PhD Thesis on the "Search for 2D ferromagnetism at room temperature"

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We are looking for a PhD student for the joint research project "Search for 2D ferromagnetism at room temperature". We propose to perform a detailed investigation of the magnetic properties of some new two-dimensional (2D) materials to identify novel 2D ferromagnetic materials with enhanced transition temperature. The discovery of room temperature ferromagnetic 2D materials can open the route for novel spintronic applications and future nanoscale developments.

The successful candidate will work on the discovery of novel ferromagnetic 2D van der Waals materials with enhanced transition temperature. During this research, the work will be split into several stages, as it follows: synthesis and crystal growth of these materials, analysis of the physical properties of the bulk crystals, study of these compounds using neutron diffraction and spectroscopy to clarify the origin of the ferromagnetic phases in these compounds, and the study of the atomically thin 2D crystals using state-of-the-art synchrotron techniques to understand the ferromagnetic properties towards the 2D limit.

Applicants should hold a MSc degree (or equivalent) in physics, material science, or chemistry. Some experience in synthesis of inorganic materials, and/or neutron diffraction and spectroscopy are ideal. We encourage applications from self-motivated candidates, who are eager to further improve their skills and tackle new challenges. Excellent communication skills in English (spoken and written) are required.

We offer the possibility to work with state-of-the-art resources to perform forefront research on an internationally competitive level. The successful candidate will be embedded in a stimulating, creative, and interdisciplinary environment. The student will become a member of the Swiss Nanoscience Institute PhD school and will benefit strongly from stimulating internal SNI events, and the personal support and training offered by the PhD program. The position will start as soon as possible after 1st January 2023. Applicants are encouraged to apply early, as the decision to fill the position can be taken at any time during the recruitment process.

Applications should be made online at phd.nanoscience.ch. For further information, please contact Dr. Monica Ciomaga Hatnean (monica.ciomaga@psi.ch) or Prof. Dr. Michel Kenzelmann (michel.kenzelmann@psi.ch).