



European Materials Research Society

2026 Spring Meeting

May 25 - 29
Strasbourg Convention Centre

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SYMPOSIUM M

Emergent ferroelectric thin films

Oral sessions : **BERLIN - GROUND FLOOR**

Poster sessions : **ETOILE - FIRST FLOOR**

Symposium Organizers:

Chen GE, Institute of Physics, Chinese Academy of Sciences, China

Florencio SÁNCHEZ, Institut de Ciència de Materials de Barcelona (ICMAB-CSIC), Spain

José P. B. SILVA (Main organizer), University of Minho, Portugal

Judith DRISCOLL, University of Cambridge, UK

Maximilian LEDERER, Fraunhofer Institute for Photonic Microsystems - IPMS, Germany

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Monday May 25
M01 Hafnia and Wurzites
 Chairperson(s): **SANCHEZ Florencio**
SILVA José

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|-------|------|--|
| 08:30 | 717 | Polar/Nonpolar Phase Transitions in $Zr_xHf_{1-x}O_2$ Causing Dielectric Constant Enhancements
SCHROEDER Uwe (Invited) |
| 09:00 | 2157 | Overcoming the Speed-Endurance Trade-off in Ferroelectric Hf _{0.5} Zr _{0.5} O ₂ for Sub-Volt DRAM-Class Capacitors
PARK Geun Hyeong |
| 09:15 | 1957 | Impact of Interface Engineering on Performance and Imprint Behavior of Hf _{0.5} Zr _{0.5} O ₂ -Based Ferroelectric Capacitors.
MHASE Akash |
| 09:30 | 1739 | Introducing True Depth-Sensitivity in HAXPES for Chemistry Analysis of Ferroelectric Devices: Experiment and Simulation
MUELLER Martina (Invited) |

Monday May 25
M02 Wurzites - I
 Chairperson(s): **WOLFF Niklas**

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|-------|------|---|
| 10:30 | 2814 | Wurtzite Ferroelectrics for Harsh Environment Memory Applications
FICHTNER Simon (Invited) |
| 11:15 | 2432 | First-principles calculations of the effects of point defects in the vicinity of vertical inversion domain wall in AlN
NAUDIN Loris |
| 11:30 | 2033 | Lattice Flattening and Local Coordination Evolution in Sc Alloyed GaN: Signatures of Emerging Polar Instability
KALAL Shailesh |

Monday May 25
M03 Hafnia – Stability
 Chairperson(s): **MUELLER Martina**
SCHROEDER Uwe

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|-------|------|---|
| 14:30 | 1147 | Thermodynamically stable and fatigue-free ferroelectric Ce:HfO ₂ films with ultralow coercive field
Wu Di (Invited) |
| 15:00 | 2422 | Probing Domain Stability in Hafnia Thin Films
WANI Waseem Ahmad |
| 15:15 | 3082 | Highly Reliable and Low Voltage Ultrathin Ferroelectric Superlattice HZO by Low Lattice Misfit β -W
Liu C. W. |
| 15:30 | 956 | Improved Ferroelectric Properties and Reliability of Hf _{0.5} Zr _{0.5} O ₂ -based Device by Inserting Al ₂ O ₃ Interlayer
YOON Kiwon |

Monday May 25
M04 2D Ferroelectrics
 Chairperson(s): **SANCHEZ Florencio**
SANTAMARIA Jacobo

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|-------|------|--|
| 16:30 | 2512 | Thin-film growth of ferroelectric thiophosphates in the Sn-P-S system
CROVETTO Andrea |
| 16:45 | 206 | Robust bulk photovoltaic effect with emerging photoelectric behavior in organic-inorganic hybrid ferroelectric thin film
HU Yuzhong |
| 17:00 | 2860 | Structure and ferroelectric control of GeTe thin films on Ge(111)
MEYNIER Léa |
| 17:15 | 1123 | Reconfigurable and Nonvolatile Ferroelectric Bulk Photovoltaics Based on 3R-W5 for Machine Vision
TAY Beng Kang |
| 17:30 | 2971 | sub-nanosecond ferroelectric switching of GeTe thin films by light
AYALA Guillaume |
| 17:45 | 1262 | Development of epitaxial growth of WTe ₂ for spin-orbitronics applications
FOTIÉ NGOUFO Jaurès |
| 18:00 | 3413 | Freestanding BaTiO ₃ Membranes for Electro-Optic Performance Enhancement and Hybrid Integration with Silicon Photonics
YU Han |

Tuesday May 26
M05 Wurzites - II
 Chairperson(s): FICHTNER Simon

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- 09:00 1382 Metaparaelectric phase enables giant energy density for nitride dielectric capacitor
YANG Yurong
- 09:15 1283 Accelerated Development of Ferroelectric AlScBN using Combinatorial High Power Impulse Magnetron Sputtering
MESSI Fedeirca
- 09:30 2137 Probing atomic scale variations of Sc-content in AlScN thin films by STEM-EELS and DFT-based electronic fine structure analysis
WOLFF Niklas (Invited)

Tuesday May 26
M06 Hafnia – Epitaxial Films I
 Chairperson(s): BAKHIT Babak

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- 10:30 1902 Multifunctional Responses in Epitaxial Ferroelectric HfO₂-Based Heterostructures
FINA Ignasi (Invited)
- 11:00 566 Tailoring the metal-oxide interface for improving fatigue performance in HfO₂-based ferroelectrics
LIU Yixuan
- 11:15 1799 Bilayer engineering strategies to enhance energy storage performance in ferroelectric epitaxial La:HfO₂ thin-film capacitors
ESTRÓCIO Nuno
- 11:30 1023 Anionic Doping Driven Ferroelectric Phase Transformation in Epitaxial Yttrium-Doped Hafnium Oxide
MONDAL Soumyajyoti
- 11:45 2023 Electro-Chemo-Mechanical Coupling in HfO₂ZrO₂ Ferroionic Heterostructures
Sizhao Huang

Tuesday May 26
M07 Emergent properties in perovskite Ferroelectrics I
 Chairperson(s): LIU Yixuan

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- 13:45 1605 Overcoming critical thickness in ultrathin perovskite ferroelectrics via interface design
MAITY Tuhin (Invited)
- 14:15 2113 Tailoring epitaxial BaTiO₃ thin films as lead-free piezoelectric materials
RIJCKAERT Hannes
- 15:00 3338 Strategy of enhancing the Energy storage performance of BFO-BTO-STO solid solution thin film
Negi Naveen
- 15:15 1407 Programmable ferroelectric rectifier for reliable and efficient neuromorphic crossbar array
KIM Youngmin

- 15:30 245 Voltage driven ferroelectric thermal switch
HUR Sunghoon
- 15:45 1972 Emergent Phenomena in Complex Systems: Modification of Ferroelectric Domain Structures via Critical Phase Transition
Xiaoyan Lu

Tuesday May 26
M08 Emergent properties in perovskite Ferroelectrics II
 Chairperson(s): MAITY Tuhin
 SILVA José

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- 16:30 1417 Atomic-scale engineered exchange bias at the ferroelectric BaTiO₃ – ferromagnetic La_{0.675} Sr_{0.33} MnO₃ interface
BANSAL Manisha (Invited)
- 17:00 2302 Ferroelectric thin films as thermal switches for next-generation memory devices
AKRAM Wasim
- 17:15 2575 Lead-free ferroelectric (Na_{0.8}K_{0.2})_{0.5}Bi_{0.5}TiO₃ thin films for energy storage
KHILARI Sukhamoy
- 17:30 2241 Depletion region width of a ferroelectric heterostructure interface by surface potential measurements under illumination
BAGARD Antoine
- 17:45 3284 Thickness-driven polar phase transition in freestanding PbZrO₃ membranes probed by scattering-scanning near-field optical microscopy (s-SNOM)
MAZLOUM Yousra
- 18:00 3044 Structural, Electrical, and Optical Properties of a Novel Equimolar High-Entropy Perovskite System
MALLICK Jyotirekha
- 18:15 2116 Highly enhanced energy storage density in vertically aligned nanocomposite (VAN) film-based dielectric capacitors for high power discharge applications
SANGLE Abhijeet

Wednesday May 27
M09 Hafnia Capacitors I
 Chairperson(s): FINA Ignasi

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- 08:30 2384 From Perovskites to Hafnia: Ultralow-Power Ferroelectric Memory, Logic, and Neuromorphic Devices
PRASAD Bhagwati (Invited)
- 09:00 2523 Nanoscale Ferroelectric Response in Plasma-Processed HZO
WANI Waseem Ahmad
- 09:15 1221 Enhancement of Device Performances of HZO-based FeCAP with MIFIM Structures by using Al-doped HfO₂ Double layers
SEO Dongchan

- 09:30 2983 Processing–property map of antiferroelectric PE-ALD ZrO₂ thin-film capacitors for low-loss nanoscale energy storage
MAGAGNIN Grégoire
- 09:45 3390 Fatigue-induced transition from ferroelectric to filamentary switching in Y-doped HfO₂: the role of top-electrode oxygen scavenging
BAKHIT Babak

Wednesday May 27

M10 Hafnia Capacitors II

Chairperson(s): LEDERER Maximilian
SEIDEL Konrad

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- 10:30 309 Finite-Temperature Phase Competition in Hafnia from First-Principles Anharmonic Free-Energy Calculations
CAZORLA Claudio (Invited)
- 11:00 2120 Field cycling-induced crystallization of HfO₂.5ZrO₂ enabled by MoO₃ interlayer for BEOL-compatible Ferroelectric Activation
JEONG Moonseek
- 11:15 2755 Effect of Top Electrode Oxygen Concentration in RuO₂/HZO/TiN Ferroelectric Capacitors
LOMBARDO Davide G. F.
- 11:30 3178 Multifunctional Switching in HfxZr1-xO₂ Ferroelectric Thin Films for Neuromorphic Computing
TIWARI Kaushal

Wednesday May 27

MP03 Poster session 3

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- 13:45 01_1186 Development of Ferroelectric Tunnel Junction Crossbar Arrays Enabling Energy-Efficient Neuromorphic Computing
HU Dennis
- 13:45 02_2756 Ozone-assisted ALD of Barium titanate thin films: From process development to ferroelectric functionality
PULIKKOTTIL DINESH Dharsana
- 13:45 03_1233 Nanoengineered Hafnia-Based Ferroelectric Thin Films for Low-Power Memory Devices
JOYCE Michael
- 13:45 04_1590 Tunable pyroelectric response in epitaxial centrosymmetric oxides by ionic defects
PALLIOTTO Alessandro
- 13:45 05_1830 First Principles Study of Defect-Induced Multiferroic Properties in Perovskite Oxides
MAJANI Souren
- 13:45 06_2117 In Situ Grazing-Incidence Wide-Angle X-ray Scattering Analysis of Strain-Driven Phase Formation and Wake-Up in Ferroelectric HfO₂.5ZrO₂ Capacitors
JEONG Hyun Woo

- 13:45 07_2545 Photoexcitation-driven sub-picosecond polarization dynamics and long-lived metastable state in ferroelectric LiTaO₃
RANA Nabakumar
- 13:45 08_2749 Beneficial effect of calcium doping on a-YBCO pyroelectric films for uncooled infrared detection
DÉGARDIN Annick
- 13:45 09_3305 Defect Dynamics and Optical Property Evolution in Electron-Irradiated GaN Thin Films
REDKO Roman
- 13:45 10_474 Decoupling the Effects of Y Doping and Oxygen Vacancy on Orthorhombic Phase Stabilization in HfO₂ Thin Films
UDAGAWA Kota
- 13:45 11_775 Innovative β-diketonate Alkali Metal Precursors for Lead Free Ferroelectric Films
ENGELAAR Stijn

Thursday May 28

M12 Hafnia – Epitaxial Films II + Theory

Chairperson(s): BÉGON-LOURS Laura
PRASAD Bhagwati

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- 08:30 1309 Epitaxial stabilization of hafnia-zirconia films on non-perovskite substrates
PARDO José Ángel (Invited)
- 09:00 1442 Redox-Controlled Growth Unlocks Fast Switching and High Polarization in Ferroelectric HfO₂.5ZrO₂ Thin Films
ALI Faizan
- 09:15 2223 Ferroelectric switching and vacancy transport in doped ferroelectric ZrO₂ thin films
LENZI Veniero (Invited)

Thursday May 28

M13 Hafnia FTJs + Capacitors III

Chairperson(s): MAJUMDAR Sayani
PARDO José ángel

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- 10:30 1744 Energy-Efficient Programming of Multi-Level Conductance Weights based on Ferroelectric Hafnium Oxide
BÉGON-LOURS Laura (Invited)
- 11:00 731 A time-dependent imprint model for HfZrO₂ thin films capacitors
BOYER Alexandre
- 11:15 1294 The coupling of ferroelectric polarization and oxygen vacancy migration enables electrically controlled thermal memories.
BARNEO Dídac
- 11:30 2476 High on-state current in hafnium oxide ferroelectric tunnel junction
HELLENBRAND Markus (Invited)

Thursday May 28

M14 Hafnia – Memcapacitors and FeFETs

Chairperson(s): HELLENBRAND Markus

LEDERER Maximilian

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|-------|------|--|
| 13:45 | 3391 | High-Precision Capacitive In-Memory-Computing Using Ferroelectric HfO ₂ /SrO ₂
MAJUMDAR Sayani (Invited) |
| 14:15 | 2517 | Enhanced Performance of FeFET Gate Stack via Heterogeneously co-doped Ferroelectric HfO ₂ Films
YANG Shouzhao |
| 14:30 | 3401 | Towards Automotive Grade Reliability – Material and Process Innovation for highly reliable HfO ₂ -based Ferroelectric Devices
SEIDEL Konrad (Invited) |
| 15:00 | 525 | Proximity Engineered Tunable Phase Transitions in Ferroelectric Hafnia and Steep Switching Phase Change FETs
NUKALA Pavan (Invited) |

Thursday May 28

M15 Exotic Ferroelectrics/Properties

Chairperson(s): MACMANUS-DRISCOLL Judith

NUKALA Pavan

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|-------|------|---|
| 16:30 | 3389 | Moiré engineering of electronic transport in twisted BaTiO ₃ membranes
SANTAMARIA Jacobo (Invited) |
| 17:00 | 791 | Effect of complex polar superstructures in the thermal conductivity of ferroelectric PbTiO ₃ /SrTiO ₃ superlattices
RIVADULLA Francisco |
| 17:15 | 936 | Ordered polar nanodomains inducing antiferroelectric-like polarization reversal in ferroelectric heterostructures
LINDFORS-VREJOIU Ionela |
| 17:30 | 1191 | In Situ STEM of Free-Standing PbTiO ₃ Membranes: Mapping the Evolution of Domains and Ripples
GEDDIS ZELLMANN Luka |