

CONFERENCE DAY 1

Wednesday July 6th 2022

Name Room	Slot 105 09:15-10:30		Slot 110 11:00-12:40	Slot 115 12:40-13:00		Slot 120 14:20-16:00		Slot 125 16:20-18:00	
Aula Magna	Keynote Talk 1 (Lai, Chao-Sung) Chair: Antonio Rubio	COFFEE BREAK			LUNCH BREAK				
Cafeteria				Poster Session 1 Chair: Esteve Amat					
AA11; AB25; AB25							Nanofabrication Oral Session Chair: Chao-Sung Lai		Nano-Acoustic and Nano-Sensor Devices Oral Session Chair: James B. Spicer
AB25, AB26; AB26				Quantum, Neuromorphic and Unconventional Computing Oral Session Chair: Vladimirescu, Andrei			Nano-Optics Oral Session Chair: Yehia Massoud		Nanoelectronics #2 Oral Session Chair: Malgorzata Chrzanowska- Jeske
AB26; AB27; AB27				Nanophotonics and Nano-Optoelectronics Oral Session Chair: Lan Fu			Nanomagnetics Oral Session Chair: Supriyo Bandyopadhyay		Processes and Materials Oral Session Chair: Jan Macák
AB27; AV01; AV01				Nanorobotics and Nanomanufacturing Oral Session Chair: Katherine Villa			Nanosensors and nanoactuators Oral Session Chair: Xiaoning Jiang		Nanofabrication #2 Oral Session Chair: Kremena Makasheva
AV01; AV02; AV02				Nano-Metrology and Characterization Oral Session Chair: Xianping Liu			Nano-Materials #2 Oral Session Chair: James E. Morris		Infrared photodetection and intelligent perception Oral Session Chair: Lan Fu
Aula Magna				Nano-Materials Oral Session Chair: Chao-Sung Lai			Nanoelectronics Oral Session Chair: Malgorzata Chrzanowska-Jeske		Modeling and Simulation Oral Session Chair: Xiaoning Jiang

**NOTE: On Tuesday 5th of July, in Room AV02 there is a special session organized by Professors Anant Anantram and Josef Weinbub, entitled:
Emerging Methods to Model Nanodevices and Nanostructures: From Theory to Large-scale Computational Modeling**

CONFERENCE DAY 2Thursday July 7th 2022

Name Room	Slot 100 09:15-10:30		Slot 105 11:00-12:40	Slot 110 12:40-13:00		Slot 115 14:30-15:30	Slot 120 15:30-17:10		Slot 125 17:30-19:10	
Aula Magna	Keynote Talk 2 (Li, Xiuling) Chair: Fabrizio Lombardi	COFFEE BRAKE			LUNCH BRAKE			COFFEE BRAKE		
Cafeteria				Poster Session 2 Chair: Attila Bonyár						
Aula Magna							Plenary Talk 1 (Sarkar, Deblina) Chair: Georgios Ch. Sirakoulis			
AB25, AA11, AA11				Nano-Materials #3 Oral Session Chair: James E. Morris						
AB26, AB25				Modeling and Simulation #2 Oral Session Chair: Anant M.P. Anantram					Modeling and Simulation #3 Oral Session Chair: Anant M.P. Anantram	
AB27, AB26, AB25				Quantum, Neuromorphic and Unconventional Computing #2 Oral Session Chair: Vito Puliafito					Unconventional Computing: new Challenges for Nanotechnology Oral Session Chair: Vito Puliafito	Plasma-free anisotropic etching of semiconductors: MacEtch and related nanotechnology Oral Session Chair: Xiuling Li
AV01, AB26, AB26				First Principles Modeling and Simulation of Plasma Processes for Atomic Scale Precision Semiconductor Device Fabrication: Opportunities and Challenges Oral Session Chair: Peter Ventzek					First Principles Modeling and Simulation of Plasma Processes for Atomic Scale Precision Semiconductor Device Fabrication: Opportunities and Challenges #2 Oral Session Chair: Roberto Longo	Advanced Nanostructures: Fabrication, Characterization, Simulation and Application Perspectives Oral Session Chair: Vladimir M. Fomin

AV02, AB27, AB27		The impact of 2D nanomaterials on green high- frequency technology Oral Session Chair: Eleonora Pavoni			Nanofabrication for Quantum Technologies Oral Session Chair: Esteve Amat	Nanofabrication for Quantum Technologies #2 Oral Session Chair: Francesc Perez- Murano
Aula Magna		Nano-Biomedicine Oral Session Chair: Attila Bonyár			Nano-Biomedicine #2 Oral Session Chair: Jin-Woo Kim	Nano-Biomedicine #3 and Nano-Materials Oral Session Chair: Jin-Woo Kim

CONFERENCE DAY 3Friday July 8th 2022

Name	Slot 105		Slot 110	Slot 115		Slot 120		Slot 125
Room	09:15-10:30		11:00-12:40	12:40-13:00		14:20-16:00		16:20-18:00
Aula Magna	Keynote Talk 3 (Vladimirescu, Andrei) Chair: Sorin Cotofana	COFFEE BRAKE			LUNCH BRAKE		COFFEE BRAKE	
Cafeteria				Poster Session 3 Chair: Jie Han				
Aula Magna; AB04; AB04			Nano-Biomedicine #4 Oral Session Chair: Andrei Vladimirescu,			State-of-the-Art, Open Issues, and Future Trends on Resistance Switching Memories: The Enabling Nanotechnologies for the More-than-Moore Era #2 Oral Session Chair: Antonio Rubio		State-of-the-Art, Open Issues, and Future Trends on Resistance Switching Memories: The Enabling Nanotechnologies for the More-than-Moore Era #3 Oral Session Chair: Georgios Ch. Sirakoulis
AB21, AB09			State-of-the-Art, Open Issues, and Future Trends on Resistance Switching Memories: The Enabling Nanotechnologies for the More-than-Moore Era Oral Session Chair: Ronald Tetzlaff			Special Session on Internet of Nanorobotic Things (IoNT) for Nano-Biomedicine Oral Session Chairs: Yifan Chen, Shaolong Shi, , U Kei Cheang		
AV01, AV01, AB09			Emerging Technologies: From Theory to Large-scale Realization Challenges of Quantum Computers Oral Session Chair: Roza Kotlyar			IEEE NTC MENED program #2 Oral Session Chair: Kremena Makasheva		IEEE NTC MENED program #3 Oral Session Chair: Kremena Makasheva
AV02			IEEE NTC MENED program Oral Session Chair: Kremena Makasheva					

CONFERENCE DAY 0: Detailed Program

Tuesday,

AV02

Emerging Methods to Model Nanodevices and Nanostructures: From Theory to Large-scale Computational Modeling

Oral Session

Organizer: Anant Anantram

University of Washington

Organizer: Josef Weinbub (110812)

TU Wien

CHAIRS: Anant Anantram (University of Washington, USA) and Josef Weinbub (TU Wien, Austria)

#	Subslot	Type of presentation	Title	Authors
1	09:00-09:30	Oral presentation	Wigner Dynamics of Electron Quantum Superposition States in a Confined and Opened Quantum Dot	Ballicchia, Mauro, (TU Wien) Nedjalkov, Mihail (TU Wien) Weinbub, Josef (TU Wien)
2	09:30-10:00	Oral presentation	Massively Parallel Computer Aided Design of Nanoscale Devices	Luisier, Mathieu (ETH Zurich)
3	10:00-10:30	Oral presentation	The BITLLES Simulator: On the Advantages of Having Access to the Microscopic Properties of Electrons Inside the Active Region of Quantum Devices	Oriols, Xavier (Universitat Autònoma de Barcelona, Spain)
4	10:30-11:00	Oral presentation	Victory Atomistic: A Successful Path Toward Atomistic TCAD For Microelectronic Engineers In Nanoscale Devices Prototyping	Blaise, Philippe (Silvaco)
5	11:00-11:30	Oral presentation	Large-scale Simulation Frameworks for Nanoelectronics	Gunst, Tue (Synopsys)
6	11:30-12:00	Oral presentation	Sensing quantum electromagnetic fields with a single electron	Degiovanni, Pascal (CNRS / ENS Lyon) Souquet-Basiege, Hubert (ENS Lyon) Roussel, Benjamin (Aalto University) Safi, Inès (CNRS / Université Paris Saclay) Bartholomei, Hugo (Université PSL / ENS) Fève, Gwendal (Université PSL / ENS)

CONFERENCE DAY 1: Detailed Program*Wednesday July 6th 2022*

WeAT6

Wednesday, July 6, 2022, 09:15-10:30, Track T6, Aula Magna

Professor Chao-Sung Lai

KEYNOTE TALK 1

CHAIR: Antonio Rubio (Universitat Politècnica de Catalunya, Spain)**Greater Impacts of Nanotechnology and Quantum**

Fundamental contributions of nanotechnology include but not limited to: (1) Miniaturization, (2) Energy-efficiency, (3) Higher efficiency and/or effectiveness. Exploration of new computing paradigms such as bio-inspired computation and quantum computing belongs to the latter. Continuous advances in semiconductor technology include “more Moore” which following Moore’s Law scaling and “more than Moore” by hybrid integration with new materials. A lot of success appears in functionality and scaling in the fields of electronics, optics, sensors and biomedical applications.

In this talk, we will present how to further combine graphene and new 2D materials, extending into the quantum realm, with the cutting-edge of modern scientific and engineering research. The impacts of nanotechnology and quantum include (1) materials to devices: graphene and two-dimensional materials, insulators, nano transistor fabrication, (2) module demonstration: electronics and optics logic-operation, true random number generator (TRNG) and photovoltaic cells, (3) quantum era: quantum device design and quantum memory ideas as well as quantum computing.

In addition, a hybrid-transistor-based artificial reflex arc (ARA) and artificial pain modulation system (APMS) will be addressed that illustrates future intelligent alarm systems, neuroprosthetics, and neurorobotics. Sharing of materials by various research laboratories is highly acknowledged.

WeBT2

Wednesday, July 6, 2022, 11:00-12:40, Track T2, AB25

Quantum, Neuromorphic and Unconventional Computing

Oral Session

CHAIR: Andrei Vladimirescu (University of California, Berkeley, USA)

#	Subslot	Type of presentation	Title	Authors
1	11:00-11:20	Oral presentation	Mean Circuits Using Correlated Random Bitstreams in Stochastic Computing	li, feiyu (Hefei University of Technology) xie, guangjun (Hefei University of Technology) Han, Jie (University of Alberta) Zhang, Yongqiang (Hefei University of Technology)
2	11:20-11:40	Oral presentation	Low-Power K Nearest Neighbors Classifiers with Approximate Nanoscale Memories	Liu, Shanshan (New Mexico State University) Tang, Xiaochen (New Mexico State University) Reviriego, Pedro (Universidad Carlos III de Madrid) Liu, Weiqiang (Nanjing University of Aeronautics and Astronautics) Tang, Wei (New Mexico State University) Lombardi, Fabrizio (Northeastern University) 100860
3	11:40-12:00	Oral presentation	Highly Accurate and Energy Efficient Stochastic Multipliers	Zhang, Yongqiang (Hefei University of Technology) Xie, Lingyun (Hefei University of Technology) Han, Jie (University of Alberta) 102677 xie, guangjun (Hefei University of Technology)

4	12:00-12:20	Oral presentation	The Strong Sensitivity of the Time Response and Pinning Current of Binary Stochastic Neurons Employing Low Energy Barrier Nanomagnets to Geometrical Variations	Rahman, Rahnuma (Virginia Commonwealth University) Bandyopadhyay, Supriyo (Virginia Commonwealth University)
5	12:20-12:40	Oral presentation	Hybrid Neurotransistors Based on Silicon Nanowires Modified with Polarizable Films	Ibarlucea, Bergoi (TU Dresden) Panes-Ruiz, Luis Antonio (TU Dresden) Cuniberti, Gianarelio (TU Dresden)

WeBT3				Wednesday, July 6, 2022, 11:00-12:40, Track T3, AB26
Nanophotonics and Nano-Optoelectronics				Oral Session
CHAIR: Lan Fu (The Australian National University, Australia)				
#	Subslot	Type of presentation	Title	Authors
1	11:00-11:20	Oral presentation	NanoFrazor Technology: Enabling Unique Nanoelectronics and Nanophotonics Device Fabrication	Chaaban, Jana (Heidelberg Instruments Nano AG) Hendricks, Nicholas (Heidelberg Instruments Nano) Çağın, Emine (Heidelberg Instruments Nano)
2	11:20-11:40	Oral presentation	Negative Refractive Index in Si/Porous SiO2 Fishnet Metamaterial	Osinski, Marek (University of New Mexico)
3	11:40-12:00	Oral presentation	GHz Phonon Waveguides in Nanopatterned Silicon	Florez, Omar (Catalan Institute of Nanoscience and Nanotechnology) Madiot, Guilhem (ICN2 Catalan Institute of Nanoscience and Nanotechnology) Ng, Ryan C (Catalan Institute of Nanoscience and Nanotechnology) Arregui, Guillermo (Technical University of Denmark) Albrechtsen, Marcus (Technical University of Denmark) Stobbe, Søren (Technical University of Denmark) Sotomayor Torres, Clivia (Catalan Institute of Nanoscience and Nanotechnology) Garcia Fernandez, Pedro David (ICN2 and CSIC-Material Science Institute)
4	12:00-12:20	Oral presentation	Laser-Printed Emissive Metasurface Implemented with a Nanoscale Planar Thin-Film Resonator	Myeongkyu, Lee (Yonsei University) Yeongseon, Kim (Yonsei University) Dongkyun, Kang (Yonsei University) Jaeyong, Kim (Yonsei University)
5	12:20-12:40	Oral presentation	Polarization-Selective Electro-Optical Tunability in Phase-Change Nanowires	Lee, Jason (June) (University of Oxford) Farmakidis, Nikolaos (Oxford University) Bhaskaran, Harish (University of Oxford)

WeBT4				Wednesday, July 6, 2022, 11:00-12:40, Track T4, AB27
Nanorobotics and Nanomanufacturing				Oral Session
CHAIR: Katherine Villa (Institute of Chemical Research of Catalonia (ICIQ), Spain)				
#	Subslot	Type of presentation	Title	Authors
1	11:00-11:20	Oral presentation	A Real-Time Target Tracking Method for SEM Images Based on Template Matching	Fang, Liang (Soochow University) Qu, Zhi (Soochow University) Zhang, Lue (Soochow University) Yang, Zhan (Soochow University)
2	11:20-11:40	Oral presentation	Photocatalytic-Based Microswimmers for Microbial Removal and Biofilm Eradication	Villa, Katherine (Institute of Chemical Research of Catalonia (ICIQ))
3	11:40-12:00	Oral presentation	2D-based nano/microrobots: Towards Biomedical and Environmental Applications	Khezri, Bahareh (University of Chemistry and Technology)
4	12:00-12:20	Oral presentation	Platform Merging for Nanorobotic Manipulation: Multiple Physical Stimuli and In-Situ Characterization	Zhang, Wenqi (City University of HongKong) Chen, Donglei (City University of HongKong) Hou, Chaojian (City University of Hong Kong) Wang, Kun (City University of Hong Kong) Li, Qingwei (Beijing Institute of Technology) Dong, Lixin (City University of Hong Kong)
5	12:20-12:40	Oral presentation	Phase Change Nanowires As Tunable NEMS	Ali, Utku Emre (University of Oxford) Modi, Gaurav (University of Pennsylvania) Agarwal, Ritesh (University of Pennsylvania) Bhaskaran, Harish (University of Oxford)

WeBT5

Wednesday, July 6, 2022, 11:00-12:40, Track T5, AV01

Nano-Metrology and Characterization

Oral Session

CHAIR: Xianping Liu, (University of Warwick, UK)

#	Subslot	Type of presentation	Title	Authors
1	11:00-11:20	Oral presentation	Mechatronic Demodulation of Self-Sensing Cantilever for DC-Bias Free AFM Imaging in Liquid	Poik, Mathias (TU Wien) Mayr, Mario (TU Wien) Hackl, Thomas (TU Wien) Schitter, Georg (TU Wien)
2	11:20-11:40	Oral presentation	Influence of Imaging Parameters on AFM Surface Potential Measurements in Aqueous Solutions	Hackl, Thomas (TU Wien) Poik, Mathias (TU Wien) Schitter, Georg (TU Wien)
3	11:40-12:00	Oral presentation	Exploring Coherent Acoustic Waves and Lattice Thermal Phonons for Readout of Anti-ferromagnetic Order in Thin Films	Balogun, Oluwaseyi (Northwestern University) Jiang, Shizhou (Northwestern University)
4	12:00-12:20	Oral presentation	Enhanced Thermoelectric Properties of Solvothermal Grown Bismuth Telluride-Graphene Composite	Choi, Daniel (Oak Ridge Associated Universities) Karna, Shashi (US Army Research Laboratory)
5	12:20-12:40	Oral presentation	Nanoscale Mechanobiology Characterization and Analysis of Cells	Zhu, Jiaijing (University of Warwick) Tian, Yanling (University of Warwick) Liu, Xianping (University of Warwick) 113375

WeBT8				Wednesday, July 6, 2022, 11:00-12:40, Track T8, Aula Magna
Nano-Materials				Oral Session
CHAIR: Chao-Sung Lai (Chang Gung University, Taiwan)				
#	Subslot	Type of presentation	Title	Authors
1	11:00-11:20	Oral presentation	Hydrogen Iodide (HI) Neutral Beam Etching for InGaN/GaN Micro-LED	Ishihara, Takahiro (Tohoku Univ.) 112677 Sawada, Takahiro (Institute of Fluid Science, Tohoku University.) Ohori, Daisuke (Tohoku University) Wang, Xuelun (National Institute of Advanced Industrial Science and Technology) Endo, Kazuhiko (Institute of Advanced Industrial Science and Technology) Natori, Nobuhiro (Showa Denko K.K.) Sato, Daisuke (Showa Denko K.K.) Li, Yiming (National Chiao Tung University) Samukawa, Seiji (Tohoku University)
2	11:20-11:40	Oral presentation	Wettability of ZnO and Curcumin Decorated Graphene Oxide Nanocomposite for Heavy Metal Ion Removal from Water	Chakraborty, Nabanita (Indian Institute of Technology Hyderabad) Acharyya, Swati (University of Hyderabad) Anindya, Roy (Indian Institute of Technology Hyderabad)
3	11:40-12:00	Oral presentation	Nanostructured Germanium Anode for Lithium-Ion Batteries for Aerospace Technologies	Diolaiti, Valentina (University of Ferrara)
4	12:00-12:20	Oral presentation	Influence of silica-based nanoparticles embedded on fluoropolymers to obtain superhydrophobic and transparent films	Zineb Matouk*, Nitul Rajput, Monserrat Gutierrez (United Arab Emirates)
5	12:20-12:40	Oral presentation	Gate Modulation Effect in Nano-Scale Epitaxial Aluminum Films on Sapphire Substrate Grown by Molecular Beam Epitaxy	Gao, Yu-Yao (Institute of Electronics, National Yang Ming Chiao Tung University)

WeDT1				Wednesday, July 6, 2022, 14:20-16:00, Track T1, AB25
Nanofabrication				Oral Session
CHAIR: Chao-Sung Lai (Chang Gung University, Taiwan)				
#	Subslot	Type of presentation	Title	Authors
1	14:20-14:40	Oral presentation	Characterization Technique for Interface Traps in Si Nanosheet GAA MOSFETs through Subthreshold I-V Characteristics	Yoo, Han Bin (Kookmin University) Kim, Haesung (Kookmin University) Lee, Yongwoo (Kookmin University) Ryu, Ji Hee (Kookmin University) Park, Ju Young (Kookmin University) Yang, Hyojin (Kookmin University) Bae, Jong-Ho (Kookmin University) Kim, Dae Hwan (Kookmin University) Choi, Sung-Jin (Kookmin University) Kim, Dong Myong (Kookmin University)
2	14:40-15:00	Oral presentation	Synthesis of Carbon Nanofibers (CNFs) by PECVD Using Ni Catalyst Printed by Spark Ablation	Sacco, Leandro Nicolas (TU Delft) van Ginkel, Hendrik Joost (Delft University of Technology) Vollebregt, Sten (Delft University of Technology)
3	15:00-15:20	Oral presentation	Fundamental Insights into Thermal Growth of Single-Crystal Copper-Oxide Nanowires	Košiček, Martin (Jožef Stefan Institute, Jožef Stefan International Postgraduate School) Zavašnik, Janez (Department F6, Jožef Stefan Institute) Baranov, Oleg (Plasma laboratory, National Aerospace University, Kharkiv, Ukraine) Šetina Batič, Barbara (Institute of Metals and Technology, Ljubljana, Slovenia) Cvelbar, Uroš (Jozef Stefan Institute, Slovenia)

4	15:20-15:40	Oral presentation	Graphene-Enabled Silicon-Integrated Photodiode for DUV Imaging	Moffat, Neil (IMB-CNM) Rius, Gemma (Institute of Microelectronics of Barcelona) Villegas, Jairo (IMB - CNM (CSIC)) Pellegrini, Giulio (IMB-CNM-CSIC)
5	15:40-16:00	Oral presentation	Obtaining Cu₂O Nanoparticles Doped with Lanthanum, Magnesium and Manganese Using a Displacement Reaction	Guzman, Maribel (PUCP) Wei, Tian (Western University) Walker, Chantal (Western University) Jose E., Herrera (Western University)

WeDT2		Wednesday, July 6, 2022, 14:20-16:00, Track T1, AB26			
Nano-Optics		Oral Session			
CHAIR: Yehia Massoud (King Abdullah University of Science and Technology (KAUST), Saudi Arabia)					
#	Subslot	Type of presentation	Title	Authors	
1	14:20-14:40	Oral presentation	Photoelectric Characterization of a Single Layer of CNTs Using CAFM	Abbas, Yawar (Khalifa University) Mohammad, Baker (Khalifa University) Rezeq, Moh'd (Khalifa University)	
2	14:40-15:00	Oral presentation	Phase Chirality Induced Meta-Atoms for Holographic Displays	Naeem, Taimoor (MicroNano Lab, Department of Electrical Engineering, Information) Khaliq, Hafiz Saad (MicroNano lab, Department of Electrical Engineering, Information) Tauqeer, Tauseef (MicroNano Lab, Electrical Engineering Department, Information Te) Zubair, Muhammad (MicroNano Lab, Department of Electrical Engineering, Information) Mehmood, Muhammad Qasim (MicroNano Lab, Department of Electrical Engineering, Information) Massoud, Yehia (King Abdullah University of Science and Technology (KAUST))	
3	15:00-15:20	Oral presentation	Dual-Mode Chiral Meta-Holography through All-Dielectric Nano-Surfaces in Visible Regime	Khaliq, Hafiz Saad (MicroNano lab, Department of Electrical Engineering, Information) Naeem, Taimoor (MicroNano Lab, Department of Electrical Engineering, Information) Riaz, Kashif (MicroNano Lab, Department of Electrical Engineering, Information) Zubair, Muhammad (MicroNano Lab, Department of Electrical Engineering, Information) Mehmood, Muhammad Qasim (MicroNano Lab, Department of Electrical Engineering, Information) Massoud, Yehia (King Abdullah University of Science and Technology (KAUST))	

4	15:20-15:40	Oral presentation	Novel Spin-Decoupled Holographic Meta-Displays	<p>Javed, Isma (MicroNano Lab, Department of Electrical Engineering, Information)</p> <p>Naveed, Muhammad Ashar (MicroNano Lab, Department of Electrical Engineering, Information)</p> <p>Zubair, Muhammad (MicroNano Lab, Department of Electrical Engineering, Information)</p> <p>Goyal, Amit Kumar (King Abdullah University of Science and Technology (KAUST))</p> <p>Mehmood, Muhammad Qasim (MicroNano Lab, Department of Electrical Engineering, Information)</p> <p>Massoud, Yehia (King Abdullah University of Science and Technology (KAUST))</p>
5	15:40-16:00	Oral presentation	Pseudo Non-Diffracting Beam Array through High-Indexed Dielectric Metaplate	<p>Javed, Isma (MicroNano Lab, Department of Electrical Engineering, Information)</p> <p>Naveed, Muhammad Ashar (MicroNano Lab, Department of Electrical Engineering, Information)</p> <p>Zubair, Muhammad (MicroNano Lab, Department of Electrical Engineering, Information)</p> <p>Riaz, Kashif (MicroNano Lab, Department of Electrical Engineering, Information)</p> <p>Mehmood, Muhammad Qasim (MicroNano Lab, Department of Electrical Engineering, Information)</p> <p>Massoud, Yehia (King Abdullah University of Science and Technology (KAUST))</p>

WeDT3		Wednesday, July 6, 2022, 14:20-16:00, Track T3, AB27		
Nanomagnetics		Oral Session		
CHAIR: Supriyo Bandyopadhyay (Virginia Commonwealth University, USA)				
#	Subslot	Type of presentation	Title	Authors
1	14:20-14:40	Oral presentation	Erythrocyte-Derived Carriers for Theranostics Applications	Della Pelle, Giulia (Institut Jozen Stefan) Kostevsek, Nina (Institut Jozen Stefan)
2	14:40-15:00	Oral presentation	Development of a Model System for Magnetic Nanoparticle-Based Biosensing in the Tumor Microenvironment	Moss, Gabrielle (Thayer School of Engineering at Dartmouth College) Knopke, Christian (Lodestone Biomedical) Diamond, Solomon (Thayer School of Engineering at Dartmouth College)
3	15:00-15:20	Oral presentation	Magnetolectric Nanoparticles for Wireless Brain Stimulation	Abdel-Mottaleb, Mostafa (University of Miami) 113376 Zhang, Elric (University of Miami) Campos, Manuel (Cellular Nanomed Inc.) Andre, Victoria (University of Miami) Shotbolt, Max (University of Miami) Smith, Isadora (University of Miami) Yildirim, Yagmur (University of Miami) Yildirim, Burak (University of Miami) Noga, Brian (University of Miami) Liang, Ping (Cellular Nanomed Inc.) Khizroev, Sakhmat (Florida International University)

4	15:20-15:40	Oral presentation	Magnetolectric Core Shell Nanoparticles Used to Wirelessly Generate Action Potentials in Vitro	Zhang, Elric (University of Miami) Abdel-Mottaleb, Mostafa (University of Miami) Yildirim, Yagmur (University of Miami) Navarrete, Brayan (Florida International University) Campos, Manuel (Cellular Nanomed Inc.) Smith, Isadora (University of Miami) Yildirim, Burak (University of Miami) Liang, Ping (Cellular Nanomed Inc.) Khizroev, Sakhrat (Florida International University)
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WeDT4

Wednesday, July 6, 2022, 14:20-16:00, Track T4, AV01

Nanosensors and nanoactuators

Oral Session

CHAIR: Xiaoning Jiang (North Carolina State University, USA)

#	Subslot	Type of presentation	Title	Authors
1	14:20-14:40	Oral presentation	On-Chip Nanostructured Electrochemical Cells for Enhanced Glucose Monitoring in Bioprocesses	Rusli, Nurul Izni (University of Leuven (KU Leuven), 3001 Leuven,) Van den Eeckhoudt, Ruben (Dept. of Electrical Eng. (ESAT-MNS), University of Leuven (KU Le) Ceysens, Frederik Simon Godfried (Dept. of Electrical Eng. (ESAT-MNS), University of Leuven (KU Leuven) Taurino, Irene (KU Leuven) Kraft, Michael (University of Leuven (KU Leuven), 3001 Leuven,)
2	14:40-15:00	Oral presentation	Detailed Analysis of Flow-Induced Thermal Mechanisms in Sub-Micron MEMS-Based VOC Biosensors: A Design Solution for the Nanometer Scale	Perello-Roig, Rafel (University of the Balearic Islands) Verd, Jaume (University of the Balearic Islands) Bota, Sebastia (University of the Balearic Islands) Segura, Jaume (University of the Balearic Islands)
3	15:00-15:20	Oral presentation	Single-Molecule Aflatoxin B1 Sensing Via Pyrrole-Based Molecular Quantum Dot	Mo, Fabrizio (Politecnico di Torino) Spano, Chiara Elfi (Politecnico di Torino) Ardesi, Yuri (Politecnico di Torino) Ruo Roch, Massimo (Politecnico di Torino) Piccinini, Gianluca (Politecnico di Torino) Graziano, Mariagrazia (Politecnico di Torino)
4	15:20-15:40	Oral presentation	Aerosol jet printing of graphene oxide for highly sensitive Label-Free electrochemical biosensors for histamine monitoring	Izquierdo, Ricardo (École de Technologie Supérieure)

5	15:40-16:00	Oral presentation	Highly Sensitive Electrospun SnO₂-ZnO Composite Nanofibers for Low Concentration Ethanol Detection	Kumar Lalwani, Suraj (Indian Institute of Information Technology - Allahabad) Debnath, Ajit (Indian Institute of Information Technology - Allahabad) Sunny, Sunny (Indian Institute of Information Technology - Allahabad)
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WeDT5					Wednesday, July 6, 2022, 14:20-16:00, Track T5, AV02
Nano-Materials #2					Oral Session
CHAIR: James E. Morris (Portland State University, USA)					
#	Subslot	Type of presentation	Title	Authors	
1	14:20-14:40	Oral presentation	Lithium Yttrium Ytterbium Fluoride Nanocrystals for Laser Cooling Applications	Osinski, Marek (University of New Mexico)	
2	14:40-15:00	Oral presentation	Simple, scalable route to produce transparent hydrophobic/hydrophilic films self cleaning surfaces	Zineb Matouk*, Nitul Rajput, Monserrat Gutierrez (United Arab Emirates)	
3	15:00-15:20	Oral presentation	Comparison of structural properties of exfoliated graphene via different exfoliation processes and intermediate bath sonication with acids	Zineb Matouk*, Nitul Rajput, Monserrat Gutierrez (United Arab Emirates)	
4	15:20-15:40	Oral presentation	Electron Transport in Discontinuous Metal Thin Films	Morris, James E (Portland State University)	
5	15:40-16:00	Oral presentation	Nanocrystalline Silicon for Optoelectromechanical Applications	Navarro-Urrios, Daniel (University of Barcelona) Maire, Jeremie (Catalan Institute of Nanoscience and Nanotechnology) Pitanti, Alessandro (CNR - Nanoscience Institute) Martinez, Alejandro (Universidad Politecnica de Valencia) Sotomayor Torres, Clivia (Catalan Institute of Nanoscience and Nanotechnology) Ahopelto, Jouni (VTT Technical Research Centre of Finland Ltd)	

WeDT8		Wednesday, July 6, 2022, 14:20-16:00, Track T8, Aula Magna			
Nanoelectronics		Oral Session			
CHAIR: Malgorzata Chrzanowska-Jeske (Portland State University, USA)					
#	Subslot	Type of presentation	Title	Authors	
1	14:20-14:40	Oral presentation	Hysteresis Associated with Intrinsic Oxide Traps in Gate Tunable Tetrahedral CVD MoS2 Memristor	Kurtash, Vladislav (TU Ilmenau) Mathew, Sobin (TU Ilmenau) Thiele, Sebastian (TU Ilmenau) Scheler, Theresa (TU Ilmenau) Reiprich, Johannes (TU Ilmenau) Haehnlein, Bernd (TU Ilmenau) Stauffenberg, Jaqueline (TU Ilmenau) Narasimha, Shilpashree (TU Ilmenau) Abedin, Saadman (TU Ilmenau) Jacobs, Heiko O. (TU Ilmenau) Joerg, Pezoldt (TU Ilmenau) Manske, Eberhard (TU Ilmenau)	
2	14:40-15:00	Oral presentation	Estimating the Process Variation Effects of Stacked Gate All Around Si Nanosheet CFETs Using Artificial Neural Network Modeling Framework	Butola, Rajat (NYCU) Li, Yiming (National Chiao Tung University) Kola, Sekhar Reddy (National Yang Ming Chiao Tung University) Chuang, Min-Hui (National Yang Ming Chiao Tung University) Akbar, Chandni (NYCU)	
3	15:00-15:20	Oral presentation	Low Temperature Effects on the Operation of Nanomaterials Based Electronic Devices	Nekovei, Reza (Texas A&M University-Kingsville) Verma, Amit (Texas A&M University - Kingsville)	

4	15:20-15:40	Oral presentation	Simulation of MoS2 Based Asymmetric Nano-Channel Rectifier	Garg, Sahil (Punjab Engineering College (Deemed to be University)) Sharma, Bhavuk (Punjab Engineering College (Deemed to be University)) Khanal, Gaurav Mani (Punjab Engineering College (Deemed to be University)) Gupta, Neena (Punjab Engineering College (Deemed to be University)) Singh, Arun (Punjab Engineering College (Deemed to be University)) Syal, Rajat (Punjab Engineering College (Deemed to be University)) Kumar, Sanjeev (Punjab Engineering College (Deemed to be University)) Kasjoo, Shahrir Rizal (Universiti Malaysia Perlis Kangar, Malaysia)
5	15:40-16:00	Oral presentation	Exploiting Nanoelectronic Properties of Memory Chips for Prevention of IC-Counterfeiting	Chakraborty, Supriya (Indian Institute of Technology Delhi) Das, Tamoghno (Indian Institute of Technology, Delhi) Suri, Manan (Indian Institute of Technology Delhi)

WeET1

Wednesday, July 6, 2022, 16:20-18:00, Track T2, AB25

Nano-Acoustic and Nano-Sensor Devices

Oral Session

CHAIR: James B. Spicer (Johns Hopkins University, USA)

#	Subslot	Type of presentation	Title	Authors
1	16:20-16:40	Oral presentation	Effects of Pore Discovery Rate on the Ultrasonic Properties of Nuclear Graphites Undergoing Oxidation	Spicer, James B. (Johns Hopkins University) Paul, Ryan (Oak Ridge National Laboratory) Contescu, Cristian (Oak Ridge National Laboratory) Arregui-Mena, Jose (Oak Ridge National Laboratory) Berry, Ellen (Johns Hopkins University) Gallego, Nidia (Oak Ridge National Laboratory)
2	16:40-17:00	Oral presentation	Green and Flexible pMUT Based on Transparent Piezoelectric Chitosan Thin Film	de Marzo, Gaia (Istituto Italiano di Tecnologia, Dipartimento di Ingegneria dell) 112913 Mastronardi, Vincenzo Mariano (Istituto Italiano di Tecnologia, Dipartimento di Ingegneria dell) 112914 Algieri, Luciana (Istituto Italiano di Tecnologia (IIT), Center for Biomolecular N) 108747 Vergari, Federica (Istituto Italiano di Tecnologia - Center for Biomolecular Nanote) 112916 Pisano, Filippo (Istituto Italiano di Tecnologia (IIT)) 108749 Fachechi, Luca (Istituto Italiano di Tecnologia - Center for Biomolecular Nanote) 112918 Natta, Lara (Istituto Italiano di Tecnologia - Center for Biomolecular Nanote) 112919 Ascanio, Giulia (Istituto Italiano di Tecnologia - Center for Biomolecular Nanote) 112920 Rizzi, Francesco (Istituto Italiano di Tecnologia (IIT)) 103403 Pisanello, Ferruccio (Istituto Italiano di Tecnologia, Center for Biomolecular Nanotec) 103361 De Vittorio, Massimo (Istituto Italiano di Tecnologia)

3	17:00-17:20	Oral presentation	ZnO Nanowire Synthesis and Application in UV Sensing	Ilickas, Mindaugas (Kaunas University of Technology) Mardosaitė, Rasa (Kaunas University of Technology) Rackauskas, Simas (Kaunas University of Technology)
4	17:20-17:40	Oral presentation	Thick Ultraporous Metal Oxide Nanostructures Abundant in Oxygen Vacancies for Room Temperature VOCs Sensing	Abideen, Zain Ul (Australian National University) Choi, Jun-Gyu (Gwangju Institute of Science and Technology (GIST)) Lee, Won-June (Gwangju Institute of Science and Technology (GIST)) Murugappan, Krishnan (Australian National University) Tran-Phu, Thanh (Australian National University) Yoon, Myung-Han (Gwangju Institute of Science and Technology (GIST)) Tricoli, Antonio (Australian National University)
5	17:40-18:00	Oral presentation	Multi-Parameter RF Based Characterization of Nanoparticles and Biomolecules	Mazumder, Annesha (IIIT, Hyderabad) Syed, Azeemuddin (International Institute of Information Technology Hyderabad) Sau, Tapan K. (International Institute of Information Technology, Hyderabad) Bhimalapuram, Prabhakar (International Institute of Information Technology, Hyderabad) Biswas, Arunangshu (International Institute of Information Technology, Hyderabad)

WeET2

Wednesday, July 6, 2022, 16:20-18:00, Track T2, AB26

Nanoelectronics #2

Oral Session

CHAIR: Malgorzata Chrzanowska-Jeske (Portland State University, USA)

#	Subslot	Type of presentation	Title	Authors
1	16:20-16:40	Oral presentation	Challenges in Electron Beam Lithography of Silicon Nanostructures	Cakirlar, Cigdem (Namlab gGmbH) Galderisi, Giulio (Namlab gGmbH) Beyer, Christoph (Namlab gGmbH) Simon, Maik (Namlab gGmbH) Mikolajick, Thomas (Namlab gGmbH, Chair for Nanoelectronics, TU Dresden) Trommer, Jens (Namlab gGmbH)
2	16:40-17:00	Oral presentation	A Low-Cost and Robust Latch Protected against Triple Node Upsets in Nanoscale CMOS Based on Source-Drain Cross-Coupled Inverters	Yan, Aibin (Anhui University) Song, Shukai (Anhui University) Chen, Yu (Anhui University) Cui, Jie (Anhui University) Huang, Zhengfeng (Hefei University of Technology) Wen, Xiaoqing (Kyushu Institute of Technology)
3	17:00-17:20	Oral presentation	Revisiting Gate-Induced Drain Leakage in Nanowire FETs for 1T-DRAM	Jaiswal, Anupam Kumar (IIT Kanpur) Patel, Sharang Dhar (IIT Kanpur) Sahay, Shubham (IIT Kanpur)
4	17:20-17:40	Oral presentation	A Novel Graphene Nanoribbon XOR Gate Design	Rallis, Konstantinos (Democritus University of Thrace) Sirakoulis, Georgios Ch. (Democritus University of Thrace) Karafyllidis, Ioannis (Democritus University of Thrace) Rubio, Antonio (Universitat Politècnica de Catalunya) Dimitrakis, (NCSR Dimokritos)
5	17:40-18:00	Oral presentation	Monocrystalline ZnO Nanorods Thin-Film Based Schottky Barrier Diode	Ali, Ghusoon M. (Electrical Engineering Department-Mustansiriyah University) Armoot, Shahad T. (Electrical Engineering Department-Mustansiriyah University)

WeET3

Wednesday, July 6, 2022, 16:20-18:00, Track T3, AB27

Processes and Materials

Oral Session

CHAIR: Jan Macak (Univerzita Pardubice, Czech Republic)

#	Subslot	Type of presentation	Title	Authors
1	16:20-16:40	Oral presentation	Synthesis of Nanoporous Type a and X Zeolite Mixtures from Biomass Combustion Fly Ash for Post-Combustion Carbon Capture	Petrovic, Ben (Brunel University London) Gorbounov, Mikhail (Brunel University London) Özmen, Serap (Cranfield University) Clough, Peter (Cranfield University) Masoudi Soltani, Salman (Brunel University London)
2	16:40-17:00	Oral presentation	Centrifugal Spinning of Nanofibers: Materials, Properties and Applications	Rihova, Martina (CEITEC BUT) Hromadko, Ludek (Univerzita Pardubice) Cicmancova, Veronika (Univerzita Pardubice) Macak, Jan (Univerzita Pardubice)
3	17:00-17:20	Oral presentation	Development of Cryogenic Dielectric Nanocomposites for High-Temperature Superconductor Applications	Mahon, Jacob (Rowan University) Cook, Jordan (Rowan University) Yu, Lei (Rowan University) Hu, Xiao (Rowan University) Haas, Francis (Rowan University) Krchnavek, Robert (Rowan University) Xue, Wei (Rowan University)
4	17:20-17:40	Oral presentation	Anodic TiO₂ Nanotube Layers: Recent Advancements in Morphologies	Sopha, Hanna (University of Pardubice) Sepúlveda, Marcela (University of Pardubice) Hromadko, Ludek (Univerzita Pardubice) Macak, Jan (Univerzita Pardubice)

5	17:40-18:00	Oral presentation	Surface Grafted Perchlorinated Trityl Radicals As Active Components in Devices	Crivillers, Nuria (Institute of Materials Science of Barcelona (ICMAB-CSIC)) de Sousa, Alejandro (Institut de Ciència de Materials de Barcelona (ICMAB-CSIC)) Mas-Torrent, Marta (Institut de Ciència de Materials de Barcelona (ICMAB-CSIC)) Fabre, Bruno (Uni. Rennes, CNRS, ISCR (Institut des Sciences Chimiques de Renn)) Pfattner, Raphael (Institut de Ciència de Materials de Barcelona (ICMAB-CSIC)) Rovira, Concepció (Institut de Ciència de Materials de Barcelona (ICMAB-CSIC))
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WeET4

Wednesday, July 6, 2022, 16:20-18:00, Track T4, AV01

Nanofabrication #2

Oral Session

CHAIR: Kremena Makasheva (French National Center for Scientific Research – CNRS, France)

#	Subslot	Type of presentation	Title	Authors
1	16:20-16:40	Oral presentation	High Binding Density Coatings for Biomolecules on Plasmonic Gratings and Their Sensing Applications	Bok, Sangho (Southern Utah University) 112409
2	16:40-17:00	Oral presentation	Scalable Fabrication of Metallic Nanogaps Using CMOS-Based 10 nm Spacer Lithography	Chryssikos, Domenikos (Technical University of Munich) Heigl, Martin (Fraunhofer Research Institution for Microsystems and Solid State) Kounoupioti, Evanthia (Technical University of Munich) Neumeier, Karl (Fraunhofer Research Institution for Microsystems and Solid State) Wieland, Robert (Fraunhofer Research Institution for Microsystems and Solid State) Tornow, Marc (TU München)
3	17:00-17:20	Oral presentation	Patterning of Fine-Features in Nanoporous Films Synthesized by Spark Ablation	Ji, Xinrui (Delft University of Technology) van Ginkel, Hendrik Joost (Delft University of Technology) Hu, Dong (Delft University of Technology) Schmidt-Ott, Andreas (Delft University of Technology) van Zeijl, Henk (Delft University of Technology) Vollebregt, Sten (Delft University of Technology) Zhang, Guoqi (Delft University of Technology)
4	17:20-17:40	Oral presentation	Mesoporous Silica based Memristor for neuromorphic computing	Zhang, Tongjun (University of Southampton)

5	17:40-18:00	Oral presentation	Minute-Made Bi₂Te₃ Films Via Electrophoretic Deposition	Batili, Hazal (KTH Royal Institute of Technology) Hamawandi, Bejan (KTH Royal Institute of Technology) Ergul, Adem Bjorn (KTH Royal Institute of Technology) Toprak, Muhammet Sadaka (KTH Royal Institute of Technology)
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WeET5		Wednesday, July 6, 2022, 16:20-18:00, Track T1, AV02		
Infrared photodetection and intelligent perception				Oral Session
Organizer: Hu, Weida (112896)		Shanghai Institute of Technical Physics, Chinese Academy of Science		
CHAIR: Lan Fu (The Australian National University, Australia)				
#	Subslot	Type of presentation	Title	Authors
1	16:20-16:40	Oral presentation	Advanced 2D-Materials Integrated Fiber Optic Biosensors	Chen, Xianfeng (Nottingham Trent University)
2	16:40-17:00	Oral presentation	Nonlinear Photonics in Two-dimensional Layered Materials with IR light	sun, zhipei (Aalto University)
3	17:00-17:20	Oral presentation	Ultra-sensitive Bolometer for Microwave Photon Detection using Graphene Josephson Junction as Thermometer	Hakonen, Pertti Juhani (Aalto University)
4	17:20-17:40	Oral presentation	Hybrid Photodetection Mechanisms Tuned with Tunneling	Yoon, Hoon Hahn (Aalto University) Fernandez, Henry A. (Aalto University) Nigmatulin, Fedor (Aalto University) Dai, Yunyun (Beijing Institute of Technology) Ahmed, Faisal (Aalto University) Cui, Xiaoqi (Aalto University) Bai, Xueyin (Aalto University) Li, Diao (Aalto University) Du, Mingde (Aalto University) Lipsanen, Harri (Aalto University) sun, zhipei (Aalto University)
5	17:40-18:00	Oral presentation	III-V Semiconductor Nanowire Infrared Photodetectors	Fu, Lan (The Australian National University)
6	18:00-18:20	Oral presentation	Novel optoelectronic devices based on two-dimensional layered materials	Xiao, Sanshui (Technical University of Denmark)

WeET8

Wednesday, July 6, 2022, 16:20-18:00, Track T8, Aula Magna

Modeling and Simulation

Oral Session

CHAIR: Xiaoning Jiang (North Carolina State University, USA)

#	Subslot	Type of presentation	Title	Authors
1	16:20-16:40	Oral presentation	Exploring the Stacking of Devices in a Vertical Nanowire to Implement IC	Amat, Esteve (Institute of Microelectronics of Barcelona) del Moral, Alberto (Institute of Microelectronics of Barcelona) Soler, Victor (Institute of Microelectronics of Barcelona) Bausells, Joan (Institute of Microelectronics of Barcelona) Perez-Murano, Francesc (IMB-CNM, CSIC)
2	16:40-17:00	Oral presentation	Multiphysics FEA Simulation for Polymer Nanocomposite Laser Ultrasound Transducer	Liu, Sipan (North Carolina university) Kim, Howuk (North Carolina State University) Chang, Wei-Yi (North Carolina State University) Huang, Wenbin (State Key Laboratory of Mechanical Transmissions, Chongqing Univ) Jiang, Xiaoning (North Carolina State University) Ryu, Jong Eun (North Carolina University)

3	17:00-17:20	Oral presentation	On the Subthreshold Performance of Topological Insulator Field Effect Transistors under Momentum Relaxation Scattering	Basak, Anirban (Indian Institute of Technology Bombay) Jana, Koustav (Indian Institute of Technology Bombay) Banerjee, Sagnik (Jadavpur University) Muralidharan, Bhaskaran (Indian Institute of Technology Bombay)
4	17:20-17:40	Oral presentation	Theoretical Analysis of Dielectric Assisted Tamm Mode Excitation	Goyal, Amit Kumar (King Abdullah University of Science and Technology (KAUST)) Pradhan, K P (IIITDM Kancheepuram) Massoud, Yehia (King Abdullah University of Science and Technology (KAUST))
5	17:40-18:00	Oral presentation	Intelligent Modeling of Electrical Characteristics of Multi-Channel Gate All Around Silicon Nanosheet MOSFETs Induced by Work Function Fluctuation	Akbar, Chandni (NYCU) Li, Yiming (National Chiao Tung University) Sung, Wen-Li (National Chiao Tung University)

WeCT7		Wednesday, July 6, 2022, 12:40-13:00, Track T7, Cafeteria			
Poster Session 1		Poster Session			
CHAIR: Esteve Amat (Institute of Microelectronics of Barcelona, Spain)					
#	Subslot	Type of presentation	Title	Authors	
1	12:40-13:00	Poster presentation	Fabrication of Polymeric Nano Pillars and Evaluation Their Bactericide Properties	Ogawa, Natsuki (Kansai University) Shimizu, Tomohiro (Kansai University) Shingubara, Shoso (Kansai University) Ito, Takeshi (Kansai University)	
2	12:40-13:00	Poster presentation	Ultrasound and Magnetic Dual-Mode Stacked Transducer for Sonothrombolysis with a Combination of Nanodroplets and Magnetic Nanoparticles	Zhang, Bohua (NC State University) Wu, Huaiyu (NC state university) Jiang, Xiaoning (North Carolina State University)	
3	12:40-13:00	Poster presentation	Allostery: A Nanomechanical Communication Perspective	Nasif, Ahmed (University of Wisconsin-Oshkosh) Louvaris, Drosianos (University of Wisconsin-Oshkosh) Rahman, Nafeesa (Fox Valley Technical College)	
4	12:40-13:00	Poster presentation	An Approach of Mutual Information-Based Characterization of Allosteric Macromolecules	Louvaris, Drosianos (University of Wisconsin-Oshkosh) Rahman, Nafeesa (Fox Valley Technical College) Nasif, Ahmed (University of Wisconsin-Oshkosh)	
5	12:40-13:00	Poster presentation	Impact of 3nm Silicon Nanoparticles on Metal Si Schottky Junctions	Rezk, Ayman (Khalifa University) Nayfeh, Ammar (Khalifa University)	
6	12:40-13:00	Poster presentation	Imaging Properties of Microsphere Superlens with Varying Background Refractive Index under Inclined Illumination	Li, Shendi (Shenyang Institute of Automation, Chinese Academy of Sciences, a) Luo, Hao (Shenyang Institute of Automation, Chinese Academy of Sciences) Liu, Fengli (Shenyang Ligong University) Zhang, Tianyao (Shenyang Institute of Automation(SIA), Chinese Academy of Scienc)	

#	Subslot	Type of presentation	Title	Authors
				Wang, Xiaoduo (Shenyang Institute of Automation, Chinese Academy of Sciences) Yu, Haibo (Chinese Academy of Sciences) Liu, Lianqing (Shenyang Institute of Automation, Chinese Academy of Sciences)
7	12:40-13:00	Poster presentation	Ternary Full Adder in CMOS-Memristor Technology	Panasa, Srikanth (student, iit mandi) Bodapati, Srinivasu (IIT Mandi) Kaushik, Nandit (Indian Institute of Technology Mandi)
8	12:40-13:00	Poster presentation	Fabrication of Micro/nanostructures on Silicon using a Mixed Multiple Pulses Femtosecond Laser	Luo, Hao (Shenyang Institute of Automation, Chinese Academy of Sciences) Yu, Haibo (Chinese Academy of Sciences) Wen, Yangdong (shenyang institute of automation) Li, Shendi (Shenyang Institute of Automation, Chinese Academy of Sciences, a) Wang, Xiaoduo (Shenyang Institute of Automation, Chinese Academy of Sciences) Qiu, Ye (Shenyang Institute of Automation) 112910 Liu, Lianqing (Shenyang Institute of Automation, Chinese Academy of Sciences)
9	12:40-13:00	Poster presentation	Healthy, Indoor LED Lighting Using Stable Nanorods On-Chip LED	KANG, chengbin (Hong Kong University of Science and Technology, Hong Kong) Prodanov, Maksym (Hong Kong University of Science and Technology) Malle, Kumar (HKUST) Gao, Yiyang (HKUST) Vashchenko, Valerii (Hong Kong University of Science and Technology) Srivastava, Abhishek Kumar (Hong Kong University of Science and Technology)

#	Subslot	Type of presentation	Title	Authors
10	12:40-13:00	Poster presentation	Development of a Robotic 3D Printing Polymer Extruder with Laser and FTIR for Nano-Manufacturing and Characterization	Beliatis, Michail (Aarhus University) Lindberg, Jonas (Aarhus University) Østergaard, Benedicte (Aarhus University) Pokorniecki, Damian (Aarhus University) Gross, Allan (Aarhus University) Presser, Mirko (Aarhus University)
11	12:40-13:00	Poster presentation	Ultra-High Energy Storage Efficiency in La-Doped BCZT Relaxor Ceramic	Syal, Rajat (Punjab Engineering College (Deemed to be University)) Goel, Rahul (Punjab Engineering College) Bansal, Pankhuri (Punjab Engineering College) Garg, Sahil (Punjab Engineering College (Deemed to be University)) Singh, Arun (Punjab Engineering College (Deemed to be University)) Kumar, Sanjeev (Punjab Engineering College (Deemed to be University))
12	12:40-13:00	Poster presentation	High-Performance In-Memory Logic Scheme Using Unipolar Switching SOT-MRAM	Zhu, Haonan (Transactions of Nanjing University of Aeronautics & Astronautics) Wu, Bi (Nanjing University of Aeronautics and Astronautics (NUAA)) Chen, Ke (Nanjing University of Aeronautics and Astronautics) Liu, Weiqiang (Nanjing University of Aeronautics and Astronautics)

CONFERENCE DAY 2: Detailed Program*Thursday July 7 2022*

ThAT6

Thursday, July 7, 2022, 09:15-10:30, Track T6, Aula Magna

Professor Xiuling Li

KEYNOTE TALK 2

CHAIR: Fabrizio Lombardi (Northeastern University, USA)**Semiconductor Nanotechnology: There is Plenty of Room All-Around**

From lasers to transistors, semiconductor nanotechnology has played an indispensable role in modern civilization. The aggressive miniaturization and integration requirements in electronics, photonics, and quantum technologies continue to demand new discoveries and innovations in materials and device architectures. In this talk, I will present two of the nanofabrication platforms my research group pioneered that could potentially help address some of the profoundly increasing complexity in dimensional scaling and share perspectives on the future of semiconductor nanotechnology: (1) an unorthodox anisotropic etching method, metalassisted chemical etching (MacEtch), that enables site-controlled damage-free semiconductor nanostructure fabrication with unprecedentedly-high aspect ratio and versatility in materials and structure; and (2) a 3D self-rolled-up membrane (S-RuM) nanotechnology platform for extreme miniaturization of passive electronic components, including inductors, transformers, and filters, for radio frequency integrated circuits (RFICs) and power electronics.

ThBT1

Thursday, July 7, 2022, 11:00-12:40, Track T1, AB25

Nano-Materials #3

Oral Session

CHAIR: James E. Morris (Portland State University, USA)

#	Subslot	Type of presentation	Title	Authors
1	11:00-11:20	Oral presentation	Zein–Chitosan Nanoparticles produced by Flash Nanoprecipitation	Coutinho, Paula (Polytechnic Institute of Guarda) Loureiro, Jorge (Polytechnic Institute of Guarda) P. Ribeiro, Maximiano (CPIRN-IPG—Center of Potential and Innovation of Natural Resources, Polytechnic Institute of Guarda, Av. Dr. Francisco de Sá Carn) Miguel, Sónia (Polytechnic Institute of Guarda)
2	11:20-11:40	Oral presentation	POM–2D material hybrids for photo/electrochemical CO2 conversion	Khezri, Bahareh (Institut Català d'Investigació Química-ICIQ)
3	11:40-12:00	Oral presentation	The Growth of 2H-Si Microneedles Using AI-Based Nano Absorber	Ahn, Namjun (Korea Maritime and Ocean University) Kim, Kyoung-hwa (Korea Maritime and Ocean University) Kim, Soyeong (Korea Maritime and Ocean University) Mun, Suhyun (Korea Maritime and Ocean University) Park, Seonwoo (Korea Maritime and Ocean University) Jeong, Ha Neul (Korea Maritime and Ocean University) Ahn, Hyung Soo (Korea Maritime and Ocean University) Lee, Jae Hak (Korea Maritime and Ocean University) Yang, Min (Korea Maritime and Ocean University) Chun, Young Tea (Korea Maritime and Ocean University) Yi, Sam Nyung (Korea Maritime and Ocean University) Kim, Suck-Whan (Andong National University)

4	12:00-12:20	Oral presentation	Role and Properties of Si Nanowires on 4H-SiC Substrates Grown by Mixed-Source HVPE	Kim, Kyoung-hwa (Korea Maritime and Ocean University) Kim, Soyeong (Korea Maritime and Ocean University) Mun, Suhyun (Korea Maritime and Ocean University) Park, Seonwoo (Korea Maritime and Ocean University) Ahn, Namjun (Korea Maritime and Ocean University) Jeong, Ha Neul (Korea Maritime and Ocean University) Ahn, Hyung Soo (Korea Maritime and Ocean University) Lee, Jae Hak (Korea Maritime and Ocean University) Yang, Min (Korea Maritime and Ocean University) Chun, Young Tea (Korea Maritime and Ocean University) Yi, Sam Nyung (Korea Maritime and Ocean University) Kim, Suck-Whan (Andong National University)
5	12:20-12:40	Oral presentation	Scalable Nanomanufacturing and Printing of High-Performance and Flexible Thermoelectric Energy Devices	Zhang, Yanliang (University of Notre Dame)

ThBT2

Thursday, July 7, 2022, 11:00-12:40, Track T2, AB26

Modeling and Simulation #2

Oral Session

CHAIR: Anant M.P. Anantram (University of Washington, USA)

#	Subslot	Type of presentation	Title	Authors
1	11:00-11:20	Oral presentation	3D Process Flow Modelling and Characterisation of Stacked Gate-All-Around Nanosheet Transistors	Kuzipa, Mumba (Swansea University) Cai, Shuqiao (Swansea University) Kalna, Karol (Swansea University)
2	11:20-11:40	Oral presentation	Compact Model for Oxygen Engineered Yttrium Oxide-Based Resistive Switching Devices	Aguirre, Fernando (Departament d'Enginyeria Electrònica, Universitat Autònoma de Ba) Piros, Eszter (Advanced Thin Film Technology Division, Institute of Materials S) Alff, Lambert (Advanced Thin Film Technology Division, Institute of Materials S) Hochberger, Christian (Computer systems Group, Department of Electrical and Information) Gehringer, Jonas (Computer systems Group, Department of Electrical and Information) Petzold, Stefan (Advanced Thin Film Technology Division, Institute of Materials S) Kaiser, Nico (Advanced Thin Film Technology Division, Institute of Materials S) Jalaguier, Eric (CEA, Leti) Nolot, Emmanuel (CEA, Leti) Charpin, Christelle (christelle.charpin@cea.fr) Vogel, Tobias (Advanced Thin Film Technology Division, Institute of Materials S) Molina-Luna, Leopoldo (Advanced Electron Microscopy Division, Institute of Materials Sc) Suñé, Jordi (Departament d'Enginyeria Electrònica, Universitat Autònoma De Ba) Miranda, Enrique (Departament d'Enginyeria Electrònica, Universitat Autònoma De Ba)

3	11:40-12:00	Oral presentation	A Simulation Study of FET-Based Nanoelectrodes for Active Intracellular Neural Recordings	Leva, Federico (University of Modena) Palestri, Pierpaolo (University of Udine) Selmi, Luca (University of Udine)
4	12:00-12:20	Oral presentation	A FinFET Design for Superior High-Voltage Performance	Oh, Kyoungwan (Pohang University of Science and Technology) Kim, Hyangwoo (Pohang University of Science and Technology (POSTECH)) Kim, Hyungwon (Pohang University of Science and Technology (POSTECH))
5	12:20-12:40	Oral presentation	Spin-Transfer Torque Magnetic Tunnel Junction Model Based on Fokker-Planck Equation for Stochastic Circuit Simulations	Liu, Haoyan (Waseda University) Ohsawa, Takashi (Waseda University)

ThBT3					Thursday, July 7, 2022, 11:00-12:40, Track T3, AB27
Quantum, Neuromorphic and Unconventional Computing #2					Oral Session
CHAIR: Vito Puliafito (Politecnico di Bari, Italy)					
#	Subslot	Type of presentation	Title	Authors	
1	11:00-11:20	Oral presentation	Design and Analysis of a Majority Logic Based Imprecise 6-2 Compressor for Approximate Multipliers	Zhang, Yongqiang (Hefei University of Technology) He, Cong (Hefei University of Technology) Zhang, Tingting (University of Alberta) Han, Jie (University of Alberta) Xie, Guangjun (Hefei University of Technology)	
2	11:20-11:40	Oral presentation	Circuit Topology and Synthesis Flow Co-Design for the Development of Computational ReRAM	Fernandez, Carlos (Universidad Tecnica Federico Santa Maria) Vourkas, Ioannis (Universidad Técnica Federico Santa María) Rubio, Antonio (Universitat Politècnica de Catalunya)	
3	11:40-12:00	Oral presentation	Nanoscale Design of Multi-Layer Perceptrons Using Floating-Point Arithmetic Units	Niknia, Farzad (Northeastern University) Wang, Ziheng (Northeastern University) Liu, Shanshan (New Mexico State University) Lombardi, Fabrizio (Northeastern University)	
4	12:00-12:20	Oral presentation	Dynamically Reconfigurable Cryogenic Spiking Neuron Based on Superconducting Memristor	Islam, Md Mazharul (University of Tennessee Knoxville) Alam, Shamiul (University of Tennessee Knoxville) Hossain, Md Shafayat (Princeton University) Aziz, Ahmedullah (University of Tennessee Knoxville)	

5	12:20-12:40	Oral presentation	Quantum-Classical Variational Approaches with Single-Qubit Operation on Near-Term Quantum Processors	Miki, Tsukasa (Tokyo University of Agriculture and Technology) Tsukayama, Daisuke (Tokyo University of Agriculture and Technology) Okita, Ryo (Tokyo University of Agriculture and Technology) Shimada, Moe (Tokyo University of Agriculture and Technology) Shirakashi, Jun-ichi (Tokyo University of Agriculture and Technology)
6	12:40-13:00	Oral presentation	Intrinsic Temporal Behavior of TiO₂ Memristors for Neuromorphic Systems	Wang, Alexander-Hanyu (University of Southampton) Simanjuntak, Firman (University of Southampton) Huang, Ruomeng (University of Southampton) Chong, Harold (University of Southampton) Thomas, David (University of Southampton)

ThBT4

Thursday, July 7, 2022, 11:00-12:40, Track T4, AV01

First Principles Modeling and Simulation of Plasma Processes for Atomic Scale Precision Semiconductor Device Fabrication: Opportunities and Challenges

Oral Session

Organizer: Ventzek, Peter

Tokyo Electron America, Inc.

Organizer: Longo, Roberto

Tokyo Electron America, Inc.

CHAIRS: Peter Ventzek (Tokyo Electron America, Inc., USA) and Roberto Longo (Tokyo Electron America, Inc., USA)

#	Subslot	Type of presentation	Title	Authors
1	11:00-11:20	Oral presentation	TDDFT study on excited electron dynamics in EUV photoresist chemical reactions	Lang, Xiuyao (University of Texas at Dallas) Cho, Kyeongjae (UT Dallas)
2	11:20-11:40	Oral presentation	First-principles investigations of the electronic properties of interfaces	Li, Hu (Tokyo Electron Technology Solutions Limited)
3	11:40-12:00	Oral presentation	Fine-Scale Structure of Nanocomposite Films Achieved by Plasma Synthesis of Successive Generations of Nanoparticles	Bérard, Rémi (LAPLACE and IRAP, Université de Toulouse III – Paul Sabatier, C) Garofano, Vincent (Laboratoire de physique des plasmas, Département de physique, Un) Stafford, Luc (Laboratoire de physique des plasmas, Département de physique, Un) Joblin, Christine (IRAP (Institut de Recherche en Astrophysique et Planétologie), U) Makasheva, Kremena (LAPLACE, CNRS, University of Toulouse)
4	12:00-12:20	Oral presentation	Self-Limiting Etching and Deposition of Organic Surfaces	Longo, Roberto (Tokyo Electron America, Inc.) Ventzek, Peter (Tokyo Electron America, inc.)
5	12:20-12:40	Oral presentation	Understanding the Surface Chemistry of Silicon Nitride Atomic Layer Deposition and Etching from First Principles	Hwang, Gyeong (University of Texas at Austin) Yang, Tsung-Hsuan (University of Texas at Austin) Cheng, Erik (University of Texas at Austin) Wang, Ting-Ya (University of Texas at Austin)

ThBT5

Thursday, July 7, 2022, 11:00-12:40, Track T5, AV02

The impact of 2D nanomaterials on green high-frequency technology

Oral Session

Organizer: Mencarelli, Davide

Università Politecnica delle Marche

Organizer: Pierantoni, Luca

Università Politecnica delle Marche

CHAIRs: Eleonora Pavoni (Marche Polytechnic University, Italy)

#	Subslot	Type of presentation	Title	Authors
1	11:00-11:20	Oral presentation	Exploring the effect of Yttrium as dopant agent in HfO2 polymorphs: a DFT based study	Pavoni, Eleonora (Marche Polytechnic university) Mohebbi, Elaheh (Dipartimento di Scienze e Ingegneria Della Materia, dell'Ambiente ed Urbanistica (SIMAU), Marche Polytechnic University) Pierantoni, Luca (Università Politecnica delle Marche) Mencarelli, Davide (Università Politecnica delle Marche) Stipa, Pierluigi (Università Politecnica delle Marche) Laudadio, Emiliano (Marche Polytechnic university)
2	11:20-11:40	Oral presentation	The optical properties of VO2(B) nanostructure: a first-principle comparative study	Mohebbi, Elaheh (Dipartimento di Scienze e Ingegneria Della Materia, dell'Ambiente ed Urbanistica (SIMAU), Marche Polytechnic University) Pavoni, Eleonora (Marche Polytechnic university) Pierantoni, Luca (Università Politecnica delle Marche) Mencarelli, Davide (Università Politecnica delle Marche) Stipa, Pierluigi (Università Politecnica delle Marche) Laudadio, Emiliano (Marche Polytechnic university)
3	11:40-12:00	Oral presentation	2D Molybdenum Disulfide (MoS2) and Thin Molybdenum Trioxide (MoO3) As Emitter Layers in Silicon Based Heterojunction Solar Cells	ZERBO, Bienlo Flora Christine (Univ Rennes, INSA Rennes, CNRS, Institut FOTON - UMR 6082, F-350)
4	12:00-12:20	Oral presentation	NANOMATERIALS ENABLING SMART ENERGY HARVESTING FOR NEXT-GENERATION INTERNET-OF-THINGS	Modreanu, Mircea (Tyndall National Institute)

5	12:20-12:40	Oral presentation	Modeling and Simulation of VO₂ (B) pseudocapacitor electrode for electrochemical energy storage applications	Noumi, Rihem (R&D engineer) Ishchenko, Olga M. (R&D manager) Doan, Phi Long (R&D Engineer)
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ThBT9

Thursday, July 7, 2022, 11:00-12:40, Track T9, Aula Magna

Nano-Biomedicine

Oral Session

CHAIR: Attila Bonyár (Budapest University of Technology and Economics, Hungary)

#	Subslot	Type of presentation	Title	Authors
1	11:00-11:20	Oral presentation	Functionalized Mesoporous Silica Nanoparticles for Drug Delivery to Glioblastoma Multiforme	Knezevic, Nikola (University of Novi Sad, Biosense institute) Ilic, Nebojsa (Technical University of Munich, Chair of Urban Water Systems Eng) Kaluderovic, Goran (University of Applied Sciences Merseburg)
C	11:20-11:40	Poster presentation	An Early Diagnostic Nano Method for Chronic Kidney Disease Using Surface Enhanced Raman Spectroscopy	Hu, Daniel (Phillips Exeter Academy) Arthur, McClelland (Harvard University) Zeng, Tingying Helen (Academy for Advanced Research and Development)
3	11:40-12:00	Oral presentation	Introduction of Nanoscale Positive Controls for Nanotoxicology: A New Aspect of Utilization of Stability-Enhanced Gold-Polyethyleneimine Conjugates (Au-PEIs)	Cho, Tae Joon (National Institute of Standards and Technology) Hackley, Vincent (National Institute of Standards and Technology) Reipa, Vytas (National Institute of Standards and Technology) Tona, Alessandro (National Institute of Standards and Technology) Sims, Christopher (National Institute of Standards and Technology) Farkas, Natalia (National Institute of Standards and Technology)

4	12:00-12:20	Oral presentation	In-Situ Raman Spectroscopy Investigation on the Effect of Heat Treatment on a UDMA-TEGDMA Copolymer Nanocomposite Doped with Gold Nanorods	Bonyár, Attila (Budapest University of Technology and Economics) Borók, Alexandra (Budapest University of Technology and Economics) Szalóki, Melinda (Department of Biomaterials and Prosthetic Dentistry, Faculty of) Rigó, István (Wigner Research Centre for Physics) Veres, Miklos (Wigner Research Centre for Physics)
5	12:20-12:40	Oral presentation	Recent Advances and Challenges of Magnetic Scaffolds for Tumor Hyperthermia and Tissue Engineering	Lodi, Matteo Bruno (University of Cagliari, Italy)

ThFT8

Thursday, July 7, 2022, 14:30-15:30, Track T8, Aula Magna

Professor Deblina Sarkar

PLENARY TALK 1

CHAIR: Georgios Ch. Sirakoulis (Democritus University of Thrace, Greece)**Green Electronics to Gray Matter: Ghost Walks, Mind Blowing and Brain Doping**

While the computing demands of Information Technology are ever increasing, the capabilities of electronics have hit fundamental walls due to energy and dimensional unscalability. In this talk, I will demonstrate the quantum mechanical transistor, which beats the fundamental energy limitations. This device is the world's thinnest channel (6 atoms thick) sub-thermal tunnel-transistor. Thus, it has the potential to allow dimensional scalability to beyond Silicon scaling era and thereby to address the long-standing issue of simultaneous dimensional and power scalability.

Going beyond electronic computation, I will discuss about the biological computer: the brain, which can be thought of as an ultimate example of low power computational system. I will introduce the technology, which reveals for the first time, a nanoscale trans-synaptic architecture in brain and the way mother nature has engineered biomolecular organization in the brain to optimize its computing efficiency. This technology can also be used to decipher intriguing biomolecular nanoarchitectures related to neurological diseases, otherwise invisible to existing technologies.

I will conclude with our group's research vision for how extremely powerful technologies can be built by fusing diverse fields and discuss briefly about the research directions of my new lab at MIT.

ThDT2

Thursday, July 7, 2022, 15:30-17:10, Track T2, AB25

Modeling and Simulation #3

Oral Session

CHAIR: Anant M.P. Anantram (University of Washington, USA)

#	Subslot	Type of presentation	Title	Authors
1	15:30-15:50	Oral presentation	Modeling and Simulation of DNA Origami based Electronic Read-only Memory	De, Arpan (Jadavpur University) Mohammad, Hashem (University of Washington) Wang, Yiren (University of Washington) Kubendran, Rajkumar (University of Pittsburg) Das, Arindam (Eastern Washington University) Anantram, Anant (University of Washington)
2	15:50-16:10	Oral presentation	Development of Nanoporosity on a Biomass Combustion Ash-Derived Carbon for CO2 Adsorption	Gorbounov, Mikhail (Brunel University London) Petrovic, Ben (Brunel University London) Özmen, Serap (Cranfield University) Clough, Peter (Cranfield University) Bekmuratova, Dilyara (Brunel University London) Masoudi Soltani, Salman (Brunel University London)
3	16:10-16:30	Oral presentation	Energy-Dependent Decoherent Charge Transport Model for DNA Structures	Mohammad, Hashem (University of Washington) Anantram, Anant (University of Washington)
4	16:30-16:50	Oral presentation	Classification of DNA Sequences: Performance Evaluation of Multiple Machine Learning Methods	Wang, Yiren (University of Washington) Khandelwal, Vikram (Interlake High School) Das, Arindam (Eastern Washington University) Anantram, Anant (University of Washington)
5	16:50-17:10	Oral presentation	An Improved Electro-Kinetic Model for Material Transport on Cr Thin Films	Ghosh, Swapnendu Narayan (Indian Institute of Science Education & Research Bhopal) Talukder, Santanu (Indian Institute of Science Education & Research Bhopal)

ThDT3

Thursday, July 7, 2022, 15:30-17:10, Track T3, AB26

Unconventional Computing: new Challenges for Nanotechnology

Oral Session

Organizer: Puliafito, Vito

Politecnico di Bari, Italy

CHAIR: Vito Puliafito (Politecnico di Bari, Italy)

#	Subslot	Type of presentation	Title	Authors
1	15:30-15:50	Oral presentation	Physics-inspired Ising Computing with Ring Oscillator Activated p-bits	Aadit, Navid Anjum (University of California, Santa Barbara) Grimaldi, Andrea (University of Messina) Finocchio, Giovanni (Department of Mathematical and Computer Sciences, Physical Sciences and Earth Sciences, University of Messina, Messina, Italy) Camsari, Kerem Y. (Department of Electrical and Computer Engineering, University of California, Santa Barbara, Santa Barbara, CA, 93106, USA)
2	15:50-16:10	Oral presentation	VO₂-based Oscillatory Ising Machine: The Role of External Temperature on Performance	Delacour, Corentin (LIRMM, University of Montpellier, France) Carapezzi, Stefania (LIRMM, University of Montpellier, CNRS) Todri-Sanial, Aida (LIRMM, University of Montpellier, CNRS)
3	16:10-16:30	Oral presentation	Coherently Coupled Quantum Oscillators for Quantum Reservoir Computing	Dudas, Julien (Unité Mixte de Physique CNRS, Thales, Université Paris-Saclay) Grollier, Julie (Unité Mixte de Physique CNRS, Thales, Université Paris-Saclay) Markovic, Danijela (Unité Mixte de Physique CNRS, Thales, Université Paris-Saclay)

4	16:30-16:50	Oral presentation	Computing with Memristor-Based Nonlinear Oscillators	Zoppo, Gianluca (Politecnico di Torino) Marrone, Francesco (Politecnico di Torino) bonnin, michele (politecnico di torino) Corinto, Fernando (Politecnico di Torino)
5	16:50-17:10	Oral presentation	A Coherent Ising Machine Based on a Network of 100, 000 Degenerate Optical Parametric Oscillator Pulses	Honjo, Toshimori (NTT Basic Research Laboratories, NTT Corporation) Inaba, Kensuke (NTT Basic Research Laboratories, NTT Corporation) Inagaki, Takahiro (NTT Basic Research Laboratories, NTT Corporation) Ikuta, Takuya (NTT Basic Research Laboratories, NTT Corporation) Yamada, Yasuhiro (NTT Basic Research Laboratories, NTT Corporation) Takesue, Hiroki (NTT Basic Research Laboratories, NTT Corporation)
6	17:10-17:30	Oral presentation	MemComputing vs. Quantum Computing: Some Analogies and Major Differences	Di Ventra, Massimiliano (University of California, San Diego)

ThDT4

Thursday, July 7, 2022, 15:30-17:10, Track T4, AB27

First Principles Modeling and Simulation of Plasma Processes for Atomic Scale Precision Semiconductor Device Fabrication: Opportunities and Challenges #2

Oral Session

CHAIRs: Peter Ventzek (Tokyo Electron America, Inc., USA) and Roberto Longo (Tokyo Electron America, Inc., USA)

#	Subslot	Type of presentation	Title	Authors
1	15:30-15:50	Oral presentation	Aerosol-Assisted Plasma Deposition of Nanocomposite Thin Films	Clergereaux, Richard (Laplace-CNRS)
2	15:50-16:10	Oral presentation	Plasma Designed Hybrid Nanocarbons for Supercapacitors	Marath Santhosh, Neelakandan (Jožef Stefan Institute, Ljubljana) Cvelbar, Uroš (Jozef Stefan Institute, Slovenia)
3	16:10-16:30	Oral presentation	Real-Time Scale Modeling of Film Growth and Property of Silicon Nitride Atomic Layer Deposition by Microkinetic Modeling	Iwao, Toshihiko (Tokyo Electron America, Inc.)
4	16:30-16:50	Oral presentation	Multiscale Simulation on Plasma-Material Interaction: Industrial Plasma Processing	Kim, Byungjo (Samsung Electronics) Yoo, Suyoung (Samsung electronics) Jeong, Hyunhak (Samsung Electronics) Park, Taeuk (Samsung Electronics) Nam, Sang Ki (Samsung Electronics)
5	16:50-17:10	Oral presentation	Ab Initio Calculations of Electron Scattering from Molecules	Ambalampitiya, Harindranath Bandujeewa (Quantemol Ltd) Cooper, Bridgette (University College London) Dzarasova, Anna (Quantemol Ltd) Tennyson, Jonathan (University College London)

ThDT5

Thursday, July 7, 2022, 15:30-17:10, Track T5, AV01

Nanofabrication for Quantum Technologies

Oral Session

Organizer: Perez-Murano, Francesc (106080)

IMB-CNM, CSIC

Organizer: Amat, Esteve (112481)

Institute of Microelectronics of Barcelona

CHAIRS: Francesc Perez-Murano (IMB-CNM, CSIC, Spain) and Esteve Amat (Tokyo Electron America, Inc., USA)

#	Subslot	Type of presentation	Title	Authors
1	15:30-15:50	Oral presentation	Plug and play single photon sources	Alén, Benito (Instituto de Micro y Nanotecnología, IMN-CNM, CSIC (CEI UAM+CSIC)) Llorens, Josè Maria (Instituto de Micro y Nanotecnología, IMN-CNM, CSIC (CEI UAM+CSIC)) Fuster, David (Instituto de Micro y Nanotecnología, IMN-CNM, CSIC (CEI UAM+CSIC)) Navarro, Enrique (Instituto de Micro y Nanotecnología, IMN-CNM, CSIC (CEI UAM+CSIC)) Yolanda, González (Instituto de Micro y Nanotecnología, IMN-CNM, CSIC (CEI UAM+CSIC))
2	15:50-16:10	Oral presentation	Self-Assembly for Advanced CMOS and Quantum Applications	Rademaker, Guido J. (Univ. Grenoble Alpes, CEA, Leti, F-38000 Grenoble) Pourteau, Marie-Line (Univ. Grenoble Alpes, CEA, Leti, F-38000 Grenoble, France) Marmiesse, Marie (Univ. Grenoble Alpes, CEA, Leti, F-38000 Grenoble, France) Rotsen, Ludwig (Univ. Grenoble Alpes, CEA, Leti, F-38000 Grenoble, France) Gharbi, Ahmed (Univ. Grenoble Alpes, CEA, Leti, F-38000 Grenoble, France) Bellot, Gaëtan (Univ. Montpellier, INSERM, CNRS, Centre de Biologie Structurale, Montpellier, France) Tiron, Raluca (Univ. Grenoble Alpes, CEA, Leti, F-38000 Grenoble, France)

3	16:10-16:30	Oral presentation	Self-assembling materials as a viable solution for deterministic doping of semiconductors	Perego, Michele (Consiglio Nazionale delle Ricerche (CNR))
4	16:30-16:50	Oral presentation	Strain Driven Epitaxy of InAs Quantum Dot Arrays on Virtual Si Nanotemplates	Tejedor, Paloma (Instituto de Ciencia de Materiales de Madrid, CSIC)
5	16:50-17:10	Oral presentation	Fabrication of Silicon Nanowires as a Platform for experimentation in Quantum Technologies	Llobet, Jordi (Institute of Microelectronics of Barcelona (IMB-CNM CSIC)) Bricio-Blázquez, David (Institute of Microelectronics of Barcelona (IMB-CNM CSIC)) Bausells, Joan (Institute of Microelectronics of Barcelona) Perez-Murano, Francesc (IMB-CNM, CSIC)

ThDT9

Thursday, July 7, 2022, 15:50-17:10, Track T9, Aula Magna

Nano-
Biomedicine #2

Oral Session

CHAIR:

#	Subslot	Type of presentation	Title	Authors
1	15:30-15:50	Oral presentation	Photothermal treatment of pancreatic cancer with IgG-conjugated gold nanoparticles initiates Golgi Apparatus-ER dysfunction and caspase-3 apoptotic pathway activation by selective targeting	Mocan, Lucian (Regional Institute of Gastroenterology-Hepatology Cluj-Napoca) Bura, Cristina (University of Medicine and Pharmacy Iuliu Hatieganu Cluj-Napoca) Gonciar, Diana (University of Medicine and Pharmacy Cluj-Napoca) Tibre, Corina (Universitatea de Medicina si Farmacie iuliu Hatieganu Cluj-Napoca) Nedelcu-Popa, Andreea (Regional Institute of Gastroenterology-Hepatology Cluj-Napoca) Mocan, Teodora (University of Medicine and Pharmacy Cluj-Napoca)
2	15:50-16:10	Oral presentation	Hybrid Nanoparticles as XFCT-MRI Contrast Agents for Correlative Bioimaging	Saladino, Giovanni Marco (KTH Royal Institute of Technology) Shaker, Kian (KTH Royal Institute of Technology) Kilic, Nuzhet Inci (KTH Royal Institute of Technology) Vogt, Carmen (KTH Royal Institute of Technology) Brodin, Bertha (KTH Royal Institute of Technology) Arsenian-Henriksson, Marie (Karolinska Institute) Toprak, Muhammet Sadaka (KTH Royal Institute of Technology) Hertz, Hans Martin (KTH Royal Institute of Technology)

3	16:10-16:30	Oral presentation	PISA Nanoparticles As Drug Delivery Systems for Blood and Brain Barrier Permeation	Epitropaki, Eirini (University of Birmingham) Parkinson, Sam (University of Birmingham) Rosa, Susana (Center for Neuroscience and Cell Biology (CNC), University of Co) O'Reilly, Rachel (University of Birmingham) Ferreira, Lino (Center for Neuroscience and Cell Biology (CNC), University of Co)
4	16:30-16:50	Oral presentation	Chitosan/cyclodextrin surface-adsorbed naringenin-loaded nanocapsules enhance bacterial quorum quenching and anti-biofilm activities	Nguyen, Thanh Hao (Faculty of Biotechnology, Vietnam National University of Agriculture) Hensel, Andreas (Institut für Pharmazeutische Biologie und Phytochemie (IPBP)) Goycoolea, Francisco (School of Food Science and Nutrition, University of Leeds)

ThET3

Thursday, July 7, 2022, 17:10-18:50, Track T3, AB25

Plasma-free anisotropic etching of semiconductors: MacEtch and related nanotechnology

Oral Session

Organizer: Li, Xiuling (112885)

University of Texas at Austin

CHAIR: Xiuling Li

#	Subslot	Type of presentation	Title	Authors
1	17:10-17:30	Oral presentation	Macroscale structuring of Si by the metal-assisted chemical etching (MacEtch)	Khang, Dahl-Young (Yonsei University)
2	17:30-17:50	Oral presentation	MacEtch for photonic crystals and optoelectronics	Zhou, Weidong (University of Texas at Arlington) Li, Xiuling (University of Texas at Austin)
3	17:50-18:10	Oral presentation	Sustainable Manufacturing Process for Wafer-Scale Uniform Semiconductor Nanostructures	Kim, You Jin (Nanyang Technological University) Shin, Sang-Ho (Nanyang Technological University) Zhao, Zhi-Jun (Southwest Jiaotong University) Jeong, Jun-Ho (Korea Institute of Machinery & Materials) Kim, Munho (Nanyang Technological University)
4	18:10-18:30	Oral presentation	Using MACE to Define Porous Nanostructures for Biomedicine	Voelcker, Nicolas (Monash University)
5	18:30-18:50	Oral presentation	High aspect ratio structuring of silicon by metal assisted chemical etching	Romano, Lucia (ETH Zurich and PSI)

ThET4

Thursday, July 7, 2022, 17:10-19:30, Track T1, AB26

Advanced Nanostructures: Fabrication, Characterization, Simulation and Application Perspectives

Oral Session

Organizer: Fomin, Vladimir M. (108625)

Leibniz Institute for Solid State and Materials Research (IFW)

CHAIR: Vladimir Fomin

#	Subslot	Type of presentation	Title	Authors
1	17:10-17:30	Oral presentation	Topological transitions in 3D superconductor nanoarchitectures	Fomin, Vladimir M. (Leibniz Institute for Solid State and Materials Research (IFW) Dresden)
2	17:30-17:50	Oral presentation	Curvilinear Antiferromagnets for Spintronics Applications	Pylypovskyi, Oleksandr (Helmholtz-Zentrum Dresden-Rossendorf e.V.)
3	17:50-18:10	Oral presentation	Topological Modes in Superconductor/Ferromagnet 3D Nanoarchitectures	Dobrovolskiy, Oleksandr (University of Vienna)
4	18:10-18:30	Oral presentation	Ultradense nanostructures in copper-oxide superconductors and their magneto-transport properties	Lang, Wolfgang (University of Vienna) Aichner, Bernd (Faculty of Physics, University of Vienna) Karrer, Max (Physikalisches Institut, Center for Quantum Science (CQ) and LISA+, Universität Tübingen) 113172 Wurster, Katja (Physikalisches Institut, Center for Quantum Science (CQ) and LISA+, Universität Tübingen) 113173 Kleiner, Reinhold (Physikalisches Institut, Center for Quantum Science (CQ) and LISA+, Universität Tübingen) 113174 Goldobin, Edward (Physikalisches Institut, Center for Quantum Science (CQ) and LISA+, Universität Tübingen) 113175 Koelle, Dieter (Physikalisches Institut, Center for Quantum Science (CQ) and LISA+, Universität Tübingen) 113176
5	18:30-18:50	Oral presentation	Geometrically curved and skin-conformal magnetoelectronics	Makarov, Denys (Helmholtz-Zentrum Dresden-Rossendorf)

6	18:50-19:10	Oral presentation	Semiconductor nanowire-based quantum materials for advanced optoelectronics	Zhuang, Qiangdong (Lancaster University)
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ThET5					Thursday, July 7, 2022, 17:10-18:50, Track T5, AB27				
Nanofabrication for Quantum Technologies #2					Oral Session				
Organizer: Perez-Murano, Francesc (106080)					IMB-CNM, CSIC				
Organizer: Amat, Esteve (112481)					Institute of Microelectronics of Barcelona				
CHAIR: Francesc Perez-Murano									
#	Subslot	Type of presentation	Title	Authors					
1	17:10-17:30	Oral presentation	Towards quantum devices based on hybrid superconductor-semiconductor nanostructures	Lee, Eduardo (Universidad Autonoma de Madrid)					
2	17:30-17:50	Oral presentation	Spatially controlled and deterministic ion implantation by focused ion beam for generation of color centers in diamond	Giubertoni, Damiano (Fondazione Bruno Kessler)					
3	17:50-18:10	Oral presentation	Genetic-Algorithm-Based Simulation of Self-Assembled Quantum Dot Photoluminescence Spectra	Barbieri, Giulio (Instituto de Micro y Nanotecnología, IMN-CNM, CSIC (CEI UAM+CSIC)) Llorens, Josè Maria (Instituto de Micro y Nanotecnología, IMN-CNM, CSIC (CEI UAM+CSIC)) Stanojević, Lazar (Institute for Optoelectronic Systems and Microtechnology (ISOM),) Gallego Carro, Alejandro (Institute for Optoelectronic Systems and Microtechnology (ISOM),) Ulloa, Josè Maria (Institute for Optoelectronic Systems and Microtechnology (ISOM),) Alén, Benito (Instituto de Micro y Nanotecnología, IMN-CNM, CSIC (CEI UAM+CSIC))					

4	18:10-18:30	Oral presentation	Nano-Engineered High-Temperature Superconductors for Functional Quantum Devices	Palau, Anna (Institut de Ciència de Materials de Barcelona (ICMAB-CSIC)) Alcalá, Emmanuel (ITESO) Barrera, Aleix (Institut de Ciència de Materials de Barcelona (ICMAB-CSIC)) Günkel, Thomas (Institut de Ciència de Materials de Barcelona (ICMAB-CSIC)) Balcells Argemí, Lluís (Institut de Ciència de Materials de Barcelona (ICMAB-CSIC)) Mestres, Narcís (Institut de Ciència de Materials de Barcelona (ICMAB-CSIC))
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ThET9

Thursday, July 7, 2022, 17:10-18:50, Track T9, Aula Magna

Nano-Biomedicine and Nano-Materials

Oral Session

CHAIR:

#	Subslot	Type of presentation	Title	Authors
1	17:10-17:30	Oral presentation	Natural Bactericidal Nano-Patterns of Cicadas Which Live in Japan	Ito, Takeshi (Kansai University) Adachi, Yuto (Kansai University) Shimizu, Tomohiro (Kansai University) Shingubara, Shoso (Kansai University)
2	17:30-17:50	Oral presentation	Synergistic Energy Harvesting by Composites of Flexoelectric Zn: Al-LDH Nanosheets and Piezoelectric MAPbI₃ and ZnO Films	Yoon, Soon-Gil (Chungnam National University)
3	17:50-18:10	Oral presentation	Nanorods for Lighting and Display	Srivastava, Abhishek Kumar (Hong Kong University of Science and Technology) KANG, chengbin (Hong Kong University of Science and Technology, Hong Kong) Prodanov, Maksym (Hong Kong University of Science and Technology)
4	18:10-18:30	Poster presentation	Water-Based Synthesis of Hybrid Contrast Agents for Theranostics	Cortés García, Daniel (Kungliga Tekniska högskolan) Saladino, Giovanni Marco (KTH Royal Institute of Technology) Toprak, Muhammet Sadaka (KTH Royal Institute of Technology)
5	18:30-18:50	Poster presentation	Core-Shell Superparamagnetic Iron Oxide Nanoclusters for Bioconjugation	Kakadiya, Ronak (KTH Royal Institute of Technology) Saladino, Giovanni Marco (KTH Royal Institute of Technology) Toprak, Muhammet Sadaka (KTH Royal Institute of Technology)

ThCT7		Thursday, July 7, 2022, 12:40-13:00, Track T7, Cafeteria			
Poster Session 2		Poster Session			
CHAIR:					
#	Subslot	Type of presentation	Title	Authors	
1	12:40-13:00	Poster presentation	Trace PFAS Detection in Water Sources Using Silver Nanoparticles for Surface-Enhanced Raman Spectroscopy (SERS)	Huang, Tom (Wellesley High School, Massachusetts) Arthur, McClelland (Harvard University) Zeng, Tingying Helen (Academy for Advanced Research and Development)	
2	12:40-13:00	Poster presentation	Comparison of Different Approaches Used for Estimation of Electrostatics in UTB Devices	Mishra, Nalin Vilochan (IISER Bhopal) Kansal, Harshit (Indian Institute of Science Education and Research Bhopal) Solanki, Ravi (INDIAN INSTITUTE OF SCIENCE EDUCATION AND RESEARCH BHOPAL) Medury, Aditya Sankar (Indian Institute of Science Education and Research, Bhopal)	
3	12:40-13:00	Poster presentation	Tuneable Breakdown Voltage in Amorphous Silicon P-I-N Photo-detectors for Single Photon Imaging	Panda, Soumya Shatakshi (University of Siegen) Li, Zidu (University of Siegen) Choubey, Bhaskar (University of Siegen)	
4	12:40-13:00	Poster presentation	Fabrication and Characterization of Self-Assembled Thin Films with Cerium Dioxide Nanoparticles and Polymer	Topasna, Daniela (Virginia Military Institute) Lopez, Martin (Virginia Military Institute) Mateja, Frank (Virginia Military Institute) Daigneau, Timothy (Virginia Military Institute)	
5	12:40-13:00	Poster presentation	Improvement in Non-Volatile Ferroelectric Storage Properties of Metal-Ferroelectric-Insulating-Silicon (MFIS) FETs Using Al-LiNbO₃-HfO₂-Si Structure	Debnath, Ajit (Indian Institute of Information Technology - Allahabad) Kumar Lalwani, Suraj (Indian Institute of Information Technology - Allahabad)	

				Singh, Sanjai (Indian Institute of Information Technology - Allahabad) Sunny, Sunny (Indian Institute of Information Technology - Allahabad)
6	12:40-13:00	Poster presentation	Fantastic Bonding: Makes Fabrication on Kapton Films Effortless for 2D Material Devices	Yarajena, Sai Saraswathi (Indian Institute of Science, Bengaluru) Naik, Akshay (Indian Institute of Science, Bengaluru)
7	12:40-13:00	Poster presentation	Peptide-Functionalized Chitosan-Coated Magnetic Liposomes Used to Treat Inner Ear Disorders	Cadinoiu, Anca Niculina ("Apollonia" University of Iasi, Faculty of Medical Dentistry, Pa) Delia, Rata ("Apollonia" University of Iasi, Faculty of Medical Dentistry, Pa) Atanase, Leonard Ionut ("Apollonia" University of Iasi, Faculty of Medical Dentistry, Pa) Chiscan, Ovidiu (Department of Physics, Alexandru Ioan Cuza University, Iasi, Rom) Nyström, BO (Department of Chemistry, University of Oslo, Oslo, Norway) Popa, Marcel ("Apollonia" University of Iasi, Faculty of Medical Dentistry, Pa)
8	12:40-13:00	Poster presentation	Peptide-Functionalized Nanocapsules: From Design and Synthesis to in Vitro Tests	Delia, Rata ("Apollonia" University of Iasi, Faculty of Medical Dentistry, Pa) Cadinoiu, Anca Niculina ("Apollonia" University of Iasi, Faculty of Medical Dentistry, Pa) Atanase, Leonard Ionut ("Apollonia" University of Iasi, Faculty of Medical Dentistry, Pa) Calin (Mihalache), Gabriela ("Apollonia" University of Iasi, Faculty of Medical Dentistry, Pa) Popa, Marcel ("Apollonia" University of Iasi, Faculty of Medical Dentistry, Pa)
9	12:40-13:00	Poster presentation	Effect of AC Magnetic Field on Single Qubit Gate Operation in Noisy Environment	Tiwari, Yash (Indian Institute of Technology) Sarkar, Tanmay (Indian Institute of Technology, Roorkee,)

				Poonia, Vishvendra Singh (Indian Institute of Technology, Roorkee,)
10	12:40-13:00	Poster presentation	Development and Characterization of Cellulose Nanocrystal Based Inks for 3D Bioprinting	Patrick Kuczvara (University of Arkansas) Gurshagan Kandhola (University of Arkansas) Jin-Woo Kim* (University of Arkansas,)
11	12:40-13:00	Poster presentation	Water-Based Synthesis of Hybrid Contrast Agents for Theranostics	Cortés García, Daniel (Kungliga Tekniska högskolan) Saladino, Giovanni Marco (KTH Royal Institute of Technology) Toprak, Muhammet Sadaka (KTH Royal Institute of Technology)
12	12:40-13:00	Poster presentation	Core-Shell Superparamagnetic Iron Oxide Nanoclusters for Bioconjugation	Kakadiya, Ronak (KTH Royal Institute of Technology) Saladino, Giovanni Marco (KTH Royal Institute of Technology) Toprak, Muhammet Sadaka (KTH Royal Institute of Technology)
13	12:40-13:00	Poster presentation	Chemical Activation of Recycled Carbon Fibres for Application As Porous Adsorbents in Aqueous Media	Taylor, Jessica (Brunel University, London) Babamohammadi, Shervan (Brunel University London) Troisi, Gera (Brunel university London) Masoudi Soltani, Salman (Brunel University London)
14	12:40-13:00	Poster presentation	An Early Diagnostic Nano Method for Chronic Kidney Disease Using Surface Enhanced Raman Spectroscopy	Hu, Daniel (Phillips Exeter Academy) Arthur, McClelland (Harvard University) Zeng, Tingying Helen (Academy for Advanced Research and Development)

CONFERENCE DAY 3: Detailed Program*Friday, July 8 2022*

FrAT6

Friday, July 8, 2022, 09:15-10:30, Track T6, Aula Magna

Professor Andrei Vladimirescu

KEYNOTE TALK 3

CHAIR: Sorin Cotofana (TU DELFT, The Netherlands)**Nano-MOS - Foundation of Quantum Computing**

Advances in semiconductor and superconductor technology have sparked a new round of research in quantum computing in recent years. Quantum computers hold the promise to efficiently solve problems that are intractable by today's electronic computers. In a quantum computer, standard logic bits '1' and '0' are replaced by quantum states $|0\rangle$ and $|1\rangle$ referred to as quantum bits (qubits). The challenge facing researchers is controlling and detecting these quantum states, which are preserved long enough only at deep sub-Kelvin temperatures. Physical qubits in existing quantum processors are implemented as either the spin of an electron or the state of a superconducting resonator (Josephson Junction). Semiconductor materials are used for most implementations. This talk will make the case for the advantages of electron spin qubit implementations when all layers of a quantum computer are considered. In addition to the physical qubits representing the core of the quantum processor, performing operations on qubits requires an electronic interface for their control, which today is implemented with standard instrumentation placed at room temperature. This may work as proof of concept for the low number of qubits available today; however, as the race for increasing the number of qubits is on with 100 likely achievable this year, the number of qubits will grow to hundreds of thousands or maybe millions as needed for the solution of practical problems, making room-temperature electronics for control unworkable due to the wiring requirements, signal integrity and cost.

The solution is to build the control electronics to operate at 4 K or below close to the qubits; Standard CMOS is the obvious technology of choice allowing both cryogenic operation (4 K down to 100 mK) and the integration on a single chip of the billions of transistors required to operate a very large number of qubits.

The challenges and feasibility of building integrated circuits (IC) operating at 4 K and below will be described in this presentation. All aspects will be considered starting with the operation of semiconductor devices at cryogenic temperatures and the physics governing this behavior, the development of compact device models reproducing the physical behavior, the CMOS IC design methodology in conjunction with the qubit behavior, and the implementation and measurement of state-of-the-art sense and control ICs operating at 4 K. These circuits and systems must satisfy very stringent requirements for precise control of the qubit state and sensing tiny electrical signals with extreme accuracy while operating under a strict power budget below 1 mW/qubit imposed by the cooling limits of existing refrigeration technology.

FrBT1

Friday, July 8, 2022, 11:00-12:40, Track T1, Aula Magna

Nano-Biomedicine #4

Oral Session

CHAIR: Andrei Vladimirescu (University of California, Berkeley, USA)

#	Subslot	Type of presentation	Title	Authors
1	11:00-11:20	Oral presentation	Functional nanoparticles based on Osmundea sp. Polysaccharides for drug delivery	Miguel, Sónia (Polytechnic Institute of Guarda) Loureiro, Jorge (Polytechnic Institute of Guarda) P. Ribeiro, Maximiano (CPIRN-IPG—Center of Potential and Innovation of Natural Resources, Polytechnic Institute of Guarda, Av. Dr. Francisco de Sá Carn) Coutinho, Paula (Polytechnic Institute of Guarda)
2	11:20-11:40	Oral presentation	Reduced Graphene Oxide-Based Biosensor for the Cost-Effective Detection of COVID-19	Kadadou, Dana (Khalifa University) Tizani, Lina (Khalifa University) S. Wadi, Vijay (Khalifa University) Banat, Fawzi (Khalifa University) Alsafar, Habiba (Khalifa University) F. Yousef, Ahmed (Khalifa University) W. Hasan, Shadi (Khalifa University)

3	11:40-12:00	Oral presentation	Silver and zinc oxide nanoparticles from <i>Fusarium solani</i>: biosynthesis, properties, and antimicrobial activity.	Trzcińska-Wencel, Joanna (Nicolaus Copernicus University in Torun) Wypij, Magdalena (Nicolaus Copernicus University) Rai, Mahendra (Uniwersytet Mikołaja Kopernika) Wachnowicz, Bartosz (Nicolaus Copernicus University in Torun) Golińska, Patrycja (Uniwersytet Mikołaja Kopernika)
4	12:00-12:20	Oral presentation	Swarming biocompatible nanobots for biomedical applications	Sánchez Ordóñez, Samuel (Ibec)
5	12:20-12:40	Oral presentation	Size-specific bacterial response to surface-adsorbed silica nanoparticles	Rajendran, Kavya (Department of Bioengineering, Faculty of Engineering, McGill University, Québec, H3A 0E9, Canada) Sudalaiyadum Perumal, Ayyappasamy (McGill University) Mahmoodi, Zahra (Department of Bioengineering, Faculty of Engineering, McGill University, Québec, H3A 0E9, Canada) Nicolau, Dan V. (McGill University)

FrBT2				Friday, July 8, 2022, 11:00-12:40, Track T2, AB21
State-of-the-Art, Open Issues, and Future Trends on Resistance Switching Memories: The Enabling Nanotechnologies for the More-than-Moore Era				Oral Session
Organizer: Ascoli, Alon		Technische Universität Dresden		
Organizer: Menzel, Stephan		Forschungszentrum Juelich GmbH		
Organizer: Tetzlaff, Ronald		Technische Universität Dresden		
Organizer: Kang, Sung-Mo		Jack Baskin School of Engineering, University of California at Santa Cruz		
Organizer: Rubio, Antonio		Universitat Politècnica de Catalunya		
Organizer: Sirakoulis, Georgios Ch.		Democritus University of Thrace		
CHAIR: Ronald Tetzlaff (Technische Universität Dresden, Germany)				
#	Subslot	Type of presentation	Title	Authors
1	11:00-11:20	Oral presentation	Stochastic Resonance Effect in Binary STDP Performed by RRAM Devices	Salvador, Emili (Universitat Autònoma de Barcelona) Rodríguez, Rosana (Universitat Autònoma de Barcelona) Martin-Martinez, Javier (Universitat Autònoma de Barcelona) Rubio, Antonio (Universitat Politècnica de Catalunya) Ntinas, Vasileios (Universitat Politècnica de Catalunya) Sirakoulis, Georgios Ch. (Democritus University of Thrace) 111639 Crespo-Yepes, Albert (Universitat Autònoma de Barcelona) Miranda, Enrique (Departament d'Enginyeria Electrònica, Universitat Autònoma De Ba) Nafria, Montserrat (Universitat Autònoma Barcelona)
2	11:20-11:40	Oral presentation	From Silence to Regular Beating in the Simplest Ever-Reported Array of Excitable Cells	Ascoli, Alon (Technische Universität Dresden) Demirkol, Ahmet Samil (TU Dresden) Tetzlaff, Ronald (Technische Universität Dresden) Chua, Leon (University of California Berkeley)
3	11:40-12:00	Oral presentation	Deep Memristive Cellular Neural Networks for Image Classification	Horvath, Andras (Pazmany Peter Catholic University) Ascoli, Alon (Technische Universität Dresden) Tetzlaff, Ronald (Technische Universität Dresden)

4	12:00-12:20	Oral presentation	A Mathematical Formulation of the Wire Resistance Problem in Memristor Crossbars	Zoppo, Gianluca (Politecnico di Torino) Korkmaz, Anil (Department of Electrical and Computer Engineering, Texas A\&M Un) Marrone, Francesco (Politecnico di Torino) Yi, Su-in (Department of Electrical and Computer Engineering, Texas A\&M Un) Palermo, Samuel (Department of Electrical and Computer Engineering, Texas A\&M Un) Williams, R. Stanley (Department of Electrical and Computer Engineering, Texas A\&M Un) Corinto, Fernando (Politecnico di Torino)
5	12:20-12:40	Oral presentation	Towards Efficient RRAM-based Quantized Neural Networks Hardware: State-of-the-art and Open Issues.	Krestinskaya, Olga (King Abdullah University of Science and Technology (KAUST)) Zhang, Li (King Abdullah University of Science and Technology (KAUST)) Salama, Khaled Nabil (King Abdullah University of Science and Technology (KAUST))

FrBT3		Friday, July 8, 2022, 10:30-13:00, Track T3, AV01		
Emerging Technologies: From Theory to Large-scale Realization Challenges of Quantum Computers				Oral Session
Organizer: Kotlyar, Roza				Intel Corporation
Organizer: Gyure, Mark				UCLA
CHAIRs: Roza Kotlyar (Intel Corporation, USA) and Mark Gyure (UCLA, USA)				
#	Subslot	Type of presentation	Title	Authors
1	10:30-11:00	Oral presentation	Germanium for Quantum Information Processing	Scappucci, Giordano (TU Delft)
2	11:00-11:30	Oral presentation	Tackling the quantum device characterization bottleneck	Rol, Michiel Adriaan (Orange Quantum Systems)
3	11:30-12:00	Oral presentation	Electrical noise and gate fidelities of spin qubits	Simion, George (imec) Shehata, Mohamed (IMEC Leuven)
4	12:00-12:30	Oral presentation	Effects of device confinement and electrostatics on spin qubit array performance	Kotlyar, Roza (Intel Corporation) Premaratne, Shavindra (Intel Corporation) Zheng, Guoji (Intel Corporation) Corrigan, Joelle (Intel Corporation) WATSON, THOMAS (Intel Corporation) Pillarisetty, Ravi (Intel Corporation) Henry, Eric (Intel Corporation) George, Hubert (Intel Corporation) Lampert, Lester (Intel Corporation) Neyens, Samuel (Intel Corporation) Zietz, Otto (Intel Corporation) Bojarski, Stephanie (Intel Corporation) Clarke, James (Intel Corporation)
5	12:30-13:00	Oral presentation	High-fidelity quantum computing with spins in semiconductor nanostructures	Burkard, Guido (University of Konstanz)

FrDT1		Friday, July 8, 2022, 14:20-16:00, Track T1, AB04		
State-of-the-Art, Open Issues, and Future Trends on Resistance Switching Memories: The Enabling Nanotechnologies for the More-than-Moore Era #2				Oral Session
Organizer: Ascoli, Alon		Technische Universität Dresden		
Organizer: Menzel, Stephan		Forschungszentrum Juelich GmbH		
Organizer: Tetzlaff, Ronald		Technische Universität Dresden		
Organizer: Kang, Sung-Mo		Jack Baskin School of Engineering, University of California at Santa Cruz		
Organizer: Rubio, Antonio		Universitat Politècnica de Catalunya		
Organizer: Sirakoulis, Georgios Ch.		Democritus University of Thrace		
CHAIR: Antonio Rubio (Universitat Politècnica de Catalunya, Spain)				
#	Subslot	Type of presentation	Title	Authors
1	14:20-14:40	Oral presentation	A Resistance Switching Device Exhibiting Potentiation and Depression under the Same Voltage Polarity	Mannion, Daniel John (University College London) Ng, Wing H (University College London) Mehonic, Adnan (University College London) Kenyon, Anthony J (University College London)
2	14:40-15:00	Oral presentation	Threshold Switch Assisted Memristive Memory with Enhanced Read Distinguishability	Alam, Shamiul (University of Tennessee Knoxville) Islam, Md Mazharul (University of Tennessee Knoxville) Hutchins, Jack (University of Tennessee Knoxville) Cady, Nathaniel (SUNY Polytechnic Institute) Gupta, Sumeet (Purdue University) Rose, Garrett (University of Tennessee Knoxville) Aziz, Ahmedullah (University of Tennessee Knoxville)
3	15:00-15:20	Oral presentation	ImageSplit: Modular Memristive Neural Network	M, Elamparathy (Indian Institute of Information Technology and Management Kerala) R, CHITHRA (Maker Village) James, Alex (IIITM-K (Digital University Kerala))

4	15:20-15:40	Oral presentation	Unconventional Logic on Unipolar CBRAM Based Oscillators	Chatzinikolaou, Theodoros Panagiotis (Democritus University of Thrace) Fyrigos, Iosif-Angelos (Democritus University of Thrace) Kitsios, Stavros (National Technical University of Athens) Bousoulas, Panagiotis (National Technical University of Athens) Tsompanas, Michail-Antisthenis (Democritus University of Thrace) Tsoukalas, Dimitris (National Technical University of Athens,) Sirakoulis, Georgios Ch. (Democritus University of Thrace)
5	15:40-16:00	Oral presentation	Stochastic Resonance Exploration in Current-Driven ReRAM Devices	Cirera, Albert (Universitat de Barcelona) Vourkas, Ioannis (Universidad Técnica Federico Santa María) Rubio, Antonio (Universitat Politècnica de Catalunya) Perez, Marcelo (Universidad Tecnica Federico Santa Maria)
6	16:00-16:20	Oral presentation	Bidirectional Transition between Threshold and Bipolar Switching in Ag/SiO₂/ITO Memristors	Li, Zidu (University of Siegen) Börner, Phil (University of Siegen) Schmidt, Heide-Marie (Friedrich-Schiller University of Jena) Haring Bolívar, Peter (University of Siegen) Choubey, Bhaskar (University of Siegen)

FrDT2		Friday, July 8, 2022, 14:20-16:00, Track T2, AB09		
Special Session on Internet of Nanorobotic Things (IoNT) for Nano-Biomedicine				
Oral Session				
Organizer: Shi, Shaolong (109619)		Yangtze Delta Region Institute (Quzhou), University of Electronic Science and Technology of China		
Organizer: Chen, Yifan (109074)		University of Electronic Science and Technology of China		
Organizer: Cheang, U Kei (109663)		Southern University of Science and Technology		
CHAIRS: Shaolong Shi (University of Electronic Science and Technology of China, China) and Chen Yifan (University of Electronic Science and Technology of China, USA)				
#	Subslot	Type of presentation	Title	Authors
1	14:20-14:40	Oral presentation	Analog Nanobiosensing of Continuous Disease State: System Models and Relationships to Fuzzy Set Theory	Chen, Yifan (University of Electronic Science and Technology of China) Wu, Mengfei (University of Electronic Science and Technology of China) Shi, Shaolong (Yangtze Delta Region Institute (Quzhou), University of Electroni)
2	14:40-15:00	Oral presentation	A Full-Time-Utilization Optimization Approach for Computational Nanobiosensing	Shi, Shaolong (Yangtze Delta Region Institute (Quzhou), University of Electroni) Wang, Zhijing (University of Electronic Science and Technology of China) Chen, Yifan (University of Electronic Science and Technology of China) Liu, Qiang (University of Electronic Science and Technology of China) Zhang, Qingfu (City University of Hong Kong)

3	15:00-15:20	Oral presentation	Fabrication and control of achiral micro/nanoswimmers for biomedical applications	Cheang, U Kei (Southern University of Science and Technology)
4	15:20-15:40	Oral presentation	Multi-Contrast-Agent Strategy for Optimal Tumor Classification Using Fuzzy-Inspired Nanobiosensing	Gong, Zheng (The University of Waikato) Niyigena Ingabire, Honorine (University of Electronic Science and Technology of China)
5	15:40-16:00	Oral presentation	Nanobiosensing from an in Vivo Multi-Objective Optimization Perspective	Jiang, Zhaoyang (University of Electronic Science and Technology of China) Shi, Shaolong (Yangtze Delta Region Institute (Quzhou), University of Electronic Science and Technology of China) Chen, Yifan (University of Electronic Science and Technology of China) Yao, Shuaiting (University of Electronic Science and Technology of China)

FrET1 Friday, July 8, 2022, 16:20-18:00, Track T1, AB04**State-of-the-Art, Open Issues, and Future Trends on Resistance Switching Memories: The Enabling Nanotechnologies for the More-than-Moore Era #3**

Oral Session

Organizer: Ascoli, Alon	Technische Universität Dresden
Organizer: Menzel, Stephan	Forschungszentrum Juelich GmbH
Organizer: Tetzlaff, Ronald	Technische Universität Dresden
Organizer: Kang, Sung-Mo	Jack Baskin School of Engineering, University of California at Santa Cruz
Organizer: Rubio, Antonio	Universitat Politècnica de Catalunya
Organizer: Sirakoulis, Georgios Ch.	Democritus University of Thrace

CHAIR: Georgios Ch. Sirakoulis (Democritus University of Thrace, Greece)

#	Subslot	Type of presentation	Title	Authors
1	16:20-16:40	Oral presentation	Performing Stateful Logic Using Spin-Orbit Torque (SOT) MRAM	Hoffer, Barak (Technion - Israel Institute of Technology) Kvatinsky, Shahar (Technion - Israel Institute of Technology)
2	16:40-17:00	Oral presentation	Improved switching performance of a Molybdenum Oxide-based bi-layer resistive memory	Zhang, Tongjun (University of Southampton)
3	17:00-17:20	Oral presentation	Shape-Based Activation Functions in Magnetic Domain Wall Leaky Integrate-and-Fire Neurons for Artificial Intelligence Applications	Brigner, Wesley (The University of Texas at Dallas) Hassan, Naimul (UT Dallas) HU, Xuan (the University of Texas at Dallas) Bennett, Christopher (Sandia National Laboratories) Garcia-Sanchez, Felipe (University of Salamanca) Cui, Can (The University of Texas at Austin) Velasquez, Alvaro (Air Force Research Laboratory) Marinella, Matthew (Arizona State University) Incorvia, Jean Anne (Stanford University) Friedman, Joseph (University of Texas at Dallas)

4	17:20-17:40	Oral presentation	Studying Multifunctional Materials with Nano-Heterogeneities	Slavova, Angela (Institute of Mathematics and Informatics, Bulgarian Academy of S) Ignatov, Ventsislav (Ruse University)
5	17:40-18:00	Oral presentation	Multi-Level Random Telegraph Noise Analysis on MIS and MIOS Silicon Nitride Memristors	Nikolaos, Vasileiadis (NCSR Demokritos) Loukas, Panagiotis (Institute of Nanoscience and Nanotechnology, NCSR Demokritos) Mavropoulis, Alexandros (Institute of Nanoscience and Nanotechnology, NCSR Demokritos) Normand, Pascal (Institute of Nanoscience and Nanotechnology, NCSR Demokritos) Karafyllidis, Ioannis (Democritus University of Thrace) Sirakoulis, Georgios Ch. (Democritus University of Thrace) Dimitrakis, Panagiotis (NCSR Dimokritos)
6	18:00-18:20	Oral presentation	Analog In-Memory Computing with Emerging Nanodevices	Xia, Qiangfei (University of Massachusetts Amherst)

FrCT7				Friday, July 8, 2022, 12:40-13:00, Track T7, Cafeteria
Poster Session 3				Poster Session
CHAIR: Jie Han (University of Alberta, Canada)				
#	Subslot	Type of presentation	Title	Authors
1	12:40-13:00	Poster presentation	Nanosensing of a miRNA Biomarker for COVID-19 Patients Suffering Cerebrovascular Problems	Lei, Jiaming (Boston University Academy) Arthur, McClelland (Harvard University) Zeng, Tingying Helen (Academy for Advanced Research and Development)
2	12:40-13:00	Poster presentation	Pulse-Driven Analog Circuits Containing Memristors in the Light of Generalized Concept of Duality	Biolek, Dalibor (University of Defence Brno) Biolek, Zdeněk (Brno University of Technology) Biolková, Viera (Brno University of Technology) Kolka, Zdeněk (Brno University of Technology)
3	12:40-13:00	Poster presentation	Synthesis of Silver Nanoparticles by Vitamin C for Public Health Applications	Lei, Jiaming (Boston University Academy) Arthur, McClelland (Harvard University) Zeng, Tingying Helen (Academy for Advanced Research and Development)
4	12:40-13:00	Poster presentation	Plasmonic Fiberoptic Absorbance Biosensor (P-FAB) for Evaluation of the Antibody Stability Upon Evanescent Wave Excitation at 280 Nm	J, kuzhandai Shamlee (Indian Institute of Technology Madras) V V R, Sai (Indian Institute of Technology Madras)
5	12:40-13:00	Poster presentation	Analysis of Perovskite-Silicon Tandem Solar Cells Using a Semi-Analytical Model	Ganesh, Kumudini (Indian Institute of Technology Palakkad) Padmanabhan, Revathy (Indian Institute of Technology Palakkad)
6	12:40-13:00	Poster presentation	Organophosphate Pesticides Sensor Using Copper Oxide Nanorods Modified on Screen-Printed Carbon Electrodes	Bulpakdi, Paphontee (Chulalongkorn University, International School of Engineering) Dhanasomboon, Poonyarat (Chulalongkorn University, International School of Engineering) Sungkobol, Sorawit (Chulalongkorn University, International

#	Subslot	Type of presentation	Title	Authors
				School of Engineering) Thanachayanont, Chanchana (National Metal and Materials Technology Center (MTEC), National) Pungetmongkol, Porpin (Faculty of Engineering)
7	12:40-13:00	Poster presentation	Analog Resistance Switching in Single Tungsten Oxide Nanoparticle Devices	Artmeier, Sabrina (TU München) Hiltz, Jonathan (University of Alberta) Milliken, Sarah (University of Alberta) Veinot, Jonathan (University of Alberta) Tornow, Marc (TU München)
8	12:40-13:00	Poster presentation	Protein-Templated Fluorescent Metal Nanoclusters As Photonic Pressure Sensors for Neuronal Cells	Perry, Karima Jeneh (Army Research Lab) Roberts, Paul (Johns Hopkins University) Agans, Richard (Henry M. Jackson Foundation for the Advancement of Military Medi) Karna, Shashi (US Army Research Laboratory) Gupta, Raj (USAMRMC) Hussain, Saber (Molecular Mechanisms Branch, Human Centered ISR Division, Airman)
9	12:40-13:00	Poster presentation	Modified Co-Doped ZnO Nanostructures on SPCE for Xanthine Detection in Early Food Spoilage	Aramongpun, Ramita (International School of Engineering, Chulalongkorn University) Ounsawatdipong, Panassaya (International school of engineering, Chulalongkorn University) Trakoontiwakorn, Kanchat (Chulalongkorn University) Thanachayanont, Chanchana (National Metal and Materials Technology Center (MTEC), National) Pungetmongkol, Porpin (Faculty of Engineering)
10	12:40-13:00	Poster presentation	Biosynthesized AgNP Modified Glassy Carbon Electrode As a Label-Free Non Faradaic Impedance Sensor for Bacteria Detection	Patel, Rhea (Indian Institute of Technology Bombay (IIT Bombay)) Islam, Md Saiful (Indian Institute of Technology Goa) Pramanick, Bidhan (IIT Goa)

#	Subslot	Type of presentation	Title	Authors
11	12:40-13:00	Poster presentation	Majority Logic-based Approximate Recording Adders for High-radix Booth Multipliers	Zhang, Tingting (University of Alberta) Jiang, Honglan (Shanghai Jiao Tong University) Liu, Weiqiang (Nanjing University of Aeronautics and Astronautics) Lombardi, Fabrizio (Northeastern University) Liu, Leibo (Tsinghua University) Han, Jie (University of Alberta)
12	12:40-13:00	Poster presentation	Implementation of IMPLY-Based Memristive Subtractor	Kaushik, Nandit (Indian Institute of Technology Mandi) Bodapati, Srinivasu (IIT Mandi)