2nd TRR 80 Summer School

Functionality of Correlated Materials

Program

Frauenchiemsee, Germany
July 20-24, 2015

Integrated Graduate School of the TRR 80
»From Electronic Correlations to Functionality«

Universität Augsburg University
TECHNISCHE UNIVERSITÄT MÜNCHEN
Max Planck Institute for Solid State Research
WMI

Organizing Committee

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Program

Monday, July 20, 2015

10:00 – 12:00	Arrival	
12:00	Lunch	
13:30	**Opening**	
Afternoon Session		
14:00	**V. Eyert**	Density Functional Theory: Basic Ideas of a 50-Year-Old Success Story
15:00		*Discussion*
15:10 – 15:30	Coffee	
15:30	**V. Eyert**	Atomistic Simulations in Science and Industry: Materials Design
16:50		*Discussion*
17:15	**H. Hajiyani**	Water Oxidation in Doped Oxides: First-Principle Calculations
17:30	**S. Riegg**	Magnetic Cooling
18:00	Dinner	
Evening Session		
19:00	**A. Schmehl**	Process Development at the Carl Zeiss SMT GmbH

Tuesday, July 21, 2015

8:00 – 9:00	Breakfast	
Morning Session		
9:00	**T. Dietl**	Interplay of Correlation, Disorder, and Carrier-Mediated Ferromagnetism in Magnetic Semiconductors
10:20		*Discussion*
10:40 – 11:00	Coffee	
11:00	**P. Neibecker**	Ordering Kinetics in Ni-Mn Based Ferromagnetic Shape-Memory Alloys
11:15	**A. Ruff**	Dielectric Properties and Electrical Switching Behavior of the Spin-Driven Multiferroic $LiCuVO_4$
11:30	**M. Harder**	Spin Pumping in Electrodynamically Coupled Magnon-Photon Systems
12:00	Lunch	
Afternoon Session		
14:00	**C.-M. Hu**	1979–2015: A Spintronics Odyssey
15:20		*Discussion*
15:40 – 16:00	Coffee	
16:00	**B. Yan**	Topological Insulators and Topological Metals
17:20		*Discussion*
18:00	Dinner	
Evening Session		
19:00	**Poster Kick-off**	

Wednesday, July 22, 2015

8:00 – 9:00	Breakfast	
Morning Session		
9:00		*Posters / Discussions / Excursions*
12:00	Lunch / Packed Lunch	
13:30		*Free for Excursions*
18:00	Dinner	
Evening Session		
19:00	**W. Prusseit**	Cuprate Superconductors – The Bumpy Road from Lab to Real-Life Applications

Thursday, July 23, 2015

8:00 – 9:00	Breakfast	
Morning Session		
9:00	**G. A. Sawatzky**	Electronic Structure of the Doped Cuprates, Superconducting Bismuthates and the Nickelates
10:20		*Discussion*
10:40 – 11:00	Coffee	
11:00	**F. Haslbeck**	Neutron Spin-Echo Spectroscopy of Spin Fluctuations in the Skyrmion-Lattice Phase of MnSi
11:15	**S. Weichselbaumer**	Tailoring Skyrmion Dynamics in the Insulating Helimagnet Cu_2OSeO_3
11:30	**I. Stasinopoulos**	Broadband Spin-Wave Spectroscopy in the Néel-Type Skyrmion Host GaV_4S_8
11:45		*Group Photo*
12:00	Lunch	
Afternoon Session		
14:00	**N. Spaldin**	Theory of Multiferroics
15:20		*Discussion*
15:40 – 16:00	Coffee	
16:00	**M. Sing**	High-Energy Spectroscopy of Oxide Interfaces
17:20		*Discussion*
18:00	Dinner	

Friday, July 24, 2015

8:00 – 9:00	Breakfast	
Morning Session		
9:00	**Ch. Schneider**	Oxide Thin Films: Deposition and Characterization of Materials Properties
10:20		*Discussion*
10:40 – 11:00	Coffee	
11:00	**Summary**	
12:00	Lunch	
14:00	Departure	

List of Lectures

Speaker	Institute	Title
Dietl, Tomasz	Polish Academy of Sciences Warsaw, Poland	Interplay of Correlation, Disorder, and Carrier-Mediated Ferromagnetism in Magnetic Semiconductors
Eyert, Volker	Materials Design S.A.R.L. Montrouge, France	Density Functional Theory: Basic Ideas of a 50-Year-Old Success Story Atomistic Simulations in Science and Industry: Materials Design
Hu, Can-Ming	University of Manitoba Winnipeg, Canada	1979-2015: A Spintronics Odyssey
Prusseit, Werner	THEVA Dünnschichttechnik GmbH Ismaning, Germany	Cuprate Superconductors - The Bumpy Road from Lab to Real-Life Applications
Sawatzky, George A.	University of British Columbia Vancouver, Canada	Electronic Structure of the Doped Cuprates, Superconducting Bismuthates and the Nickelates
Schmehl, Andreas	Carl Zeiss SMT GmbH Oberkochen, Germany	Process Development at the Carl Zeiss SMT GmbH
Schneider, Christof	Paul-Scherrer-Institut Villigen, Switzerland	Oxide Thin Films: Deposition and Characterization of Materials Properties
Sing, Michael	Universität Würzburg Germany	High-Energy Spectroscopy of Oxide Interfaces
Spaldin, Nicola	ETH Zürich Switzerland	Theory of Multiferroics
Yan, Binghai	Max-Planck-Institut für Chemische Physik fester Stoffe Dresden, Germany	Topological Insulators and Topological Metals

List of Contributed Talks

Speaker	Title
Hajiyani, Hamidreza	Water Oxidation in Doped Oxides: First-Principle Calculations
Harder, Michael	Spin Pumping in Electrodynamically Coupled Magnon-Photon Systems
Haslbeck, Franz	Neutron Spin-Echo Spectroscopy of Spin Fluctuations in the Skyrmion-Lattice Phase of MnSi
Neibecker, Pascal	Ordering Kinetics in Ni-Mn Based Ferromagnetic Shape-Memory Alloys
Riegg, Stefan	Magnetic Cooling
Ruff, Alexander	Dielectric Properties and Electrical Switching Behavior of the Spin-Driven Multiferroic $LiCuVO_4$
Stasinopoulos, Ioannis	Broadband Spin-Wave Spectroscopy in the Néel-Type Skyrmion Host GaV_4S_8
Weichselbaumer, Stefan	Tailoring Skyrmion Dynamics in the Insulating Helimagnet Cu_2OSeO_3

List of Posters

No.	Title	Presenter
P1	Neutron Scattering in Chromium with Elliptic Neutron Guides	**Adams, Tim**
P2	Investigation of the Charge Order in Manganites	**Altthaler, Markus F.**
P3	Understanding Neutron-Scattering Data in YMn_2O_5 Using DFT-Derived Spin Hamiltonian	**Baidya, Santu**
P4	Study of Possible Compounds for Magnetocaloric Materials	**Chikovani, Mamuka**
P5	Cantilever Magnetometry on MnSi	**Dodenhöft, Matthias**
P6	Skyrmion Trek – The Next Generation	**Ehlers, Dieter**
P7	Low-Energy Electronic Properties of Clean $CaRuO_3$: Elusive Landau Quasiparticles	**Esser, Sebastian**
P8	Dielectric Properties of Organic Charge-Transfer Salts	**Fischer, Jonas**
P9	CuMnSb: Between Local and Itinerant Antiferromagnetism	**Jorba, Pau**
P10	Spin- and Charge-Density Fluctuations in Multiorbital-Impurity Models	**Juraschek, Dominik M.**
P11	Interface Physics in Oxide Heterostructures	**Meir, Betina**
P12	Magnon Dispersion in the Helimagnetic Insulator Cu_2OSeO_3	**Onykiienko, Yevhen**
P13	Electronic Structure Analysis of Surfaces and Interfaces Based on $LaAlO_3$ and $SrTiO_3$	**Piyanzina, Irina**
P14	Transmission through Heusler Alloys	**Prinz-Zwick, Andreas**
P15	Metal-Organic Frameworks – Magnets of Future	**Reschke, Stephan**
P16	Skyrmions in Insulating Magnets	**Ruff, Eugen**
P17	Spin Relaxation in $Cr_{1-x}Fe_x$	**Säubert, Steffen**
P18	Torque Magnetometry on Two-Dimensional Electron Systems at MgZnO/ZnO Interfaces	**Sauther, Schorsch**
P19	Nuclear Magnetic Resonance in Multiferroics	**Schädler, Martina**

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List of Posters, continued from previous page

No.	Title	Presenter
P20	Charge and Energy Transport through Quantum Dots	**Schiegg, Christian**
P21	Terahertz Spectroscopy in Magnetic Fields	**Schmidt, Michael**
P22	Emergent Electrodynamics in $Mn_{1-x}Fe_xSi$	**Schnarr, Christoph**
P23	Weak and Strong Localization in Electronic Interface Systems with Rashba Spin-Orbit Coupling	**Seiler, Patrick**
P24	Influence of Fragility on the Properties of Ionic Liquids	**Sippel, Pit**
P25	Spin-Charge Coupled Dynamics Driven by Time-Dependent Magnetic Textures	**Tölle, Sebastian**
P26	Spin-Spiral Structure in $ZnCr_2Se_4$ across the Whole Field-Temperature Phase Diagram	**Tymoshenko, Yuliia**
P27	Experimental Setup for Investigation on Magnetic Thin Layers by In-Situ Neutron Reflectometry	**Ye, Jingfan**

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Notes

2nd TRR 80 Summer School "Functionality of Correlated Materials"

Abtei Frauenwörth/Frauenchiemsee, July 20-24, 2015

Program Overview

	Monday	Tuesday	Wednesday	Thursday	Friday
08:00 - 09:00	Arrival	Breakfast	Breakfast	Breakfast	Breakfast
09:00 - 10:40		**T. Dietl** **Spintronics, Theory**	**Posters** **Discussions** **Excursions**	**G. A. Sawatzky** **High-Tc Superconductivity Theory**	**Ch. Schneider** **Thin Films, Multiferroics, Materials Properties**
10:40 - 11:00		Coffee		Coffee	Coffee
11:00 - 12:00		**Contributed Talks:** **11:00 P. Neibecker** **11:15 A. Ruff** **11:30 M. Harder**		**Contributed Talks:** **11:00 F. Haslbeck** **11:15 S. Weichselbaumer** **11:30 I. Stasinopoulos**	**Summary**
12:00	Lunch	Lunch	Lunch / Packed Lunch	Lunch	Lunch
13:30 - 14:00	**Opening**				
14:00 - 15:40	**V. Eyert** **Density Functional Theory in a Nutshell**	**C.-M. Hu** **Spintronics, Applications**	**Free for Excursions**	**N. Spaldin** **Multiferroics**	**Departure**
15:40 - 16:00	15:10 - 15:30 Coffee	Coffee		Coffee	
16:00 - 17:40	**V. Eyert** **Atomistic Simulations in Practice** **Contributed Talks:** **17:15 H. Hajiyani** **17:30 S. Riegg**	**B. Yan** **Topological Insulators**		**M. Sing** **Oxide Heterostructures, Spectroscopy**	
18:00	Dinner	Dinner	Dinner	Dinner	
19:00 - 20:40	**A. Schmehl** **Science in Industry**	**Poster Kick-off**	**W. Prusseit** **Getting High-Tc Super-conductors to Work**		