



TRR 80 Sonderseminar

Am Mittwoch, den 28. Mai um 16:00 Uhr

spricht

Prof. Dr. Frank Lechermann

I. Institut für Theoretische Physik, Universität Hamburg

über das Thema

Correlated Electron States in Oxide Heterostructures from an DFT+DMFT Perspective

The recent advances for designing materials beyond nature's original conception open a fascinating new chapter in condensed matter physics. Various interface architectures in oxide heterostructures are in this context intriguing sources of novel emerging physics. Ferromagnetism and superconductivity within originally band-insulating materials is one prominent example thereof.

In this presentation an elaborate theoretical effort to tackle these modern challenges on a realistic level is presented. By means of the combination of density functional theory (DFT) with dynamical mean-field theory (DMFT), it becomes possible to address the intricate interplay between defect occurrence, band-structure effects and electronic correlations for these latest materials developments on an equal footing. Explicitly discussed is the complex physics at Mott-band insulating interfaces such as $\text{LaTiO}_3/\text{SrTiO}_3$. Moreover new DFT+DMFT insight into the metallic state and the key mechanisms for itinerant ferromagnetism at the band-band insulating $\text{LaAlO}_3/\text{SrTiO}_3$ interface will be given.

Gäste sind herzlich willkommen.

Der Vortrag findet im Seminarraum S-439 / Institut für Physik, Universität Augsburg statt.

Gastgeber: Dr. Natalia Pavlenko

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