

Thursday, July 3

9.00 – 10.00	<b>Stefan Blügel, FZ Jülich</b> <i>Chiral Spin Textures at Metal Surfaces</i>
10.00 – 11.00	<b>Harald Brune, EPFL Lausanne</b> <i>Reaching the Magnetic Anisotropy Limit of a 3d Metal Atom and Distinguishing Nuclear Spin States with the STM</i>
11.00 – 11.30	Coffee Break
11.30 – 12.30	<b>Stuart Parkin, IBM Almaden / MPI-MFP Halle</b> <i>to be announced</i>
12.30 – 13.30	Lunch

Superconductivity

Magnetism

Superconductivity & Magnetism

New Materials – New Effects –  
Visions for the Future

Scientific Organizers

Christian Ast • Sebastian Loth  
Max Planck Institute for Solid State Research

## Location

Lecture Hall 2 D5

Max Planck Institute for Solid State Research  
Heisenbergstraße 1, 70569 Stuttgart, Germany

## Participation

The school is intended for PhD students in Chemistry, Physics and Materials Science. All members of the IMPRS-CMS and everyone interested in participating are cordially invited to come to Stuttgart. The participation is free of charge.

## More Information and Registration

Please consult our web pages at  
[www.imprs-cms.mpg.de](http://www.imprs-cms.mpg.de)

In cooperation with the  
Max Planck-UBC Center for  
Quantum Materials in Vancouver  
and the doctoral school of the  
Max Planck-EPFL Center for  
Molecular Nanoscience and  
Technology in Lausanne.

## Contact

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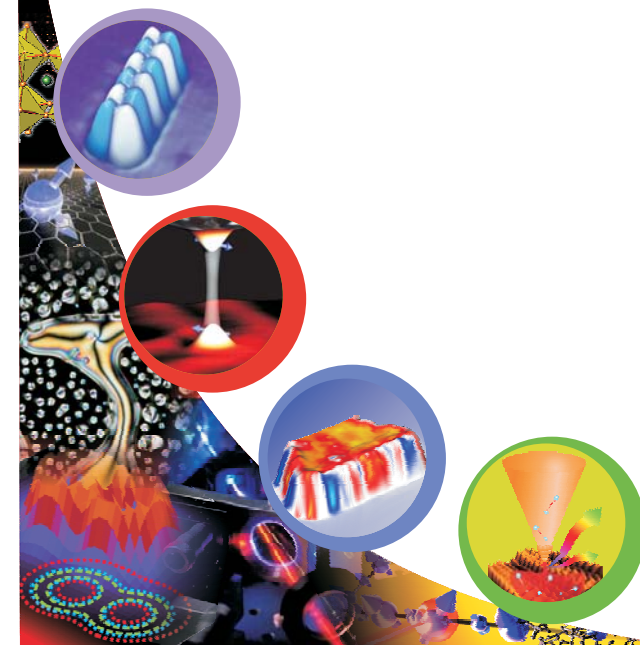
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Info about Stuttgart: [www.stuttgart.de](http://www.stuttgart.de)



International School  
of the IMPRS for  
Condensed Matter Science

Superconductivity and  
Magnetism at the Nanoscale

June 30 – July 3, 2014  
Stuttgart (Germany)



# Program

## Lecture Hall 2 D5

Monday, June 30

8.45 – 9.00

**Bernhard Keimer, Christian Ast, MPI-FKF Stuttgart**

9.00 – 10.00

**Mathieu Le Tacon, MPI-FKF Stuttgart**  
*Inelastic photon scattering from strongly correlated electrons systems*

10.00 – 11.00

**Andrey Chubukov, University Wisconsin-Madison**  
*Superconductivity from repulsive interaction*

11.00 – 11.30

Coffee Break

11.30 – 12.30

**Jenny Hoffman, UBC Vancouver / Harvard**  
*Quasiparticle interference imaging in cuprate superconductors*

12.30 – 13.30

Lunch

13.30 – 15.00

Postersession & Discussion

15.00 – 16.00

**Marcel Franz, UBC Vancouver**  
*Topological superconductors, Majorana fermions and their non-Abelian exchange statistics*

16.00 – 16.30

Coffee Break

16.30 – 17.30

**Abhay Pasupathy, Columbia University**  
*Nanoscale magnetism in the pnictides*

17.30 – 18.30

**Peter Wahl, University of St. Andrews**  
*Real Space Imaging of the Atomic-Scale Magnetic Structure in Strongly Correlated Electron Systems*

18.30 – 19.30

Workshop Dinner

19.30 – 20.30

Poster & Discussion

# Superconductivity and Magnetism at the Nanoscale

Tuesday, July 1

**Markus Ternes, MPI-FKF Stuttgart**  
*Quantum magnetism and many particle effects in atomic and molecular structures studied with scanning probe methods*

**Mona Berciu, UBC Vancouver**  
*Variational methods for polarons and bipolarons*

Coffee Break

**Wolfgang Wernsdorfer, CNRS Grenoble**  
*Molecular Quantum Spintronics*

Lunch

Postersession & Discussion

**Kirsten v. Bergmann, University of Hamburg**  
*Spin spirals and magnetic skyrmions studied with spin-polarized STM*

Coffee Break

**Ilya Sochnikov, Stanford University**  
*Scanning SQUID microscopy of unconventional Josephson junctions and 2D arrays of mesoscopic Josephson junctions*

**George Sawatzky, UBC Vancouver**  
*The explicit role of O 2p states in high oxidation state transition metal Oxides*

Dinner

Poster & Discussion

Wednesday, July 2

**Andreas Rost, MPI-FKF Stuttgart**  
*Interplay of Magnetism and Superconductivity*

**Andreas Schnyder, MPI-FKF Stuttgart**  
*Topological superconductivity: Surface, interface, and vortex-bound states*

Coffee Break

**Hermann Suderow, UA Madrid**  
*Superconductivity and magnetism in tilted magnetic fields viewed with scanning tunneling microscopy*

12.30 – 14.00

Lunch

14.00 – 15.00

**Stefan Kaiser, MPI-SD Hamburg**  
*Controlling Superconductivity in high- $T_C$  Cuprates using Ultrafast Light Pulses*

**Hugo Dil, EPFL Lausanne**  
*How spin-resolved ARPES can help find Majorana fermions*

Coffee Break

**Pavel Ostrovsky, MPI-FKF Stuttgart**  
*Disorder effects in superconductors*

**Katharina Franke, FU Berlin**  
*Interplay of a superconducting substrate and magnetic molecules*

Dinner

Poster & Discussion