Postdoc position (U Würzburg/Germany)
Scanning tunneling microscopy of 3rd generation 2D quantum materials

We have an opening for a **postdoc position for low-temperature scanning tunneling microscopy and spectroscopy (STM/STS).** The position is integrated in our research team working on 3rd generation 2D quantum materials. These are atomic monolayer systems epitaxially grown on semiconducting or insulating substrates, which by design represent topological or strongly correlated 2D electron systems of high variability and tunability. We are looking for early career physicists or material scientists who share our enthusiasm for the fascinating physics of these synthetic quantum materials. Suitable candidates should have expert knowledge in STM/STS and ideally also a solid background in one or more of the following experimental techniques: photoelectron spectroscopy (ARPES, XPS), monolayer MBE, LEED, AFM.

The position is initially for 2 years; further extension is possible. Depending on interest and scientific progress the position may include the opportunity for a habilitation. The University of Würzburg is an equal opportunity employer, and we strongly encourage applications by female candidates.

The research focus of our group (Chair Experimental Physics 4) is on topological and correlated electron materials, from atomic nanochains and monolayer systems to ultrathin films and heterostructures of complex oxides. Our main experimental techniques are photoelectron spectroscopy and scanning tunneling microscopy, but our toolset also comprises the epitaxial growth and characterization of the quantum materials under study. Our activities are part of the Würzburg-Dresden Cluster of Excellence on *"Complexity and Topology in Quantum Matter – ct.qmat*", offering an excellent and synergistic research environment with ample access to complementary experimental methods and comprehensive theory cooperation.

The city of Würzburg is a good hour's drive east of Frankfurt. Beautifully situated in the Main valley and surrounded by famous vinyards, Würzburg hosts one of the oldest universities in the country. The *Julius-Maximilians-Universität* and its almost 30,000 students contribute to a vibrant and rich city life. The University's *Physikalisches Institut* has a long tradition of first-class research, from the discovery of the X-Rays by W.C. Röntgen – earning him the first-ever Nobel Prize in Physics – to the recent first experimental realization of the Quantum Spin Hall Effect.

Please address inquiries and applications (including at least two letters of reference) to:

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Recent examples of our work on 3rd generation 2D quantum materials:

[1] *Bismuthene on a SiC substrate: A candidate for a high-temperature quantum spin Hall material*
F. Reis et al., Science **357**, 287 (2017).

[2] *Correlation-driven charge order in a frustrated two-dimensional atom lattice [Pb/Si(111)]*
F. Adler et al., PRL **123**, 086401 (2019).

[3] *Tomonaga-Luttinger liquid in the edge channels of a quantum spin Hall insulator [Bi/SiC(0001)]*
R. Stühler et al., Nat. Phys. **16**, 47 (2020).

[4] *Design and realization of topological Dirac fermions on a triangular lattice [Sn/SiC(0001]*
M. Bauernfeind et al., Nat. Commun. **12**, 5396 (2021).