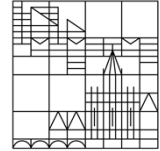


# Physikalisches Kolloquium

Universität  
Konstanz



Di 17.01.17

15:15 Uhr

14:45 Uhr, Kaffee/Tee

R 513

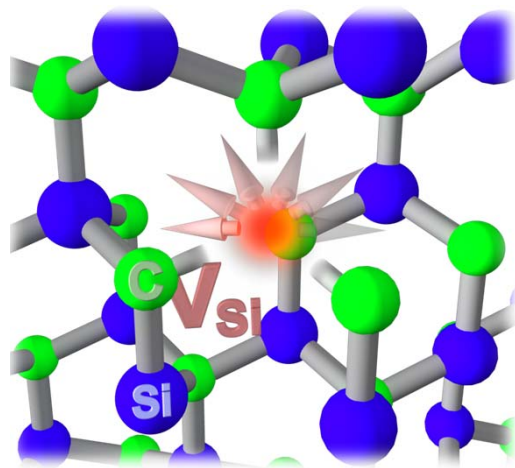


**Dr. Georgy Astakhov**

Julius-Maximilians-Universität

Würzburg

## Microwave, terahertz and optical spectroscopy of low dimensional quantum systems: from topological insulators to atom-scale defects



In the first part of my talk, I concentrate on one of the most sought-after phenomena in topological quantum matter, the so-called topological magnetoelectric effect. We observe that due to additional terms in Maxwell's equations, describing axion electrodynamics of the surface states, the THz Faraday rotation is quantized in multiples of the fine structure constant.

In the second part of my talk, I concentrate on optically-addressable spin centers in wide-bandgap semiconductors with extremely long spin coherence time. Single atom-scale centers can be generated on demand in a point-and-shoot fashion, allowing realization of hybrid quantum systems, where defect spins are coupled to photonic/vibrational modes of a resonator or integrated into electronic circuits for on-chip manipulation.