



28th International Workshop on Electronic Oxides

Program

Sunday 2nd October 2022

17h00 Registration

Monday 3rd October 2022

08h30 Registration

09h00 **Welcome and opening remarks**

Session: Spin and Charge Transfer

Chair:

09h15 **Agnes Bathelémy** (Invited Speaker) (Unité Mixte de Physique CNRS/Thales)
Oxide 2DEG for spin-charge interconversion

09h45 Yifei Hao (University of Nebraska - Lincoln)
Interface Charge Engineering in Ferroelectric-Gated Mott Transistors

10h00 Andrea Peralta Somoza (Universidad Complutense, Spain)
Large topological Hall effect and spin textures in $\text{La}_{0.7}\text{Sr}_{0.3}\text{MnO}_3$ / SrIrO_3 bilayers

10h15 Marta Gibert (TU Wien)
Charge-transfer engineering at polar double-perovskite/perovskite interfaces

10h30 Kidae Shin (Yale University)
Optimizing Monolayer Ferroelectric ZrO_2 on Si (001)

10h45 Coffee Break

Session: Quantum Materials

Chair:

11h00 **Stephen Wilson** (Invited Speaker) (University of California, Santa Barbara)
Strange metal states and quantum criticality in doped $J_{\text{eff}}=1/2$ Mott states

11h30 Alexandru Bogdan Georgescu (Northwestern University)
Machine-Learning Assisted Quantum Materials Discovery And Optimization: Metal-Insulator Transition Compounds

- 11h45** Qi Song (Cornell University)
Growth of PdCoO₂ films with controlled termination by MBE and determination of their electronic structure by ARPES
- 12h00** Willem Rischau (University of Geneva)
Metal insulator transition in 18O isotope substituted Vanadium dioxide
- 12h15** Matthias Opel (Walther-Meissner-Institut, Germany)
Magnon Hanle experiments in antiferromagnetic alpha-Fe₂O₃
- 12h30** [Lunch provided by iWOE Meeting](#)
- 13h45** **Poster Session A**

Session: Nickelates/Superconductivity

Chair:

- 15h00** **Julia Mundy** (Invited Speaker) (Harvard University)
Superconductivity in a quintuple-layer square-planar nickelate
- 15h30** Lin Er Chow (National University of Singapore)
Pauli-limit violation in nickelate: to what extent a high-T_c cuprate analogue?
- 15h45** **George Sawatzky** (Invited Speaker) (UBC)
The elusive fermi surface and electrone-like electronic structure of the infinite layer Nickelates
- 16h15** Kyuho Lee (Stanford University)
Emergent Intrinsic Transport Properties of Infinite-Layer Nickelates
- 16h30** Marco Salluzzo (CNR-SPIN)
Charge density wave and magnetic excitations in infinite layer nickelates
- 16h45** **Jean-Marc Triscone** (Invited Speaker) (University of Geneva)
Structural and electronic coupling in transition metal oxide heterostructures

Tuesday 4th October 2022

Session: Ruthenates/Magnetic Materials

Chair:

- 9h00** **Changyoung Kim** (Invited Speaker) (Seoul National University)
Controlling the electronic structures of atomically thin oxide films: Hund metals and Mott insulators

- 9h30** Bharat Jalan (University of Minnesota)
Navigating Atomically Precise Synthesis of Stubborn Metal Oxides using Chemistry
- 9h45** Martina Zupancic (Leibniz-Institut für Kristallzüchtung)
Atomic-scale analysis of the interface between polar and nonpolar LaInO₃/BaSnO₃ perovskite oxides
- 10h00** Seung Gyo Jeong (Sungkyunkwan University)
Exotic magnetic anisotropy near dimensional Mott boundary
- 10h15** Prosper Ngabonziza (Max Planck Institute for Solid State Research, Germany)
Magnetotransport Properties of Epitaxial Sr₃Ru₂O₇-based Heterostructures and Devices
- 10h30** Coffee Break

Session: Ferroelectrics

Chair

- 11h00** Michele Conroy (Invited Speaker) (Imperial College London)
Charged Higher Order Topologies in Room Temperature Magnetoelectric Multiferroic Thin Film
- 11h30** Martina Müller (University of Konstanz)
How defects and dopants stabilize ferroelectricity in HfO₂ – a spectroscopic approach
- 11h45** Suraj Cheema (University of California, Berkeley)
Negative Capacitance Electronics via Ultrathin Ferroelectricity in HfO₂-ZrO₂
- 12h00** Jon-Paul Maria (Penn State University)
Ferroelectrics Everywhere
- 12h15** Gertjan Koster (University of Twente)
Signatures of enhanced out-of-plane polarization in asymmetric BaTiO₃ superlattices integrated on silicon
- 12h30** [Lunch provided by iWOE Meeting](#)
- 13h45** **Poster Session B**

Session: Interfaces/2DEGs

Chair:

- 15h00** **Michael Norman** (Invited Speaker) (Argonne National Laboratory)
Pairing Mediated by the Transverse Optic Mode in $KTaO_3$
- 15h30** Michael Sing (University of Würzburg)
Interface band engineering in $LaAlO_3/SrTiO_3$ heterostructures
- 15h45** **Changgan Zeng** (Invited Speaker) (University of Science and Technology of China)
Interface band engineering in $LaAlO_3/SrTiO_3$ heterostructures
- 16h15** Jieun Kim (University of Wisconsin-Madison)
Superconducting epitaxial thin films of (111) $KTaO_3$ grown by hybrid PLD
- 16h30** **Yanwu Xie** (Invited Speaker) (Zhejiang University, China)
Interface and surface superconductivity in $KTaO$
- 17h00** Peter Sushko (Pacific Northwest National Laboratory)
Transient electron scavengers modulate carrier density at a polar/nonpolar perovskite oxide heterojunction
- 17h15** Kaveh Ahadi (NC State University)
Anisotropic 2D Superconductivity at $KTaO_3$ (111) Interfaces
- 17h30** [Dinner provided by iWOE Meeting](#)

Wednesday 5th October 2022

Session: Phase Change/d1

Chair:

- 9h00** **Akira Ohtomo** (Invited Speaker) (Tokyo Institute of Technology)
Electrochemical Modulation of Electronic States in Strongly Correlated Transition-Metal Oxides
- 9h30** Lishai Shoham (Technion - Israel Institute of Technology)
Orbital Occupancy Inversion in Strained $SrVO_3$ by Soft-XAS: Surface versus Bulk
- 9h45** Kei Takahashi (RIKEN CEMS)
Electron doping and epitaxial strain effect in quantum well of $SrVO_3$ grown by gas source molecular beam epitaxy

- 10h00** Ho Nyung Lee (Oak Ridge National Laboratory)
Strained SrNbO₃: A Correlated Oxide Dirac Semimetal that enters the Extreme Quantum Limit
- 10h15** Gervasi Herranz (Institute for Materials Science of Barcelona ICMAB-CSIC)
Light-matter interactions modulated by electron-lattice coupling in transition metal oxides
- 10h30** John Heron (University of Michigan)
Interplay Between Structure, Charge, and Spin in Entropy-Stabilized Oxides for Widely Tunable Responses
- 10h45** Coffee Break

Session: Applications/Synthesis/Defects

Chair:

- 11h00** Robert Klie (University of Illinois, Chicago)
Molecular Beam Epitaxy Synthesis of LiMn₂O₄ Epitaxial Thin Films
- 11h15** Lambert Alff (TU Darmstadt)
Extended defects, substoichiometric phases and defect interactions in oxide based memristive devices
- 11h30** **Daniele Marre** (Invited Speaker) (University of Genova)
Oxide-based nanoelectromechanical sensors and actuators
- 12h00** Takahiro Fujita (The University of Tokyo)
Trend in Optical Bandgap of A₂B₂O₇ (A = Sn, Pb; B = Nb, Ta) Thin Films
- 12h15** Benjamin Janzen (Technische Universität Berlin, Germany)
Phonons, Isotope Effects, and Point Defects in β - and κ -Ga₂O₃
- 12h30** **Closing Remarks**

Poster Index: Session A

Monday 3rd October 2022

A1	David Bugallo (Drexel University) <i>Study of phonon scattering mechanisms in ferroelectric BaTiO₃ thin films</i>
A2	Jieun Kim (UC Berkeley) <i>Understanding the structure-property relationships in relaxor ferroelectric thin films</i>
A3	Ji Hye Lee (Seoul National University) <i>Functionality of metastable perovskite ferroelectric CaTiO₃ thin films</i>
A4	Marco Salluzzo (CNR-SPIN) <i>A multiferroic two-dimensional electron gas</i>
A5	Jonathan Spring (University of Zurich) <i>Field-induced reversal of paramagnetic Nd moments in ferromagnetic Nd₂NiMnO₆/La₂NiMnO₆ superlattices</i>
A6	Kun Wang (University of Nebraska-Lincoln) <i>Controlling Ferroelectricity and Quadruple-well State in CuInP₂S₆ via Interfacial Epitaxial PbZr_{0.2}Ti_{0.8}O₃</i>
A7	Yilin Li (Cornell University) <i>Can BaFe₁₂O₁₉ be Transmuted into a Room-Temperature Ferrimagnetic Ferroelectric?</i>
A8	Zheting Jin (Yale University) <i>Bond-dependent slave-particle cluster theory based on density matrix expansion</i>
A9	Hans Boschker (Epiray) <i>Next Generation Epitaxy: clean, simple, fast and versatile</i>
A10	Nipin Kohli (Technical University Berlin) <i>Investigation of carbon monoxide adsorption on In₂O₃ surface for gas sensing applications</i>
A11	Nipin Kohli (Technical University Berlin) <i>Alcohol Sensing Properties of CuO-CNT Hybrids</i>
A12	Shammi Kumar (Shiv Nadar University) <i>Cubic epitaxial perovskite SrTaO₃ for optoelectronic applications</i>
A13	Jaehyeok Lee (Seoul National University) <i>Low resistance epitaxial edge contacts to buried nanometer thick conductive layer of La-doped BaSnO₃</i>
A14	Nicola Manca (CNR-SPIN) <i>Stress Analysis and Q-Factor of Free-Standing (La,Sr)MnO₃ Oxide Resonators</i>

A15	Nicola Manca (CNR-SPIN) <i>Mechanical properties of epitaxial EuTiO₃ thin-film MEMS resonators</i>
A16	Steven May (Drexel University) <i>Voltage control of spatially-patterned functional responses in lateral perovskite heterostructures via ionic gating</i>
A17	Yating Ruan (Technische Universität Darmstadt, Germany) <i>All-oxide thin-film varactors with Mn- and Ni-doped (Ba,Sr)TiO₃ for microwave applications</i>
A18	Md Shamim Sarker (The University of Tokyo) <i>CoFeB/Y₃Fe₅O₁₂ bilayer magnonic resonator for magnetic sensor application</i>
A19	Dowon Song (Seoul National University) <i>High-k perovskite gate oxide for modulation beyond 10¹⁴ cm⁻²</i>
A20	Siyi Tang (The University of Tokyo) <i>High-quality spinel γ-Fe₂O₃ epitaxial thin film grown on Nb:SrTiO₃ substrate for spin-wave modulation and computation</i>
A21	Arashdeep Thind (University of Illinois Chicago) <i>Atomic-scale insights into the structural transformations in cathodes for multivalent metal-ion batteries</i>
A22	Jerome Wolfman (GREMAN lab. Univ. Tours CNRS) <i>From Schottky to ohmic (La,Sr)MnO₃ / (Ba,Sr)TiO₃ contact by interface engineering</i>
A23	Qiuchen Wu (University of Nebraska-Lincoln) <i>Exploring free-standing PbZr_{0.2}Ti_{0.8}O₃ membrane and its nonvolatile gating effect in two-dimensional MoS₂</i>
A24	Zhifei Yang (University of Minnesota, Twin Cities) <i>Epitaxial SrTiO₃ Films with Dielectric Constants Exceeding 25,000</i>
A25	Hyeongmin Cho (Seoul National University) <i>High-Mobility Field-Effect Transistor Using a 2-Dimensional Electron Gas at the LaScO₃/BaSnO₃ Interface</i>
A26	Ryan Comes (Auburn University) <i>Band-Engineered LaFeO₃-LaNiO₃ Interfaces for Electrocatalysis of Water</i>
A27	Flavio Bruno (University Complutense of Madrid, Spain) <i>A Laser-ARPES View of the 2D Electron Systems at LaAlO₃/SrTiO₃ and Al/SrTiO₃ interfaces</i>
A28	Mattia Trama (University of Salerno) <i>Gate-tunable spin and orbital Edelstein effect in (111) LaAlO₃/SrTiO₃ interface</i>

A29	Lucia Varbaro (University of Geneva) <i>Controlling the order parameter coupling in nickelate based superlattices</i>
A30	Maria D'Antuono (University of Naples Federico II) <i>Properties of the spin-polarized 2DEG at the LAO/ETO/STO interface</i>
A31	Manish Dumen (INST, INDIA) <i>Light-enhanced gating effect at conducting EuO-KTO interface</i>
A32	Margaret Anderson (Harvard University) <i>Frustrated Magnetism in Rare-earth Titanate Pyrochlore Thin Films Grown by Molecular Beam Epitaxy</i>
A33	Sandeep Kumar Chaluvadi (CNR-IOM) <i>Evidence of interfacial Mn-ion displacement and lattice modulations coupled magnetic properties in LSMO films</i>
A34	Dirk Fuchs (Karlsruhe Institute of Technology) <i>Proximity induced ferromagnetic state in the spin-orbit semimetal SrIrO₃</i>

A35	Fernando Gallego (CNRS-Thales) <i>Application of Rashba-Edelstein effect in ferromagnet/2DEG based Spin-to-charge interconverters</i>
A36	Divine Kumah (North Carolina State University) <i>Correlating thickness and temperature dependent structural, electronic and magnetic transitions in epitaxial SrRuO₃ thin films</i>
A37	Stefano Gariglio (University of Geneva) <i>Coupling of octahedra rotations in orthorhombic perovskite heterostructures</i>
A38	Gervasi Herranz (Institute for Materials Science of Barcelona) <i>Dynamic control of octahedra rotation in perovskites by defect engineering</i>
A39	Juhan Kim (Seoul National University) <i>Deep-UV transparent conducting oxide La-doped SrSnO₃ with high figure of merit</i>
A40	Changjae Roh (GREMAN lab. Univ. Tours CNRS) <i>From Schottky to ohmic (La,Sr)MnO₃ / (Ba,Sr)TiO₃ contact by interface engineering</i>
A41	Victor Rosendal (Technical University of Denmark) <i>Electronic states and octahedral tilting in SrNbO₃</i>
A42	Yating Ruan (Technische Universität Darmstadt, Germany) <i>Free-standing SrMoO₃ single-crystal like thick films</i>
A43	Yeongjae Shin (Yale University) <i>Structural and Optical Properties of Erbium-doped Anatase TiO₂ Thin Films Grown by Molecular Beam Epitaxy</i>

A44	Yinlian Zhu (Songshan Lake Materials Laboratory, China) <i>Large-scale Screw Dislocation Grids in Oxide Heteroepitaxies</i>
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Poster Index: Session B

Tuesday 4th October 2022

B1	Dan Ferenc Segedin (Harvard University) <i>Superconducting Quintuple-layer Square-planar Nickelates: Synthetic Strategies and Challenges (Part II)</i>
B2	Jennifer Fowlie (Stanford University) <i>Intrinsic magnetism in superconducting infinite-layer nickelates</i>
B3	Jiaji Ma (Yale University) <i>Enhancing superconductivity in high T_c cuprates via high-frequency phonons</i>
B4	Grace Pan (Harvard University) <i>Superconductivity in a quintuple-layer square-planar nickelate: superconducting and electronic properties</i>
B5	Rebecca Pons (Max Planck Institute for Solid State Research) <i>Rare-Earth Nickelates: from Perovskite to Infinite-Layer</i>
B6	Y. Eren Suyolcu (Cornell University) <i>Sharpening the Superconducting Transition of Bi₂Sr₂Ca_{n-1}Cu_nO_{2n+4} Films with n=1-3 grown by MBE</i>
B7	Bai Yang Wang (Stanford University) <i>Characterization of the Superfluid Density in Infinite-Layer Nickelates</i>
B8	Tiffany C Wang (Stanford University) <i>Rare-Earth Control of the Superconducting Upper Critical Field in Infinite-Layer Nickelates</i>
B9	Wenzheng Wei (Yale University) <i>Physical and electronic structure of square-planar Nickelates</i>
B10	Ke Zou (University of British Columbia) <i>The effect of spin-polarized EuTiO₃ on the monolayer FeSe superconductor</i>
B11	Jibril Ahammad (Auburn University) <i>SrNbO₃ and SrTaO₃ Heterostructures Grown Using Hybrid Molecular Beam Epitaxy</i>
B12	David Bugallo (Drexel University) <i>Identifying a MBE growth window for quaternary melilite oxide films by integrating experimental and computational approaches</i>

B13	Gaétan Verdierre (CNRS/Thalès) <i>Epitaxial growth of the candidate ferroelectric Rashba material SrBiO₃ by pulsed laser deposition</i>
B14	Sandeep Kumar Chaluvadi (CNR-IOM TASC Laboratory) <i>Direct ARPES and STM investigation of various oxide thin films/heterostructures by Pulsed Laser Deposition at APE-NFFA Beamline</i>
B15	Bruce A. Davidson (The University of British Columbia) <i>Shutter-method growth of (001), (110) and (111)-oriented perovskite films</i>
B16	Benazir Fazlioglu Yalcin (Penn State University) <i>hMBE growth of BaTiO₃ thin films for electrical and optical applications</i>

B17	Patrick Gemperline (Auburn University) <i>Machine Learning Analysis of Reflection High Energy Electron Diffraction Images of Epitaxial Oxide Thin Films</i>
B18	Simon Godin (University of British Columbia) <i>Ex situ ARPES of La_{1-x}Ca_xNiO₃ thin films grown by molecular beam epitaxy</i>
B19	Christo Gugushev (Leibniz-Institut für Kristallzüchtung) <i>Hexagallate substrates for oxide spintronic applications</i>
B20	Varun Harbola (Max Planck Institute for Solid State Research) <i>Dewetting of single crystal oxide membranes</i>
B21	Tatiana Kuznetsova (Pennsylvania State University) <i>Towards ultraclean correlated metal CaVO₃</i>
B22	Federica Luciano (KU Leuven / IMEC) <i>Effect of CMP process on Ba doped PZT deposited by PLD</i>
B23	Johanna Nordlander (Harvard University) <i>Epitaxial thin-film realization of an improper ferroelectric spin-liquid candidate</i>
B24	Jin Young Oh (Sungkyunkwan University) <i>Symmetry Stabilization of High-k Orthoferrite Thin Films</i>
B25	Anchal Rana (BML Munjal University) <i>Tuning the properties of Cathodic Vacuum Arc Deposited Vanadium Oxides thin films</i>
B26	Tobias Schwaigert (Cornell University) <i>Growth of Potassium Tantalate Films by Suboxide-MBE</i>
B27	Henrik Sønsteby (University of Oslo) <i>Opening for Device Integration of RENiO₃ Thin Films by Low Temperature Direct Epitaxy by Atomic Layer Deposition</i>

B28	Noriyuki Takahara (University of Tokyo) <i>Physical properties of n-type EuTiO₃ thin films with La³⁺ (4f⁰) and Gd³⁺ (4f⁷) donors grown by gas source molecular beam epitaxy</i>
B29	Clémentine Thibault (University of Geneva) <i>Growth and study of CaCuO₂/SrTiO₃ bilayer thin films</i>
B30	Yijun Yu (Stanford University) <i>In situ soft chemistry engineering of nickelate superconductors</i>
B31	Matthew Barone (Cornell University) <i>Investigation of Sn²⁺ compounds as candidate p-type conducting oxides</i>
B32	Yorick Birkhölzer (University of Twente) <i>Nanoscale strain control of the metal-insulator transition in VO₂ thin films</i>
B33	John Dewey (University of Minnesota) <i>Anomalous Strain Relaxation and its Impact on the Valence-Driven Spin-State/Metal-Insulator Transition in Epitaxial (Pr_{1-y}Y_y)_{1-x}Ca_xCoO_{3-δ} Films</i>
B34	Jason Hoffman (Harvard University) <i>Disentangling the insulator-to-metal and structural transitions in VO₂ thin films with non-contact atomic force microscopy</i>
B35	Thor Hvid-Olsen (Technical University of Denmark) <i>Spatial control of the conductivity in SrTiO₃-based heterointerfaces using inkjet printing</i>
B36	Thomas Jespersen (Technical University of Denmark) <i>Electron transport and superconductivity in free-standing LAO/STO micro-membranes on silicon</i>
B37	Simon Jöhr (University of Zurich) <i>Metal-to-Insulator Transition in Antiferromagnetic SrCrO₃ Thin Films</i>
B38	Darshika Khone (BML Munjal University) <i>Hexagallate substrates for oxide spintronic applications</i>
B39	Donghan Kim (Institute for Basic Science, Korea) <i>Electric control of two-dimensional Van Hove singularity in oxide ultrathin films</i>
B40	Barry Koehne (Texas State University) <i>Quantum effects in the electronic properties of epitaxial SrTiO₃ films on Si(001)</i>
B41	Chris Leighton (University of Minnesota) <i>Room-Temperature Valence Transition in a Strain-Tuned Perovskite Oxide</i>
B42	Ji Soo Lim (Uni Wuerzburg) <i>Anomalous Hall effect in SrIrO₃ and SrRuO₃ thin films</i>

B43	Moritz Nunnenkamp (University of Twente) <i>Thickness influence of SrTiO₃ buffer on CNO nanosheet templated PZT for High electron mobility transistor devices</i>
B44	Jeongkeun Song (Center for Correlated Electron Systems, IBS) <i>Higher harmonics in planar Hall effect induced by cluster magnetic multipoles</i>
B45	Lingfei Zhang (The University of Tokyo, Tokyo) <i>Unconventional anomalous Hall effect in Ru(III) perovskite oxide thin films</i>
B46	Saeed Almishal (The Pennsylvania State University) <i>Correlated Electron Metals with High Entropy</i>