

PROGRAMME



Sunday 29.09.2024

16:30–19:30 **WELCOME & REGISTRATION** State Archive Darmstadt

Monday 30.09.2024

08:00–09:00 **REGISTRATION**

09:00–09:10 **OPENING**

SESSION 1 Growth 9:10–10:45

09:10–09:35 Hot Complex Oxides—Turning up the Heat for Adsorption Control
Darrell Schlom, *Cornell U* (Invited)

09:35–09:50 Electron-Beam Writing of Atomic-Scale Reconstructions at Oxide Interfaces
Greta Segantini, *U Geneva* (Contributed)

09:50–10:05 Epitaxial VCrO₃ superlattice thin films on sapphire
Claudio Bellani, *KU Leuven* (Contributed)

10:05–10:20 Magnetic and polar properties of (010) DyFeO₃ thin films
Christoph Schneider, *PSI* (Contributed)

10:20–10:45 Thin film epitaxy of low valence metallic oxides: from negatively valent pnictides to divalent rare earth monoxides
Tomoteru Fukumura, *Tohoku U* (Invited)

10:45–11:10 *Coffee break*

SESSION 2 Interfaces 11:10–12:45

11:10–11:35 Superconductivity at the KTaO₃ interfaces
Kaveh Ahadi, *Ohio State U* (Invited)

11:35–11:50 The quantum metric of the (111) LaAlO₃/SrTiO₃ interface
Giacomo Sala, *U Geneva* (Contributed)

11:50–12:05 Ferromagnetic Superconductive Two-Dimensional Electron Gases at (110) and (111) Oriented Epitaxial KTaO₃/LaTiO₃ Interfaces
Mostafa Marzouk, *MPI Halle* (Contributed)

12:05–12:20 Ultrathin Fe on SrTiO₃: Tunable 2D electron and 2D hole states at the interface
Pia Düring, *Konstanz U* (Contributed)

12:20–12:45 Emergent Magnetotransport Phenomena at Oxide Interfaces
Takahiro Fujita, *U Tokyo* (Invited)

12:45–13:45 *Lunch*

SESSION 3 Nickelates 13:45–15:10

- 13:45–14:10 Atomic-scale insights to lattice and electronic structure in superconducting nickelates
Berit Goodge, *MPI Dresden* (Invited)
- 14:10–14:25 Direct evidence for inversion symmetry breaking in RE nickelates
Jérémié Teyssier, *U Geneva* (Contributed)
- 14:25–14:40 In situ preparation and ARPES study of superconducting infinite-layer lanthanum nickelates
Wenjie Sun, *Nanjing U* (Contributed)
- 14:40–14:55 Interface- and defect-induced quantum phases in nickelate thin films and superlattices
Rossitza Pentcheva, *U Duisburg-Essen* (Contributed)
- 14:55–15:10 Topotactic reduction effect in infinite-layer nickelates
Shengwei Zeng, *A*STAR Singapore* (Contributed)
- 15:10–15:40 *Coffee break*

SESSION 4 Heterostructures 15:40–17:15

- 15:40–16:05 Engineering ultrafast dynamics in correlated materials in atomic layer heterostructures
Ankit Disa, *Cornell U* (Invited)
- 16:05–16:20 Interplay of metallicity, ferroelectricity and layer charges in SmNiO₃ and BaTiO₃ superlattices
Edith Simmen, *ETH Zürich* (Contributed)
- 16:20–16:35 Engineering Unequal Antipolar Displacement in Ferromagnetic Layered Oxide Heterostructures
Marta Gibert, *TU Vienna* (Contributed)
- 16:35–16:50 Mapping the complex evolution of ferroelastic/ferroelectric domain patterns in epitaxially strained PbTiO₃ heterostructures
Céline Lichtensteiger, *U Geneva* (Contributed)
- 16:50–17:15 Revisit the magnetotransport of perovskite manganite heterostructures
Lingfei Wang, *USTC Hefei* (Invited)
- 17:20 **CONFERENCE PHOTO**
- 17:30–20:00 **POSTER 1** *Drinks and Snacks*

Tuesday 1.10.2024

SESSION 5 Membranes 9:00–10:35

- 09:00–09:25 New Directions in Material Design: Harnessing Freestanding Oxide Membranes
Nini Pryds, *DTU Lyngby* (Invited)
- 09:25–09:40 Interface Design Beyond Epitaxy
Varun Harbola, *MPI Stugart* (Contributed)

- 09:40–09:55 Reconfiguring topology in free-standing antiferromagnetic membranes
Hariom Jani, *U Oxford* (Contributed)
- 09:55–10:10 Defect thermodynamics and engineering in transferable oxide thin films and bilayer heterostructures
Felix Gunkel, *FZ Jülich* (Contributed)
- 10:10–10:35 Unlocking the hidden potentials in Complex Oxides using Freestanding Membranes
Bharat Jalan, *U Minnesota* (Invited)
- 10:35–11:00 **Coffee break**

SESSION 6 Ferroelectrics 11:00–12:25

- 11:00–11:25 Epitaxial ferroelectric HO₂: effects of stress and strain
Florencio Sánchez, *ICMAB Barcelona* (Invited)
- 11:25–11:40 Emerging phase transitions in lead-free antiferroelectric heterostructures and membranes
Ruijuan Xu, *U North Carolina* (Contributed)
- 11:40–11:55 Ferroelectricity, chirality, spin-orbit coupling and cavity states in Pb₅Ge₃O₁₁ crystal
Eric Bousquet, *U Liège* (Contributed)
- 11:55–12:10 Ultrathin Crystalline Membranes of Ferroelectric Hafnia
Yufan Shen, *Kyoto U* (Contributed)
- 12:10–12:25 Electric field-manipulated optical chirality in ferroelectric vortex domains
Jing Ma, *Tsinghua U* (Contributed)
- 12:25–13:30 **Lunch**

SESSION 7 Memristors 13:30–15:05

- 13:30–13:55 Epitaxial oxides for neuromorphic devices
Beatriz Noheda, *U Groningen* (Invited)
- 13:55–14:10 Electrochemical oxygen intercalation for precise tuning of functionalities in next-generation oxide-based devices
Federico Baiui, *IREC Barcelona* (Contributed)
- 14:10–14:25 Coupled resistive and thermal switching in Metal/SrTiO₃ Devices
Alvarez Martinez, *U Santiago* (Contributed)
- 14:25–14:40 Y₂O₃-based memristive devices
Eszter Piros, *TU Darmstadt* (Contributed)
- 14:40–15:05 Operando spectroscopic investigation of the valence change mechanism in La₂NiO_{4+δ}-based memristive devices
Mónica Burriel, *LMGP Grenoble* (Invited)
- 15:15–17:45 **POSTER 2 Coffee and Cake**
- 19:00–22:00 **NETWORKING BANQUET/AWARD CEREMONY** Orangerie

Wednesday 2.10.2024

SESSION 8 Correlated Oxides 9:00–10:35

- 09:00–09:25 Strange magnetism of orthorhombic iridates
Marjana Ležaić, *FZ Jülich* (Invited)
- 09:25–09:40 Nonlinear and nonreciprocal transport effects in untwinned thin films of topological Weyl metal SrRuO₃
Wei-Li Lee, *Academica Sinica* (Contributed)
- 09:40–09:55 Light-induced metastability in a cuprate ladder
Maeo Mitrano, *Harvard U* (Contributed)
- 09:55–10:10 Néel skyrmion bubbles in La_{0.7}Sr_{0.3}Mn_{0.95}Ru_{0.05}O₃ multilayers
Ionela Lindfors-Vrejoiu, *U zu Köln* (Contributed)
- 10:10–10:35 Topotactic Phase Transformation in Ferrites: Octahedral, Tetrahedral, and Square Planar FeO_x Configurations
Woo Seok Choi, *SKKU Seoul* (Invited)
- 10:35–11:00 *Coffee break*

SESSION 9 Towards Applications 11:00–12:15

- 11:00–11:15 Integration of High-*T*_C Superconductors and High-Q-Factor Mechanical Resonators in LaAlO₃ Suspended Micro-Bridges
Nicola Manca, *CNRS Spin* (Contributed)
- 11:15–11:30 VO₂ driven Electromechanically Reconfigurable THz Devices
Saurav Prakash, *NUS Singapore* (Contributed)
- 11:30–11:45 Ion irradiation induced surface electronic structure variation in the epitaxial lanthanum nickelate based heterostructures
Vishal Sharma, *Micron India* (Contributed)
- 11:45–12:00 Superconductivity and Quantum Criticality in Two-dimensional NbO₂ Layers
Takuto Soma, *Tokyo IT* (Contributed)
- 12:00–12:15 High sensitive magnetic sensors based on anisotropic magnetoresistive effect in epitaxial La_{2/3}Sr_{1/3}MnO₃ thin films
Laurence Méchin, *U Caen/GREYC* (Contributed)
- 12:15–12:30 **CLOSING & FAREWELL** Announcement of iWOE-31
- 14:00–15:00 **LABTOUR** TU Darmstadt Labs (Optional)