JOHANNES GUTENBERG UNIVERSITÄT MAINZ

Seminar: Hard Condensed Matter Theory

Room: Galileo room, 01-128 (Staudinger Weg 7)
Time: Tuesday, 31.01.2017, 14:30

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Magnetic solotronics near the surface of a semiconductor and a topological insulator

Technology where a solitary dopant acts as the active component of an opto-electronic device is an emerging field known as solotronics, and bears the promise to revolutionize the way in which information is stored, processed and transmitted.
The goal of the talk is in part to elucidate the properties of Mn impurities near the surface of GaAs semiconductors with focus on their response to local magnetic and electric fields, as well as to investigate the real-time dynamics of their localized spins. The second part of the talk deals with the theoretical investigation of a single substitutional Mn impurity and its associated acceptor state on the (111) surface of Bi2Se3 topological insulator, using combined Density functional theory and tight-binding calculations.
The quest to understand and control, at the atomic level, how a few magnetic atoms precisely positioned in a complex environment respond to external stimuli, is the red thread that connects these two quantum materials in this talk.
Depending on the time, I could talk about the energy and magnetization transport in non-equilibrium spin systems under both thermal gradient and external field.

All interested are cordially welcome!

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