

natureconference

Jülich-Aachen Research Alliance (JARA) | *Nature Materials*

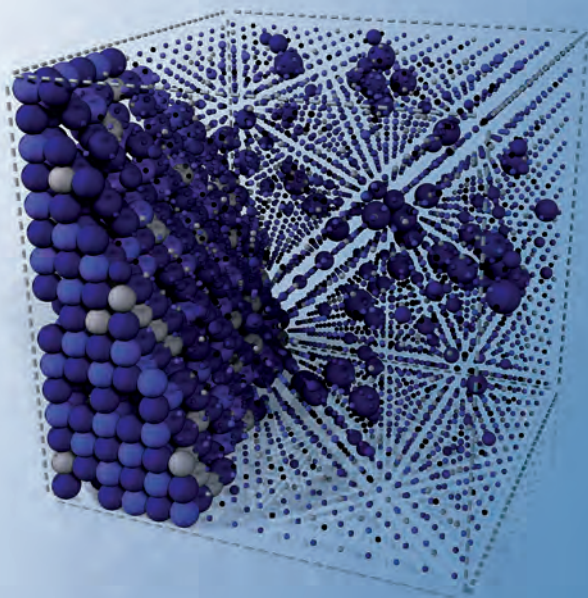
Frontiers in Electronic Materials:

Correlation Effects and Memristive Phenomena

Aachen, Germany

Eurogress Conference Centre

June 17th to 20th, 2012



Conference Program

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Registration Desk: +49 241 9131 540

natureconference, Aachen 2012

Sunday, June 17	Monday, June 18	Tuesday, June 19	Wednesday, June 20
	9:00	9:00	9:00
	:15	:15	:15
	:30	:30	:30
	9:45	9:45	9:45
10:00	:00	:00	:00
:15	:15	:15	:15
:30	10:30	10:30	10:30
:45	:45	:45	:45
:00	COFFEE	COFFEE	COFFEE
:15	11:00	11:00	11:00
:30	:15	:15	:15
:45	:30	:30	:30
:00	E. Dagotto	N. Spaldin	Nanosessions
:15	G. Snyder	U-In Chung	
:30	11:45	11:45	
:45	:00	:00	
:00	:15	:15	
:15	S. Parkin	T. Kimura	:00
:30	S. Elliott	K. Likharev	:15
:45	12:30	12:30	12:30
13:00	:45	:45	:45
:15	:00	:00	:00
13:30	:15	:15	:15
:45	LUNCH	LUNCH	LUNCH
:00	13:30	13:30	13:30
14:15	:45	:45	:45
:30	:00	:00	:00
:45	H. Takagi	R. Ramesh	14:15
15:00	14:15	14:15	:30
:15	:30	:30	:45
15:30	:45	:45	M. Kawasaki
:45	15:00	15:00	15:00
16:15	:15	:15	:15
:30	COFFEE	COFFEE	M. Aono
:45	15:30	15:30	:30
17:00	:45	:45	15:45
:15	:00	:00	Farewell
:30	16:15	16:15	16:00
:45	:30	:30	
17:45	:45	:45	
:00	17:00	17:00	
:15	:15	:15	
:30	Panel Discussion	Postersession	
:45	Disciplinary vs. interdisciplinary research – How to improve progress in science?		
19:00	:00	18:00	
19:15	:15	:15	
	18:30	18:30	
		:45	
		Visit Aachen Cathedral	
		19:00	
		:15	
		Organ Concert	
		19:30	
		:45	
		:00	
		:15	
		:30	
		:45	
		Conference Dinner	
		...	

Welcome

Dear Participants,

A warm welcome to Aachen and to the Nature Conference *Frontiers in Electronic Materials: Correlation Effects and Memristive Phenomena*, organized jointly with the Jülich-Aachen Research Alliance (JARA). This is one of the first Nature-branded conferences in the physical sciences, and the emphasis is on presenting groundbreaking scientific research and to foster stimulating discussions. Aachen is the ideal place for such a conference, with its central location in Europe, its long history, and most of all its strong local research culture.

Correlation effects and memristive phenomena have been the subject of tremendous research interest in recent years. This is due to their importance not only to emerging applications in information and energy technology, but also for the intriguing fundamental phenomena that lie at the heart of their useful properties. The aim of this conference is to facilitate the exchange of ideas between researchers on these and related topics, and to foster an interdisciplinary dialogue. We hope that you find the presentations lucid, and that these lead to stimulating scientific discussions that advance research. In particular to facilitate an exchange of ideas we have introduced a new format, in the form of Nanosessions. These are each based on a group of posters and brief oral presentations, held for a small audience of researchers interested in discussing a particular topic thoroughly. We hope you find this format useful for both presenting your research as well as brainstorming with others.

This conference would not have been possible without the strong and dedicated support from many people who dedicated a tremendous amount of work to the organisation of this conference, for which we are truly grateful. In particular, we would like to mention the colleagues of the Local Program Committee as well as the members of the Conference Management and Local Organizing Committee.

We hope you have a splendid time in Aachen: enjoy the presentations, have stimulating discussions, and find the conference beneficial to your future research.

Joerg Heber

Darrell Schlom

Yoshi Tokura

Rainer Waser

Matthias Wuttig

Program

Sunday, June 17

10:00 Registration

13:00 Greetings (Europa-Saal)

Prof. Dr. E. Schmachtenberg,

Rector of the RWTH Aachen University

Prof. Dr. S. Schmidt,

Board of Directors, Scientific Division I, FZ Jülich

13:30 Invited Session 1 (Europa-Saal)

Session Chair: Joerg Heber

13:30 NEW MAGNETIC MATERIALS BASED
ON DEFECTS, INTERFACES AND
DOPING

G. A. Sawatzky, I. Elfimov, B. Lau, M. Berciu

14:15 ATOMIC-RESOLUTION ELECTRON
SPECTROSCOPY OF INTERFACES AND
DEFECTS IN COMPLEX OXIDES

D. A. Muller, J. A. Mundy, L. Fitting Kourkoutis,
M. P. Warusawithana, J. Ludwig, P. Roy,
A. A. Pawlicki, T. Heeg, C. Richter, S. Paetel,
M. Zheng, B. Mulcahy, W. Zander, J. N. Eckstein,
J. Schubert, J. Mannhart, D. G. Schlom

15:00 Coffee

15:30 SIGNIFICANCE OF SOLID STATE IONICS
FOR TRANSPORT AND STORAGE

J. Maier

16:15 ELECTROCHEMICAL DOPING OF OXIDE
HETEROSTRUCTURES

E. Artacho, N. C. Bristowe, **P. B. Littlewood,**
J. M. Pruneda, M. Stengel

17:00 SWITCHABLE PHOTODIODE EFFECT IN
FERROELECTRIC BiFeO_3

S-W. Cheong, H. T. Yi, T. Choi, A. Hogan

17:45 Panel Discussion (Europa-Saal)

DISCIPLINARY VS INTERDISCIPLINARY
RESEARCH – HOW TO INCREASE PROGRESS
IN SCIENCE?

Panelists:

Joerg Heber, *Senior Editor Nature Materials, UK*

Andrew Briggs, *University of Oxford, UK*

David Divincenzo, *JARA, Forschungszentrum Jülich,
RWTH Aachen, Germany*

Peter Littlewood, *Argonne Nat. Lab., USA*

Masashi Kawasaki, *Tohoku University, Japan*

19:00 Welcome Reception (Foyer of the Eurogress)

Monday, June 18

9:00 Invited Session 2 (Europa-Saal)

Session Chair: David Muller

9:00 EXPLORATION OF ELECTRON SYSTEMS AT OXIDE INTERFACES

W. Dietsche, B. Förg, C. Hughes, C. Woltmann, T. Kopp, F. Loder, **J. Mannhart**, N. Pavlenko, C. Richter, U. Waizmann, J. Weis

9:45 THE INFLUENCE OF IMPERFECTIONS ON THE 2DEG TRANSPORT PROPERTIES IN THE LaAlO_3 - SrTiO_3 SYSTEM

G. Rijnders

10:30 Coffee

11:00 Invited Session 3 (Europa-Saal)

Session Chair: Nicola Spaldin

11:00 CORRELATED ELECTRONIC MATERIALS: COMPUTATIONAL STUDIES OF MULTIORBITAL MODELS FOR BULK COMPOUNDS AND INTERFACES OF MAGNETIC AND SUPERCONDUCTING MATERIALS

E. Dagotto

11:45 ELECTROLYTE GATE INDUCED METALLIZATION OF SEVERAL FACETS (101, 001, 110 and 100) OF RUTILE TiO_2 AND (001) SrTiO_3

S. S. P. Parkin, T. D. Schladt, T. Graf, M. Li, Nagaphani Aetukuri, X. Jiang, M. Samant

11:00 Invited Session 4 (Brüssel-Saal)

Session Chair: Susanne Stemmer

11:00 COMPLEX THERMOELECTRIC MATERIALS

G. Jeffrey Snyder

11:45 PCRAM OPERATION AT DRAM SPEEDS: EXPERIMENTAL DEMONSTRATION AND COMPUTER-SIMULATIONAL UNDERSTANDING

D. Loke, T. H. Lee, W. J. Wang, L. P. Shi, R. Zhao, Y. C. Yeo, T. C. Chong, **S. R. Elliott**

12:30 Lunch

13:30 Invited Session 5 (Europa-Saal)

Session Chair: George Sawatzky

13:30 ELECTRONIC PHASE CHANGE AND
ENTROPIC FUNCTIONS IN TRANSITION
METAL OXIDES

H. Takagi, S. Niitaka

14:15 DISORDER INDUCED METAL-
INSULATOR TRANSITION IN PHASE
CHANGE MATERIALS

T. Siegrist

15:00 Coffee

15:30 Nanosessions (Location – see p. 78)

with Invited Kick-Off Speaker

2DA 2D electron systems – Atomic configurations
J. Junquera, Universidad de Cantabria, Spain (→ p. 18)

CAL Calorics
Y. Zhu, Brookhaven National Laboratory, USA (→ p. 21)

SAS Advanced spectroscopy and scattering
K. Shen, Cornell University, USA (→ p. 24)

PCA Phase change materials
R. Mazzarello, RWTH Aachen University, Germany
(→ p. 27)

LDC Logic devices and circuit design
W. Lu, University of Michigan, USA (→ p. 30)

VCR Valence Change Memories – redox mechanism
and modelling
D. Ielmini, Politecnico di Milano, Italy (→ p. 33)

MAG Magnetic interfaces and surfaces
E. Tsymbal, University of Nebraska, USA (→ p. 36)

SDY Spin dynamics
A. Kakay, Forschungszentrum Jülich, Germany
(→ p. 39)

MFH Multiferroic thin films and heterostructures
J. D. Burton, University of Nebraska, USA (→ p. 42)

QUB Qubit systems
A. Briggs, University of Oxford, UK (→ p. 45)

PPO	Photovoltaics, photocatalysis, and optical effects C. Jooss, Universität Göttingen, Germany (→ p. 48)
ALD	Atomic layer deposition C. S. Hwang, Seoul National University, South Korea (→ p. 51)
LTB	Low-dimensional transport and ballistic effects A. Ganczarczyk, Universität Duisburg-Essen, Germany (→ p. 53)

17:00–18:30 Poster Session (Location – see p. 78)

ELT 1–14	Electronic structure, lattice dynamics, and transport (→ p. 58)
MEM 1–19	Memristive systems (→ p. 62)
SRP 1–14	Spin-related phenomena (→ p. 67)
POL 1–10	Polar dielectrics, optics, and ionics (→ p. 71)
ATC 1–10	Advances in technology and characterization (→ p. 74)

Tuesday, June 19

9:00 Invited Session 6 (Europa-Saal)

Session Chair: Jochen Mannhart

9:00 ELECTRONIC PROPERTIES OF THE
INTERFACIAL $\text{LaAlO}_3 / \text{SrTiO}_3$ SYSTEM
J.-M. Triscone, A. Fête, S. Gariglio, A. Caviglia,
D. Li, D. Stornaiuolo, M. Gabay, B. Sacépé,
A. Morpurgo, M. Schmitt, C. Cancellieri,
P. Willmott

9:45 EMERGENT PHENOMENA IN TWO-
DIMENSIONAL ELECTRON GASES AT
OXIDE INTERFACES
S. Stemmer, P. Moetakef, D. Ouellette, S. J. Allen

9:00 Invited Session 7 (Brüssel-Saal)

Session Chair: Masashi Kawasaki

9:00 DYNAMICS AND APPLICATIONS OF
NONVOLATILE AND LOCALLY-ACTIVE
MEMRISTORS
R. S. Williams

9:45 GIANT TUNNEL ELECTRORESISTANCE
IN FERROELECTRIC TUNNEL
JUNCTIONS
A. Chanthbouala, V. Garcia, K. Bouzehouane,
S. Fusil, X. Moya, S. Xavier, H. Yamada,
C. Deranlot, N. D. Mathur, J. Grollier,
A. Barthélémy, **M. Bibes**

10:30 Coffee

11:00 Invited Session 8 (Europa-Saal)

Session Chair: Stefan Blügel

11:00 REVISITING THE HEXAGONAL
MANGANITES
N. Spaldin

11:45 STUDY OF MAGNETOELECTRIC
EFFECTS DUE TO MULTI-SPIN
VARIABLES
T. Kimura

11:00 Invited Session 9 (Brüssel-Saal)

Session Chair: Tobias Noll

11:00 BI-LAYERED RERAM: MULTI-LEVEL SWITCHING, RELIABILITY AND ITS MECHANISM FOR STORAGE CLASS MEMORY AND RECONFIGURATION LOGIC

U-In Chung, Y.-B. Kim, S. R. Lee, D. Lee, C. B. Lee, M. Chang, K. M. Kim, Ji Hyun Hur, M.-J. Lee, C. J. Kim

11:45 SELF-ORGANIZATION IN ADAPTIVE, RECURRENT, AUTONOMOUS MEMRISTIVE CROSSNETS

K. K. Likharev, D. N. Gavrilov, T. J. Walls

12:30 Lunch

13:30 Invited Session 10 (Europa-Saal)

Session Chair: Darrell Schlom

13:30 ELECTRIC FIELD CONTROL OF MAGNETIZATION

R. Ramesh

14:15 MAGNETIC SWITCHING OF FERROELECTRIC DOMAINS AT ROOM TEMPERATURE IN A NEW MULTIFERROIC

J. F. Scott, D. M. Evans, J. M. Gregg, A. Kumar, D. Sanchez, N. Ortega, R. S. Katiyar

15:00 Coffee

15:30 Nanosessions (Location – see p. 80)

with Invited Kick-Off Speaker

2DC 2D electron systems – Correlation effects and transport

M. Rozenberg, CNRS/Universite Paris-Sud, France
(→ p. 19)

TOP Topological effects

Y. Mokrousov, Forschungszentrum Jülich, Germany
(→ p. 22)

- TEM** High-resolution transmission electron microscopy
D. Hesse, Max Planck Institute, Halle, Germany
 (→ p. 25)
- PCM** Phase change memories
C. D. Wright, University of Exeter, UK (→ p. 28)
- NMC** Neuromorphic concepts
H. Kohlstedt, CAU Kiel, Germany (→ p. 31)
- VCI** Valence Change Memories – a look inside
R. Dittmann, Forschungszentrum Jülich, Germany
 (→ p. 34)
- IOL** Ionics – lattice disorder and grain boundaries
D. Keeble, University of Dundee, UK (→ p. 37)
- SIT** Spin injection and transport
P. Nam Hai, University of Tokyo, Japan
A. Bhattacharya, Argonne National Laboratory, Illinois, USA (→ p. 40)
- MFO** Multiferroics – ordering phenomena
J. de Groot, Forschungszentrum Jülich, Germany
 (→ p. 43)
- SUP** Superconductivity
S. Schmaus, MPI für Festkörperforschung, Stuttgart, Germany (→ p. 46)
- FIN** Ferroelectric interfaces
B. Huey, Aarhus University, Denmark, and
 Univ. Connecticut, USA (→ p. 49)
- NAN** Nanotechnological fabrication strategies
N. Banerjee, University of Twente, The Netherlands
 (→ p. 52)
- MOL** Molecular and polymer electronics
N. Atodiresei, Forschungszentrum Jülich, Germany
 (→ p. 54)

17:00–18:00 Poster Session (Location – see p. 80)

- | | |
|-----------|---|
| ELT 15–33 | Electronic structure, lattice dynamics, and transport (→ p. 59) |
| MEM 20–42 | Memristive systems (→ p. 64) |
| SRP 15–28 | Spin-related phenomena (→ p. 68) |
| POL 11–19 | Polar dielectrics, optics, and ionics (→ p. 72) |
| ATC 11–21 | Advances in technology and characterization (→ p. 75) |
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18:30 Visit of the Aachen Cathedral (guided tour)
Meeting point: entrance area of the cathedral

19:00 Organ Concert (Aachen Cathedral)

19:45 Conference Dinner (Aachen Town Hall)
Meeting point: market place, in front of the town hall

Wednesday, June 20

9:00 Invited Session 11 (Europa-Saal)

Session Chair: Yoshi Tokura

- 9:00 CONTROL OF CORRELATED
ELECTRONS IN METAL-OXIDE
SUPERLATTICES
B. Keimer
- 9:45 MAGNETIC RECONSTRUCTIONS IN
PEROVSKITE HETEROINTERFACES AND
ULTRATHIN FILMS
H. Y. Hwang

10:30 Coffee

11:00 Nanosessions (Location – see p. 82)

with Invited Kick-Off Speaker

- 2DE 2D electron systems – Electronic structure and
field effects
R. Claessen, Universität Würzburg, Germany (→ p. 20)
- MIT Mott insulators and transitions
M. Nakano, RIKEN Advanced Science Institute, Japan
(→ p. 23)
- NTS New technologies for scanning probes
C. Ast, MPI für Festkörperforschung, Germany (→ p. 26)
- SPO Scanning probe microscopy on oxides
G. Parkinson, TU Wien, Austria (→ p. 29)
- ECM Electrochemical metallization memories
T. Hasegawa, NIMS, Japan (→ p. 32)
- VRS Variants of resistive switching
A. Sawa, National Institute of Advanced Industrial Science
and Technology, Japan (→ p. 35)
- IOR Ionics – redox kinetics, ion transport, and
interfaces
R. Merkle, MPI for Solid State Research, Germany
(→ p. 38)
- STS Spin tunneling systems
M. Prezioso, ISMN-CNR, Bologna, Italy (→ p. 41)
- MFT Multiferroics – high transition temperatures
K. H. Kim, Seoul National University, South Korea
(→ p. 44)

- ISE** Interplay between strain and electronic structure in metal oxides
G. Herranz, Institute of Materials Science of Barcelona ICMAB-CSIC, Spain (→ p. 47)
- FER** Ferroelectrics – new and unusual material systems
T. Mikolajick, NaMLab and TU Dresden, Germany (→ p. 50)
- CMS** Carbon-based molecular systems
C. Meyer, Forschungszentrum Jülich, Germany (→ p. 55)
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12:30 Lunch

13:30 Invited Session 12 (Europa-Saal)

Session Chair: Matthias Wuttig

13:30 THEORETICAL DESIGN OF
 TOPOLOGICAL PHENOMENA
N. Nagaosa

14:15 METAL-INSULATOR TRANSITIONS OF
 CORRELATED ELECTRONS IN OXIDE
 HETEROSTRUCTURES
M. Kawasaki

15:00 PROGRESS IN THE ATOMIC SWITCH
M. Aono, T. Hasegawa, K. Terabe, T. Tsuruoka

15:45 Farewell

Nanosessions

2D electron systems – Atomic configurations

Monday, 15:30, Room K1/K2 / 2DA – Chair: G. Bihlmayer

- 2DA 1: HIGHLY CONFINED SPIN-POLARIZED TWO-DIMENSIONAL ELECTRON GAS IN $\text{SrTiO}_3/\text{SrRuO}_3$ SUPERLATTICES (Invited)
J. Junquera, P. García-Fernández, M. Verissimo-Alves, D. I. Bilc, P. Ghosez
- 2DA 2: FIRST-PRINCIPLES STUDY OF INTERMIXING AND POLARIZATION AT THE $\text{DyScO}_3/\text{SrTiO}_3$ INTERFACE
K. Rahmanizadeh, G. Bihlmayer, M. Luysberg, S. Blügel
- 2DA 3: ATOMIC-SCALE SPECTROSCOPY OF AN OXIDE INTERFACE BETWEEN A MOTT INSULATOR AND A BAND INSULATOR
M.-W. Chu, C. P. Chang, S.-L. Cheng, J. G. Lin, C. H. Chen
- 2DA 4: INTERFACE ATOMIC STRUCTURE IN $\text{LaSrAlO}_4/\text{LaNiO}_3/\text{LaAlO}_3$ HETEROSTRUCTURES
M. K. Kinyanjui, N. Gauquelin, G. Botton, E. Benckiser, B. Keimer, U. Kaiser
- 2DA 5: TAILORING THE ELECTRONIC PROPERTIES OF THE LAO/STO INTERFACE BY CONTROLLED CATION-STOICHIOMETRY VARIATION IN STO THIN FILMS
F. Gunkel, P. Brinks, S. Wicklein, S. Hoffmann-Eifert, R. Dittmann, M. Huijben, J. E. Kleibeuker, G. Koster, G. Rijnders, R. Waser
- 2DA 6: ELECTROSTATIC DOPING OF A MOTT INSULATOR IN AN OXIDE HETEROSTRUCTURE: THE CASE OF $\text{LaVO}_3/\text{SrTiO}_3$
F. Pfaff, A. Müller, H. Boschker, G. Berner, G. Koster, M. Gorgoi, W. Drube, G. Rijnders, M. Kamp, D. H. A. Blank, M. Sing, R. Claessen
- 2DA 7: THEORETICAL STUDY OF ORBITAL-, SPIN- AND CHARGE-RECONSTRUCTION IN LVO/STO HETEROSTRUCTURES
G. Sangiovanni, Z. Zhong, E. Assmann, P. Blaha, K. Held, S. Okamoto

2D electron systems – Correlation effects and transport

Tuesday, 15:30, Room K1/K2 / 2DC – Chair: A. Liebsch

- 2DC 1: TWO-DIMENSIONAL ELECTRON GAS WITH ORBITAL SYMMETRY RECONSTRUCTION AND STRONG EFFECTIVE MASS LOWERING AT THE SURFACE OF KTaO_3 (Invited)
A. F. Santander-Syro, C. Bareille, F. Fortuna, O. Copie
F. Bertran, A. Taleb-Ibrahimi, P. Le Fèvre, G. Herranz,
M. Bibes, A. Barthélémy, P. Lecoeur, J. Guevara,
M. Gabay, **M. J. Rozenberg**
- 2DC 2: STRAIN MEDIATED LONG-RANGE QUASI-ORDERED DOMAIN STRUCTURES AT THE SrTiO_3 (110) SURFACE
Z. Wang, F. Li, S. Meng, U. Diebold, J. Guo
- 2DC 3: FIRST-PRINCIPLES STUDY OF THE $\text{LaAlO}_3/\text{SrTiO}_3$ INTERFACE
F. Denis, P. Ghosez
- 2DC 4: FERROMAGNETISM DRIVEN BY SrTiO_3 FERROELECTRIC-LIKE LATTICE DEFORMATION IN $\text{LaAlO}_3/\text{SrTiO}_3$ HETEROSTRUCTURES
M. Carmen Muñoz, Jichao C. Li
- 2DC 5: COHERENT TRANSPORT IN MESOSCOPIC $\text{LaAlO}_3/\text{SrTiO}_3$ DEVICES
D. Stornaiuolo, S. Gariglio, N. J. G. Couto, A. Fête,
A. D. Caviglia, G. Seyfarth, D. Jaccard, A. F. Morpurgo,
J.-M. Triscone
- 2DC 6: STRONGLY CORRELATED HIGH-MOBILITY ELECTRON GAS AT A MgZnO/ZnO INTERFACE
Y. Kozuka, J. Falson, D. Maryenko, A. Tsukazaki, C. Bell,
M. Kim, Y. Hikita, H. Y. Hwang, M. Kawasaki

2D electron systems – Electronic structure and field effects

Wednesday, 11:00, Room K1/K2 / 2DE – Chair: J. Mannhart

- 2DE 1:** REVEALING THE FERMI SURFACE OF THE BURIED $\text{LaAlO}_3/\text{SrTiO}_3$ INTERFACE BY ANGLE RESOLVED SOFT X-RAY PHOTOELECTRON SPECTROSCOPY (Invited)
R. Claessen, G. Berner, H. Fujiwara, M. Sing, C. Richter, J. Mannhart, A. Yasui, Y. Saitoh, A. Yamasaki, Y. Nishitani, A. Sekiyama, S. Suga
- 2DE 2:** NANOSCALE MODULATION OF THE LOCAL DENSITY OF STATES AT THE INTERFACE BETWEEN LaAlO_3 AND SrTiO_3 BAND INSULATORS
M. Salluzzo, Z. Ristic, I. Maggio Aprile, R. Di Capua, G. M. De Luca, F. Chiarella, M. Radovic
- 2DE 3:** TUNING THE TWO-DIMENSIONAL ELECTRON GAS AT THE $\text{LaAlO}_3/\text{SrTiO}_3(001)$ INTERFACE BY METALLIC CONTACTS
R. Pentcheva, R. Arras, V. G. Ruiz, W. E. Pickett
- 2DE 4:** FIELD-EFFECT DEVICES UTILIZING OXIDE INTERFACES
C. Richter, B. Förg, R. Jany, G. Pfanzelt, C. Woltmann, J. Mannhart
- 2DE 5:** GATE-CONTROLLED SPIN INJECTION AT LAO/STO INTERFACES
H. Jaffrès, N. Reyren, E. Lesne, J.-M. George, C. Deranlot, S. Collin, M. Bibes, A. Barthélémy
- 2DE 6:** FIELD EFFECT MODULATION OF THE ELECTRON GAS AT THE $\text{LaAlO}_3/\text{SrTiO}_3$ INTERFACE: A THERMOELECTRIC STUDY
S. Gariglio, D. Li, J.-M. Triscone, I. Pallecchi, S. Catalano, A. Gadaleta, D. Marré, A. Filippetti
- 2DE 7:** IS IT POSSIBLE FOR A $\text{La}_{0.5}\text{Sr}_{0.5}\text{TiO}_3$ FERMI LIQUID TO EXIST IN A CONFINED TWO-DIMENSIONAL SYSTEM?
X. Wang, Z. Huang, W. M. Lü, D. P. Leusink, A. Annadi, Z. Q. Liu, T. Venkatesan, Ariando

Calorics

Monday, 15:30, Room K1/K2 / CAL – Chair: A. Weidenkaff

- CAL 1:** MECHANISM OF “PHONON GLASS – ELECTRON CRYSTAL” BEHAVIOUR IN THERMOELECTRIC LAYERED COBALTATE (Invited)
L. Wu, Q. Meng, Ch. Jooss, J. Zheng, H. Inada, D. Su, Q. Li, **Y. Zhu**
- CAL 2:** SIGN REVERSAL OF THE TUNNELING MAGNETO SEEBECK EFFECT
A. Thomas, M. Münzenberg, C. Heiliger
- CAL 3:** AB-INITIO INVESTIGATION OF MAGNETIC KONBU PHASES AS NANOSTRUCTURES WITH SPIN-CALORIC-TRANSPORT PROPERTIES
E. Rabel, P. Mavropoulos, A. Thiess, R. Zeller, T. Fukushima, Nguyen D. Vu, K. Sato, H. Katayama-Yoshida, R. Kovacik, P. H. Dederichs, S. Blügel
- CAL 4:** CHARGE KONDO EFFECT IN THERMOELECTRIC PROPERTIES OF LEAD TELLURIDE DOPED WITH THALLIUM IMPURITIES
T. Costi, V. Zlatic
- CAL 5:** ELECTRONIC STRUCTURE AND THERMOELECTRIC PROPERTIES OF NANOSTRUCTURED $\text{EuTi}_{1-x}\text{Nb}_x\text{O}_{3-\delta}$ ($x = 0.00; 0.02$)
A. Shkabko, L. Sagarna, S. Populoh, L. Karvonen, A. Weidenkaff
- CAL 6:** STRONG PHONON SCATTERING AND GLASSLIKE THERMAL CONDUCTIVITY IN CRYSTALLINE PHASE CHANGE MATERIALS
F. R. L. Lange, K. S. Siegert, M. Wuttig
- CAL 7:** TAILORING THERMOPOWER AND CARRIER MOBILITY IN NANOSTRUCTURED HALF-HEUSLERS
P. F. P. Poudeu, Julien P. A. Makongo, Pranati Sahoo, Y. Liu, X. Zhou, Ctirad Uher

Topological effects

Tuesday, 15:30, Room K1/K2 / TOP – Chair: D. Wortmann

TOP 1: ANOMALOUS HALL EFFECT IN GRAPHENE DECORATED WITH 5d TRANSITION-METAL ADATOMS (Invited)

Y. Mokrousov, H. Zhang, F. Freimuth, C. Lazo, S. Heinze, S. Blügel

TOP 2: SPIN POLARIZED PHOTOEMISSION FROM Bi_2Te_3 AND Sb_2Te_3 TOPOLOGICAL INSULATOR THIN FILMS

L. Plucinski, **A. Herdt**, G. Bihlmayer, S. Döring, S. Blügel, C. M. Schneider

TOP 3: INSTABILITIES OF INTERACTING ELECTRONS ON THE HONEYCOMB BILAYER

M. Scherer, S. Uebelacker, C. Honerkamp

TOP 4: TOPOLOGICAL INSULATORS FROM THE VIEW POINT OF CHEMISTRY

C. Felser, L. Mückler, S. Chadov, B. Yan, J. Kübler, H. J. Zhang, S. C. Zhang

TOP 5: PEIERS DIMERIZATION AT THE EDGE OF 2D TOPOLOGICAL INSULATORS?

G. Bihlmayer, H.-J. Kim, J.-H. Cho, S. Blügel

TOP 6: PREDICTING TOPOLOGICAL SURFACE STATES FROM THE SCATTERING PROPERTIES OF THE BULK

D. Wortmann, G. Bihlmayer, S. Blügel

Mott insulators and transitions

Wednesday, 11:00, Room K1/K2 / MIT – Chair: C. Felser

- MIT 1: ELECTRIC-FIELD CONTROL OF THE FIRST ORDER METAL-INSULATOR TRANSITION IN VO_2 (Invited)
M. Nakano, K. Shibuya, D. Okuyama, T. Hatano, S. Ono, M. Kawasaki, Y. Iwasa, Y. Tokura
- MIT 2: COLOSSAL MAGNETORESISTANCE AND HALF-METAL BEHAVIOR IN THE DOPED MOTT INSULATOR GaV_4S_8
B. Corraze, E. Janod, E. Dorolti, V. Guiot, C. Vaju, H.-J. Koo, E. Kan, M.-H. Whangbo, L. Cario
- MIT 3: THE SPIN-STATE AND METAL-INSULATOR TRANSITIONS IN LnCoO_3
G. Zhang, E. Gorelov, E. Kochand, E. Pavarini
- MIT 4: SPIN-SPECTRAL-WEIGHT DISTRIBUTION AND ENERGY RANGE OF THE PARENT COMPOUND La(2)CuO(4)
J. M. P. Carmelo, M. A. N. Araújo, S. W. White
- MIT 5: SUPERCONDUCTIVITY DRIVEN IMBALANCE OF THE MAGNETIC DOMAIN POPULATION IN CeCOIn_5
S. Gerber, N. Egetenmeyer, J. Gavilano, E. Ressouche, C. Niedermayer, A. Bianchi, R. Movshovich, E. Bauer, J. Sarrao, J. Thompson, M. Kenzelmann
- MIT 6: RUBIDIUM SUPEROXIDE: A P-ELECTRON MOTT INSULATOR
R. Kovacik, C. Ederer, P. Werner
- MIT 7: HIGH MOBILITY IN A STABLE TRANSPARENT PEROVSKITE
K. Char, K. H. Kim, H. J. Kim, U. Kim, H. M. Kim, T. H. Kim, H. S. Mun, B.-G. Jeon, K. T. Hong, W.-J. Lee, C. Ju

Advanced spectroscopy and scattering

Monday, 15:30, Room K1/K2 / SAS – Chair: M. Luysberg

- SAS 1: SHEDDING LIGHT ON ARTIFICIAL QUANTUM MATERIALS AND COMPLEX OXIDE INTERFACES WITH ANGLE-RESOLVED PHOTOEMISSION SPECTROSCOPY (Invited)

K. M. Shen, E. J. Monkman, C. Adamo, J. W. Harter, D. E. Shai, Yuefeng Nie, J. A. Mundy, A. J. Melville, D. A. Muller, L. Maritato, D. G. Schlom

- SAS 2: HARD AND SOFT X-RAY PHOTOEMISSION STUDIES OF OXIDE MULTILAYER BAND OFFSETS AND OF ELECTRONIC STRUCTURE IN $\text{LaNiO}_3/\text{SrTiO}_3$ AND $\text{GdTiO}_3/\text{SrTiO}_3$

G. Conti, A. M. Kaiser, A. X. Gray, S. Nemsak, A. Bostwick, A. Janotti, C. G. Van de Walle, J. Son, P. Moetakef, S. Stemmer, S. Ueda, K. Kobayashi, A. Gloskovskii, W. Drube, V. N. Strokov, C. S. Fadley

- SAS 3: EVIDENCE FOR Fe^{2+} CONFIGURATION IN Fe:STO THIN FILMS BY X-RAY ABSORPTION SPECTROSCOPY

A. Köhl, D. Kajewski, J. Kubacki, K. Szot, Ch. Lenser, P. Meuffels, R. Dittmann, R. Waser, J. Szade

- SAS 5: HARD X-RAY ANGLE-RESOLVED PHOTOEMISSION AS A BULK-SENSITIVE PROBE OF ELECTRONIC STRUCTURE

A. X. Gray, C. Papp, S. Ueda, J. Minár, L. Plucinski, J. Braun, B. Balke, C. M. Schneider, W. E. Pickett, G. Panaccione, H. Ebert, K. Kobayashi, **C. S. Fadley**

- SAS 6: HAXPEEM – SPECTROSCOPIC IMAGING OF BURIED LAYERS USING HARD X-RAYS

C. Wiemann, M. C. Patt, A. Gloskovskii, S. Thiess, W. Drube, M. Merkel, M. Escher, C. M. Schneider

- SAS 7: MARIA: THE MODERN NEUTRON REFLECTOMETER OF THE JCNS OPTIMISED FOR SMALL SAMPLE SIZES AND THINS LAYERS

S. Mattauch, U. Rücker, D. Korolkov, T. Brückel

High-resolution transmission electron microscopy

Tuesday, 15:30, Room K1/K2 / TEM – Chair: J. Mayer

- TEM 1: TRANSMISSION ELECTRON MICROSCOPY OF FUNCTIONAL PEROVSKITE OXIDE HETEROSTRUCTURES (Invited)

D. Hesse

- TEM 2: NiO PRECIPITATES IN $\text{LaNiO}_3/\text{LaAlO}_3$ SUPERLATTICES INDUCED BY A POLAR MISMATCH

E. Detemple, Q. M. Ramasse, W. Sigle, E. Benckiser, G. Cristiani, H.-U. Habermeier, B. Keimer, P. A. van Aken

- TEM 3: MINIMUM ENERGY CONFIGURATION OF SCANDATE/TITANATE INTERFACES: ORDERED INTERFACES

M. Luysberg, K. Rahmanizadeh, G. Biehl-mayer, J. Schubert,

- TEM 4: RUDDLESDEN–POPPER TYPE FAULTS IN $\text{LaNiO}_3/\text{LaAlO}_3$ SUPERLATTICES

E. Detemple, Q. M. Ramasse, W. Sigle, G. Cristiani, H.-U. Habermeier, B. Keimer, **P. A. van Aken**

- TEM 5: ATOMIC STRUCTURE OF TRIMERIZATION-POLARIZATION DOMAIN WALLS IN HEXAGONAL ErMnO_3

M.-G. Han, L. Wu, T. Aoki, N. Lee, S. C. Chae, S.-W. Cheong, Y. Zhu

- TEM 6: HEAD-TO-HEAD INVERSION DOMAINS BOUNDARIES IN Sb-DOPED *p*-TYPE ZnO NANOWIRES

P. M. Voyles, A. B. Yankovich, B. Puchala, Fei Wang, D. Morgan, Xudong Wang, A. V. Kvit

New technologies for scanning probes

Wednesday, 11:00, Room K1/K2 / NTS – Chair: M. Pratzer

- NTS 1: CONSTRUCTION AND FIRST RESULTS OF AN STM OPERATING AT MILLI-KELVIN TEMPERATURES (Invited)
C. R. Ast, M. Assig, M. Etzkorn, M. Eltschka, B. Jäck, K. Kern
- NTS 2: QUANTITATIVE FORCE IMAGING OF THE ATOMS IN EPITAXIALLY GROWN GRAPHENE
 M. P. Boneschanscher, Z. Sun, J. van der Lit, P. Liljeroth, **D. Vanmaekelberg**
- NTS 3: RADIO FREQUENCY OPTIMIZED SCANNING TUNNELING MICROSCOPE FOR THE USE WITH PULSED TUNNELING VOLTAGES
C. Saunus, M. Pratzer, M. Morgenstern
- NTS 4: ULTRA COMPACT 4-TIP STM/AFM FOR ELECTRICAL MEASUREMENTS AT THE NANOSCALE
V. Cherepanov, S. Korte, M. Blab, E. Zubkov, H. Junker, P. Coenen, B. Voigtländer
- NTS 5: NANOSCALE MECHANICAL CHARACTERIZATION OF THIN FILMS WITH DIFFERENT TOPOLOGICAL STRUCTURES
K.-B. Yeap, M. Kopycinska-Mueller, L. Chen, M. Gall, E. Zschech
- NTS 6: ELECTRONIC ACTIVATION IN THE $(\text{La}_{0.8}\text{Sr}_{0.2})\text{CoO}_3/(\text{La}_{0.5}\text{Sr}_{0.5})_2\text{CoO}_4$ SUPERLATTICES AT HIGH TEMPERATURE
Y. Chen, Z. Cai, Y. Kuru, H. L. Tuller, B. Yildiz
- NTS 7: THE SEM/FIB WORKBENCH: AUTOMATED NANOROBOTICS SYSTEM INSIDE OF SCANNING ELECTRON OR FOCUSED ION BEAM MICROSCOPES
V. Klocke, I. Burkart

Phase change materials

Monday, 15:30, Room K1/K2 / PCA – Chair: T. Taubner

- PCA 1: DENSITY FUNCTIONAL THEORY STUDY OF ANDERSON METAL-INSULATOR TRANSITIONS IN CRYSTALLINE PHASE-CHANGE MATERIALS (Invited)
W. Zhang, A. Thiess, P. Zalden, J.-Y. Raty, R. Zeller, P. H. Dederichs, M. Wuttig, S. Blügel, **R. Mazzarello**
- PCA 2: LARGE SCALE MOLECULAR DYNAMICS SIMULATIONS OF PHASE CHANGE MATERIALS
G. C. Sosso, G. Miceli, S. Caravati, D. Donadio, J. Behler, M. Bernasconi
- PCA 3: QUANTUM-CHEMICAL ANALYSIS OF ATOMIC MOTION IN Ge-Sb-Te PHASE-CHANGE ALLOYS
R. Stoffel, M. Lumeij, V. Deringer, **R. Dronskowski**
- PCA 4: SIMULATION OF RAPID CRYSTALIZATION IN PHASE CHANGE MATERIALS BY MEANS OF PHASE FIELD MODELING
F. Tabatabaei, M. Apel, E. Brener
- PCA 5: EPITAXIAL PHASE CHANGE MATERIALS: GROWTH, STRUCTURE AND PHASE TRANSITION
H. Riechert, P. Rodenbach, A. Giussani, K. Perumal, M. Hanke, J. Laehnemann, M. Dubsclaff, R. Calarco, M. Burghammer, A. Kolobov, P. Fons
- PCA 6: EFFECT OF CARBON AND NITROGEN DOPING ON THE STRUCTURE AND DYNAMICS OF AMORPHOUS GeTe PHASE CHANGE MATERIAL
J. Y. Raty, G. Ghezzi, P. Noé, E. Souchier, S. Maitrejean, C. Bichara, F. Hippert

Phase change memories

Tuesday, 15:30, Room K1/K2 / PCM – Chair: M. Salinga

- PCM 1: EXPLOITING THE MEMRISTIVE-LIKE BEHAVIOUR OF PHASE-CHANGE MATERIALS AND DEVICES FOR ARITHMETIC, LOGIC AND NEUROMORPHIC PROCESSING (Invited)
C. D. Wright, J. A. Vázquez Diosdado, L. Wang, Y. Liu, P. Ashwin, K. I. Kohary, M. M. Aziz, P. Hosseini, R. J. Hicken
- PCM 2: INVERSE TIME-VOLTAGE RELATION OF THRESHOLD SWITCHING IN PHASE CHANGE MATERIALS
M. Cassinerio, N. Ciocchini, D. Ielmini
- PCM 3: INTERPLAY OF DEFECTS AND CHEMICAL BONDING IN THE “GST” FAMILY OF PHASE-CHANGE MATERIALS
V. L. Deringer, M. Lumeij, R. Stoffel, **R. Dronskowski**
- PCM 4: PHOTONICS-BASED NON-VOLATILE MEMORY DEVICE USING PHASE CHANGE MATERIALS
W. H. P. Pernice, **H. Bhaskaran**
- PCM 5: ROLE OF ACTIVATION ENERGY IN RESISTANCE DRIFT OF AMORPHOUS PHASE CHANGE MATERIALS
M. Salinga, M. Wimmer, M. Käs, M. Wuttig
- PCM 6: $\text{Ge}_2\text{Sb}_2\text{Te}_5$ LINE TEST-STRUCTURES FOR PHASE-CHANGE NON VOLATILE MEMORIES
G. D'Arrigo, A. M. Mio, A. Cattaneo, C. Spinella, A. L. Lacaita, E. Rimini
- PCM 7: IN SITU TRANSMISSION ELECTRON MICROSCOPY STUDY OF THE CRYSTALLIZATION OF BITS IN $\text{Ag}_4\text{In}_3\text{Sb}_{67}\text{Te}_{26}$
M. Bornhöfft, A. Kaldenbach, M. Wuttig, J. Mayer

Scanning probe microscopy on oxides

Wednesday, 11:00, Room K1/K2 / SPO – Chair: M. Morgenstern

- SPO 1: TEMPLATED ADSORPTION AT THE $\text{Fe}_3\text{O}_4(001)$ SURFACE: THE EFFECT OF SUBSURFACE CHARGE AND ORBITAL ORDER (Invited)

G. S. Parkinson, Z. Novotny, M. Schmid, U. Diebold

- SPO 2: EXPLORING ROUTES TO TAILOR THE ELECTRONIC PROPERTIES OF THIN-OXIDE FILMS ON METAL SUPPORTS

Xiang Shao, F. Stavale, **N. Nilius**

- SPO 3: PREPARATION AND CHARACTERIZATION OF THIN MgO FILMS DOPED WITH NITROGEN

M. Grob, M. Pratzner, M. Ležaić, M. Morgenstern

- SPO 4: SCANNING TUNNELING MICROSCOPY STUDY OF SINGLE-CRYSTALLINE $\text{Sr}_3\text{Ru}_2\text{O}_7$

B. Stöger, Z. Wang, M. Schmid, U. Diebold, D. Fobes, Z. Mao

- SPO 5: BIMETALLIC ALLOYS AS MODEL SYSTEMS FOR THE GROWTH OF ULTRATHIN METAL OXIDE FILMS

M. Moors, S. Le Moal, J. M. Essen, C. Breinlich, M. Kesting, S. Degen, A. Krupski, C. Becker, K. Wandelt

- SPO 6: ELECTROSTATIC FIELD EFFECT MODULATION OF SHUBNIKOV–DE HAAS OSCILLATIONS IN $\text{LaAlO}_3/\text{SrTiO}_3$

N. Reyren, M. Basletić, M. Bibes, C. Carrétéro, V. Trinité, A. Hamzić, A. Barthélémy

Logic devices and circuit design

Monday, 15:30, Room K1/K2 / LDC – Chair: E. Linn

- LDC 1: SELF-RECTIFYING RESISTIVE MEMORY DEVICES (Invited)
W. Lu, S.-H. Jo, Y. Yang
- LDC 2: THE DESIRED MEMRISTOR FOR CIRCUIT DESIGNERS
S. Kvatinisky, E. G. Friedman, A. Kolodny, U. C. Weiser
- LDC 3: COMPLEMENTARY RESISTIVE SWITCH-BASED ASSOCIATIVE MEMORY CAPABLE OF FULLY PARALLEL SEARCH FOR MINIMUM HAMMING DISTANCE
O. Kavehei, S. Skafidas, K. Eshraghian
- LDC 4: COMPUTATIONAL CONCEPT BASED ON COMPLEMENTARY RESISTIVE SWITCHES
O. Šuch, M. Klimo, S. Foltán, K. Grondžák
- LDC 5: LOGIC OPERATIONS IN PASSIVE COMPLEMENTARY RESISTIVE SWITCH CROSSBAR ARRAYS
E. Linn, R. Rosezin, S. Tappertzhofen, U. Böttger, R. Waser
- LDC 6: A NON-VOLATILE LOW-POWER ZERO-LEAKAGE NANOMAGNETIC COMPUTING SYSTEM
M. Becherer, J. Kiermaier, S. Breitkreutz, I. Eichwald, G. Csaba, D. Schmitt-Landsiedel

Neuromorphic concepts

Tuesday, 15:30, Room K1/K2 / NMC – Chair: A. Heitmann

NMC 1: AN ELECTRONIC VERSION OF PAVLOV'S DOG
(Invited)

H. Kohlstedt, M. Ziegler, R. Soni, T. Patelczyk,

NMC 2: NEUROMORPHIC FUNCTIONALITIES OF
NANOSCALE MEMRISTORS

T. Chang, S.-H. Jo, P. Sheridan, W. Lu

NMC 3: DEMONSTRATION OF IMPLICIT MEMORY
IN ELECTRONIC CIRCUITS BY USING
MEMRESISTIVE DEVICES

M. Ziegler, M. Hansen, H. Kohlstedt

NMC 4: USAGE OF NANOELECTRONIC RESISTIVE
SWITCHES WITH NONLINEAR SWITCHING
KINETICS IN HYBRID CIRCUITS FOR LINEAR
CONDUCTANCE ADAPTATION

A. Heitmann, T. G. Noll

NMC 5: Pt/HfO₂/TiN/Al ON SiO₂ WITH POTENTIAL
APPLICATIONS TO MEMORY AND
NEUROMORPHIC CIRCUITS

D. Sacchetto, Y. Leblebici, Sung-Mo Steve Kang

NMC 6: MEMRISTORS: TWO CENTURIES ON

T. Prodromakis, C. Toumazou, L. Chua

Electrochemical metallization memories

Wednesday, 11:00, Room K1/K2 / ECM – Chair: I. Valov

- ECM 1: ATOM/ION MOVEMENT CONTROLLED THREE-TERMINAL DEVICE: ATOM TRANSISTOR (Invited)
T. Hasegawa, Y. Itoh, T. Tsuruoka, M. Aono
- ECM 2: QUANTUM CONDUCTANCE OF AGI BASED RESISTIVE SWITCHES: TOWARDS AN ATOMIC SCALE MEMORY
S. Tappertzhofen, I. Valov, R. Waser
- ECM 3: DYNAMIC GROWTH/DISSOLUTION OF CONDUCTIVE FILAMENT IN OXIDE-ELECTROLYTE-BASED RRAM
M. Liu, Q. Liu, H. Lv, S. Long, Y. Li
- ECM 4: IN-SITU HARD X-RAY PES POLARIZATION MEASUREMENTS OF OXIDE AMORPHOUS FILMS UNDER INTENSE ELECTRICAL FIELD
S. Yamaguchi, T. Tsuchiya, S. Miyoshi, Y. Yamashita, H. Yoshikawa, K. Terabe, K. Kobayashi
- ECM 5: SPECTROSCOPIC INVESTIGATION OF CHARGE TRANSFER IN ELECTROCHEMICAL METALLIZATION MEMORY CELL
D.-Y. Cho, I. Valov, J. v. d. Hurk, S. Tappertzhofen, R. Waser
- ECM 6: CHARACTERIZATION OF GERMANIUM SULFIDE THIN FILMS GROWN BY HOT WIRE CHEMICAL VAPOR DEPOSITION
D. Reso, M. Silinskas, N. Frenzel, M. Lisker, E. P. Burte
- ECM 7: NANOFILAMENT RELAXATION MODEL FOR SIZE-DEPENDENT RESISTANCE DRIFT IN ELECTROCHEMICAL MEMORIES
S. Choi, S. Balatti, F. Nardi, D. Ielmini

Valence Change Memories – redox mechanism and modelling

Monday, 15:30, Room K1/K2 / VCR – Chair: R. Dittmann

- VCR 1: ION MIGRATION MODEL FOR RESISTIVE SWITCHING IN TRANSITION METAL OXIDES (Invited)
D. Ielmini, S. Larentis, S. Balatti, F. Nardi, D. Gilmer
- VCR 2: SIMULATION STUDIES OF THE MATERIAL DEPENDENT SWITCHING PERFORMANCE OF VALENCE CHANGE MEMORY CELLS
S. Menzel, A. Marchewka, U. Böttger, R. Waser
- VCR 3: ELECTRORESISTANCE VERSUS JOULE HEATING EFFECTS IN MANGANITE THIN FILMS
L. Balcells, A. Pomar, R. Galceran, Z. Konstantinovic, L. Peña, B. Bozzo,
- VCR 4: ON ELECTROFORMING FOR BIPOLAR SWITCHING
I. Riess, D. Kalaev
- VCR 5: ROOM-TEMPERATURE KINETICS OF DEFECT MIGRATION IN NON-FRADAIC Pt/TiO₂/Pt CAPACITORS
H. Lim, H.-W. Jang, C. S. Hwang, **D. S. Jeong**
- VCR 6: TANTALUM OXIDE ULTRA-THIN FILMS BY METAL OXIDATION FOR APPLICATION IN RESISTIVE RANDOM ACCESS MEMORY (RRAM)
S. Schmelzer, U. Böttger, R. Waser
- VCR 7: RESISTIVE SWITCHING PHENOMENA IN Li_xCoO₂ THIN FILMS
O. Schneegans, Van Huy Mai, A. Moradpour, P. Auban-Senzier, C. Pasquier, Kang Wang, S. Franger, A. Revcolevschi, E. Svoukis, J. Giapintzakis, P. Lecoeur, P. Aubert, G. Agnus, T. Maroutian, R. Salot, P. Chrétien

Valence Change Memories – a look inside

Tuesday, 15:30, Room K1/K2 / VCI – Chair: D. Ielmini

- VCI 1:** NANASCALE ANALYSIS OF FORMING AND RESISTIVE SWITCHING IN Fe:STO THIN FILM DEVICES (Invited)
R. Dittmann, R. Muenstermann, I. Krug, D. Park, F. Kronast, A. Besmehn, J. Mayer, C. M. Schneider, R. Waser
- VCI 2:** IN-OPERANDO HAXPES ANALYSIS OF THE RESISTIVE SWITCHING PHENOMENON IN Ti/HfO₂-BASED SYSTEMS
M. Sowinska, T. Bertaud, D. Walczyk, S. Thiess, C. Walczyk, T. Schroeder
- VCI 3:** THE OXYGEN VACANCY DISTRIBUTION IN RESISTIVE SWITCHING Fe-SrTiO₃ MIM STRUCTURES BY μ XAFS
C. Lenser, A. Kuzmin, A. Kalinko, J. Purans, R. Waser, R. Dittmann
- VCI 4:** MULTILEVEL RESISTIVE SWITCHING AND METAL –INSULATOR TRANSITION IN SOLUTION-DERIVED La_{1-x}Sr_xMnO₃ THIN FILMS
 C. Moreno, J. Zabaleta, A. Palau, J. Gázquez, N. Mestres, T. Puig, C. Ocal, **X. Obradors**
- VCI 5:** PUMP AND RELEASE SCENARIO FOR THE BIPOLAR RESISTIVE SWITCHING OF MEMRISTIVE MANGANITE-METAL INTERFACES
P. Levy, N. Ghenzi, M. J. Sanchez, M. J. Rozenberg, P. Stoliar, F. G. Marlasca, D. Rubi
- VCI 6:** RESISTIVE SWITCHING IN NiO BASED NANOWIRE ARRAY FOR LOW POWER RERAM
S. Spiga, S. Brivio, G. Tallarida, D. Perego, S. Franz, D. Deleruyelle, C. Muller
- VCI 7:** EXPERIMENTAL EVALUATION OF THE TEMPERATURE IN CONDUCTIVE FILAMENTS CREATED IN RESISTIVE SWITCHING MATERIALS
E. Yalon, S. Cohen, A. Gavrilov, B. Meyler, J. Salzman, D. Ritter

Variants of resistive switching

Wednesday, 11:00, Room K1/K2 / VRS – Chair: V. Rana

- VRS 1: FERROELECTRIC RESISTIVE SWITCHING AT SCHOTTKY-LIKE BiFeO_3 INTERFACES (Invited)
A. Sawa, A. Tsurumaki-Fukuchi, H. Yamada
- VRS 2: HOW CAN WE SWITCH THE RESISTIVITY OF A METALLIC PEROVSKITE OXIDE ($\text{SrTiO}_3\text{:Nb}$) BY ELECTRICAL STIMULI?
C. Rodenbücher, K. Szot, R. Waser
- VRS 3: PHYSICAL MECHANISM OF OXYGEN VACANCY MIGRATION IN Pt/Nb:SrTiO_3 INTERFACES
S. B. Lee, J.-B. Park, M.-J. Lee, T. W. Noh
- VRS 4: MECHANISM OF RESISTIVE SWITCHING IN BIPOLAR TRANSITION METAL OXIDES
M. J. Rozenberg, M. J. Sánchez, P. Stoliar, R. Weht, C. Acha, F. Gomez-Marlasca, P. Levy
- VRS 5: ELECTRIC FIELD INDUCED RESISTIVE SWITCHING IN A FAMILY OF MOTT INSULATORS: TOWARDS A MOTT-MEMRISTOR?
L. Cario, B. Corraze, V. Guiot, S. Salmon, J. Tranchant, M.-P. Besland, V. Ta Phuoc, M. Rozenberg, T. Cren, D. Roditchev, E. Janod
- VRS 6: INTRINSIC DEFECTS IN TiO_2 TO EXPLAIN RESISTIVE SWITCHING DEVICES
D. Schmeißer, M. Richter, M. Tallarida
- VRS 7: CONDUCTANCE QUANTIZATION IN RESISTIVE SWITCHING
S. Long, C. Gagli, X. Cartoixà, R. Rurali, E. Miranda, D. Jiménez, J. Buckley, M. Liu, **J. Suñé**

Magnetic interfaces and surfaces

Monday, 15:30, Upper Foyer / MAG – Chair: C. M. Schneider

MAG 1: HIGHLY SPIN-POLARIZED CONDUCTING STATE AT THE INTERFACE BETWEEN NON-MAGNETIC BAND INSULATORS: $\text{LaAlO}_3/\text{FeS}_2$ (001) (Invited)

J. D. Burton, **E. Y. Tsymbal**

MAG 2: NEW INSIGHTS INTO NANOMAGNETISM BY SPIN-POLARIZED SCANNING TUNNELING MICROSCOPY AND SPECTROSCOPY

D. Sander, Hirofumi Oka, S. Ouazi, S. Wedekind, G. Rodary, P. Ignatiev, L. Niebergall, V. Stepanyuk, J. Kirschner

MAG 3: SELECTIVE ORBITAL OCCUPATION AT MANGANITE INTERFACES INDUCED BY CRYSTAL SYMMETRY BREAKING

B. Martínez, S. Valencia, L. Peña, Z. Konstantinovic, Ll. Balcells, R. Galceran, D. Schmitz, F. Sandiumenge, M. Casanove

MAG 4: SCALABLE EXCHANGE BIAS IN LSMO/STO THIN FILMS

D. Schumacher, A. Steffen, J. Voigt, J. Schubert, H. Ambaye, V. Lauter, J. Freeland, T. Brückel

MAG 5: STRUCTURAL AND MAGNETIC PROPERTIES OF NANOPARTICLE SUPERLATTICES

O. Petravic, D. Greving, D. Mishra, M. J. Benitez, P. Szary, G. Badini Confalonieri, A. Ludwig, M. Ewerlin, L. Agudo, G. Eggeler, B. P. Toperverg, H. Zabel

MAG 7: SELF ASSEMBLED IRON OXIDE NANOPARTICLES – FROM A 2D POWDER TO A SINGLE MESOCRYSTAL

E. Josten, E. Wetterskog, D. Meertens, U. Rücker, G. Salazar-Alvarez, O. Seeck, P. Boesecke, T. Schulli, M. Angst, R. Hermann, L. Bergström, T. Brückel

Ionics – lattice disorder and grain boundaries

Tuesday, 15:30, Upper Foyer / IOL – Chair: C. Pithan

- IOL 1: CHARACTERIZATION OF VACANCY-RELATED DEFECTS IN Fe-DOPED SrTiO_3 THIN FILMS USING POSITRON ANNIHILATION LIFETIME SPECTROSCOPY (Invited)

D. J. Keeble, S. Wicklein, G. S. Kanda, W. Egger, R. Dittmann

- IOL 2: *AB INITIO* CALCULATIONS OF DEFECTS IN GALLIUM OXIDE

T. Zacherle, P. C. Schmidt, M. Martin

- IOL 3: CATION DEFECT ENGINEERING IN STO THIN FILMS BY PLD – VERIFICATION AND IMPLICATIONS ON MEMRISTIVE PROPERTIES

S. Wicklein, C. Xu, A. Sambri, S. Amoruso, D. J. Keeble, R. A. Mackie, W. Egger, R. Dittmann

- IOL 4: STRUCTURAL RESPONSE OF SINGLE CRYSTAL SrTiO_3 ON OVACANCY MIGRATION IN THERMAL AND ELECTRICAL FIELDS

B. Abendroth, J. Hanzig, H. Stöcker, F. Hanzig, R. Strohmeyer, S. Rentrop, U. Mühle, D. C. Meyer

- IOL 5: CRYSTAL- AND DEFECT- CHEMISTRY OF REDUCTION RESISTANT FINE GRAINED THERMISTOR CERAMICS ON BaTiO_3 -BASIS

C. Pithan, Hayato Katsu, R. Waser, H. Takagi

- IOL 6: RED-OX DRIVEN POINT DEFECT EQUILIBRIA, ANISOTROPIC CHEMICAL AND THERMAL EXPANSION AND FERROELASTICITY OF ACCEPTOR DOPED LaMO_3 PEROVSKITE OXIDE AT THE NANO-SCALE

X. Chen, J. R. Tolchard, S. M. Selbach, **T. Grande**

Ionics – redox kinetics, ion transport, and interfaces

Wednesday, 11:00, Upper Foyer / IOR – Chair: R. deSouza

- IOR 1: OXYGEN EXCHANGE KINETICS ON PEROVSKITE SURFACES: IMPORTANCE OF ELECTRONIC AND IONIC DEFECTS (Invited)
R. Merkle, L. Wang, Y. A. Mastrikov, E. A. Kotomin, J. Maier
- IOR 2: ORDERS OF MAGNITUDE VARIATIONS IN THE ELECTRICAL CONDUCTION PROPERTIES OF ACCEPTOR AND DONOR DOPED STRONTIUM TITANATE ON DOWNSIZING
G. Gregori, P. Lupetin, J. Maier
- IOR 3: DYNAMIC SIMULATION OF OXYGEN MIGRATION IN TiO_2
J. M. Knaup, M. Wehlau, T. Frauenheim
- IOR 4: ATOMISTIC SIMULATION STUDY ON OXYGEN DEFICIENT STRONTIUM TITANATE
M. Schie, A. Marchewka, R. A. De Souza, T. Müller, R. Waser
- IOR 5: FIRST PRINCIPLE STUDY AND MODELING OF STRAIN-DEPENDENT IONIC MIGRATION IN ZIRCONIA
J. A. Hirschfeld, H. Lustfeld
- IOR 6: INVESTIGATIONS ON THE INTEGRATED CATHODES FOR HIGH ENERGY DENSITY LITHIUM RECHARGEABLE BATTERIES
S. B. Majumder, C. Ghanty, R. N. Basu

Spin dynamics

Monday, 15:30, Upper Foyer / SDY – Chair: R. Adam

- SDY 1:** VORTEX DOMAIN WALL DYNAMICS IN MAGNETIC NANOTUBES (Invited)
A. Kákay, Ming Yan, C. Andreas, F. García-Sánchez, R. Hertel
- SDY 2:** SPIN-TORQUE DYNAMICS OF STACKED VORTICES IN MAGNETIC NANOPILLARS
D. E. Bürgler, V. Sluka, A. Deac, A. Kakay, R. Hertel, C. M. Schneider
- SDY 3:** PURE SPIN CURRENTS IN FERROMAGNETIC INSULATOR/NORMAL METAL HYBRID STRUCTURES
M. Althammer, M. Weiler, F. D. Czeschka, J. Lotze, G. Woltersdorf, M. Schreier, S. Gepraegs, H. Huebl, M. Opel, R. Gross, S. T. B. Goennenwein
- SDY 4:** FEMTOSECOND SPIN DYNAMICS AND NANOMETER IMAGING WITH LASER-BASED EXTREME ULTRAVIOLET SOURCE
R. Adam, D. Rudolf, A. Bauer, C. Weier, M. Plötzing, P. Grychtol, Chan LaOvorakiat, E. Turgut, H. C. Kapteyn, M. M. Murnane, J. M. Shaw, H. T. Nembach, T. J. Silva, S. Mathias, M. Aeschlimann and, C. M. Schneider
- SDY 5:** THEORETICAL STUDY OF ULTRAFAST LASER INDUCED MAGNETIC PRECESSIONS.
D. Popova, A. Bringer, S. Blügel
- SDY 6:** SPIN RELAXATION INDUCED BY THE ELLIOTT-YAFET MECHANISM IN 5d TRANSITION-METAL THIN FILMS
N. H. Long, P. Mavropoulos, S. Heers, B. Zimmermann, Y. Mokrousov, S. Blügel

Spin injection and transport

Tuesday, 15:30, Upper Foyer / SIT – Chair: D. Bürgler

- SIT 0:** DELTA DOPED ANTIFERROMAGNETIC MANGANITES (Invited)
T. S. Santos, B. J. Kirby, S. Kumar, S. J. May, J. A. Borchers, B. B. Maranville, J. Zarestky, S. G. E. te Velthuis, J. van den Brink, B. Nelson-Cheeseman, **A. Bhattacharya**
- SIT 1:** N-TYPE ELECTRON-INDUCED FERROMAGNETIC SEMICONDUCTOR (In, Fe) As (Invited)
Pham Nam Hai, Le Duc Anh, D. Sakaki, M. Tanaka
- SIT 2:** ELECTRICAL SPIN INJECTION AND SPIN TRANSPORT IN ZINC OXIDE
M. Althammer, E.-M. Karrer-Müller, S. T. B. Goennenwein, **M. Opel**, R. Gross
- SIT 3:** SPIN RELAXATION BY IMPURITY SCATTERING: IMPORTANCE OF RESONANT SCATTERING
P. Mavropoulos, S. Heers, R. Zeller, S. Blügel
- SIT 4:** EXPERIMENTAL AND THEORETICAL ANALYSIS OF OXYGEN-DEFICIENT EuO THIN FILMS
A. Ionescu, M. Barbagallo, P. M. D. S. Monteiro, N. D. M. Hine, J. F. K. Cooper, N.-J. Steinke, J.-Y. Kim, K. R. A. Ziebeck, C. H. W. Barnes, C. J. Kinane, B. R. M. Dalgliesh, T. R. Charlton, S. Langridge, T. Stollenwerk, J. Kroha
- SIT 6:** SPIN-ORBIT MEDIATED TORQUES IN HETEROSTRUCTURES WITH STRUCTURAL INVERSION ASYMMETRY
F. Freimuth, Y. Mokrousov, S. Blügel

Spin tunneling systems

Wednesday, 11:00, Upper Foyer / STS – Chair: M. Müller

- STS 1: **MAGNETICALLY ENHANCED MEMRISTOR (Invited)**
M. Prezioso, A. Riminucci, I. Bergenti, P. Graziosi, V. A. Dediu
- STS 2: **NOVEL FUNCTIONALITIES AT INTERFACES IN $\text{La}_{0.7}\text{Ca}_{0.3}\text{MnO}_3$ / $\text{PrBa}_2\text{Cu}_3\text{O}_7$ / $\text{La}_{0.7}\text{Ca}_{0.3}\text{MnO}_3$ MAGNETIC TUNNEL JUNCTIONS**
F. A. Cuellar, Y. Liu, N. M. Nemes, M. G. Hernandez, J. Freeland, J. Salafranca, S. Okamoto, S. G. E. te Velthuis, M. Varela, S. J. Pennycook, M. Bibes, A. Barthélémy, Z. Sefrioui, C. Leon, **J. Santamaria**
- STS 3: **INTEGRATION OF A MAGNETIC OXIDE DIRECTLY WITH SILICON**
M. Müller, C. Caspers, A. X. Gray, A. M. Kaiser, A. Gloskovskii, W. Drube, M. Gorgoi, C. S. Fadley, C. M. Schneider
- STS 4: **A SPINTRONIC MEMRISTOR**
J. Grollier, A. Chanthbouala, J. Sampaio, P. Metaxas, R. Matsumoto, A. Anane, A. V. Khvalkovskiy, V. Cros, A. Fert, K. A. Zvezdin, A. Fukushima, H. Kubota, K. Yakushiji, S. Yuasa
- STS 5: **MEMRISTIVE MAGNETIC TUNNEL JUNCTIONS AND THEIR APPLICATIONS**
A. Thomas, P. Krzysteczko, G. Reiss, J. Münchenberger, M. Schäfers
- STS 6: **ANTIFERROMAGNETIC COUPLING ACROSS SILICON REGULATED BY TUNNELING CURRENTS**
R. Gareev, M. Schmid, J. Vancea, C. Back, R. Schreiber, D. Bürgler, C. Schneider, F. Stromberg, H. Wende
- STS 7: **NON-VOLATILE ELECTRICAL CONTROL OF MAGNETISM IN MANGANESE-DOPED ZINC OXIDE**
A. Ruotolo, X. L. Wang, C. W. Leung, R. Lortz

Multiferroic thin films and heterostructures

Monday, 15:30, Upper Foyer / MFH – Chair: J. Voigt

MFH 1: MAGNETOELECTRICALLY INDUCED GIANT TUNNELING ELECTRORESISTANCE EFFECT (Invited)

J. D. Burton, Y. Yin, X. G. Li, Y.-M. Kim, A. Y. Borisevich, Q. Li, E. Y. Tsymbal

MFH 2: REVERSIBLE ELECTRICAL SWITCHING OF SPIN POLARIZATION IN MULTIFERROIC Co/Pb(Zr_{0.2}Ti_{0.8})O₃/La_{0.7}Sr_{0.3}MnO₃ TUNNEL JUNCTIONS

D. Pantel, S. Goetze, M. Alexe, **D. Hesse**

MFH 3: MAGNETOELASTIC AND MAGNETOELECTRIC EFFECTS IN COMPOSITE MULTIFERROIC HYBRID STRUCTURES

S. Geprägs, M. Opel, S. T. B. Goennenwein, R. Gross

MFH 4: ELECTRIC CONTROL OF THE MAGNETIZATION IN BiFeO₃/LaFeO₃ SUPERLATTICES.

Z. Zanolli, J. C. Wojdel, J. Iniguez, P. Ghosez

MFH 5: THE NEXT STEP ON THE SPIRAL – TbMnO₃ THIN FILMS

A. Glavic, J. Voigt, E. Schierle, E. Weschke, T. Brückel

MFH 6: MAGNETIC CHIRAL DOMAINS IN MULTIFERROIC THIN FILMS KEEP MEMORY

J. Fontcuberta, I. Fina, L. Fàbrega, X. Martí, F. Sánchez

MFH 7: EXCHANGE BIAS AND MAGNETOELECTRIC COUPLING EFFECTS IN ZnFe₂O₄ – BaTiO₃ COMPOSITE THIN FILMS

M. Lorenz, M. Ziese, G. Wagner, P. Esquinazi, M. Grundmann

Multiferroics – ordering phenomena

Tuesday, 15:30, Upper Foyer / MFO – Chair: E. Kentzinger

- MFO 1: CHARGE ORDER IN LUTETIUM IRON OXIDE: AN UNLIKELY ROUTE TO FERROELECTRICITY (Invited)
J. de Groot, T. Mueller, R. A. Rosenberg, D. J. Keavney, Z. Islam, J.-W. Kim, M. Angst
- MFO 2: CRYSTAL STRUCTURE, PHASE TRANSITION, CHEMICAL EXPANSION AND DEFECT CHEMISTRY OF HEXAGONAL HoMnO_3
S. M. Selbach, K. Bergum, A. Nordli Løvik, J. R. Tolchard, M.-A. Einarsrud, T. Grande
- MFO 3: COLLECTIVE MAGNETISM AT FERROELECTRIC DOMAIN WALLS
W. Wu, Y. Geng, Y. J. Choi, N. Lee, S.-W. Cheong
- MFO 4: HARD X-RAY NANOSCALE STRUCTURAL IMAGING OF MULTIFERROIC THIN FILMS
M. Holt, S. Hruszkewycz, C. Folkman, R. Winarski, V. Rose, P. Fuoss, I. McNulty
- MFO 5: THE STRUCTURE OF THE MULTIFERROIC $\text{BaTiO}_3/\text{Fe}(001)$ INTERFACE
H. L. Meyerheim, F. Klimenta, A. Ernst, K. Mohseni, S. Ostanin, M. Fechner, S. S. Parihar, I. V. Maznichenko, I. Mertig, J. Kirschner
- MFO 6: INVESTIGATION OF TWO MECHANISMS FOR MULTIFERROICITY IN PbCrO_3 BY DFT
M. Schlipf, M. Lezaic

Multiferroics – high transition temperatures

Wednesday, 11:00, Upper Foyer / MFT – Chair: M. Angst

- MFT 1:** REALIZATION OF FULL MAGNETOELECTRIC CONTROL AT ROOM TEMPERATURE (Invited)
K. H. Kim, S. H. Chun, Y. S. Chai, B.-G. Jeon, K. W. Shin, H. J. Kim, Y. S. Oh, I. Kim, J.-Y. Park, S. H. Lee, J.-H. Chung, J.-H. Park
- MFT 2:** SPIN WAVES AND LATTICE ANOMALY OF BiFeO_3 MEASURED BY NEUTRON SCATTERING
 J. Jeong, E. A. Goremychkin, T. Guidi, K. Nakajima, G. S. Jeon, S.-A. Kim, S. Furukawa, Y. B. Kim, S. Lee, V. Kiryukhin, S-W. Cheong, **J.-G. Park**
- MFT 3:** TUNING THE MULTIFERROIC PHASE OF CuO WITH IMPURITIES
J. Hellsvik, M. Balistieri, A. Stroppa, A. Bergman, L. Bergqvist, O. Eriksson, S. Picozzi, J. Lorenzana
- MFT 4:** MULTIFERROICITY AND MAGNETOELECTRICITY IN A DOPED TOPOLOGICAL FERROELECTRIC
M. Scarrozza, M. B. Maccioni, A. Filippetti, V. Fiorentini
- MFT 5:** SEARCH FOR NEW STRAIN-INDUCED MULTIFERROICS WITH HIGH CRITICAL TEMPERATURES
S. Kamba, V. Goian, P. Vaněk, C. Adamo, C. M. Brook, A. Melville, N. A. Benedek, C. J. Fennie, June Hee Lee, K. M. Rabe, A. A. Belik, D. G. Schlom

Qubit systems

Monday, 15:30, Room K8 / QUB – Chair: H. Bluhm

QUB 1: QUANTUM ELECTRONIC MATERIALS (Invited)

A. Briggs

QUB 2: IDENTIFYING CAPACITIVE AND
INDUCTIVE LOSS IN LUMPED ELEMENT
SUPERCONDUCTING RESONATORS

M. P. Weides, M. R. Vissers, J. S. Kline, M. O. Sandberg,
D. P. Pappas

QUB 3: SPINS STATES IN GRAPHENE QUANTUM
DOTS

C. Stampfer

QUB 4: ON-DEMAND SINGLE ELECTRON TRANSFER
BETWEEN DISTANT QUANTUM DOTS –
ELECTRON “PING-PONG” IN A SINGLE
ELECTRON CIRCUIT

R. P. G. McNeil, M. Kataoka, C. J. B. Ford,
C. H. W. Barnes, D. Anderson, G. A. C. Jones, I. Farrer,
D. A. Ritchie.

QUB 5: ULTRAFAST ENTANGLING GATES BETWEEN
NUCLEAR SPINS USING PHOTO-EXCITED
TRIPLET STATES

V. Filidou, S. Simmons, S. D. Karlen, F. Giustino,
H. L. Anderson, J. J. L. Morton,

QUB 6: NOISE SPECTROSCOPY USING
CORRELATIONS OF SINGLE-SHOT QUBIT
READOUT

T. Fink, H. Bluhm

Superconductivity

Tuesday, 15:30, Room K8 / SUP – Chair: Y. Xiao

- SUP 1:** INVESTIGATING THE IRON BASED SUPERCONDUCTOR ($\text{FeSe}_{0.4}\text{Te}_{0.6}$) WITH SPECTROSCOPIC-IMAGING SCANNING TUNNELING MICROSCOPE (Invited)
S. Schmaus, U. R. Singh, S. White, J. Deisenhofer, V. Tsurkan, A. Loidl, P. Wahl
- SUP 2:** NANOSCALE LAYERING OF ANTIFERROMAGNETIC AND SUPERCONDUCTING PHASES IN $\text{Rb}_2\text{Fe}_4\text{Se}_5$
A. Charnukha, A. Cvitkovic, T. Prokscha, D. Proepper, N. Ocelic, A. Suter, Z. Salman, E. Morenzoni, J. Deisenhofer, V. Tsurkan, A. Loidl, B. Keimer, A. Boris
- SUP 3:** RESONANCE MODE IN RARE-EARTH SYSTEMS WITH VALENCE INSTABILITY
K. Nemkovski, P. Alekseev, J.-M. Mignot
- SUP 4:** MULTI-BAND EFFECTS ON SUPERCONDUCTING INSTABILITIES DRIVEN BY ELECTRON-ELECTRON INTERACTIONS
S. Uebelacker, C. Honerkamp
- SUP 5:** FIELD-INDUCED SUPERCONDUCTIVITY IN A LAYERED TRANSITION METAL DICHALCOGENIDE
J. Ye, Y. Zhang, Y. Iwasa
- SUP 6:** TOWARDS IDEAL HIGH- T_c JOSEPHSON JUNCTIONS
Y. Divin, I. Gundareva, M. Lyatti, U. Poppe
- SUP 7:** TUNED EPITAXY OF OXIDE HETEROSTRUCTURES
M. I. Faley, U. Poppe, C. L. Jia, O. M. Faley, R. E. Dunin-Borkowski

Interplay between strain and electronic structure in metal oxides

Wednesday, 11:00, Room K8 / ISE – Chair: S. Pütter

- ISE 1: STRAIN EFFECTS ON THE ELECTRONIC SUBBAND STRUCTURE OF SrTiO_3 (Invited)
V. Laukhin, O. Copie, M. Rozenberg, K. Bouzehouane, É. Jacquet, M. Bibes, A. Barthélémy, **G. Herranz**
- ISE 2: ELECTRON OCCUPANCY OF 3D-ORBITALS IN MANGANITE THIN FILMS
D. Pesquera, A. Barla, E. Pellegrin, F. Sánchez, F. Bondino, E. Magnano, **J. Fontcuberta**
- ISE 3: SUBSTRATE COHERENCY DRIVEN PHASE SEPERATION AND INTRINSIC ANISOTROPY IN EPITAXIAL $\text{La}_{0.67}\text{Ca}_{0.33}\text{MnO}_3/\text{NdGaO}_3(001)$ EPITAXIAL FILMS
L. Wang, W. Wu
- ISE 4: THICKNESS DEPENDENCE OF LATTICE DISTORTIONS IN EPITAXIAL FRAMEWORK STRUCTURES OF STRONGLY CORRELATED OXIDES: $\text{La}_{2/3}\text{Sr}_{1/3}\text{MnO}_3/\text{SrTiO}_3$
F. Sandiumenge, J. Santiso, L. Balcells, Z. Konstantinovic, J. Roqueta, A. Pomar, B. Martínez
- ISE 5: ORBITAL ENGINEERING BY STRAIN IN THIN FILMS OF $\text{La}_{1-x}\text{Sr}_{1+x}\text{MnO}_4$ GROWN BY PULSED LASER DEPOSITION
M. Vafaee Khanjani, P. Komissinskiy, M. Baghaie Yazdi, R. Krauss, V. Bisogni, J. Geck, L. Alff
- ISE 6: STRUCTURE AND TRANSPORT PROPERTIES OF SmNiO_3 THIN FILMS
F. Y. Bruno, K. Rushchanskii, C. Carretero, Y. Dumont, M. Lezaic, S. Blügel, M. Bibes, A. Barthélémy
- ISE 7: METAL-INSULATOR TRANSITION AND INTERFACE PHENOMENA IN NICKELATE HETEROSTRUCTURES
R. Scherwitzl, M. Gibert, P. Zubko, S. Gariglio, G. Catalan, J. Iniguez, M. Gabay, A. Morpurgo, J.-M. Triscone

Photovoltaics, photocatalysis, and optical effects

Monday, 15:30, Room K3 / PPO – Chair: T. Schneller

- PPO 1: PHOTOVOLTAIC ENERGY CONVERSION
BASED ON STRONGLY CORRELATED OXIDES
(Invited)
C. Jooss, G. Saucke, J. Norpoth, D. Su, Y. Zhu
- PPO 2: TERAHERTZ AND INFRARED BEHAVIOR OF
STRAINED $\text{Sr}_{n+1}\text{Ti}_n\text{O}_{3n+1}$ THIN FILMS WITH
RUDDLESDEN-POPPER STRUCTURE
V. Goian, S. Kamba, N. D. Orloff, C.-H. Lee, V. Bovtun,
M. Kempa, D. Nuzhnyy, D. G. Schlom
- PPO 3: FERROELECTRIC ENHANCED CHARGE
GENERATION IN SOLAR ENERGY
HARVESTING
Y. M. Lam, T. Salim, T. Schneller
- PPO 4: A FACILE PREPARATION AND EXTREMELY
FAST PHOTOCATALYTIC PROPERTIES OF
OXIDE SEMICONDUCTOR/FERROELECTRIC
NANO HETEROSTRUCTURE
H. Fan, P. Ren, X. Wang
- PPO 5: LIGHT CONTROLLED AMORPHOUS- Al_2O_3
MEMRISTIVE DEVICES
M. Ungureanu, R. Zazpe, F. Golmar, Pablo Stoliar,
R. Llopis, F. Casanova, L. E. Hueso

Ferroelectric interfaces

Tuesday, 15:30, Room K3 / FIN – Chair: S. Stemmer

- FIN 1: FERROELECTRIC SWITCHING DYNAMICS AT THE NANOSCALE WITH HIGH SPEED SPM (Invited)
B. D. Huey
- FIN 2: IONIC CHARGE INTERACTIONS WITH FERROELECTRIC SURFACES: POLARIZATION OF ULTRATHIN PbTiO_3 WITH CONTROLLED SURFACE COMPENSATION
S. K. Streiffer, M. J. Highland, T. T. Fister, D. D. Fong, P. H. Fuoss, C. Thompson, J. A. Eastman, G. B. Stephenson
- FIN 3: STRAIN TUNNING OF FERROELECTRIC-ANTIFERRODISTORTIVE COUPLING IN $\text{PbTiO}_3/\text{SrTiO}_3$ SUPERLATTICES
P. García-Fernández, P. Aguado-Puente, J. Junquera
- FIN 4: INTERFACE CONTROL OF BULK FERROELECTRIC POLARIZATION
D. Yi, P. Yu, W. Luo, J. X. Zhang, M. D. Rossell, C.-H. Yang, G. Singh-Bhalla, S. Y. Yang, Q. He, Q. M. Ramasse, R. Erni, L. W. Martin, Y. H. Chu, S. T. Pantelides, S. J. Pennycook, R. Ramesh
- FIN 5: ANALYZING POLARIZATION AND LATTICE STRAINS AT THE INTERFACE OF FERROELECTRIC HETEROSTRUCTURES ON ATOMIC SCALE VIA CS-CORRECTED SCANNING TRANSMISSION ELECTRON MICROSCOPY (STEM)
D. Park, A. Herpers, T. Menke, R. Dittmann, J. Mayer
- FIN 6: CONTROL OF CONDUCTION THROUGH DOMAINS AND DOMAIN WALLS IN BiFeO_3 THIN FILMS
S. Farokhipoor, B. Noheda

Ferroelectrics – new and unusual material systems

Wednesday, 11:00, Room K3 / FER – Chair: U. Böttger

- FER 1: CMOS COMPATIBLE FERROELECTRIC MATERIALS BASED ON HAFNIUM OXIDE (Invited)
T. Mikolajick, U. Schroeder, J. Müller, S. Müller, S. Slesazeck
- FER 2: ATOMIC LAYER DEPOSITED Gd-DOPED HfO_2 THIN FILMS: FROM HIGH-K DIELECTRICS TO FERROELECTRICS
C. Adelman, L.-Å. Ragnarsson, A. Moussa, J. A. Woicik, S. Müller, U. Schroeder, V. V. Afanas'ev, S. V. Elshocht
- FER 3: TEMPERATURE-DEPENDENT ELECTRICAL CHARACTERIZATION OF HAFNIUM OXIDE BASED FERROELECTRIC ULTRA-THIN FILMS
U. Böttger, I. Müller, J. Müller, U. Schröder
- FER 4: CORRELATION BETWEEN COMPOSITION AND ELASTIC PROPERTIES OF $\text{Ca}_x\text{Ba}_{1-x}\text{Nb}_2\text{O}_6$ RELAXOR FERROELECTRICS
C. Shekhar Pandey, J. Schreuer, M. Buranek, M. Mühlberg
- FER 5: LONE PAIR-INDUCED COVALENCY AS THE CAUSE OF TEMPERATURE AND FIELD-INDUCED INSTABILITIES IN BISMUTH SODIUM TITANATE
D. Schütz, M. Deluca, W. Krauss, A. Feteira, K. Reichmann
- FER 6: INTERACTION OF POINT DEFECTS AND FERROELECTRIC POLARIZATION IN A LEAD-FREE PIEZOELECTRIC MATERIAL
S. Körbel, C. Elsässer

Atomic layer deposition

Monday, 15:30, Room K3 / ALD – Chair: S. Hoffmann-Eifert

- ALD 1: ATOMIC LAYER DEPOSITION FOR MICROELECTRONIC DEVICES (Invited)
C. S. Hwang
- ALD 2: ATOMIC LAYER DEPOSITION OF SrTiO_3 FILMS WITH Cp -BASED PRECURSORS FOR DRAM CAPACITORS
W. Lee, J. H. Han, W. Jeon, Y. W. Yoo, C. Ko, J. Gatineau, C. S. Hwang
- ALD 3: DEPOSITION OF INNOVATIVE MATERIALS BY GAS PHASE TECHNOLOGIES FOR THE SEMICONDUCTOR INDUSTRY
B. Gouat, U. Weber, P. K. Baumann, M. Heuken, B. Lu
- ALD 4: ATOMIC LAYER DEPOSITION OF TRANSITION METAL OXIDE THIN FILMS FOR RESISTIVE MEMORY APPLICATIONS
S. Hoffmann-Eifert, M. Reiners, N. Aslam, I. Kärkkänen, J. H. Kim, R. Waser
- ALD 5: ALD PROCESS CONTROL FOR TAILORING THE NANOSTRUCTURE OF TiO_2 FILMS FOR RESISTIVE SWITCHING APPLICATIONS
M. Reiners, N. Aslam, S. Hoffmann-Eifert, R. Waser
- ALD 6: INVESTIGATION OF ATOMIC LAYER DEPOSITION PROPERTIES OF $(\text{GeTe}_2)_{1-x}(\text{Sb}_2\text{Te}_3)_x$ PSEUDO-BINARY COMPOUND FOR PHASE CHANGE MEMORY APPLICATION
T. Eom, **T. Gwon**, S. J. Yoo, M.-S. Kim, M. Xiao, I. Buchanan, C. S. Hwang

Nanotechnological fabrication strategies

Tuesday, 15:30, Room K3 / NAN – Chair: L. Juschkin

NAN 1: DIRECT PATTERNING OF OXIDE INTERFACE WITH HIGH MOBILITY 2DEG WITHOUT PHYSICAL ETCHING (Invited)

N. Banerjee, M. Huijben, G. Koster, G. Rijnders

NAN 2: EUV INTERFERENCE LITHOGRAPHY WITH LABORATORY SOURCES

S. Danylyuk, **L. Juschkin**, S. Brose, Hyun-Su Kim, J. Moers, P. Loosen, D. Grützmacher

NAN 3: HIGH EFFICIENCY TRANSMISSION MASKS FOR EUV INTERFERENCE LITHOGRAPHY

S. Brose, S. Danylyuk, L. Juschkin, K. Bergmann, J. Moers, G. Panaitov, S. Trellenkamp, P. Loosen, D. Grützmacher

NAN 4: SELF-PATTERNED $\text{ABO}_3(001)$ SUBSTRATES: A PLAYGROUND FOR FUNCTIONAL NANOSTRUCTURES

R. Bachelet, F. Sánchez, C. Ocal, J. Fontcuberta

NAN 5: ANOMALOUS GAS SENSING CHARACTERISTICS OF EMBEDDED AND ISOLATED MAGNESIUM ZINC FERRITE NANO-TUBES

S. B. Majumder, K. Mukherjee, A. Maity, S. Basu, C. Lang, M. Topic

NAN 6: ORDERED MESOPOROUS METAL OXIDES BY STRUCTURE REPLICATION: STRUCTURE-PROPERTY-RELATIONSHIPS AND APPLICATION IN GAS SENSING

T. Wagner, M. Tiemann

NAN 7: WIDTH CONTROL AND OPTICAL NONLINEARITY OF PLATINUM NANOWIRES

Y. Ogata, G. Mizutani

Low-dimensional transport and ballistic effects

Monday, 15:30, Room K4 / LTB – Chair: D. Grützmacher

- LTB 1: NON-LINEAR PROPERTIES OF BALLISTIC ELECTRON FOCUSING DEVICES (Invited)
A. Ganczarczyk, M. Geller, A. Lorke, D. Reuter, A. D. Wieck
- LTB 2: HALL EFFECT IN AN ASYMMETRIC BALLISTIC CROSS JUNCTION
M. Szelong, U. Wieser, M. Knop, U. Kunze, D. Reuter, A. D. Wieck
- LTB 3: ELIMINATION OF HOT-ELECTRON THERMOPOWER FROM BALLISTIC RECTIFICATION USING A DUAL-CROSS DEVICE
J. F. von Pock, D. Salloch, U. Wieser, U. Kunze, T. Hackbarth
- LTB 4: STRUCTURAL INFLUENCES ON ELECTRONIC TRANSPORT IN NANOSTRUCTURES
R. Frielinghaus, K. Sladek, K. Flöhr, L. Houben, S. Trellenkamp, T. E. Weirich, M. Morgenstern, H. Hardtdegen, T. Schäpers, C. M. Schneider, C. Meyer
- LTB 5: TUNNEL-INDUCED SPIN-ANISOTROPY IN QUANTUM DOT SPIN VALVES
M. Misiorny, M. Hell, M. Wegewijs
- LTB 6: CHARGING EFFECTS AND ELECTRON TRANSPORT PHENOMENA ASSOCIATED WITH THE REDOX PROPERTIES OF SELF-ASSEMBLED POLYOXOMETALATE MOLECULES
A. Balliou, A. Douvas, D. Velessiotis, V. Ioannou-Sougleridis, P. Normand, P. Argitis, N. Glezos

Molecular and polymer electronics

Tuesday, 15:30, Room K4 / MOL – Chair: S. Karthäuser

MOL 1: MOLECULAR ELECTRONICS MEETS SPINTRONICS: AN *AB INITIO* EXPLORATION (Invited)

N. Atodiresei, V. Caciuc, P. Lazic, S. Blügel

MOL 2: CHARGE TRAPPING AND ELECTROFORMING IN METAL OXIDE /POLYMER RESISTIVE SWITCHING MEMORY DIODES

S. C. J. Meskers, B. F. Bory, H. L. Gomes, R. A. J. Janssen, D. M. de Leeuw

MOL 3: ELECTROFORMING IN LIF/POLYMER RESISTIVE SWITCHING MEMORY DIODES AND HOLE INJECTION

B. F. Bory, S. C. J. Meskers, H. L. Gomes, R. A. J. Janssen, D. M. de Leeuw

MOL 4: EFFECT OF HETEROMETALLIC CONTACTS ON CHARGE TRANSPORT

N. Babajani, C. Kaulen, M. Homberger, U. Simon, R. Waser, S. Karthäuser

MOL 5: SEMI-EMPIRICAL VS. AB-INITIO CORRELATION EFFECTS: DFT STUDY OF THIOPHENE ADSORBED ON THE Cu(111) SURFACE

M. Callsen, N. Atodiresei, V. Caciuc, S. Blügel

MOL 6: INTERFACE DIPOLE FORMATION IN DITHIOCARBAMATE BASED SURFACE FUNCTIONALIZATIONS

P. Schulz, T. Schäfer, C. Zangmeister, D. Meyer, C. Effertz, R. Mazzarello, R. Van Zee, M. Wuttig

Carbon-based molecular systems

Wednesday, 11:00, Room K4 / CMS – Chair: C. Stampfer

CMS 1: HYBRIDIZATION OF PARALLEL CARBON NANOTUBE QUANTUM DOTS (Invited)

C. Meyer, K. Goß, N. Peica, S. Smerat, M. Leijnse, M. R. Wegewijs, C. Thomsen, J. Maultzsch, C. M. Schneider

CMS 2: LOW-TEMPERATURE SCANNING PROBE MICROSCOPY EXPERIMENTS ON ATOMICALLY WELL-DEFINED GRAPHENE NANORIBBONS

P. Liljeroth, J. v. d. Lit, M. P. Boneschanscher, M. Ijäs, A. Uppstu, A. Harju, D. Vanmaekelbergh

CMS 3: CORRELATIONS BETWEEN SWITCHING OF CONDUCTIVITY AND OPTICAL RADIATION OBSERVED IN THIN CARBON FILMS

S. G. Lebedev

CMS 4: FIRST-PRINCIPLES AND SEMI-EMPIRICAL VAN DER WAALS STUDY OF π -CONJUGATED MOLECULES PHYSISORBED ON GRAPHENE AND A BORON NITRIDE LAYER

C. Vasile, N. Atodiresei, M. Callsen, P. Lazic, S. Blügel

CMS 5: FINITE-TEMPERATURE EXACT DIAGONALIZATION STUDY OF THE HUBBARD MOLECULES IN HETEROSTRUCTURES

H. Ishida, **A. Liebsch**

CMS 6: DFT+CI CALCULATIONS OF QUANTUM DOTS IN GRAPHENE NANORIBBONS

T. Burnus, G. Bihlmayer, D. Wortmann, E. Şaşıoğlu, Y. Mokrousov, S. Blügel, K. M. Indlekofer

Poster Sessions

Electronic structure, lattice dynamics, and transport

Monday, 17:00–18:30, Room K1/K2

- ELT 1: FUNDAMENTAL PROPERTIES OF THE SUPERCONDUCTING STATE AT THE $\text{LaAlO}_3/\text{SrTiO}_3$ INTERFACE
C. Richter, **H. Boschker**, W. Dietsche, J. Mannhart
- ELT 2: TORQUE MAGNETOMETRY ON $\text{LaAlO}_3\text{-SrTiO}_3$ HETEROSTRUCTURES
M. Brasse, R. Jany, Ch. Heyn, J. Mannhart, M. A. Wilde, D. Grundler
- ELT 3: BUILDING UP A STRATEGY TO CONTROL LATTICE THERMAL CONDUCTIVITY IN LAYERED COBALT OXIDES
M. Tada, Y. Miyauchi, M. Yoshiya, H. Yasuda
- ELT 4: THE EFFECT OF AMMONOLYSIS ON THE STRUCTURE AND THERMOELECTRIC PROPERTIES OF EuTiO_3 AND $\text{EuTi}_{0.98}\text{Nb}_{0.02}\text{O}_3$
L. Sagarna, A. Maegli, S. Yoon, S. Populoh, A. Shkabko, A. Weidenkaff
- ELT 5: ELECTRICAL TRANSPORT INVESTIGATIONS ON NANOPARTICLE TEST STRUCTURES
S. Karthäuser, M. Manheller, R. Waser, K. Blech, U. Simon
- ELT 6: FIRST-PRINCIPLES CALCULATION OF MAGNETISM OF SUBSTITUTIONAL TRANSITION IMPURITIES IN BINARY IRON-SELENIUM SYSTEM
T. Pengpan, A. Boonthummo
- ELT 7: FIRST-PRINCIPLES CALCULATIONS OF PHONON-PHONON INTERACTION IN ROCK-SALT TYPE CRYSTALS
A. Togo, L. Chaput, I. Tanaka
- ELT 8: MICROSTRUCTURAL CHARACTERIZATION OF VARISTOR CERAMICS AFTER ACCELERATED AGEING WITH DC VOLTAGE.
M. A Ramírez, A. Z. Simões, E. Longo, J. A Varela

ELT 9: FIRST-PRINCIPLES ELECTRONIC STRUCTURE OF β -FeSi₂ AND FeS₂ SURFACES

P. Xu, T. Schena, G. Bihlmayer, S. Blügel

ELT 10: ACCURATE BAND GAPS OF TRANSPARENT CONDUCTING OXIDES WITH A SEMILOCAL EXCHANGE-CORRELATION POTENTIAL

A. Thattribud, T. Tungsurat, T. Pengpan

ELT 11: OCTAHEDRAL-TILTING-DEPENDENT STRUCTURE DISTORTION IN EPITAXIAL PEROVSKITE OXIDE FILMS

X. L. Tan, P. F. Chen, L. F. Wang, B. W. Zhi, W. B. Wu

ELT 12: THE $\gamma \rightarrow \alpha$ CHANGE IN CERIUM IS HIDDEN STRUCTURAL PHASE TRANSITION: THEORY AND EXPERIMENT

A. V. Nikolaev, K. H. Michel, A. V. Tsvyashchenko, A. I. Velichkov, A. V. Salamatina, L. N. Fomicheva, G. K. Ryasny, A. A. Sorokin, O. I. Kochetov, M. Budzynski

ELT 13: HETEROSTRUCTURES BASED ON EPITAXIAL OXIDE THIN FILMS

P. Prieto, M. E. Gómez

ELT 14: INCOHERENT INTERFACES AND LOCAL LATTICE STRAINS IN SOLUTION-DERIVED YBCO NANOCOMPOSITES: A NOVEL VORTEX PINNING MECHANISM

T. Puig, X. Obradors, A. Palau, A. Llordés, M. Coll, R. Vlad, J. Gazquez, J. Arbiol, R. Guzmán, A. Pomar, F. Sandiumenge, S. Ricart, V. Rouco, S. Ye, G. Deutscher, D. Chataigner, M. Varela, C. Magen, J. Vanacken, J. Gutierrez, V. V. Moshchalkov

Tuesday, 17:00–18:00, and Wednesday, Room K1/K2

ELT 15: DENSITY INFLUENCE ON AMORPHOUS HfO₂ STRUCTURE: A MOLECULAR DYNAMICS STUDY

G. Broglia, M. Montorsi, L. Larcher, A. Padovani.

ELT 16: ELECTRIC FIELD TUNING OF THE QUASIPARTICLE WEIGHT IN THIN FILMS MADE OF STRONGLY CORRELATED MATERIALS

D. Nasr Esfahani, L. Covaci and F. M. Peeters

ELT 17: METALLIC STATE INDUCED BY SPIN-CANTING IN LIGHTLY ELECTRON-DOPED CaMnO_3

H. Ohnishi, T. Kosugi, T. Miyake, S. Ishibashi, K. Terakura

ELT 19: MECHANICS MEETS ELECTRONICS IN NANOSCALE: THE MYSTERY OF CURRENT SPIKE AND NANOSCALE-CONFINEMENT

R. Nowak, D. Chrobak, W. W. Gerberich, K. Niihara, T. Wyrobek

ELT 20: EFFECT OF THE CAPPING ON THE MANGANESE OXIDATION STATE IN $\text{SrTiO}_3/\text{La}_{2/3}\text{Ca}_{1/3}\text{MnO}_3$ INTERFACES AS A FUNCTION OF ORIENTATION

S. Estradé, J. M. Rebled, M. G. Walls, F. de la Peña, C. Colliex, R. Córdoba, I. C. Infante, G. Herranz, F. Sánchez, J. Fontcuberta, F. Peiró.

ELT 21: ON THE ELECTRICAL BEHAVIOR OF PLANAR TUNGSTEN POLYOXOMETALATE SELF-ASSEMBLED MONO- AND BI-LAYER JUNCTIONS

D. Velessiotis, A. M. Douvas, P. Dimitrakis, P. Argitis, **N. Glezos**

ELT 23: BREATHING-LIKE MODES IN AN INDIVIDUAL MULTIWALLED CARBON NANOTUBE

C. Meyer, C. Spudat, M. Müller, L. Houben, J. Maultzsch, K. Goss, C. Thomsen, C. M. Schneider

ELT 24: EFFECT OF DIFFERENT ACID TREATMENT OF CARBON NANOTUBES (CNT) ON CNT/ TiO_2 NANOCOMPOSITES VIA SOL-GEL METHOD

M. R. Golobostanfard, H. Abdizadeh

ELT 25: INTERPLAY OF ELECTRONIC CORRELATIONS AND SPIN-ORBIT INTERACTIONS AT THE ENDS OF CARBON NANOTUBES

M. J. Schmidt

- ELT 26: GRAPHENE CHARGE DETECTOR ON A CARBON NANOTUBE QUANTUM DOT
S. Engels, **A. Epping**, C. Meyer, S. Trellenkamp, U. Wichmann, C. Stampfer
- ELT 27: RESISTIVE SWITCHING ON METAL-OXIDE POLYMER MEMORIES
P. R. F. Rocha, Q. Chen, A. Kiazadeh, H. L. Gomes, S. Meskers, D. de Leeuw
- ELT 28: THIOLATED (OLIGO)PHENOTHIAZINES AS PROMISING CANDIDATES FOR FUTURE STORAGE ELEMENTS
M. Paßens, A. Busiakiewicz, A. W. Franz, C. S. Barkschat, D. Urselmann, T. J. J. Müller, S. Karthäuser
- ELT 29: SPM-INVESTIGATIONS OF THE SPIROPYRAN – MEROCYANIN PHOTOISOMERIZATION
A. Soltow, S. Karthäuser, R. Waser
- ELT 30: MEMRISTIVE PHENOMENA OF CONDUCTION POLYMER PEDOT:PSS
F. Zeng, J. Yang, Z. Wang, Y. Lin, S. Li
- ELT 31: A NEW MINIMUM SEARCH METHOD FOR COMPLEX OPTIMIZATION PROBLEMS
J. A. Hirschfeld, H. Lustfeld
- ELT 32: EXTRAORDINARY HIGH CONDUCTIVITY IN SrTiO₃-BASED OXIDE HETEROSTRUCTURES DUE TO INTERFACIAL REDOX REACTIONS
Y. Z. Chen, D. V. Christensen, F. Trier, N. Pryds, S. Linderoth
- ELT 33: HALF HEUSLER COMPOUNDS AS P-TYPE MATERIAL FOR THERMOELECTRIC APPLICATIONS
J. Schmitt, B. Balke, C. Felser

Memristive systems

Monday, 17:00–18:30, Room K1/K2

MEM 1: RESISTIVE SWITCHING CHARACTERISTICS IN HfO_2 THIN FILMS DEPENDING ON THEIR CRYSTALLINE STRUCTURE

J. H. Yoon, H.-S. Jung, M. H. Lee, G. H. Kim, S. J. Song, J. Y. Seok, K. J. Yoon, C. S. Hwang

MEM 2: DEPOSITION OF CHALCOGENIDE THIN LAYERS BY MAGNETRON SPUTTERING FOR RRAM APPLICATIONS

M.-P. Besland, J. Tranchant, E. Souchier, P. Moreau, S. Salmon, B. Corraze, E. Janod, L. Cario

MEM 3: DETERMINISTIC RESISTIVE SWITCHING CONTROL IN HfO_2 BASED MEMORY DEVICES

R. Zazpe, M. Ungureanu, R. Llopis, F. Golmar, P. Stoliar, F. Casanova, L. E. Hueso

MEM 4: INVESTIGATION OF TRANSIENT CURRENTS DURING ULTRA-FAST DATA OPERATION OF TiO_2 BASED RRAM

C. Hermes, M. Wimmer, S. Menzel, K. Fleck, **V. Rana**, M. Salinga, U. Böttger, R. Bruchhaus, M. Wuttig, R. Waser

MEM 5: FAST PULSE FORMING PROCESS FOR TiO_2 BASED RRAM NANO-CROSSBAR DEVICES

F. Lentz, C. Hermes, B. Rösger, T. Selle, R. Bruchhaus, V. Rana, R. Waser

MEM 6: CURRENT TRANSPORT MODELING IN OXIDE-BASED RESISTIVELY SWITCHING MEMORY CELLS FOR THE INVESTIGATION OF ELECTROFORMATION

A. Marchewka, S. Menzel, U. Böttger, R. Waser

MEM 7: MODELING OF SWITCHING DYNAMICS FOR TiO_{2-x} MEMRISTIVE DEVICES

B. Hoskins, F. Alibart, D. Strukov

MEM 8: MULTISTATE MEMORY DEVICES BASED ON FREE-STANDING VO_2/TiO_2 MICROSTRUCTURES DRIVEN BY JOULE SELF-HEATING

L. Pellegrino, N. Manca, T. Kanki, Hidekazu Tanaka, M. Biasotti, E. Bellingeri, A. S. Siri, D. Marré

- MEM 9: TANTALUM OXIDE BASED MEMRISTIVE DEVICES AB INITIO ELECTRONIC STRUCTURE CALCULATIONS FOR STABILITY, DEFECTS AND DIFFUSION BARRIERS
A. C. M. Padilha, G. M. Dalpian, A. Reily Rocha
- MEM 10: CONCURRENT RESISTIVE AND CAPACITIVE STATE SWITCHING OF NANOSCALE TiO_2 MEMRISTORS
T. Prodromakis, I. Salaoru, A. Khiat, C. Toumazou
- MEM 11: THE MEMORY-CONSERVATION MODEL OF MEMRISTANCE
E. M. Gale
- MEM 12: ANALOG AND DIGITAL COMPUTING WITH MEMRISTIVE DEVICES
A. Madhavan, G. Adam, F. Alibart, L. Gao, D. B. Strukov
- MEM 13: EFFECT OF VACANCIES ON THE PHASE CHANGE CHARACTERISTICS OF GeSbTe ALLOYS
D. Wamwangi, W. Welnic, M. Wuttig
- MEM 14: ULTRA LOW POWER CONSUMING, THERMALLY STABLE SULPHIDE MATERIALS FOR RESISTIVE AND PHASE CHANGE MEMRISTIVE APPLICATION
B. Gholipour, C.-C. Huang, A. Anastasopoulos, Feras Al-Saab, B. E. Hayden, D. W. Hewak
- MEM 15: THERMAL CONDUCTIVITY MEASUREMENTS OF Sb-Te ALLOYS BY HOT STRIP METHOD
R. Lan, R. Endo, M. Kuwahara, Y. Kobayashi, M. Sosa
- MEM 16: juRS – MASSIVELY PARALLEL REAL-SPACE DFT
P. Baumeister, D. Wortmann, S. Blügel
- MEM 17: FIRST-PRINCIPLES STUDY OF PHASE-CHANGE MATERIALS DOPED WITH MAGNETIC IMPURITIES
R. Mazzarello, Y. Li, W. Zhang, I. Ronneberger
- MEM 18: NUCLEAR RESONANCE SCATTERING IN PHASE-CHANGE MATERIALS
R. Simon, J. Gallus, D. Bessas, I. Sergueev,

MEM 19: DEFECT STATES IN AMORPHOUS PHASE-CHANGE MATERIALS

J. Luckas, P. Rausch, D. Krebs, P. Zalden, J. Boltz, J.-Y. Raty, M. Salinga, C. Longeaud, M. Wuttig

Tuesday, 17:00–18:00, and Wednesday, Room K1/K2

MEM 20: ELECTRIC FIELD INDUCED LOCAL SURFACE POTENTIAL MODIFICATION AND TRANSPORT BEHAVIORS OF TiO₂ SINGLE CRYSTALS

H. Kim, D.-W. Kim, S.-H. Phark, S. Hong

MEM 21: RESISTIVE SWITCHING IN DIFFERENT FORMING STATES OF Ti/Pr_{0.48}Ca_{0.52}MnO₃ JUNCTIONS

C. Park, A. Herpers, R. Bruchhaus, J. Verbeeck, R. Egoavil, F. Borgatti, G. Panaccione, F. Offi, R. Dittmann

MEM 22: FIRST PRINCIPLES SIMULATIONS OF OXYGEN DIFFUSION IN RRAM MATERIALS

Sergiu Clima, Kiroubanand Sankaran, M. Mees, Yang Yin Chen, L. Goux, B. Govoreanu, D. J. Wouters, J. Kittl, M. Jurczak, G. Pourtois

MEM 23: OBSERVATION OF A CONDUCTIVE REGION IN THE TiN/HfO₂ SYSTEM AFTER RESISTANCE SWITCHING

P. Calka, E. Martinez, V. Delaye, D. Lafond, G. Audoit, D. Mariolle, N. Chevalier, H. Grampeix, C. Cagli, V. Jousseau, C. Guedj

MEM 24: TRANSIENT CHARACTERISTICS DURING SET OPERATION OF A Ta₂O₅ SOLID ELECTROLYTE MEMRISTIVE SWITCH

P. Shrestha, A. Ochia, Kin. P. Cheung, J. Campbell, H. Baumgart, G. Harris

MEM 25: REMANENT RESISTANCE CHANGES IN METAL- MANGANITE-METAL SANDWICH STRUCTURES

M. Scherff, B. Meyer, J. Scholz, J. Hoffmann, C. Jooss

MEM 26: THEORETICAL STUDY ON THE CONDUCTIVE PATH IN TANTALUM OXIDE ATOMIC SWITCH

B. Xiao, T. Tada, T. Gu, A. Tawara, S. Watanabe

MEM 27: CHARACTERISTIC OF LOW TEMPERATURE
FABRICATED NONVOLATILE MEMORY
DEVICES OF ZN AND SN NANO THIN FILM
EMBEDDED MIS

T.-F. Young, Y.-L. Yang, T.-C. Chang, K.-T. Hsu,
C.-Y. Chen.

MEM 28: ELECTROCHEMICAL STUDIES ON Al_2O_3
THIN FILMS FOR RESISTIVE MEMORY
APPLICATIONS

A. Burkert, I. Valov, G. Staikov, R. Waser

MEM 29: RESISTIVE SWITCHING PHENOMENA IN
Ag-GeSx MEMORY CELLS

J. v. d. Hurk, I. Valov, R. Waser

MEM 30: STATES AND PROCESSES IN NANO-SCALED
CATION BASED RRAM CELLS

I. Valov, S. Tappertzhofen, J. v. d. Hurk, R. Waser

MEM 31: FIGHTING VARIATIONS IN $\text{PT}/\text{TIO}_2\text{-x}/\text{PT}$ AND
AG/A-SI/PT MEMRISTIVE DEVICES

G. Adam, F. Alibart, L. Gao, B. Hoskins, D. B. Strukov

MEM 32: A STUDY UPON THE SWITCHING
CHARACTERISTICS AT RUPTURED
CONDUCTING FILAMENTS REGION IN A $\text{Pt}/$
 TiO_2/Pt MEMRISTIVE DEVICE

K. J. Yoon, S. J. Song, G. H. Kim, J. Y. Seok, J. H. Yoon,
C. S. Hwang

MEM 33: STUDY ON RESISTIVE SWITCHING OF
BINARY OXIDE THIN FILMS USING
SEMICONDUCTING $\text{In}_2\text{Ga}_2\text{ZnO}_7$ ELECTRODE

J. Y. Seok, G. H. Kim, S. J. Song, J. H. Yoon, K. J. Yoon,
C. S. Hwang

MEM 34: BIPOLAR RESISTIVE SWITCHING BEHAVIORS
OF PLASMA-ENHANCED ATOMIC LAYER
DEPOSITED NiO FILMS ON TUNGSTEN
SUBSTRATE

S. J. Song, G. H. Kim, J. Y. Seok, K. J. Yoon, J. H. Yoon,
C. S. Hwang

MEM 35: NONVOLATILE RESISTIVE SWITCHING IN $\text{Au}/$
 BiFeO_3 RECTIFYING JUNCTION

Yao Shuai, C. Wu, W. Zhang, S. Zhou, D. Bürger,
S. Slesazek, T. Mikolajick, M. Helm, H. Schmidt

MEM 36: DIFFERENT BEHAVIOUR SEEN IN FLEXIBLE TITANIUM DIOXIDE SOL-GEL MEMRISTORS DEPENDENT ON THE CHOICE OF ELECTRODE MATERIAL

E. Gale, D. Pearson, S. Kitson, A. Adamatzky, B. d. Lacy Costello

MEM 38: SYNAPTIC PLASTICITY OF ELECTROCHEMICAL CAPACITORS BASED ON TiO_2

H. Lim, H.-W. Jang, C. S. Hwang, D. S. Jeong

MEM 39: SIMULATION OF ASYMMETRIC RESISTIVE SWITCHING IN ELECTROCHEMICAL METALLIZATION MEMORY CELLS

S. Menzel, U. Böttger, R. Waser

MEM 40: A V_2O_5 -BASED RESISTANCE RANDOM ACCESS MEMORY AND IMPROVEMENT OF SWITCHING CHARACTERISTICS BY EMBEDDING A THIN VO_2 INTERFACE LAYER

X. Cao, M. Jiang, F. Zhang, X. Liu, P. Jin

MEM 41: METAL-INSULATOR TRANSITION OF ALD VO_2 THIN FILMS FOR PHASE TRANSITION SWITCHING

K. Zhang, M. Tangirala, **P. Shrestha**, H. Baumgart, Salinporn Kittiwatanakul, J. Lu, S. Wolf, Venkateswara Pallem, C. Dussarrat

MEM 42: SWITCHING AND LEARNING IN Ni-DOPED GRAPHENE OXIDE THIN FILMS

S. Pinto, R. Krishna, C. Dias, G. Pimentel, G. N. P. Oliveira, J. M. Teixeira, P. Aguiar, E. Titus, J. Gracio, **J. Ventura**, J. P. Araujo

MEM 43: DISORDER-RELATED TRANSPORT PHENOMENA IN CRYSTALLINE PHASE-CHANGE MATERIALS

H. Volker, P. Jost, W. Zhang, N. Breznay, T. Siegrist, A. Kapitulnik, R. Mazzarello, M. Wuttig

Spin-related phenomena

Monday, 17:00–18:30, Upper Foyer

- SRP 1: CHARGE CARRIER-MEDIATED FERROMAGNETISM IN $\text{FeSb}_{2-x}\text{Sn}_x\text{Se}_4$
H. Djieutedjeu, K. G. S. Ranmohotti, N. J. Takas, J. P. A. Makongo, X. Zhou, C. Uher, N. Haldolaarachchige, D. P. Young, P. F. P. Poudeu
- SRP 2: CHARACTERIZATION OF THE ATOMIC INTERFACE IN HIGH-QUALITY $\text{Fe}_3\text{O}_4/\text{ZnO}$ HETEROSTRUCTURES
O. Kirilmaz, M. Paul, A. Müller, D. Kufer, M. Sing, R. Claessen, S. Brück, C. Praetorius, K. Fauth, M. Kamp, P. Audehm, E. Goering, J. Verbeeck, H. Tian, G. Van Tendeloo, N. J. C. Ingle, M. Przybylski, M. Gorgoi
- SRP 3: ULTRATHIN Fe OXIDES FILMS: STRUCTURAL, ELECTRONIC AND MAGNETIC PROPERTIES UNDER REDUCED DIMENSIONS
 I. Bernal, **S. Gallego**
- SRP 4: STRUCTURAL DEPENDENCE OF MAGNETIC PROPERTIES IN TWO DIMENSIONAL NICKEL NANOSTRIPS: MAGNETIC ANOMALY AND MAGNETIC TRANSITION IN NANOSTRIPS
 V. Kashid, **V. Shah**, H. G. Salunke, Y. Mokrousov, S. Blügel
- SRP 5: SPIN BLOCKADE AND MAGNETIC EXCHANGE IN THE LAYERED COBALTATES $\text{La}_{1.5}\text{A}_{0.5}\text{CoO}_4$ (A = Ca, Sr, or Ba)
D. Fuchs, M. Merz, L. Dieterle, S. Uebe, P. Nagel, S. Schuppler, D. Gerthsen, H. von Löhneysen
- SRP 6: EXPERIMENTAL VERIFICATION OF CHIRAL MAGNETIC ORDERS: CHIRAL MAGNETIC SOLITON LATTICE IN CHIRAL HELIMAGNET
Y. Togawa, T. Koyama, S. Mori, Y. Kousaka,
- SRP 7: FREQUENCY DEPENDENT MAGNETOTRANSPORT IN $\text{Sm}_{0.6}\text{Sr}_{0.4}\text{MnO}_3$: USUNAL POSITIVE AND NEGATIVE MAGNETORESISTANCE
R. Mahendiran

SRP 8: FIELD INDUCED SPIN-REORIENTATION AND STRONG SPIN-CHARGE-LATTICE COUPLING IN EuFe_2As_2

Y. Xiao, Y. Su, S. Nandi, S. Price, T. Brückel

SRP 9: ANISOTROPY OF SPIN RELAXATION IN hcp OSMIUM AND bcc TUNGSTEN

B. Zimmermann, P. Mavropoulos, S. Heers, N. H. Long, S. Blügel, Y. Mokrousov

SRP 10: SPIN-WAVE DYNAMICS IN TETRAGONAL FeCo ALLOYS

E. Sasioglu, C. Friedrich, S. Blügel

SRP 11: ROLE OF INTERFACES IN MANGANITE PHYSICS

V. Moshnyaga

SRP 12: ISOTHERMAL ELECTRIC CONTROL OF EXCHANGE BIAS NEAR ROOM TEMPERATURE

C. Binek Xi He, Y. Wang, N. Wu, A. L. Wysocki, T. Komesu, Uday Lanke, A. N. Caruso, E. Vescovo, K. D. Belashchenko, P. A. Dowben

SRP 13: STRAIN ENGINEERING OF MULTIFERROIC PHASE TRANSITIONS AND ORDER PARAMETERS IN BiFeO_3

D. Sando, A. Agbelele, C. Daumont, J. Juraszek, M. Cazayous, I. Infante, Wei Ren, S. Lisenkov, C. Carretero, L. Bellaiche, B. Dkhil, A. Barthélémy, **M. Bibes**

SRP 14: OBSERVATION AND EFFECT OF MAGNETIC DOMAINS IN LATERAL SPIN VALVES

X. Zhou, J. Mennig, F. Matthes, D. E. Bürgler, C. M. Schneider

Tuesday, 17:00–18:00, and Wednesday, Upper Foyer

SRP 15: THICKNESS EVOLUTION OF THE STRAIN IN PCMO THIN FILMS

A. Herpers, C. Park, R. Egoavil, J. Verbeeck, R. Dittmann

- SRP 16: EFFECT OF MIXED ORTHORHOMBIC/ HEXAGONAL STRUCTURE ON MAGNETIC ORDERING IN STRONTIUM DOPED YTTERBIUM MANGANITES
A. I. Kurbakov, **I. A. Abdel-Latif**, V. A. Trunov, H. U. Habermeier, A. Al-Hajry, A. L. Malyshev, V. A. Ulyanov
- SRP 17: QUANTUM TRANSPORT THROUGH TOPOLOGICAL SPIN TEXTURE IN CHIRAL HELIMAGNET
J. Kishine, A. S. Ovchinnikov, I. V. Proskurin
- SRP 18: COMPARATIVE INVESTIGATION OF Sb_2Te_3 NANOSTRUCTURE PROPERTIES WITH RESPECT TO THEIR PRODUCTION METHOD
T. Saltzmann, S. Rieß, J. Kampmeier, G. Mussler, T. Stoica, B. Kardynal, U. Simon, H. Hardtdegen
- SRP 20: PROBING TWO TOPOLOGICAL SURFACE BANDS OF ANTIMONY-TELLURIDE BY SPIN-POLARIZED PHOTOEMISSION SPECTROSCOPY
C. Pauly, G. Bihlmayer, M. Liebmann, M. Grob, A. Georgi, D. Subramaniam, M. Scholz, J. Sánchez-Barriga, A. Varykhalov, S. Blügel, O. Rader, **M. Morgenstern**
- SRP 21: QUASIPARTICLE CORRECTIONS AND SURFACE STATES OF TOPOLOGICAL INSULATORS Bi_2Se_3 , Bi_2Te_3 AND Sb_2Te_3 .
I. Aguilera, C. Friedrich, G. Bihlmayer, S. Blügel
- SRP 22: ELECTRIC FIELD INDUCED SWITCHING OF MAGNETIZATION IN $\text{CoPt}_3/\text{BaTiO}_3$ HETEROSTRUCTURES
K. Z. Rushchanskii, F. Garcia-Sanchez, R. Hertel, S. Blügel, M. Ležaić
- SRP 23: EVIDENCE OF PARAELECTROMAGNON-LIKE EXCITATIONS IN THz SPECTRA OF HEXAGONAL YMnO_3 SINGLE CRYSTAL
V. Goian, S. Kamba, C. Kadlec, P. Kužel, K. Z. Rushchanskii, M. Ležaić, R. V. Pisarev
- SRP 24: ELECTRICAL BEHAVIOR OF $\text{Bi}_{0.95}\text{Nd}_{0.05}\text{FeO}_3$ THIN FILMS GROWN BY THE SOFT CHEMICAL METHOD.
C. R. Foschini, F. Moura, M. A. Ramirez, J. A. Varela, E. Longo, **A. Z. Simões**

- SRP 25: THEORETICAL INVESTIGATION OF THE MAGNETOELECTRIC PROPERTIES OF MnPS_3
D. Iușan, K. Yamauchi, K. Delaney, S. Picozzi
- SRP 26: HIGH TEMPERATURE MULTIFERROIC COMPOUNDS: FROM BiFeO_3 TO $\text{Bi}_2\text{FeCrO}_6$
J. Yu, L. Zhang, X. Hou
- SRP 27: HAADF STEM TOMOGRAPHY OF FERRIMAGNETIC $\text{Fe}_x\text{Co}_{(3-x)}\text{O}_4$ NANOSTRUCTURES EMBEDDED IN HIGHLY ORDERED ANTIFERROMAGNETIC Co_3O_4 MESOPOROUS TEMPLATES.
Lluís Yedra, S. Estradé, Ev. Pellicer, M. Cabo, A. López-Ortega, M. Estrader, J. Nogués, D. Baró, Z. Saghi, P. A. Midgley, F. Peiró
- SRP 28: NON-COLLINEAR MAGNETISM IN 3d-5d ZIGZAG CHAINS: TIGHT BINDING MODEL AND AB-INITIO CALCULATIONS
V. Kashid, T. Schena, B. Zimmermann, V. Shah, H. G. Salunke, Y. Mokrousov, S. Blügel
- SRP 29: HETEROEPITAXIAL GROWTH OF THE MULTIPHASE MULTIFERROIC BiFeO_3
C. Mix, G. Jakob

Polar dielectrics, optics, and ionics

Monday, 17:00–18:30, Room K3

- POL 1:** DIRECT OBSERVATION OF TRANSIENT NEGATIVE CAPACITANCE IN DOMAIN WALL OF FERROELECTRIC THIN FILMS
Y. J. Kim, M. H. Park, H. J. Kim, D. S. Jeong, A. Jiang, C. S. Hwang
- POL 2:** STRONTIUM TITANATE ULTRA-THIN FILM CAPACITORS ON SILICON SUBSTRATES FOR APPLICATION IN DYNAMIC RANDOM ACCESS MEMORY (DRAM)
S. Schmelzer, U. Böttger, R. Waser
- POL 3:** ENHANCEMENT OF FERROELECTRIC POLARIZATION BY INTERFACE ENGINEERING
X. Liu, H. Lu, **J. D. Burton**, Y. Wang, C. W. Bark, Y. Zhang, D. J. Kim, A. Stamm, P. Lukashev, D. A. Felker, C. M. Folkman, P. Gao, M. S. Rzechowski, X. Q. Pan, C. B. Eom, A. Gruverman, E. Y. Tsymlal
- POL 4:** INFLUENCE OF ADDITIVES WITH LOW MELTING TEMPERATURES ON STRUCTURE, MICROSTRUCTURE, PHASE TRANSITIONS, DIELECTRIC AND PIEZOELECTRIC PROPERTIES OF $\text{BiScO}_3 - \text{PbTiO}_3$ CERAMICS
E. D. Politova, G. M. Kaleva, A. V. Mosunov, N. V. Sadovskaya, A. G. Segalla
- POL 5:** CONTROL OF β - AND γ -PHASE FORMATION IN ELECTROACTIVE P(VDF-HFP) FILMS BY SILVER NANO-PARTICLE DOPING
D. Mandal, K. Henkel, S. Das, **D. Schmeißer**
- POL 6:** SYNTHESIS AND CHARACTERIZATION OF NANOSTRUCTURED MATERIALS FOR REMOVAL OF EXHAUST GASES
K. S. Abdel Halim, M. H. Khedr, A. A. Farghali, M. I. Nasr, N. K. Soliman

POL 7: GROWTH AND CHARACTERIZATION OF MAGNETO-OPTICAL CERIUM-DOPED YTTRIUM IRON GARNET FILMS ON SILICON NITRIDE FOR NONRECIPROCAL PHOTONIC DEVICE APPLICATIONS

M. Onbasli, T. Goto, D. H. Kim, L. Bi, G. F. Dionne, C. A. Ross

POL 8: PHOTELECTROCHEMICAL WATER SPLITTING BY CHEMICAL SOLUTION DEPOSITED NANOSTRUCTURE AND COMPOSITION ENGINEERED HEMATITE FILMS

T. Schneller, Simon Goodwin, Rainer Waser

POL 9: A CHEMICAL APPROACH TO THE ESTIMATE OF THE OPTICAL BAND GAP AND BOWING PARAMETER IN MIXED d, d-METAL OXIDES

F. Di Quarto, F. Di Franco, M. Santamaria

POL 10: BAND ALIGNMENT ENGINEERING WITH LIQUID DIELECTRICS

H. Yuan, Y. Ishida, K. Koizumi, H. Shimotani, K. Kanai, K. Akaike, Y. Kubozono, A. Tsukazaki, M. Kawasaki, S. Shin, Y. Iwasa

Tuesday, 17:00–18:00, and Wednesday, Room K3

POL 11: THE BEHAVIOUR OF OXYGEN VACANCIES IN THE PEROVSKITE OXIDE STRONTIUM TITANATE AND AT ITS EXTENDED DEFECTS

R. A. De Souza, V. Metlenko, H. Schraknepper, A. Ramadan

POL 12: DOPED CERIA: A DFT AND MONTE CARLO STUDY

B. O. H. Grope, S. Grieshammer, J. Koettgen, M. Martin

POL 13: OXYGEN VACANCY FORMATION ON (110) TiO₂ SURFACE – A FIRST PRINCIPLES STUDY

T. Shibuya, K. Yasuoka, S. Mirbt, B. Sanyal

- POL 14: FINITE SIZE EFFECT OF PROTON CONDUCTIVITY OF AMORPHOUS OXIDE THIN FILM AND ITS APPLICATION TO HYDROGEN-PERMEABLE MEMBRANE FUEL CELL
Y. Aoki, M. Martin
- POL 15: GRAIN BOUNDARIES IN PROTON-CONDUCTING BaZrO₃ PEROVSKITES
R. Merkle, M. Shirpour, B. Rahmati, W. Sigle, P. A. v. Aken, J. Maier
- POL 16: FAST ELECTROMIGRATION OF OXYGEN VACANCIES IN IMPLANTED RUTILE (TiO₂)
N. A. Sobolev, A. M. Azevedo, V. V. Bazarov, E. R. Zhiteytsev, R. I. Khaibullin
- POL 17: TAILOR-MADE COMPLEX OXIDE THIN FILMS AS PROTON CONDUCTING ELECTROLYTES FOR LOW TEMPERATURE OPERATING SOLID OXIDE FUEL CELLS
D. Griesche, T. Schneller, R. Waser
- POL 18: EFFECT OF THE SUBSTITUTION OF OXYGEN BY NITROGEN ON THE CRYSTAL CHEMISTRY OF La-DOPED BaTiO₃
Y. Otsuka, C. Pithan, J. Dornseiffer, R. Waser
- POL 19: METALLIC ELECTROLYTE COMPOSITES IN THE FRAMEWORK OF THE BRICK-LAYER MODEL
H. Lustfeld, C. Pithan, M. Reißel
- POL 20: CHARACTERIZATION OF MTaO₃ (M = Li, Na, K) THIN FILMS, PROCESSED BY RADIO FREQUENCY MAGNETRON SPUTTERING
D. A. Mota, Y. Romaguera-Barcelay, A. Tkach, J. Perez de la Cruz, J. Agostinho Moreira, A. Almeida

Advances in technology and characterization

Monday, 17:00–18:30, Room K3

- ATC 1:** DETECTION OF FILAMENT FORMATION IN FORMING-FREE RESISTIVELY SWITCHING SrTiO_3 DEVICES WITH Ti TOP ELECTRODES
S. Stille, Ch. Lenser, R. Dittmann, A. Köhl, I. Krug, R. Muenstermann, J. Perlich, C. M. Schneider, U. Klemradt, R. Waser
- ATC 2:** FREE-ELECTRON FINAL-STATE CALCULATIONS FOR THE INTERPRETATION OF HARD XRAY ANGLE-RESOLVED PHOTOEMISSION
L. Plucinski, J. Minar, J. Braun, A. X. Gray, S. Ueda, Y. Yamashita, K. Kobayashi, H. Ebert, C. S. Fadley, C. M. Schneider
- ATC 3:** GROWTH PRESSURE CONTROL OF ELECTRONIC INTERFACE PROPERTIES IN LAO/STO HETEROSTRUCTURES: NEW INSIGHT FROM HIGH-ENERGY SPECTROSCOPY
M. Sing, A. Müller, H. Boschker, F. Pfaff, G. Berner, S. Thiess, W. Drube, G. Koster, G. Rijnders, D. H. A. Blank, M. Sing, R. Claessen
- ATC 4:** ANISOTROPIC MAGNETOELASTIC COUPLING IN FERROPNICTIDES
H. Li
- ATC 5:** DEPTH-RESOLVED ARPES OF BURIED LAYERS AND INTERFACES VIA SOFT X-RAY STANDING-WAVE EXCITATION
A. X. Gray, J. Minár, L. Plucinski, M. Huijben, A. M. Kaiser, S. Nemšák, G. Conti, A. Bostwick, E. Rotenberg, S.-H. Yang, J. Braun, G. Rijnders, D. H. A. Blank, S. Stemmer, C. M. Schneider, J. Braun, H. Ebert, C. S. Fadley
- ATC 6:** STRUCTURING COMPLEX OXIDE HETEROSYSTEMS VIA E-BEAM LITHOGRAPHY
C. Woltmann, Hans Boschker, Rainer Jany, Christoph Richter, Jochen Mannhart
- ATC 7:** LASER HEATING OF OXIDE SUBSTRATES: CHALLENGES AND SOLUTIONS
T. Heeg, W. Stein

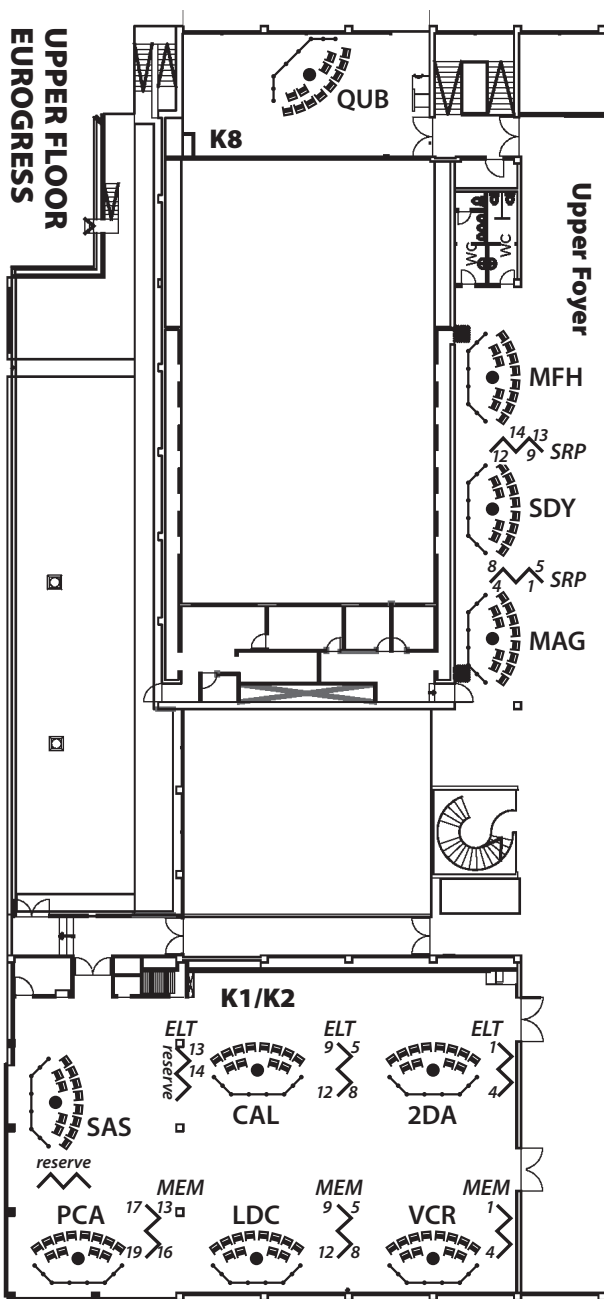
- ATC 8: WET CHEMICAL ETCHING OF STRONTIUM RUTHENIUM OXIDE THIN FILMS BY OXIDATION
D. Weber, R. Vőfely, Yuehua Chen, U. Poppe
- ATC 9: EFFECT OF ALD PROCESSING AND TOP ELECTRODES ON ZrO_2 THIN FILMS STRUCTURAL AND RESISTIVE SWITCHING CHARACTERISTICS
I. Kärkkäinen, M. Heikkilä, J. Niinistö, M. Ritala, M. Leskelä, S. Hoffmann-Eifert, R. Waser
- ATC 10: RESISTIVE SWITCHING STUDY ON Nb_2O_5 THIN FILMS OF DIFFERENT THICKNESS AND MORPHOLOGY GROWN BY PVD AND ALD
N. Aslam, M. Reiners, T. Blanquart, H. Mähne, J. Niinistö, M. Leskelä, Mikko Ritala, T. Mikolajick, S. Hoffmann-Eifert, R. Waser
- Tuesday, 17:00–18:00, and Wednesday, Room K3
- ATC 11: CALCULATION OF LORENZ TRANSITION ELECTRON MICROSCOPY DIFFRACTION MAP FOR A CHIRAL MAGNETIC SOLITON LATTICE
Yoshihiko Togawa, Jun-ichiro Kishine, A. Ovchinnikov,
I. Proskurin
- ATC 12: CHARGE DENSITY WAVE STUDY IN $\text{Dy}_5\text{Ir}_4\text{Si}_{10}$
M. H. Lee, C. H. Chen, M.-W. Chu, H. D. Yang,
- ATC 13: PREPARING INAS NANOWIRES FOR FUNCTIONALIZED STM TIPS
K. Flöhr, H. Y. Günel, K. Sladek, R. Frielinghaus, H. Hardtdegen, M. Liebmann, T. Schäpers, M. Morgenstern
- ATC 14: FROM THE MICROSCALE TO THE NANOSCALE: EDX ANALYSIS WITH HIGH SPATIAL RESOLUTION USING SILICON DRIFT DETECTORS (SDD)
T. Salge, **I. Nemeth**, M. Falke
- ATC 15: NANOPULSED FIELD INDUCED CONTROL OF HYBRID MATERIALS AND ITS FUNCTIONARYTY
T. Nakayama, R. Nowak, K. Niihara

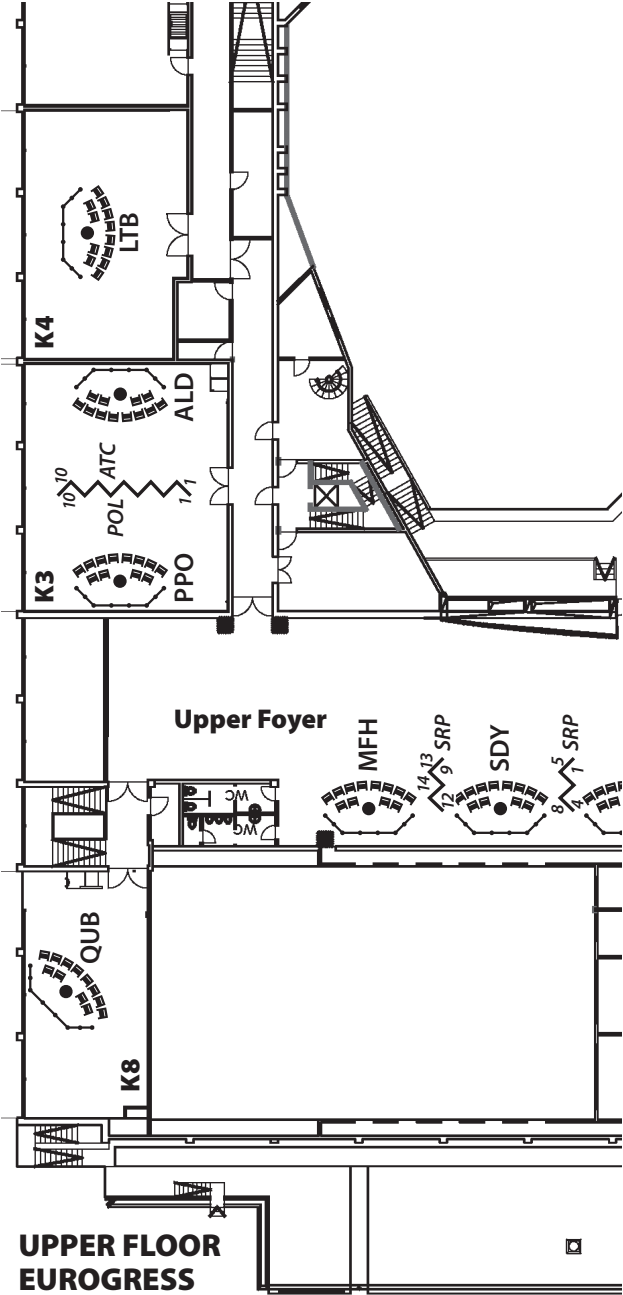
- ATC 16: EUV ACTINIC MASK BLANK DEFECT
INSPECTION: RESULTS AND STATUS OF
CONCEPT REALIZATION
A. Maryasov, S. Herbert, **L. Juschkin**, A. Aretz, R. Lebert
- ATC 17: INVESTIGATIONS OF METALL-FILMS
ABSORPTION ON COBALT WITH NVIDIA
CUDA TECHNOLOGY
S. Seriy
- ATC 18: AN OXIDE MBE SYSTEM FOR QUASI IN-SITU
NEUTRON REFLECTOMETRY STUDIES
S. Pütter, A. Steffen, M. Waschk, A. Weber, S. Mattauch,
T. Brückel
- ATC 19: EXPLORING THE RESOLUTION LIMIT OF THE
TALBOT LITHOGRAPHY WITH EUV LIGHT
H. Kim, S. Danylyuk, L. Juschkin, K. Bergmann,
P. Loosen
- ATC 20: NON-STOICHIOMETRIC HfO_{2-x} THIN FILMS
M. Crumbach, M. Martin
- ATC 21: QUANTITATIVE MID-INFRARED NEAR-FIELD
MICROSCOPY BELOW THE SURFACE
B. Hauer, **T. Taubner**

Locations

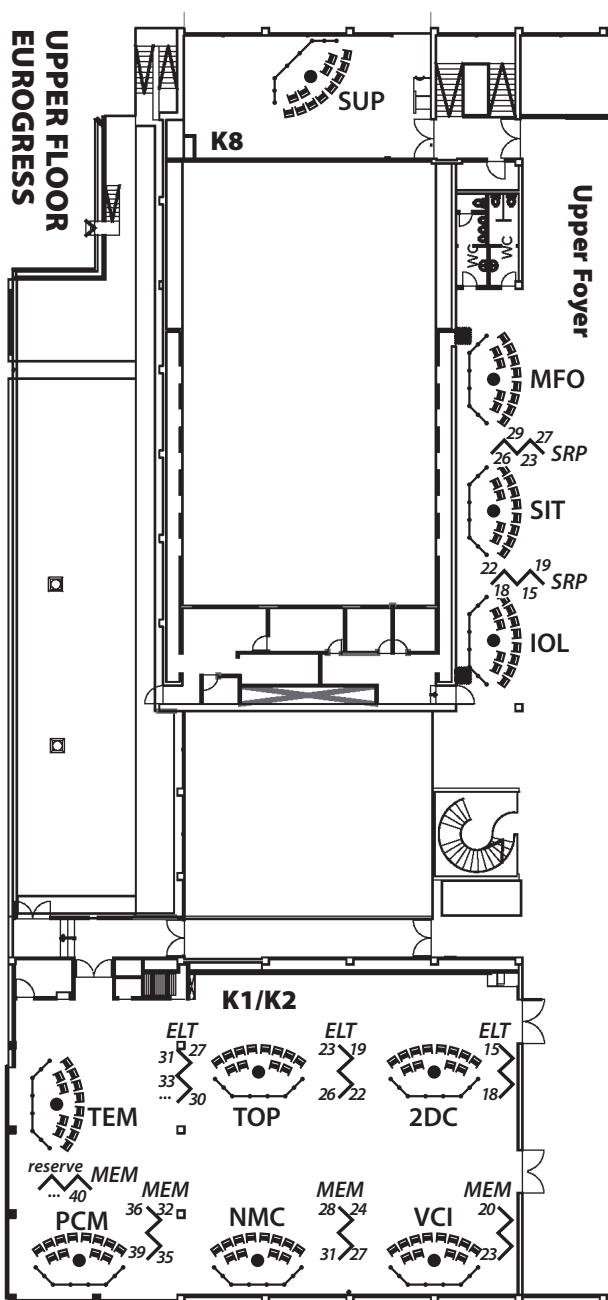
On the following pages you will find detailed maps of the location of the nanosessions (abbreviations e.g. 2DA etc. in normal letters) and the poster sessions (abbreviations e.g. *ELT* etc. in italics) for Monday, Tuesday, and Wednesday. The small numbers indicate the sequence of poster numbers within the poster session. All nanosessions and poster sessions will be located on the upper floor of the Eurogress. An overview map is provided on the inside of the rear cover of this brochure.

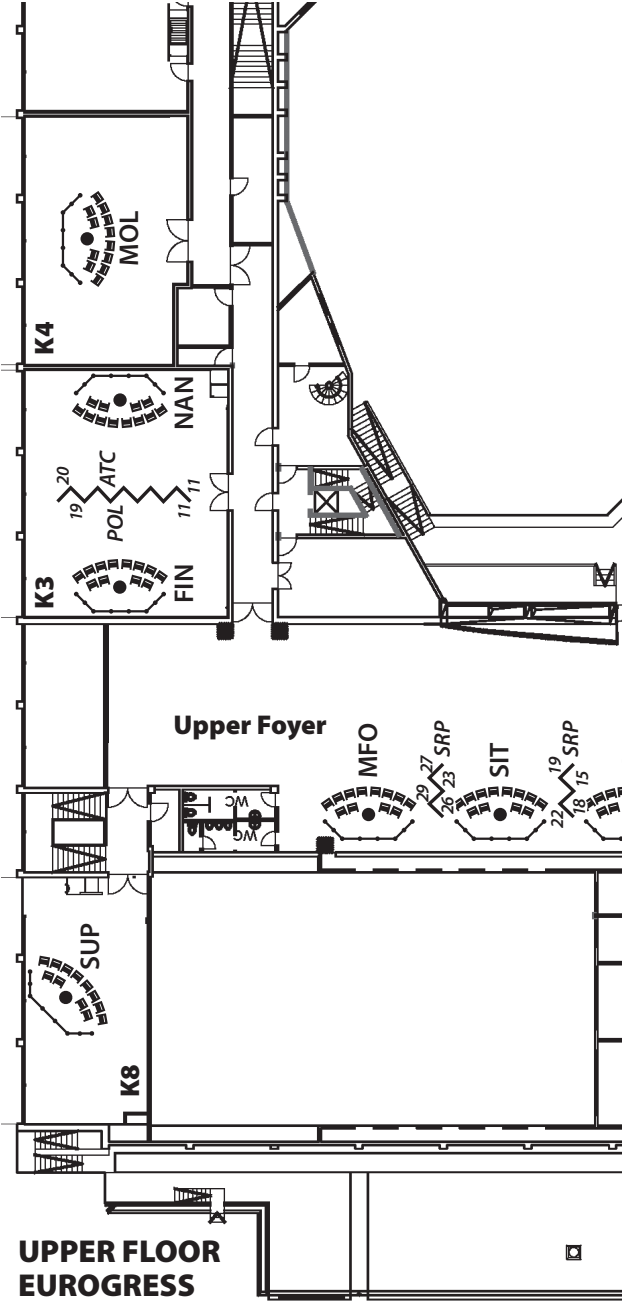
Monday



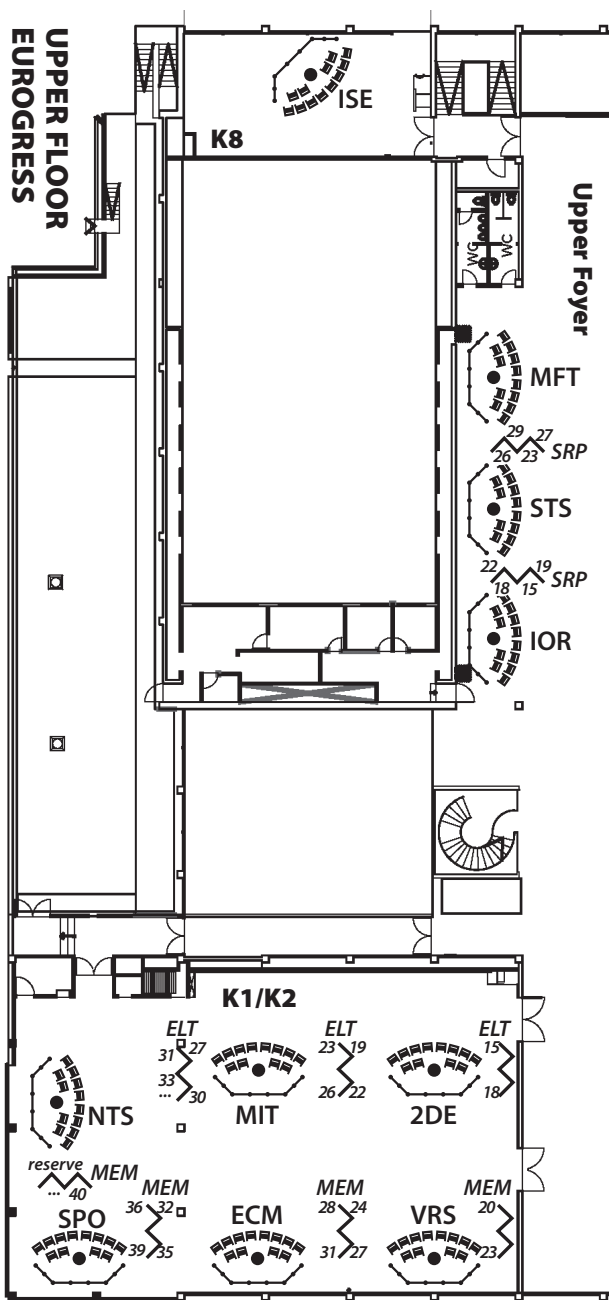


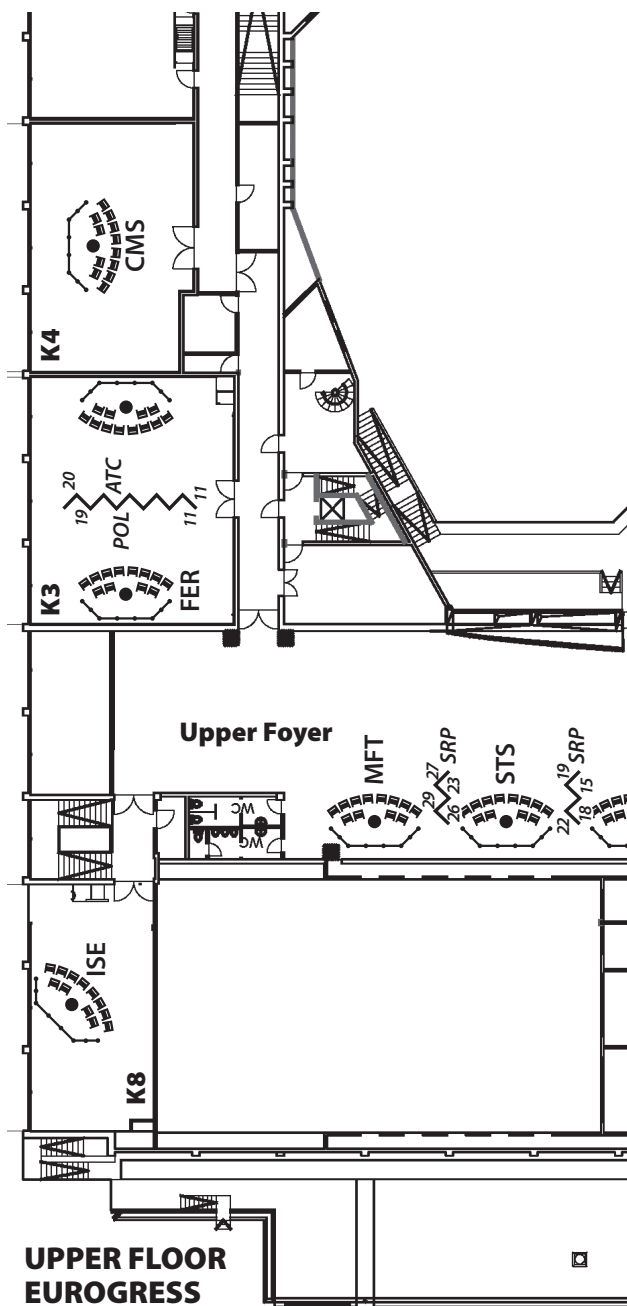
Tuesday



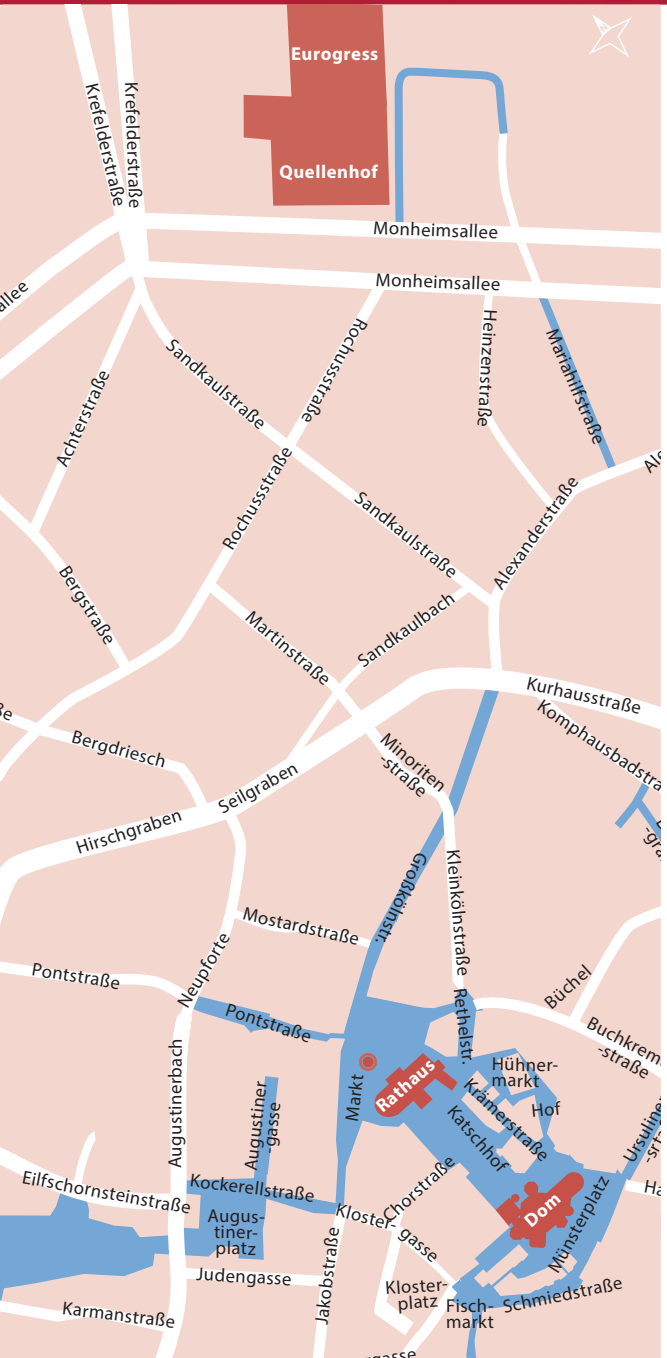


Wednesday









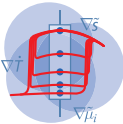
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