations, excellent infrastructure and high publication rates.

The C03 project explores magnetic excitations in geometrically frustrated quantum magnets using inelastic neutron scattering. The materials of interest include copper sulfate- and chloride-hydroxides and hydrates as realizations of low-dimensional magnetically frustrated spin-1/2 lattices with kagome- or triangular-lattice motifs. Some of these compounds are known as naturally occurring minerals, but still lack a systematic investigation of their low-temperature magnetic properties.

**Tasks:** The successful applicant will work on synthesis, crystal growth, structural and magnetic characterization of novel, prospective materials for magnetic frustration. This includes (1) conducting and optimizing hydrothermal synthesis reactions of the mentioned compounds both in powder and single-crystal form, hydrothermal crystal growth of novel copper-based quantum magnets in the newly established laboratory of the chair; (2) exploration of the growth routes for yet unavailable single crystals; their structural, magnetic, and thermodynamic characterization, with the ultimate goal of enabling more complex spectroscopic investigations on high-quality single crystals of these materials; (3) performing basic structural and magnetic characterization of the resulting samples using x-ray diffraction, low-temperature magnetization, magnetic susceptibility, specific heat, etc.; (4) conducting neutron diffraction and neutron spectroscopy experiments on some of the resulting samples to establish their magnetic ordering patterns and study their spin dynamics; (5) work in a strong interdisciplinary team of chemists, experimental physicists, and theoreticians; (6) combining own experimental results with those originating from complementary techniques and theory in order to achieve a comprehensive understanding of the low-temperature magnetic phenomena in the studied compounds.

**Requirements:** university degree (M.Sc., Dipl.) in materials science, solid-state physics, inorganic chemistry or related disciplines, preferably with notable practical experience in solid-state synthesis (in particular, experience with hydrothermal synthesis is desirable); basic competences in crystallography/solid state physics/magnetism; hands-on experience with x-ray diffraction and/or material characterization techniques at cryogenic temperatures (e.g. magnetometry, specific heat measurements, etc.); excellent spoken and written English; responsibility, ability to work in a team, and strong motivation to succeed.

**We offer** an intensive mentoring in an attractive scientific environment in combination with an excellent infrastructure.
Further information on the SFB 1143 can be obtained via the web address https://tu-dresden.de/mn/physik/sfb1143 and https://tu-dresden.de/mn/physik/sfb1143/der-sfb/stellenangebote.

Applications from women are particularly welcome. The same applies to people with disabilities. Please submit your comprehensive application including a cover letter, curriculum vitae, certificates and a short description of previous professional activities by 26.09.2019 (stamped arrival date of the university central mail service applies) preferably via the TU Dresden SecureMail Portal https://securemail.tu-dresden.de by sending it as a single pdf document to: dmytro.inosov@tu-dresden.de with a CC to darren.peets@tu-dresden.de or post to: TU Dresden, Fakultät Physik, Institut für Festkörper- und Materialphysik, Professur für Neutronenspektroskopie kondensierter Materie, Herrn Prof. Dr. Dmytro Inosov, Helmholtzstr. 10, 01069 Dresden. Please submit copies only, as your application will not be returned to you. Expenses incurred in attending interviews cannot be reimbursed.

Reference to data protection: Your data protection rights, the purpose for which your data will be processed, as well as further information about data protection is available to you on the website: https://tu-dresden.de/karriere/datenschutzhinweis