Leibniz-Institut für Festkörper- und Werkstoffforschung Dresden

Leibniz Association

The Leibniz Institute for Solid State and Materials Research Dresden – in short IFW Dresden – is a nonuniversity research institute and a member of the Leibniz Association. The IFW employs approximately 600 people and one focus is on the training of young scientists besides enhancing fundamental and applied research development. At the highest international level, the IFW operates modern materials science on a scientific basis and makes the obtained results useful for the economy. The complex and interdisciplinary research work is carried out within the IFW by five scientific institutes, which are supported by a highly developed technical infrastructure. The IFW supports its employees in reconciling work and family life and regularly submits to the berufundfamilie® audit. Further information at: http://www.ifw-dresden.de.

Doctoral Researcher Position (m/f/d)

Hybrid magnetoelastic wave devices with van der Waals materials for quantum information and communication technologies

The Institute of Metallic Materials at the Leibniz Institute for Solid State and Materials Research Dresden (IFW Dresden) offers a PhD position on the topic "hybrid 2D superconducting/magnetic quantum devices" will be extended by another 2 years upon a successful mid-term evaluation. The salary is based upon the TV-L rules (E13; 65%).

Your profile: We are looking for a highly motivated and team-oriented student, who holds a master's degree in physics, engineering or quantum science and technology. successful candidate is enthusiast about fundamental science, highly ambitious and a good team-player. Good communication skills in written and spoken English are required.

Project description: Since their emergence, spintronics and van der Waals (vdW) materials have largely evolved separately but are now converging. This shift is driven by the discovery of 2D long-range magnetic order. Their intrinsic stacking flexibility allows the heterostructures without lattice-matching constraints, including hybrid systems combining magnetism and superconductivity. The PhD candidate will develop expertise in transport, spectroscopic and advanced fabrication methodologies for vdW heterostructures, including cryogenic stacking in inert and ultra-high vacuum environments to achieve ultraclean interfaces[1]. The student will work in Dresden at the Superpuddles lab, in close synergy with the QTLab at the University of Naples Federico II, using complementary expertise.

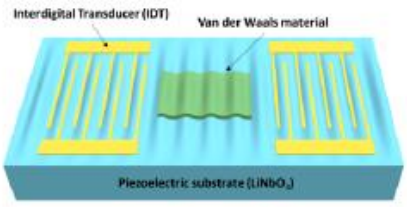

Figure: Surface acoustic wave device formed by two pairs of interdigital transducers (IDTs) on top of a piezoelectric substrate, and a van der Waals materials placed in-between to excite spin waves.

For further information, contact Prof. Dr. Nicola Poccia (n.poccia@ifw-dresden.de) or Dr. Haider Golam (g.haider@ifw-dresden.de). Applications have June as deadline; the expected start date is October 2026.

[1] https://www.nature.com/articles/s44287-024-00132-8