



31st International Workshop on Oxide Electronics

28 September – 1 October 2025

Banff, Canada

SCIENTIFIC PROGRAM

Sunday, September 28th

17:00-19:00 Registration, Max Bell Building (MB) Central Foyer

18:00-21:00 Welcome Reception, Kinnear Centre (KC) 103

Monday, September 29th

07:00-08:20 Breakfast, Vistas Dining Room

07:30-08:20 Registration, MB Central Foyer

08:20-08:30 Opening remarks, MB Auditorium (all general sessions in MB Auditorium)

Session 1 Unconventional Superconductivity in Oxides

Chairperson: Bruce Davidson

08:30-09:00 **Ariando** The Quest for High Temperature Superconducting Nickelates
NU Singapore

09:00-09:15 **Fengmiao Li** Stabilizing Low-Valence Nickel via Charge Transfer in MBE-Grown Oxide Films
USTC

09:15-09:30 **Daniel Gueckelhorn** Formation of one-dimensional electron chains with alternating spin along dislocations: A concept for superconductivity in SrTiO₃
INRS

09:30-09:45 **Lucia Varbaro** Magnetic field driven re-entrant superconductivity in infinite layer nickelates
University of Geneva

09:45-10:00 **Sangjae Lee** Unconventional superconductivity in nickelate thin films
Yale University

10:00-10:30 Coffee break, MB Central Foyer

Session 2 Advanced Oxide Materials for Electronics and Energy Applications

Chairperson: Xia Hong

10:30-11:00 **Lambert Alff** Oxide membranes of highly conducting transparent perovskites and tunable dielectrics: From fundamentals to applications
TU Darmstadt

11:00-11:15 **Ellen Kiens** Tuning the d orbital occupancy in LaCoO₃ electrocatalysts by thin film interfacial engineering
University of Twente

11:15-11:30 **Yusuke Kozuka** Electrostatically defined quantum dots in ZnO heterostructures
NIMS

11:30-11:45 **Anna Park** Molecular-beam epitaxy of SrMoO₃ films with record low electrical resistivity
Cornell University

11:45-12:00 **Gaia Tarsi** Resonant MEMS based on La_{2/3}Sr_{1/3}MnO₃ suspended double-clamped microbridges for uncooled bolometer applications.
Univ. of Caen Normandie

12:00-13:00 Lunch, Vistas Dining Room

Monday, September 29th cont'd

Poster Session 1

13:00-15:00 MB 251 & 253

Session 3 Emergent Properties in Ferroelectric and Polar Oxide Heterostructures

Chairperson: Woo Seok Choi

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| 15:00-15:30 | Daesu Lee
POSTECH | Synergistic polar states by selective atomic gradients in perovskite oxides |
| 15:30-15:45 | Daisuke Kan
University of Osaka | Moiré Heterostructures in Ferroelectric $\text{Hr}_{0.5}\text{Zr}_{0.5}\text{O}_2/\text{ZrO}_2$ heterostructures |
| 15:45-16:00 | Jonathan Spanier
Drexel University | Colossal and tunable dielectric tunability in domain-engineered ferroelectric thin films |
| 16:00-16:30 | Valentina Bisogni
Brookhaven National Lab | Strain and electrical control of spin-excitations in multiferroic BiFeO_3 |
| 16:30-17:00 | Coffee break, MB Central Foyer | |

Session 4 Altermagnetism and Low-Dimensional Magnetic Phenomena

Chairperson: Ankit Disa

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| 17:00-17:30 | Libor Šmejkal
Max Planck Institute | Altermagnetism: from Spin Symmetries to Oxide Multiferroics |
| 17:30-17:45 | Yifan Xu
Forschungszentrum Jülich | Scalable Fabrication of Functional Fe_3O_4 Nanodots on Nb:SrTiO ₃ Substrates |
| 17:45-18:00 | Michal Kiaba
Northwestern University | Observation of Mermin-Wagner behavior in $\text{LaFeO}_3/\text{SrTiO}_3$ and $\text{LaFeO}_3/\text{LaAlO}_3$ superlattices |
| 18:00-18:15 | George Sawatzky
University of British Columbia | Novel magnetic Ni-N-Ni centers in N-substituted NiO |

Tuesday, September 30th

07:00-08:30 Breakfast, Vistas Dining Room

Session 5 Superconductivity and Structure in Ruddlesden-Popper Nickelates

Chairperson: Lucia Varbaro

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| 09:00-09:30 | George Sawatzky (UBC) for
Kateryna Foyevtsova
(Notre Dame) | Electronic structure and magnetism in bilayer $\text{La}_3\text{Ni}_2\text{O}_7$ |
| 09:30-09:45 | Stefania Baronio
UBC | Growth of Ruddlesden-Popper nickelate phases by molecular beam epitaxy |
| 09:45-10:00 | Kyle Shen
Cornell University | Density Wave Ordering in the Bilayer Nickelate Superconductor $\text{La}_3\text{Ni}_2\text{O}_7$ |
| 10:00-10:30 | Coffee break, MB 251 & 253 | |

Session 6 Spin-Orbit Coupling and Spin Transport in Complex Oxides

Chairperson: Daisuke Kan

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| 10:30-11:00 | Ramamoorthy Ramesh
UC Berkeley | Magnon Confinement in oxide heterostructures |
| 11:00-11:15 | Pat Kezer
University of Michigan | Large charge-to-spin conversion in high entropy perovskite oxides |
| 11:15-11:30 | Rahma Dhani Prasetyawati
Sungkyunkwan University | Control of Hall Resistivity Anomaly in SrRuO_3 Epitaxial Thin Films via Mo Doping |
| 11:30-11:45 | Gervasi Herranz
ICMAB | Emergent Orbital Correlations in Spin-Orbit Coupled Materials |

Tuesday, September 30th cont'd

11:45-13:00 Lunch, Vistas Dining Room

Poster Session 2

13:00-15:00 MB 251 & 253

Session 7 Electric Field Control and Switching in Correlated Oxides

Chairperson: David Pesquera

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| 15:00-15:30 | Xia Hong
University of Nebraska-Lincoln | Ferroelectric-Control of Magnetotransport in Ruddlesden-Popper Strontium Iridates |
| 15:30-15:45 | Hisashi Inoue
AIST | Oxide ionic drift-diffusion transistors for human interactive neuromorphic computing |
| 15:45-16:00 | Junwoo Son
Seoul National University | Zero-strain metal-insulator transition for ultrafast switching and ultimate endurance |
| 16:00-16:15 | Kosuke Tanaka
AIST | Realisation of Field-Effect Transistor with a Freestanding SrTiO ₃ Channel |
| 16:15-16:45 | Coffee break, MB Central Foyer | |
| 18:30- | Conference banquet and awards, KC 103 | |

Wednesday, October 1st

7:00-8:30 Breakfast, Vistas Dining Room

Session 8 Membranes and Microstructures in Functional Oxide Electronics

Chairperson: Laurence Mechin

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| 08:30-09:00 | Jacobo Santamaria
Univ. Complutense de Madrid | Flexoelectrically induced polar topologies in twisted oxide membranes |
| 09:00-09:15 | Nicolas Gauquelin
University of Antwerp | Atomic reconstruction and chirality in twisted bilayer oxides |
| 09:15-09:30 | Takahito Takeda
University of Tokyo | Mechanism of the Enhanced Ferromagnetism in a La _{2/3} Sr _{1/3} MnO ₃ Membrane studied by Synchrotron Radiation Spectroscopy |
| 09:30-9:45 | Coffee break, MB Central Foyer | |

Session 9 Time-Resolved and Atomic-Scale Insights in Correlated Oxides

Chairperson: Jean-Marc Triscone

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| 09:45-10:15 | Wanzheng Hu
Boston University | Significant light-induced nonlinear polarization in PbTiO ₃ /SrTiO ₃ superlattices |
| 10:15-10:30 | Dongxun Yang
University of Tokyo | Ultrafast spin dynamics and spin-glass behavior with/without strained Y ₃ Fe ₅ O ₁₂ (YIG) thin films characterized by time-resolved magneto-optic Faraday effect (TR-MOFE) |
| 10:30-11:00 | Xiaoqing Pan
University of California, Irvine | Atomic-Scale Imaging of Frequency-Dependent Phonon Anisotropy in Perovskite Oxides |
| 11:00-11:15 | Closing remarks, MB Auditorium | |
| 11:15- | Lunch to go and departure, MB Central Foyer | |