

Wednesday, September 6, 2017

9.00 am – 10.30 am

**Sessions 7 A: Spin- and Orbitronics**

Materials for Spin-Orbitronics

Mathias Kläui (Mainz)

Increase of Pulse Laser-Induced Terahertz-Wave Intensity in Ta/CoFeB/MgO Films by Annealing Process

Yuta Sasaki (Sendai)

Spin Absorption Effects Due to Various Functional Materials

Takashi Kimura (Fukuoka)

**Sessions 7 B: Hybrid Nanosystems**

Rocking at the Nanoscale: Controlling and Probing Optically Active Nanosystems by Nanoquakes on a Chip

Hubert J. Krenner (Augsburg)

Evidence for Electronic Phase Separation in the Diluted Magnetic Semiconductors (Ga,Mn)As and (Ga,Mn)P

Martin Lonsky (Frankfurt)

Theoretical Design of ZnO Nanoporous Crystalline Structures

Vu Ngoc Tuoc (Hanoi)

10.30 am – 11.00 am

*Coffee break*

11.00 am – 12.30 am

**Sessions 8 A: Towards Neuromorphic Computing**

Neuron Networks in Artificial Landscapes

Robert Blick (Hamburg)

Memristor-Based Neural Networks

Andy Thomas (Dresden)

Reservoir Computing with Spin-Torque Nano-Oscillators

Flavio Abreu Araujo (Palaiseau)

**Session 8 B: Spin- and Spinwaves**

Mutually Synchronized Spin Torque and Spin Hall Nano-Oscillators

Johan Akerman (Gothenburg)

Gold-Based Magnetic Alloys: Fe-Au Thin Films by Heavy Ion Implantation

Hoang-Nam Nhat (Hanoi)

Micro-Hall Magnetometry Studies 2D and 3D

Magnetic Nanostructures

Jens Müller (Frankfurt)

12.30 am – 2.30 pm

*Lunch*

2.30 pm – 4.00 pm

**Session 9 A: Advanced Imaging Techniques**

Ultrafast STM Driven By THz Fields

Tyler L. Cocker (Regensburg)

Nanoscale Magnetic Imaging Using High-Harmonic Radiation

Sergey Zayko (Göttingen)

Ultrafast Spin Dynamics Probed by Fs Lasers

Daniel Steil (Göttingen)

**Session 9 B: Transport in Nanostructures**

InAs Nanowire-Based Devices for Applications in Quantum Information Technology

Thomas Schäpers (Jülich)

1D and 2D Hybrid Materials for Nanoelectronics

Laëtitia Marty (Grenoble)

Electrochemical Deposited ZnO/Magnetic-Metal Hybrid Core/Shell Nanowires for Spintronic Device Application

Masashi Akabori (Kanazawa)

4.00 pm – 5.00 pm

*Coffee break*

5.00 pm – 6.30 pm

**Session 10 A: Advanced Imaging Techniques**

Phase-Locked Dynamics Wide-Field Magneto-Optical Microscopy

Jeffrey McCord (Kiel)

Advanced Spectroscopy Methods: Magnetic Dichroism in Transmission Electron Microscopy

Bernd Rellinghaus (Dresden)

Ultrafast Nanoscale Dynamics Probed by Time-Resolved Transmission Electron Microscopy

Sascha Schäfer (Göttingen)

**Session 10 B: Materials Science**

Influence of Cu Addition on Precipitation and Growth Behavior of MnS in Silicon Steel: Experimental Observation and KWN Modeling

Nobufumi Ueshima (Sendai)

First-Principles Calculations on Point Defects in Semiconductors

Yu Kumagai (Tokyo)

Ca Substitution Effect and Relation between the Dielectric Relation Time and Piezoelectric Property of Ba<sub>1-x</sub>Ca<sub>x</sub>TiO<sub>3</sub> (BCT<sub>x</sub>) and BaZr<sub>0.2</sub>Ti<sub>0.8</sub>O<sub>3</sub>-Ba<sub>1-x</sub>Ca<sub>x</sub>TiO<sub>3</sub> (BZT-BCT<sub>x</sub>)

Le Van Hong (Hanoi)

*Afterwards: Farewell and Dinner in "Theatercafé"*

**Organizers:**

Professor Dr. Markus Münzenberg

Professor Dr. Mihaela Delcea

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**Venue:**

Alfried Krupp Wissenschaftskolleg Greifswald

Conference Logo: Agentur 2WEI|DE

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Alfried Krupp Wissenschaftskolleg  
Greifswald



FRONTIERS IN  
MATERIALS SCIENCE



International Symposium

September 4 - 6, 2017

Alfried Krupp Wissenschaftskolleg

Greifswald

## Monday, September 4, 2017

9.00 am – 10.30 am

Welcome

### Session 1: Plenary Talks

Manganese-Based Spintronics

Shigemi Mizukami (Sendai)

Designing Quantum Spin-Orbit-Coupled Materials:  
a Source for Exotic States

Roser Valenti (Frankfurt)

10.30 am – 11.00 am

Coffee break

11.00 am – 12.30 am

### Session 2 A: New Methods from Nanoscale to Biology

Common Principles in Synthetic Mechanophores  
and Mechanoresponsive Biomolecules

Kerstin G. Blank (Potsdam)

Real-Time Deformability Cytometry:

Spatiotemporal Polymer and Cell Response in  
Microfluidic Systems

Oliver Otto (Greifswald)

Atomic Force Microscopy, What Else?

José L. Toca-Herrera (Vienna)

### Session 2 B: Synchrotron Research

Inversion Symmetry Breaking by Oxygen

Octahedral Rotation in A-siteordered n=1

Ruddlesden-Popper Phases  $AA'TiO_4$  (A=alkaline,  
A'=rare earth) and the Cation Size Effects

Hirofumi Akamatsu (Kyushu)

Comparison between the Ultrafast Optical

Responses and Ultrafast Structural / Atom

Dynamics in Novel Perovskite Solar Cell Prototypes

Simone Techert (Göttingen)

Crystal Structure of Anion Changeable Layered

Double Hydroxides by Synchrotron Radiation X-ray  
Diffraction

Chikako Moriyoshi (Hiroshima)

12.30 am – 2.30 pm

Lunch

2.30 pm – 4.00 pm

### Session 3 A: Plasmonics

Plasmon Induced Photoemission from Individual

Small Silver nanoparticles: Role of the Substrate

Ingo Barke (Rostock)

Direct Laser Writing of Plasmonic Nanostructures

Ngoc Diep Lai (Paris)

Looking for Synergies in Molecular Plasmonics by  
Hybrid Functional Nanostructures

Tobias A.F. König (Dresden)

### Session 3 B: Polymers and Molecules

Applications of 3D Lithography

Christian Denker (Greifswald)

Reticular Solids with Adamantane-Type Building  
Blocks

Fabio Pichierri (Sendai)

In Situ Control of Solid-State [2+2]

Photodimerization in the Molecular Crystal of a  
Cobalt Complex

Akiko Sekine (Tokyo)

4.00 pm – 5.00 pm

Coffee and Poster Session

5.00 pm – 6.30 pm

In Parallel: Poster Session

### Session 3 C: Photocatalytic Nanomaterials

Photocatalytic Nanomaterials and their

Applications

Nguyen Thanh Binh (Hanoi)

Structure-Activity Relationships for Quadrupole

Perovskite Catalysts

Ikuya Yamada (Osaka)

Novel Structural, Electronic, and Reactive

Properties of Nano Ceramic Materials: Theoretical  
Study

Shin'ichi Higai (Kyoto)

### Session 3 D: Physics of Nanostructures

Magnetic Core-Shell Nanostructures

Huynh Dang Chinh (Hanoi)

Phase Transitions in Ferroelectric Thin Films

described by Ising Model in Transverse and  
Longitudinal Fields

Cong Thanh Bach (Hanoi)

Interplay of Magnetism and Dynamics in Graphene

Nano-Flakes

Andreas Honecker (Cergy-Pontoise)

## Tuesday, September 5, 2017

9.00 am – 10.30 am

### Session 4 A: New Methods from Nanoscale to Biology

Microfluidic Single-Cell Analysis and Manipulation

Stefano Pagliara (Exeter)

Polymeric and Hydrogel Coatings – Particle and

Capsule Functionalization

André Skirtach (Ghent)

Cell-Like Hydrogel Beads as Mechanical Probes for  
Biophysical Applications

Salvatore Girardo (Dresden)

### Session 4 B: Molecular Junctions and Devices

In Situ Generation of Open Shell Phenalenyl:

Towards Designing Novel Multifunctional

Materials

Swadhin Mandal (Kolkata)

Future of Organic Solar Cells and Organic Light

Emitting Diodes: Materials, Processing and

Application

Nguyen Nang Dinh (Hanoi)

Spin Transport and Molecular Orientation in

Hybrid Magnetic Tunnel Junctions

Tae Hee Kim (Seoul)

10.30 am – 11.00 am

Coffee break

11.00 am – 12.30 am

### Session 5 A: First Principle and High Throughput Calculations

Computational Nano-Materials Design: From  
Basics to Actual Application

Hideaki Kasai (Akashi)

Application of Crystallography to High-  
Throughput Calculations

Yoyo Hinuma (Kyoto)

First-Principles and Semi-Empirical Methods of  
Calculations of Optical Properties of Functional

Materials

Mikhail G. Brik (Tartu)

### Session 5 B: Topological Insulators and Spin Physics

Topological Insulators: Magnetism, Strong

Electron Correlation and Ferroelectricity

Oliver Rader (Berlin)

Ultrafast Spin Dynamics in CoFeB/MgO/COFeB

Magnetic Tunnel Junctions

Jakob Walowski (Greifswald)

Ultrafast Laser Pulse Switching the Magnetization  
of FePt Nanoparticles Deterministically for Data

Storage Application

Robin John (Greifswald)

12.30 am – 2.30 pm

Lunch

2.30 pm – 4.00 pm

### Session 6 A: THz Dynamics

Spintronic Emitters of Ultrashort Terahertz Pulses

Tobias Kampfrath (Berlin)

Active and Passive Control of Dissipation in Light-  
Induced Coherent Ultrafast Dynamics

Henning Ulrichs (Göttingen)

Modelling THz Spin Dynamics

Ulrich Nowak (Konstanz)

### Session 6 B: Oxides and Spectroscopy

Development of Functional Dielectric Materials in  
Silicates and Aluminates

Hiroki Taniguchi (Nagoya)

Strain Disorder: a New Degree of Freedom to  
Control Structurally Dissimilar Magnetic Phase  
Separation in La5/8-y PrxCa3/8MnO3 Epitaxial  
Thin Films

Dileep K. Mishra (Indore)

Ab-Initio Multiplet Calculations for X-ray  
Absorption Spectroscopy: Application to Cathode

Materials

Hidekazu Ikeno (Osaka)

4.00 pm – 5.00 pm

Coffee and Poster Session

5.00 pm – 6.30 pm

### Session 6 C: Hard Magnets for Applications

Magnetic Field-Induced Synthesis of Mn-Based  
Ferromagnetic Alloys

Keiichi Koyama (Kagoshima)

First-Principles Study on the Magnetic Anisotropy  
of Ga-Added Nd-Fe-B Magnets

Yasutomi Tatetsu (Tokyo)

Magnetic Materials from an Industry Perspective

Peter Siegle (Wismar)

### Session 6 D: Dielectric Properties and Thermoelectrics

Dielectric Properties of BaTiO3 by Molecular Dy-  
namics Simulations Using a Shell Model

Tamotsu Hashimoto (Tsukuba)

Complex Field Induced Phases in the Frustrated  
Quantum Spin Chain Linarite, PbCuSO4(OH)2

Stefan Süllow (Braunschweig)

Thermoelectric Properties of Spinel Sulfide Zn-  
Cr2S4 and Electron Transport Calculation Using  
Open MX and BoltzTraP

Masanobu Miyata (Japan)

7.00 pm

### Public Evening Lecture

Correlated Electrons – a Molecular Approach

Michael Lang (Frankfurt)

Afterwards: Reception