TRR 80 Seminar

Am Dienstag, den 17. Oktober 2017 um 16:00 Uhr

spricht

Prof. Dr. Arthur Ernst

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über das Thema

Exchange interaction in magnetic topological insulators and related materials

It is a well known fact that a magnetic field can break the time reversal symmetry and therewith can destroy a topologically protected surface state in topological insulators. However, the interplay between magnetism and topological order can yield a number of interesting phenomena such as the quantum anomalous Hall effect, a topological magneto-electric effect, and quantized Kerr- or Faraday rotation. This motivates researcher for a search of new magnetic topological insulators and for an intensive study of their electronic and magnetic properties. In my talk, I'll give an overview of our first-principles investigations on this class of materials. In the first part, I'll present a method and approximations used in our simulations and then talk about several examples of magnetic topological insulators, studied in our group within the last three years. First of all, I'll discuss topological insulators doped with magnetic impurities, which can imply various magnetic order in these materials. A special attention will be devoted to the exchange interaction between magnetic impurities and to the impact of electron-magnon interaction on the electronic structure in some doped topological systems. As next, I'll demonstrate how some defects or impurities without magnetic moments can induce magnetism in topological insulators and discuss the main features of magnetic interactions in these systems.

Gäste sind herzlich willkommen!
Der Vortrag findet im Seminarraum S-288/Physik-Süd, Universität Augsburg statt.
Gastgeber: Prof. Dr. Liviu Chioncel

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