



INFOS 2025

DETAILED PROGRAM

WEDNESDAY, 25th June 2025	
08:30 – 09:00	Registration and Welcome
09:00 – 09:40	Invited Talk 1 - Elvira Fortunato (NOVA FCT) Chair: TBA
09:40 – 11:00	SESSION 1 – Thin-Film Transistors Chair: TBA
09:40 – 10:00	Positive Bias Temperature Instability (PBTI) in Polysilicon Thin-Film Transistors (TFTs) for High-Voltage Applications. Ben Kaczer (imec)
10:00 – 10:20	Feasibility of PUFs based on pre-stressed OTFTs. Nazanin Baghban Bousari (Universitat Autònoma de Barcelona)
10:20 – 10:40	Utilizing GeO ₂ Interlayer in In ₂ O ₃ TFTs for High Mobility and High Reliability. Shundong Hu (Institute of Microelectronics of the Chinese Academy of Sciences)
10:40 – 11:00	Advanced Physics-Based Modeling of TFETs: A Comprehensive Geometric and Material Perspective. Marco Villegas (Universidad San Francisco de Quito)
11:00 – 11:30	Coffee Break
11:30 – 13:10	SESSION 2 – Materials and Devices for Future Information Processing Chair: TBA
11:30 – 11:50	Using capture and emission dynamics in insulating layers for information processing Robin Degraeve (imec)

11:50 – 12:10	Impact of Transistor Dimensions on the Performance of Multi-Level Programming Algorithms in 1T1R RRAM Devices Eduardo Perez (IHP GmbH - Leibniz-Institut für innovative Mikroelektronik)
12:10 – 12:30	A new opportunity for the emerging tellurium semiconductor: making neuromorphic devices Huanglong Li (Tsinghua University)
12:30 – 12:50	Integration of MTJ devices with cryo-CMOS readout circuitry for magnetic field sensing Zachary Adamson (Brown University)
12:50 – 13:10	Ultra-low-light Perceptual Synaptic Devices for the Dark Visual Nervous System Zishen Zhao (Xi'an Jiaotong-Liverpool University)
13:10 – 14:30	Lunch
14:30 – 15:10	Invited Talk 2 - Dominique Noguét (FAMES Pilot Line – CEA-Leti) Chair: TBA
15:10 – 16:10	SESSION 3 - Advances in Ferroelectric Materials and Device Engineering Chair: TBA
15:10 – 15:30	Enhanced Polarization and Reliability of Ferroelectric Capacitors Using Gradient-Temperature Deposited HfZrOx Hsin-Yu Hsu (National Tsing Hua University)
15:30 – 15:50	Short-Term Charge Trapping Effects in Ferroelectric FETs: Impact of pulse amplitude and timing Dominik Kleimaier (GlobalFoundries)
15:50 – 16:10	Role of the Topmost ZrO ₂ Layer in Controlling the Crystallization of HfO ₂ /ZrO ₂ Nanolaminate Thin Films Rina Takahisa (The University of Tokyo)
16:10 – 16:40	Coffee Break
16:40 – 18:00	SESSION 4 - Defect Dynamics and Reliability in Dielectrics Chair: TBA
16:40 – 17:00	A mechanism of defect creation in amorphous Ta ₂ O ₅ Teofilo Cobos Freire (University College London)

17:00 – 17:20	Markov Model Describing Progressive Degradation of Local Percolation Path in Thin Oxides Sara Sacchi (imec, KU Leuven)
17:20 – 17:40	Anomalous enhancement of carbon-related defect formation during high temperature Ar annealing in 4H-SiC by prior thermal oxidation Chuyang Lyu (The University of Tokyo)
17:40 – 18:00	Reducing Bonding Forces for creating Higher K Gate Dielectrics Ruyue Cao (University of Cambridge)
19:00 – 21:00	Albaicín Guided Tour
21:00	Welcome Cocktail at Carmen de la Victoria

THURSDAY, 26th June 2025	
09:00 – 09:40	Invited Talk 3 - Fanyu Liu (Chinese Academy of Sciences) Chair: TBA
09:40 – 11:00	SESSION 5 - Characterization and Modeling of Advanced Semiconductor Devices Chair: TBA
09:40 – 10:00	Series Resistance Modulation by Back-Biasing in Ultrathin SOI Devices Cunhua Dou (Nanjing University of Posts and Telecommunications)
10:00 – 10:20	A new model to account for non-ideal impedance response of ionic capacitors Sneha Prabhakaran (Murata Integrated Passive Solutions)
10:20 – 10:40	Electrical characteristics of amorphous indium-gallium-zinc-oxide field-effect transistors from 100 to 300 K Hongwei Tang (imec/KU Leuven)

10:40 – 11:00	Enhanced Electrical Characteristics of Ge N+/P Junction with HfN Surface Passivation and Ion Implantation after Germanidation Process Chih-Cheng Chin (National Tsing Hua University)
11:00 – 11:30	Coffee Break
11:30 – 13:10	SESSION 6 - Memristive and Power Device Innovations Chair: TBA
11:30 – 11:50	Wire Resistance Impact and Compensation Methods in Analog Switching 1R Memristive Crossbar Arrays Eter Mgeladze (NaMLab gGmbH)
11:50 – 12:10	CMOS-compatible Analog Memristive Devices Based on a-GaOx for On-Chip Neural Signal Processing Onur Toprak (Helmholtz-Zentrum Berlin / Chair of Sensor and Actuator Systems, Technische Universität Berlin)
12:10 – 12:30	Effect of Set and Reset Dynamics on HfO ₂ , Al ₂ O ₃ , and Bilayer Memristors Guillermo Vinuesa (Guillermo Vinuesa)
12:30 – 12:50	Enhancing Ultra-Thin-Barrier AlGaN/GaN HEMTs with LPCVD SiN Passivation for High-Power Applications Jui-Sheng Wu (Industry Academia Innovation School National Yang Ming Chiao Tung University)
12:50 – 13:10	Assessment of dual oxide options for LDMOS transistors in FinFET technology Alessandro Ruggieri (University of Modena and Reggio Emilia)
13:10 – 14:30	Lunch
14:30 – 16:30	SESSION 7 - Defect Physics and Reliability in Advanced Devices Chair: TBA
14:30 – 14:50	Time-To-Failure Modelling of Defect Ensembles Using Random Telegraph Noise Data Nishant Saini (imec)
14:50 – 15:10	Extraction of Trap Densities in Al:HfO ₂ MIM Capacitors using Voltage Ramp Stress Measurements Corinna Fohn (KU Leuven/imec)

15:10 – 15:30	Time-scale-based lifetime extrapolation from close-to-operating-voltage gate leakage current Anirudh Varanasi (KU Leuven/imec)
15:30 – 15:50	Hot Carrier Stress in Junctionless Gate-All-Around nMOSFETs Under Different Voltage Conditions Wen-Teng Chang (National University of Kaohsiung)
15:50 – 16:10	Characterization and simulation of the defect levels in InGaP MOS structures via admittance spectroscopy Pavel Kirilenko (Tyndall National Institute)
16:10 – 16:30	Exploring Low-k/High-k Multilayers as High Breakdown Strength Dielectrics for Capacitors Julie Chaussard (CEA)
16:30 – 17:00	Coffee Break and Poster Session
17:00 – 19:00	Poster Session
21:00	Gala Dinner at Convent of Santa Paula

FRIDAY, 27th June 2025	
09:00 – 09:40	Invited Talk 4 - Cesar Lockhart (imec) Chair: TBA
09:40 – 11:00	SESSION 8 - 2D and CMOS-Compatible Materials (I) Chair: TBA
09:40 – 10:00	Density Functional Analysis of Polarity and V _{th} Control in Si and MoS ₂ Hi-K CMOS John Robertson (Cambridge University)
10:00 – 10:20	The Electronic Structure and Properties of SiO ₂ /H ₂ O/WS ₂ Interface Alexander Shluger (University College London)
10:20 – 10:40	On the Evaluation of Interfaces in CMOS-Compatible 2D Materials on SiO ₂ /Si Substrates for Enhanced Performance

	Alberto Martinez (University of Granada)
10:40 – 11:00	Native Oxides of Two-dimensional Bi ₂ SeO ₂ : Insulator for Next-Generation Nanoelectronics Pedram Khakbaz (Institute for Microelectronics, Vienna University of Technology)
11:00 – 11:30	Coffee Break
11:30 – 12:10	Invited Talk 5 - Eric Pop (Stanford University) Chair: TBA
12:10 – 13:10	SESSION 9 - 2D and CMOS-Compatible Materials (II) Chair: TBA
12:10 – 12:30	Impact of remote phonon scattering on carrier transport in monolayer MoS ₂ MOSFETs Marco Introna (Imec, KU Leuven)
12:30 – 12:50	Composition-Structure-Property Relations in Atomic Layer Deposited Indium Tungsten Oxide Semiconductors for BEOL-Compatible Transistor Channels Paul McIntyre (Stanford University)
12:50 – 13:10	Impact of Thermal ALD Oxidizers on Interface and Bulk Properties of Al ₂ O ₃ on (̄("2")01) β-Ga ₂ O ₃ Adam A. Gruszecki (University of Texas at Dallas)
13:10 – 14:30	Closing Remarks and Lunch