

Day 0. Sat, November 9, 2024				
19:00 - 21:00	Welcome Reception			
Day 1. Sun, November 10, 2024				
Korean Time		Registration and Opening		
09:00 - 10:10	Registration: Lobby			
10:10 - 10:20	MEMRISYS 2024 Welcome Greetings: Iliia Valov (Room 1)			
10:20 - 10:30	MEMRISYS 2024 Opening: Cheol Seong Hwang (Room 1)			
Plenary session - Room 1				
10:30 - 11:30	Plenary	Leon Chua	Memristors on Edge of Chaos	Chair: Hyongsuk Kim
Room 1				
11:30 - 12:50 Session 1: Materials for Memristive/Emerging Devices; Chair: Iliia Valov				
11:30 - 11:55	Invited	Alon Ascoli	A Three-Element Second-Order Locally-Active Neuristor Reproducing the Cascade of Bifurcations, Underlying the Life Cycle of an Action Potential, in the Fourth-Order Hodgkin-Huxley Neuron Model	
11:55 - 12:20	Invited	Kazuya Terabe	Controlling ion transport at the atomic level to improve memristive devices	
12:20 - 12:35	Oral	Alejandro Schulman	Towards True Multifunctional Devices: Memristive and Magnetoresistive Behaviors in MgO-Based Magnetic Tunnel Junctions	
12:35 - 12:50	Oral	Miklos Csontos	Picosecond Femtojoule Resistive Switching in Nanoscale VO2 Memristors	
12:50 - 14:20	Lunch Break			
14:20 - 15:30 Session 1: Materials for Memristive/Emerging Devices; Chair: Kazuya Terabe				
14:20 - 14:45	Invited	Feng Miao	Atomic Lego for future computing	
14:45 - 15:00	Oral	Jimin Lee	Threshold Resistive Switching in SiOx/Vertically Aligned MoS2 Devices based on Silver (Ag) Ion Migration	
15:00 - 15:15	Oral	Soumi Saha	Mimicking Somatic Behavior of Neurons Using Memristive Switching Characteristics of 2D SnS-based Integrate and Fire Model	
15:15 - 15:30	Oral	Sofia Cruces	Forming-Free Threshold Resistive Switching in Sub-Micron Lateral 2D MoS2 Memristors	
15:30 - 15:50	Coffee Break - Lobby			
15:50 - 17:00 Session 1: Materials for Memristive/Emerging Devices; Chair: Feng Miao				
15:50 - 16:15	Invited	Georgios Sirakoulis	Mycelium-Based Engineered Living Materials Coupled with Memristive Networks: A Promising Emerging Future	
16:15 - 16:30	Oral	Yujiao Dong	Theoretical investigation on second-order locally active memristor and simplest memristive neuron	
16:30 - 16:45	Oral	Shima Hosseinzadeh	Multi-level FTJs: From Noise Modelling to Analog Processing-in-Memory	
16:45 - 17:00	Oral	Dimitrios Spithouris	Volatile amorphous-SrTiO3 devices for Time-Difference Encoder with tunable decay time	
Room 2				
11:30 - 12:50 Session 5: Memristor-based non-conventional computing (In-sensor, Photonic, Quantum, etc ); Chair: Carlo Ricciardi				
11:30 - 11:55	Invited	Fernando Corinto	Nonlinear Dynamics and Local Activity in Memristor Neuromorphic Circuits	
11:55 - 12:20	Invited	Can Li	Quantum-inspired annealing in analog memristor crossbars for optimization problems	
12:20 - 12:35	Oral	Hyongsuk Kim	A Complementary Learning of Multilayer Neural Network Circuits	
12:35 - 12:50	Oral	Daiki Nishioka	Physical reservoir computing based on few-molecule vibration dynamics achieved by surface-enhanced Raman scattering and ion-gating Stimuli	
12:50 - 14:20	Lunch Break			
14:20 - 15:30 Session 5: Memristor-based non-conventional computing (In-sensor, Photonic, Quantum, etc ); Chair: Fernando Corinto				
14:20 - 14:45	Invited	Heejun Yang	Energy Intelligent Computing Devices Based on 2D Materials	
14:45 - 15:00	Oral	Alba Martinez	Dynamic Charge Trap-based Memristor for Second-order Reservoir Computing	
15:00 - 15:15	Oral	Divyam Sharma	Halide Perovskite Photovoltaics for In-Sensor Reservoir Computing	
15:15 - 15:30	Oral	HYEONJII LEE	Wide Reservoir Computing Using MoS2-based Charge Trap Memory for Enhanced Computing Capacity	
15:30 - 15:50	Coffee Break - Lobby			
15:50 - 17:00 Session 5: Memristor-based non-conventional computing (In-sensor, Photonic, Quantum, etc ); Chair: Heejun Yang				
15:50 - 16:15	Invited	Suin Yi	BackPropagation-free Deep Reinforcement Learning for Privacy-Preserving Recommendation system via Memristor crossbars	
16:15 - 16:30	Oral	Yue ZHOU	Memristive Photon-Emitting Neurons in Scalable 3D Neural Networks	
16:30 - 16:45	Oral	Janguk Han	Graph Network-based Reservoir Computing with Memristive Crossbar Array	
16:45 - 17:00	Oral	Carlo Ricciardi	Neuromorphic nanowire networks: how brain inspiration can improve computing performance	
Room 3				
11:30 - 12:50 Session 3: Three terminal neuromorphic devices; Chair: Doo Seok Jeong				
11:30 - 11:55	Invited	Peng Zhou	Ultrafast flash memory towards scalable integration and ultimate scaling	
11:55 - 12:20	Invited	Daewoong Kwon	Analog Reservoir Computing Utilizing IGZO Channel Ferroelectric-gated Transistors	
12:20 - 12:35	Oral	Yifei Yang	A memmpolar transistor made from tellurium	
12:35 - 12:50	Oral	TBD	TBD	
12:50 - 14:20	Lunch Break			
14:20 - 15:30 Session 4: Memristor-based Edge Computing Systems and Design; Chair: Jason Eshraghian				
14:20 - 14:45	Invited	Ming Liu	Resistive random access memory (RRAM): from fundamental research to industrial applications	
14:45 - 15:00	Oral	Gwangmin Kim	Mott Neurons with Dual Thermal Dynamics for Spatiotemporal Computing	
15:00 - 15:15	Oral	Rotem Ben-Hur	DART-PIM: DNA read mApping accelerator Using Processing-In-Memory	
15:15 - 15:30	Oral	Hakseung Rhee	Probabilistic computing with NbOx metal-insulator transition-based stochastic oscillation	
15:30 - 15:50	Coffee Break - Lobby			
15:50 - 17:00 Session 4: Memristor-based Edge Computing Systems and Design; Chair: Ming Liu				
15:50 - 16:15	Invited	Jason Eshraghian	A Pathway to Large-Scale Neuromorphic Memristive Systems	
16:15 - 16:30	Oral	ShengGuang Ren	Self-rectifying Memristor for In-Memory Computing	
16:30 - 16:45	Oral	Do Hoon Kim	Bayesian Learning of Monte Carlo DropConnect Neural Networks Based on Stochastic IS1M Devices	
16:45 - 17:00	Oral	Stefan Pechmann	CMOS-integrated Multi-level Programming and Read-Out Circuitry including HFO2- based RRAM Arrays	
Common	17:00 - 18:30	Poster Session #1		

Parallel Sessions

Day 2. Mon, November 11, 2024				
Korean Time	Registration			
	08:15 - 09:00	Registration: Lobby		
Plenary session - Room 1				
09:00 - 09:45	Plenary	Huaqiang Wu	Memristor-based computing-in-memory chips and applications: A hardware-software co-design	Chair: Shinyun Choi
09:45 - 10:30	Plenary	Iliia Valvov	Material concepts for memristive devices – new fundamentals and applications	Chair: Kyung Min Kim
Room 1				
Session 2: Two terminal neuromorphic devices; Chair: Atsuya Okazaki				
10:30 - 10:55	Invited	Peng Lin	Modulation and application of ECRAM for Neuromorphic Computing	
10:55 - 11:20	Oral	Wonbae Ahn	Wafer-scale direct growth of nano crystalline h-BN for memristor-based physical reservoirs	
11:20 - 11:35	Oral	Markus Fischer	Confined filament growth in Ag-Nanoparticle Memristor	
11:35 - 12:05	Coffee Break - Lobby			
Session 2: Two terminal neuromorphic devices; Chair: Peng Lin				
12:05 - 12:30	Invited	Atsuya Okazaki	Analog PCM-based accelerator for large deep neural networks	
12:30 - 12:45	Oral	Kees de Groot	High endurance back-end-of-line PECVD amorphous SiC single- and bi-layer Memristors for Neuromorphic Computing	
12:45 - 13:00	Oral	See-On Park	Ultra-Low Current Phase-Change Memory via Forming Phase-Changeable Nano-Filament	
13:00 - 14:30	Lunch Break			
Steering committee meeting (including lunch)				
Session 3: Three terminal neuromorphic devices; Chair: Sangbum Kim				
14:30 - 14:55	Invited	Jang-Sik Lee	Hafnia-based Ferroelectric Transistors for Memory and Neuromorphic Device Applications	
14:55 - 15:10	Oral	Seokho Seo	Development of gate injection-based field-effect synapse transistor with high reliability and linear conductance programmability for online training	
15:10 - 15:25	Oral	Yifei Yang	Bio-realistic and versatile artificial dendrites made of anti-ambipolar transistors	
15:25 - 15:40	Oral	Sahngik Mun	High-Dimensional Physical Reservoir with Back-end-of-line Compatible Tin Monoxide Thin-Film Transistor	
15:40 - 16:10	Coffee Break - Lobby			
Session 3: Three terminal neuromorphic devices; Chair: Ronald Tetzlaff				
16:10 - 16:35	Invited	Sangbum Kim	Neuromorphic Hardware with Phase Change Memory: Exploring Applications of Spiking Boltzmann Machines	
16:35 - 16:50	Oral	yue gong	Reconfigurable and nonvolatile bulk photovoltaics effect based on 2D ferroelectric memristors for machine vision	
16:50 - 17:05	Oral	Wei Zhong	Cu interconnect InSnZnO transistor for 2TOC DRAM	
Room 2				
Session 5: Memristor-based non-conventional computing (In-sensor, Photonic, Quantum, etc ); Chair: Huaqiang Wu				
10:30 - 10:55	Invited	Joshua Yang	Analog computing with high precision and programmability enabled by memristors	
10:55 - 11:20	Invited	Yang Chai	Next-Generation Computing Using Silicon Two-Terminal Resistive Switching Devices	
11:20 - 11:35	Oral	Yoon Ho Jang	Memristive Crossbar Array-based Probabilistic Graph Modeling	
11:35 - 12:05	Coffee Break - Lobby			
Session 5: Memristor-based non-conventional computing (In-sensor, Photonic, Quantum, etc ); Chair: Joshua Yang				
12:05 - 12:30	Invited	Ronald Tetzlaff	Hybrid computing in memristive arrays	
12:30 - 12:45	Oral	Hakcheon Jeong	Memristor-based hardware platform for implementing of artificial intelligence algorithms	
12:45 - 13:00	Oral	Stefano Brivio	Processing of Information through the Complex Dynamic of a Nonlinear Memristive Circuit	
13:00 - 14:30	Lunch Break			
Steering committee meeting (including lunch)				
Session 5: Memristor-based non-conventional computing (In-sensor, Photonic, Quantum, etc ); Chair: Yang Chai				
14:30 - 14:55	Invited	Yuchao Yang	Controlling ion transport at the atomic level to improve memristive devices	
14:55 - 15:10	Oral	Zhongqiang Wang	Emerging multimode memristor for neuromorphic sensory system	
15:10 - 15:25	Oral	Xin Zheng	Non-volatile Quantized Conductance Achieved by Electrochemical Polishing during Slow RESET Process in Memristive Devices	
15:25 - 15:40	Oral	Dimitrios Prousalis	Memristor Cellular Nonlinear Networks with noisy memristive synapses	
15:40 - 16:10	Coffee Break - Lobby			
Session 5: Memristor-based non-conventional computing (In-sensor, Photonic, Quantum, etc ); Chair: Yuchao Yang				
16:10 - 16:35	Invited	Kyusang Lee	Edge Intelligence towards Smart Sensing	
16:35 - 16:50	Oral	Min Gu Lee	Bio-inspired Memristor-Based Elementary Motion Detector	
16:50 - 17:05	Oral	Kevin Portner	In-Situ Actor-Critic Reinforcement Learning with Analog, Conductive Metal-Oxide Memristors	
Room 3				
Session 6 : Memristor-based logic and systems; Chair: Doo Seok Jeong				
10:30 - 10:55	Invited	Masakazu Aono	Present status of development of atomic switch	
10:55 - 11:20	Invited	Seyoung Kim	Analog AI Computation with Oxygen-Based ECRAM: Insights into Switching Mechanism and Cross-point Array Operations	
11:20 - 11:35	Oral	Simon Brown	Brain-like Computation with Percolating Networks of Nanoparticles	
11:35 - 12:05	Coffee Break - Lobby			
Session 6 : Memristor-based logic and systems; Chair: Masakazu Aono				
12:05 - 12:30	Invited	Doo Seok Jeong	High-level computing-in-memory simulator	
12:30 - 12:45	Oral	Pascal Stasner	Improving Reliability by Lateral Filament Confinement in Nano-Scaled ReRAM Devices	
12:45 - 13:00	Oral	Max Talanov	Neuropunk revolution and AI energy consumption reduction	
13:00 - 14:30	Lunch Break			
Steering committee meeting (including lunch)				
Session 4: Memristor-based Edge Computing Systems and Design; Chair: Zhongrui Wang				
14:30 - 14:55	Invited	John Paul Strachan	Mixed Memristor-CMOS circuits for content addressable memories and in-memory computing	
14:55 - 15:10	Oral	Soo Hyung Lee	In-materia Annealing and Combinatorial Optimization Based on Vertical Memristive Array	
15:10 - 15:25	Oral	Yang Li	Highly efficient neuromorphic deep learning enabled by binary-stochasticity	
15:25 - 15:40	Oral	Woojoon Park	Mott Memristor-Driven Memristive Hardware Framework for Explainable AI	
15:40 - 16:10	Coffee Break - Lobby			
Session 4: Memristor-based Edge Computing Systems and Design; Chair: John Paul Strachan				
16:10 - 16:35	Invited	Zhongrui Wang	Memristive computing: hardware-software co-optimization	
16:35 - 16:50	Oral	Angela Slavova	Bioinspired memristor CNN computations in cardiology and neurophysiology	
16:50 - 17:05	Oral	Sariel Hodisan	Transimpedance Amplifier with Automatic Gain Control Based on Memristors	
Common	Poster Session #2			
	17:05 - 18:30	Banquet		
	18:30 - 20:00			

Day 3. Tue, November 12, 2024				
Korean Time	Registration			
	08:15 - 09:00	Registration: Lobby		
Plenary session - Room 1				
09:00 - 09:45	Plenary	Daniele Ielmini	TBD	Chair: Kyung Min Kim
09:45 - 10:30	Plenary	Seho Lee	Future Memory-centric Computation	Chair: Cheol Seong Hwang
Editor session - Room 1				
10:30 - 11:15	Nat. Comm.	Huang	Nature Communications Editorial Meet & Greet	Chair: Shinhyun Choi
11:15 - 11:45	Coffee Break - Lobby			
Room 1				
11:45 - 13:05 Session 2: Two terminal neuromorphic devices; Chair: Daniele Ielmini				
11:45 - 12:10	Invited	Qiangfei Xia	Tuning the dynamics of diffusive memristors for neuromorphic applications	
12:10 - 12:35	Invited	Hiroynki AKINAGA	Reliability of ReRAM Device Technologies for Neuromorphic Applications	
12:35 - 12:50	Oral	Jongmin Bae	Ion Energy Barrier Modulation and Enhanced Reliability Effect through Fluorine Doping for Memristive Neuromorphic Systems	
12:50 - 13:05	Oral	David Maldonado	Comparative analysis on the conductance drift in HfO <sub>2</sub> -based RRAM devices	
13:05 - 14:30	Lunch Break			
14:30 - 15:50 Session 2: Two terminal neuromorphic devices; Chair: Yoon Jang Chung				
14:30 - 14:55	Invited	Sreetosh Goswami	A 14-bit molecular dot product engine	
14:55 - 15:20	Invited	Sabina Spiga	Understanding the fundamentals of volatile memristors for brain inspired computing	
15:20 - 15:35	Oral	Si En Timothy Ng	Light-Emitting Neuronal Devices For Neuromorphic Control Systems	
15:35 - 15:50	Oral	Ruomeng Huang	Mesoporous silica-based memristor for neuromorphic computing	
15:50 - 16:20	Coffee Break - Lobby			
16:20 - 17:30 Session 2: Two terminal neuromorphic devices; Sabina Spiga				
16:20 - 16:45	Invited	Kyeong-Sik Min	Memristor crossbar circuits for low-power IoT devices	
16:45 - 17:00	Oral	Swapnadeep Poddar	Advancing Data Storage and Neuromorphic Computing with Three-dimensionally Integrated Perovskite Nanowires and Quantum Wires	
17:00 - 17:15	Oral	Dayanand Kumar	Flexible Optical Memristors for Edge Neuromorphic Vision and Biosignal Processing	
17:15 - 17:30	Oral	Neethu Kuriakose	Integrated Memristor Control and Crossbar Array Design using TSMC 28 nm Technology	
Room 2				
11:45 - 13:05 Session 1: Materials for Memristive/Emerging Devices; Chair: Stephan Menzel				
11:45 - 12:10	Invited	Jung-Hae Choi	Ab initio study on charge transition-driven resistive switching in Pt/TiO <sub>2</sub> /Ti devices	
12:10 - 12:35	Oral	Emilio Perez-Bosch Quesada	Forming and Resistive Switching of HfO <sub>2</sub> -based RRAMs at cryogenic temperature	
12:35 - 12:50	Oral	Dennis Braun	Correlating MOCVD MoS <sub>2</sub> Material Properties with Improved Memristor Resistance State and Switching Voltage Variabilities	
12:50 - 13:05	Oral	Lambert Alff	Materials design and defect engineering correlated with compact modelled device behavior towards neuromorphic memristors	
13:05 - 14:30	Lunch Break			
14:30 - 15:50 Session 1: Materials for Memristive/Emerging Devices; Chair: Tifenn HIRTZLIN				
14:30 - 14:55	Invited	Tae-Sik Yoon	Analog resistance changes in multilayer metal-oxide memristors for neuromorphic computing	
14:55 - 15:20	Invited	Stephan Menzel	On the Relation between Switching Kinetics and Analog Programming Capabilities of Memristive Devices based on the Valence Change Mechanism	
15:20 - 15:35	Oral	Geunyoung Kim	Double Charge Trap Layer Memristor for Modulative Threshold Switching	
15:35 - 15:50	Oral	Sunwoo Cheong	Hyperplane Tree-based Data Mining with Multi-functional Memristive Crossbar Array	
15:50 - 16:20	Coffee Break - Lobby			
16:20 - 17:30 Session 3: Three terminal neuromorphic devices; Chair: Seyoung Kim				
16:20 - 16:45	Invited	Gunuk Wang	A three-terminal vertical organic ferroelectric barristor for fast and energy-efficient neuromorphic computing	
16:45 - 17:00	Invited	Tifenn HIRTZLIN	Overcoming catastrophic forgetting through Bayesian Metaplasticity in Memristor based In-Memory Computing	
17:00 - 17:15	Oral	Anugerah Firdausi	A Current-Mode SAR ADC for Memristor Readout in 28nm CMOS	
17:15 - 17:30	TBD	TBD	TBD	
Room 3				
11:45 - 13:05 Session 5: Memristor-based non-conventional computing (In-sensor, Photonic, Quantum, etc.); Chair: Min Hyuk Park				
11:45 - 12:10	Invited	Toshiharu Sasaki	Colloidal robotics using phase-change memory in individuals and the environment	
12:10 - 12:35	Invited	Ho Won Jang	Linearly programmable two-dimensional halide perovskite memristor arrays for neuromorphic computing	
12:35 - 12:50	Oral	Mohammad Tauquir Alam Shamim Shaikh	Facile Solution-Processed Flexible and Biodegradable Organic Memristor for Wearable and Transient Electronics	
12:50 - 13:05	Oral	Takashi Tsuchiya	Iono-Magnon Reservoir Computing with Enhanced High Dimensionality	
13:05 - 14:30	Lunch Break			
14:30 - 15:50 Session 4: Memristor-based Edge Computing Systems and Design; Chair: Ho Won Jang				
14:30 - 14:55	Invited	Yoeri van de Burgt	Local and autonomous learning with organic neuromorphic electronics	
14:55 - 15:20	Oral	Yingjie Yu	Memristive Ternary Content Addressable Memory for In-Memory Search	
15:20 - 15:35	Oral	samarth jain	Compute-in-Memory Hardware Featuring Low Latency	
15:35 - 15:50	Oral	Lukas Voelkel	Influence of Vacuum on the Resistive Switching of h-BN Based Memristors	
15:50 - 16:20	Coffee Break - Lobby			
16:20 - 17:30 Session 4: Memristor-based Edge Computing Systems and Design; Chair: Yoeri van de Burgt				
16:20 - 16:45	Invited	Jeonghoon Kim	Neuromorphic Learning-in-Memory with Selector-less RRAM Crossbar Array	
16:45 - 17:00	Oral	Sahitya Yarragolla	Nonlinear dynamics in memristive devices for secure neuromorphic computing	
17:00 - 17:15	Oral	Namju Kim	Medical Image Synthesis utilizing Memristor based True Random Number Generator for noise input of Generative Network	
17:15 - 17:30	Oral	Andreia Silva	Approaching bio-voltages with copper liquid-based artificial synapses	
Common	17:30 - 19:00	Poster Session #3		

Parallel Sessions

Day 4. Wed, November 13, 2024				
Korean Time	Registration			
	Registration: Lobby			
08:15 - 09:00	Plenary session - Room 1			
09:00 - 09:45	Plenary	Jong-Ho Lee	TBD	Chair: Cheol Seong Hwang
<b>Room 1</b>				
<b>Session 2: Two terminal neuromorphic devices; Chair: Jung Ho Yoon</b>				
09:45 - 10:10	Invited	Juerg Leuthold	Photonic-Electronic Memristive Devices for Fast Neuronal Networks	
10:10 - 10:35	Invited	Keon Jae Lee	Simultaneous emulation of synaptic and intrinsic plasticity using a memristive synapse	
10:35 - 10:50	Oral	Jingsheng Chen	Multimode-fused Sensing System Based on Second-order Memristor	
10:50 - 11:05	Oral	Sung Keun Shim	Thresholding Computing with Heterogeneous Integration of Memristive Kernel with MOS Capacitor for Temporal Data Analysis	
11:05 - 11:35	Coffee Break - Lobby			
<b>Session 2: Two terminal neuromorphic devices; Chair: Juerg Leuthold</b>				
11:35 - 12:00	Invited	Jung Ho Yoon	Oxide Nanostructure-based Memristor Research for Bio-Inspired Computing Applications	
12:00 - 12:15	Oral	Ioannis Messaris	Utilizing Global Fading Memory Effects in Non-Volatile Memristors to Tune Resistive States	
12:15 - 12:30	Oral	Yao Ni	Neuromorphic units for simulating complex temporal regulation of multiple neurotransmitters	
12:30 - 12:45	Oral	Fernando Leonel Aguirre	Verilog-AMS compact model for memristor-based circuit simulation	
12:45 - 13:00	Oral	Stefan Wiefels	Reliability Aspects of 28 nm BEOL-Integrated Resistive Switching Random Access Memory	
13:00 - 13:15	Oral	Kitae Park	Enhanced Analog Synapse Characteristics of Atomic-layer Deposited CeO <sub>2</sub> -based 150x150 nm Memristor Crossbar Array for Artificial Neural Network	
13:15 - 14:45	Lunch Break			
<b>Room 2</b>				
<b>Session 1: Materials for Memristive/Emerging Devices; Chair: Sreetosh Goswami</b>				
09:45 - 10:10	Invited	Min Hyuk Park	Self-rectifying ferroelectric tunnel based on HfO <sub>2</sub> /ZrO <sub>2</sub> superlattices	
10:10 - 10:35	Invited	Tamalika Banerjee	Memristive devices based on complex oxides as synapses and neurons	
10:35 - 10:50	Oral	Eszter Piros	Yttrium oxide based memristors: an alternative material for stable analog switching and quantized conductance	
10:50 - 11:05	Oral	Sanjoy Nandi	V3O5 a potential material for neuromorphic computing	
11:05 - 11:35	Coffee Break - Lobby			
<b>Session 1: Materials for Memristive/Emerging Devices; Chair: Alexandros Emoras</b>				
11:35 - 12:00	Invited	Joon-Kyu Han	Next-Generation Computing Using Silicon Two-Terminal Resistive Switching Devices	
12:00 - 12:15	Oral	Tao Zeng	Approaching the Ideal Linearity in Epitaxial Crystalline-Type Memristor by Controlling Filament Growth	
12:15 - 12:30	Oral	Henrique Teixeira	Tuning of 2D Ti3C2Tx MXene flakes for flexible neuromorphic devices	
12:30 - 12:45	Oral	Gleb Demin	Neuromorphic functionality of thin-film GMI structures in a nonlinear mode of the ac current excitation	
12:45 - 13:00	Oral	Xuechao Xing	In-sensor Design Based on Programmable Self-doping in Mixed 2D-3D Halide Perovskite	
13:00 - 13:15	Oral	Onur Toprak	CMOS compatible analog memristive devices based on gallium oxide for on-chip neural activity processing	
13:15 - 14:45	Lunch Break			
<b>Room 3</b>				
<b>Session 5: Memristor-based non-conventional computing (In-sensor, Photonic, Quantum, etc.); Chair: Joon-Kyu Han</b>				
09:45 - 10:10	Invited	Hyungjin Kim	In-Memory Computing Applications with Memristor Crossbar Array	
10:10 - 10:35	Invited	Alexandros Emoras	Bio-Inspired Learning Rules on Opto-Electronic Memristive Hardware	
10:35 - 10:50	Oral	Deepika Yadav	Effect of annealing on Memimpedance behavior of Hafnium oxide Memristors	
10:50 - 11:05	Oral	Till Zellweger	Amorphous Germanium as Multi-Functional Switching Layer for Electro-Optical Memristors	
11:05 - 11:35	Coffee Break - Lobby			
<b>Session 5: Memristor-based non-conventional computing (In-sensor, Photonic, Quantum, etc.); Chair: Kyeong-sik Min</b>				
11:35 - 12:00	Oral	Dániel Molnár	Autonomous Neural Information Processing by a Dynamical Memristor Circuit	
12:00 - 12:15	Oral	Caterina Sbandati	Decoding multiunit activity in behaving animals using volatile RRAM	
12:15 - 12:30	Oral	Harivignesh S	A 14-Bit Molecular Dot Product Engine with Wire-Resistance-Resilience	
12:30 - 12:45	Oral	Oliver Solfronk	Time dependent evolution of the transient voltage drop on a ReRAM operated in a 1T1R configuration under constant load	
12:45 - 13:00	Oral	Zhuodong Kang	A Hybrid-Memory-Based Digital Compute-in-Memory Architecture for Edge LLM Applications	
13:00 - 13:15	Oral	Abhijith Anand	Optically Enhanced memory using Copper (II) Phthalocyanine-based Artificial Synapses	
13:15 - 14:45	Lunch Break			
Common	<b>Korean National Neuromorphic and PIM Program</b>			
	<b>MEMRISYS 2024 Closure</b>			

**Poster Session #1 (Day 1, Sun)**

Donghoon Shin	Heterogeneous Density-based Clustering with Dual-functional Memristive Array
Yoonho Cho	Synaptic Behavior Implementation in a Highly Uniform Self-Rectifying Interfacial Memristor
Seokki Son	Multi-level switching in 1T1R memristive cells: A simulation approach by compact model
Mihyang Park	Self-rectifying Two-terminal Vertical Floating Memristor
Yeongkwon Kim	A Physic-based Numerical Model for Potentiation/Depression Characteristics of Electrochemical Metallization Memristor
Sola Moon	Reservoir Computing for Pattern Recognition using Gd-doped CeO <sub>2</sub> /CeO <sub>2</sub> Bi-layer Memristor
Maki Nishimura	Computational performance of Magnonic Reservoir Computing with Increased Number of Detectors
Hyungsuk Oh	Silicon/Graphene Optical Sensors and Neuromorphic system for Visual Cell Emulation
Peter Hayoung Chung	Self-selective Crossbar Synapse Array with n-ZnO/p-NiOx/n-ZnO Structure for Neuromorphic Computing
Foelke Janssen	Rare-earth Nickelate resistive switching devices
Linkun Wang	Improved tolerance to the non-idealities of artificial synapses by gradient accumulation and periodical write for in-situ learning
Tae Won Park	Fabrication of 4k Density Vertical Resistive Switching Memory for Neuromorphic Applications
Jamie Steel	Physical Reservoir Computing with Percolating Networks of Nanoparticles
Xinming Shi	Memristor-based Integrate-and-Fire with Homeostatic Plasticity for Simulation and Application
Minh Chien Nguyen	Reconfigurable Non-volatile Floating Gate Memory based on van der Waals Heterostructure for Multi-functional Devices
Marina Sparvoli	Circuit emulating neuronal response based on Ga <sub>2</sub> O <sub>3</sub> photomemristors
Mohamad Moner Al Chawa	Ovonic Threshold Switch-Cellular Neural Network (OTS-CNN)
YEUNWOO KWON	Effect of molecular alignment on off current and switching properties in PEDOT:PSS-based RRAM
Yujin Kim	Analysis of 3-Dimensional Gate-Injection Field Effect Transistor with VNAND Structure for Area-Efficient Neuromorphic Hardware
Rohit Attri	Emergence of In Materia Intelligence in Energy-efficient Neuromorphic Devices realized using Self-forming Hierarchical Structures

**Poster Session #2 (Day 2, Mon)**

Yanzhen He	Memimpedance-based Neural Adaptation Circuit with Hybrid CMOS/Volatile Memristor LIF Neuron
Vaishnavi M Rajesh	Neuromorphic memory devices using Molybdenum oxide and Copper Molybdates using RF Magnetron sputtering.
Taehoon Park	Low Power and Reliable Dynamic Memtransistor with Step-Wise Potential Barrier for Energy-Efficient Computing
khaled humood	SPIKA: An Energy-Efficient Time-Domain Hybrid CMOS-RRAM Compute-in-Memory Macro for AI Applications
Dokyeong Yun	Characteristics of Fe-MST using a stacked heterogeneous structure of ferroelectric HZO and phase transition material MoTe <sub>2</sub>
Alin Panca	Automated RRAM characterization and post-processing for investigating device variability
xinxin wang	Memristive Transformer
Rishona Daniels	V-VTEAM: A Compact Behavioral Model for Volatile Memristors
Yeon Jun Kim	Effects of Surface Defect States on Memristive Switching in InP/ZnSe/ZnS Quantum Dot-based Memristors
Viet Cuong Vu	Circuit-Based Modelling of Current Transients within the Memristive Devices Subthreshold Regime
Richard Schroedter	An ErMnO <sub>3</sub> memristive spiking neuristor
Maria Grácio	Doping PVDF polymer with 2D flakes to achieve resistive switching
Su-Jin Sung	Low-Power and Thermally Stable Phase Change Memory by Material Engineering of Phase-Changeable Nano-Filament
Seokman Hong	Selector-Memory Bi-Functionality Utilizing Polycrystalline-Based Ge <sub>2</sub> Sb <sub>2</sub> T <sub>5</sub> Thin Films
Keunho Soh	Stochastic Ion-motion Mediated Volatile Threshold Switching Memristor Enables Probabilistic Computing
Minseong Park	Backpropagation-free deep reinforcement learning for privacy-preserving recommendation system via memristor crossbar cores
Naoya Yamashita	Development and Resistive Switching Properties of Amorphous GaOx Four-Terminal Crossbar Memristor
Mark Christian Guinto	Local activity principle as a theory on the emergence of grid cells
Jiyeon Ryu	Energy efficient, high performance resistive memory device with Ag/VOx/Pt structure by facilitated Ag filament formation

**Poster Session #3 (Day 3, Tue)**

Leon Brackmann	Improved Stateful Logic Designs based on Memristive 1T-1R Arrays
Xuanyu Shan	Plasmonic Optoelectronic Memristor Enabling Fully Light-Modulated Synaptic Plasticity for Neuromorphic Vision
Xiaohua Liu	Effect of Transistor Transfer Characteristics on the Programming Process in 1T1R Configuration
László Pósa	Size-Dependent Study on Nanosized VO <sub>2</sub> Phase Change Memory Devices
Tejaswini Subba Rao	A scalable solution recipe for a Ag-based neuromorphic device
Dashan Shang	A biomimetic nociceptor based on a vertical multi-gate, multi-channel neuromorphic transistor
DAYAL G	Reactive Pulsed Laser Deposited Bismuth Iron Oxide thin film devices for Pattern Recognition.
Yihan Pan	Energy-Efficient Capacitive-RRAM Dually Addressable Read Memory Core
Timo Oster	Long-Term Stability Testing of Memristors: Pulsed Read Endurance Measurements On Yttria-based OxRAM
Néstor Ghenzi	Reconfigurable Devices for Enhanced Reservoir Computing
Hongxiao Duan	1T-1PD pixel with broadband and reconfigurable characteristics
Hina Kitano	Reservoir computing using graphene-based solid state electric double layer transistors
Guoyang Huang	Memimpedance-based Neural Adaptation Circuit with Hybrid CMOS/Volatile Memristor LIF Neuron
Wang Xiaoyuan	Design of the tri-valued memristor and its application
Hongwoon Yun	Neuromorphic Computing based on Two-terminal Au nanoparticle Floating-gate Memristor
Jieun Kim	Cluster type selector-less 1R memristor array for spiking neural network
Yuan Fa	Volatile and Nonvolatile Resistive Switching in Wafer-Scale MoS <sub>2</sub> -based Memristors
Taeyoung Jeong	A combined approach of numerical simulation and ab initio calculations on Ag/HfO <sub>2</sub> /RuO <sub>2</sub> diffusive memristor for probabilistic computation application
Boyoung Jeong	Analog weight update by tunable interfacial energy barrier by Li ion redistribution in Pt/p-LiCoOx/p-NiO/Pt memristor for neuromorphic computing