



PHYSIKALISCHES KOLLOQUIUM

Referent:

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Thema:

Recent developments in iron-based superconductors; orbital selectivity, gap structure, and induced order

Zeit und Ort:

Dienstag, 1.11.2016, 16:40 Uhr
Rechnagel-Bau, Hörsaal REC/C213, Haeckelstr. 3

Leiter:

Prof. Dr. Carsten Timm

Kurzfassung:

I will briefly review the status of high-T_c superconductivity, and discuss some open questions in the field. Then I turn to recent developments of iron-based superconductors and progress in the quest for a quantitative description of these materials. I will focus initially on the superconducting properties of FeSe which is a material of significant current interest due to its highly tunably superconducting critical temperature. I will discuss the gap structure of FeSe and how a proper modelling necessarily includes the role of important correlation effects. We will discuss how these studies (of FeSe) has led to new insight to other iron pnictides as well. Next, I will discuss a number of unusual T_c-suppression rates as a function of disorder in correlated superconductors. This is a topic of great current interest, and I will present our recent theoretical studies of both single- and multi-band superconductors and relate to recent experiments.

Kurzbiographie:

I did my PhD in high T_c cuprates in 2004 studying the role of coexistence and unusual ordered states. Then I went for post doc jobs at University of Florida, and ESPCI in Paris, before arriving back to NBI in Copenhagen. During the post doc years I worked mainly on cuprates, cold atoms, and quantum transport in nano wires and quantum dots. I became an associate prof. in 2013 and is currently running a group of approximate 10 people working main on unconventional superconductivity, disorder effects, quantum magnetism, and topological systems.

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