

Graz Advanced School of Science
PHYSICS COLLOQUIUM OF THE UNIVERSITY OF GRAZ AND
THE GRAZ UNIVERSITY OF TECHNOLOGY

Dr. Emile Rienks

TU Dresden und IFW Dresden

Surface Electronic Structure of SmB₆ - The first topological Kondo insulator?

Abstract:

The prediction that Kondo insulators could be topologically non-trivial [1] renewed interest in SmB₆, a material that already earned a reputation as the first mixed valence system and the first Kondo insulator. Dzero et al.'s proposal [1] connects two of the most topical fields in solid state research: Topological insulators and strongly correlated, heavy Fermion materials. In addition, robust surface conductivity —inherent to a topological insulator— would elegantly explain SmB₆'s anomalous transport properties; an issue that has puzzled researchers for decades [2].

The notion that samarium hexaboride is a topological Kondo insulator is seemingly confirmed by recent experiments: The material is found to be a surface-only conductor at low temperature and surface states have been found at the expected locations. In this talk we will present crucial new insights from high-resolution angle-resolved photoemission spectroscopy [3] and discuss the implications.

[1] M. Dzero, et al., Physical Review Letters, 104 (2010) 106408.

[2] See P. S. Riseborough, Advances in Physics, 49 (2000) 257–320 and references therein.

[3] First results: P. Hlawenka et al., ArXiv: 1502.01542v1.

Termin: Dienstag, 12.12.2017, 17.00 Uhr

Ort: KFU Graz, Universitätsplatz 5, Hörsaal 05.01
Meet-the-speaker ab 16.30 Uhr, Bibliothek des FB Experimentalphysik, 1. Stock, ZiNr.: 122

Gastgeber: Univ.-Prof. Dr. Martin Sterrer – Inst. f. Physik – Experimentalphysik / Surface Science