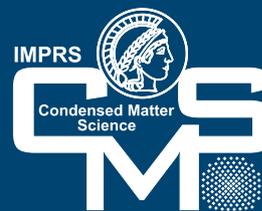


# Workshop on Condensed Matter Science

Max Planck Institute for Solid State Research, Lecture Hall 2 D5

Stuttgart, July 13 – 17, 2015

**PROGRAM**



## Monday July 13, 2015

9.00 – 10.00 am		
10.00 – 11.00 am	<b>Bernhard Keimer</b>	MPI for Solid State Research
11.00 – 12.00 am	<b>Xincheng Xie</b>	Peking University
12.00 – 1.00 pm		
1.00 – 1.15 pm	<b>Klaus von Klitzing</b>	MPI for Solid State Research
1.15 – 2.15 pm	<b>Jürgen Weis</b>	MPI for Solid State Research
2.15 – 2.45 pm	<b>Ruirui Du</b>	Peking University
2.45 – 3.15 pm		
3.15 – 3.45 pm	<b>Jurgen Smet</b>	MPI for Solid State Research
3.45 – 4.15 pm	<b>Chi Zhang</b>	Peking University
4.15 – 4.45 pm	<b>Ying Jiang</b>	Peking University
4.45 – 5.15 pm	<b>Xincheng Xie</b>	Peking University

## General Overview

Registration  
 Research at the MPI for Solid State Research, the University of Stuttgart and the IMPRS-CMS  
 Research in Physics at the PKU

Lunch

## Low Dimensional Physics

QHE inside  
 Current distribution in quantum Hall samples: What we have learnt from scanning probe experiments  
 Ultralow Temperature Transport of 1D Helical Luttinger Liquid  
 Coffee Break  
 Odd even-denominator fractional quantum Hall physics in ZnO based 2D electron systems  
 The quantum transport measurements for the Weyl Semimetal under ultrahigh magnetic fields  
 Probing many-body quantum states with scanning tunneling microscopy and spectroscopy  
 Spin superconductor and electric dipole superconductor

## Tuesday July 14, 2015

9.00 – 10.15 am	<b>Jian Wang</b>	Peking University
10.15 – 10.30 am		
10.30 – 11.00 am	<b>Eva Benckiser</b>	MPI for Solid State Research
11.00 – 11.30 am	<b>Jian Wei</b>	Peking University
11.30 – 12.00 pm	<b>Philipp Hansmann</b>	MPI for Solid State Research
12.00 – 1.00 pm		
1.00 – 1.30 pm	<b>Ji Feng</b>	Peking University
1.30 – 2.00 pm	<b>Elena Hassinger</b>	MPI for Chemical Physics of Solids
2.00 – 2.30 pm	<b>Hans Boschker</b>	MPI for Solid State Research
2.30 – 3.00 pm	<b>Stefan Kaiser</b>	MPI for Solid State Research
3.00 – 3.15 pm		
3.15 – 4.30 pm	<b>Xiongjun Liu</b>	Peking University

## Superconductivity

Interface enhanced superconductivity at 2D limit and potential to topological superconductivity in 3D Dirac semimetal  
 Coffee Break  
 Resonant x-ray scattering of oxide heterostructures  
 What electron-electron interaction can tell us about tunneling junctions  
 Electronic structure of high  $T_c$  cuprate superconductors  
 Lunch  
 ab initio calculation of electronic Berry phase and applications to valleytronics and topological materials  
 Anisotropy of nodal quasiparticle transport in the superconducting state of  $Sr_2RuO_4$ : Evidence of a horizontal line node  
 Superconductivity at the  $LaAlO_3 / SrTiO_3$  interface  
 Control of Electronic Interactions in Organic  
 Conductors and Superconductors  
 Coffee Break  
 Symmetry Reduction and Boundary Modes for Fe-Chains on an s-wave Superconductor

## Wednesday July 15, 2015

9.00 – 9.30 am	<b>Je-Geun Park</b>	Seoul National University
9.30 – 10.00 am	<b>Fa Wang</b>	Peking University
10.00 – 10.30 am	<b>Andreas W. Rost</b>	University of Stuttgart
10.30 – 11.00 am		
11.00 – 11.30 am	<b>Andreas Grüneis</b>	MPI for Solid State Research
11.30 – 12.00 am	<b>Martin Dressel</b>	University of Stuttgart
12.00 – 1.00 pm		
1.00 – 1.30 pm	<b>Hidenori Takagi</b>	MPI for Solid State Research
1.30 – 2.00 pm	<b>Ryuichi Shindou</b>	Peking University
2.00 – 2.30 pm	<b>Maria Daghofer</b>	University of Stuttgart
2.30 – 3.00 pm		
3.00 – 3.30 pm	<b>Klaus Kern</b>	MPI for Solid State Research
3.30 – 4.00 pm	<b>Jörg Wrachtrup</b>	University of Stuttgart
4.15 – 6.00 pm		
6.00 – 9.00 pm		

## Spin and Charge Order

Magnon decay in two dimensional triangular antiferromagnets
Nematic quantum paramagnet in spin-1 square lattice models: possible applications to FeSe
Spectroscopic Imaging STM on unconventional superconductors
Coffee Break
Towards chemical accuracy in ab-initio calculations of solids
Interplay of Charge Order and Superconductivity in Organic Conductors
Lunch
Spin Orbit Coupling in Iridates
Spin Nematic Phases in Frustrated Hyperkagome Iridate
Frustration and Spin-Orbit Coupling in Iridates
Coffee Break
Quantum Engineering of Atomic and Molecular Contacts
Probing spin correlations with single quantum bits
Poster Session (the poster should hang for the entire meeting)
BBQ in the park

## Thursday July 16, 2015

9.00 – 10.15 am	<b>Yuan Li</b>	Peking University
10.15 – 10.45 am	<b>Bumjoon Kim</b>	MPI for Solid State Research
10.45 – 11.00 am		
11.00 – 11.30 am	<b>Jianhao Chen</b>	Peking University
11.30 – 12.00 am	<b>Nanlin Wang</b>	Peking University
12.00 – 1.00 pm		
1.00 – 3.00 pm		
3.00 – 6.00 pm		

## Spectroscopy

Inelastic photon and neutron scattering spectroscopies and their applications to correlated-electron materials
Magnetism from spin-orbit exciton condensate in $\text{Ca}_2\text{RuO}_4$
Coffee Break
Nonlinear transport measurement of graphene in the quantum Hall regime
Infrared spectroscopy of Landau levels and Zeeman splitting of three dimensional massless Dirac Fermions in $\text{ZrTe}_5$
Lunch
<ul style="list-style-type: none"><li>• Students meets Professors for individual talks</li><li>• Lab tours in the MPI for Solid State Research</li></ul>
Visit to the Mercedes-Benz Museum, Stuttgart

## Friday July 17, 2015

9.00 – 12.00 am		
12.00 – 1.00 pm		
1.00 – 2.00 pm	<b>Xinzheng Li</b>	Peking University
2.00 – 2.30 pm	<b>Andreas Schnyder</b>	MPI for Solid State Research
2.30 – 3.00 pm	<b>Dirk Manske</b>	MPI for Solid State Research
3.00 – 3.15 pm	<b>Hidenori Takagi</b>	MPI for Solid State Research

## New Developments in Solid-State-Theory

Visit at the University of Stuttgart
Lunch
Computer simulations of nuclear quantum effects: from the structures to the energetics
Topological line nodes in reflection symmetric crystals
Theory for superconductors in non-equilibrium: Higgs oscillations and induced superconductivity
Resume + Farewell

## Scientific Organizers

MPI for Solid State Research Stuttgart:  
Bernhard Keimer, Dirk Manske,  
Andreas Rost, Hidenori Takagi

Peking University:  
Yuan Li

## Contact

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