

Day 0. Sat, November 9, 2024			
19:00 - 21:00	Welcome Reception (include dinner)		
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: Cheol Seong Hwang
Room 1			
11:30 - 12:50 Session 1: Materials for Memristive/Emerging Devices; Chair: Iliia Valov			
11:30 - 11:55	Invited	Suhas Kumar	Axon-like active signal transmission
11:55 - 12:20	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
12:20 - 12:35	Oral	Lambert Alff	Materials design and defect engineering correlated with compact modelled device behavior towards neuromorphic memristors
12:35 - 12:50	Oral	Alejandro Schulman	Towards True Multifunctional Devices: Memristive and Magneto-resistive Behaviors in MgO-Based Magnetic Tunnel Junctions
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	Miklos Csontos	Picosecond Femtojoule Resistive Switching in Nanoscale VO2 Memristors
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
17:00 - 17:15			
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	Hyeonji 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	Su-in Yi	BackPropagation-free Deep Reinforcement Learning for Privacy-Preserving Recommendation system via Memristor crossbars
16:15 - 16:30	Oral	Carlo Ricciardi	Neuromorphic nanowire networks: how brain inspiration can improve computing performance
16:30 - 16:45	Oral	Yue Zhou	Memristive Photon-Emitting Neurons in Scalable 3D Neural Networks
16:45 - 17:00	Oral	Janguk Han	Graph Network-based Reservoir Computing with Memristive Crossbar Array
17:00 - 17:15	Oral	Sunwoo Cheong	Hyperplane Tree-based Data Mining with Multi-functional Memristive Crossbar Array
17:15 - 17:25			
Room 3			
11:30 - 12:50 Session 3: Three terminal neuromorphic devices; Chair: Themis Prodromakis			
11:30 - 11:55	Invited	Daewoong Kwon	Analog Reservoir Computing Utilizing IGZO Channel Ferroelectric-gated Transistors
11:55 - 12:10	Oral	Huanglong Li	Bio-realistic and versatile artificial dendrites made of anti-ambipolar transistors
12:10 - 12:25	Oral	Seokho Seo	Development of gate injection-based field-effect synapse transistor with high reliability and linear conductance programmability for online training
12:25 - 12:40	Oral	Sahngik Mun	High-Dimensional Physical Reservoir with Back-end-of-line Compatible Tin Monoxide Thin-Film Transistor
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	Rotem Ben-Hur	DART-PIM: DNA read mapping accelerator Using Processing-In-Memory
15:00 - 15:15	Oral	Hakseung Rhee	Probabilistic computing with NbOx metal-insulator transition-based stochastic oscillation
15:15 - 15:30	Oral	Zhuodong Kang	A Hybrid-Memory-Based Digital Compute-in-Memory Architecture for Edge LLM Applications
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 - 16:40	Invited	Themis Prodromakis	Linking real and artificial brains with memristor technologies
16:40 - 16:55	Oral	ShengGuang Ren	Self-rectifying Memristor for In-Memory Computing
16:55 - 17:10	Oral	Do Hoon Kim	Bayesian Learning of Monte Carlo DropConnect Neural Networks Based on Stochastic 1S1M Devices
17:10 - 17:25	Oral	Stefan Pechmann	CMOS-integrated Multi-level Programming and Read-Out Circuitry including HfO2-based RRAM Arrays
17:15 - 18:45	Poster Session #1		
Common			

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: Shinhyun 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	Invited	Hocheon Yoo	Heterojunction-Based Bayesian Synaptic Transistors and Security Devices	
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 2: Two terminal neuromorphic devices; Chair: Hocheon Yoo				
14:30 - 14:55	Invited	Jung Ho Yoon	Oxide Nanostructure-based Memristor Research for Bio-Inspired Computing Applications	
14:55 - 15:10	Oral	Stefan Wiefels	Reliability Aspects of 28 nm BEOL-Integrated Resistive Switching Random Access Memory	
15:10 - 15:25	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	
15:25 - 15:40	Oral	Yue Gong	Reconfigurable and nonvolatile bulk photovoltaics effect based on 2D ferroelectric memristors for machine vision	
15:40 - 16:10	Coffee Break - Lobby			
Session 3: Three terminal neuromorphic devices; Chair: Ronald Tetzlaff				
16:10 - 16:35	Invited	Jang-Sik Lee	Hafnia-based Ferroelectric Transistors for Memory and Neuromorphic Device Applications	
16:35 - 17:00	Invited	Joon-Kyu Han	Next-Generation Computing Using Threshold Switching in Floating Body Transistors	
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	Bioinspired in-sensor computing for artificial vision	
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: Sangbum Kim				
14:30 - 14:55	Invited	Yuchao Yang	Large-Scale Memristor Integration for In-Memory Computing	
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	Sangbum Kim	Neuromorphic Hardware with Phase Change Memory: Exploring Applications of Spiking Boltzmann Machines	
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: Jang-Sik Lee				
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	Neethu Kuriakose	Integrated Memristor Control and Crossbar Array Design using TSMC 28 nm Technology	
13:00 - 14:30	Lunch Break			
Steering committee meeting (including lunch)				
Session 4: Memristor-based Edge Computing Systems and Design; Chair: Joon-Kyu Han				
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	Wei Wang	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	Harivignesh S	A 14-Bit Molecular Dot Product Engine with Wire-Resistance-Resilience	
16:50 - 17:05	Oral	Gwangmin Kim	Mott Neurons with Dual Thermal Dynamics for Spatiotemporal Computing	
Common	Poster Session #2			
	17:05 - 18:30			
Common	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	Novel enabling technologies for analog in-memory computing	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.	Yan 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	Hiroyuki 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; Chair: Sabina Spiga				
16:20 - 16:45	Invited	Kyeong-Sik Min	Memristor crossbar circuits for low-power IoT devices	
16:45 - 17:00	Oral	Wonbae Ahn	Wafer-scale direct growth of nano crystalline h-BN for memristor-based physical reservoirs	
17:00 - 17:15	Oral	Swapnadeep Poddar	Advancing Data Storage and Neuromorphic Computing with Three-dimensionally Integrated Perovskite Nanowires and Quantum Wires	
17:15 - 17:30	Oral	Hanrui Li	Flexible Optical Memristors for Edge Neuromorphic Vision and Biosignal Processing	
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	Invited	Kazuya Terabe	Controlling ion transport at the atomic level to improve memristive devices	
12:35 - 12:50	Oral	Emilio Perez-Bosch Quesada	Forming and Resistive Switching of HfO <sub>2</sub> -based RRAMs at cryogenic temperature	
12:50 - 13:05	Oral	Dennis Braun	Correlating MOCVD MoS <sub>2</sub> Material Properties with Improved Memristor Resistance State and Switching Voltage Variabilities	
13:05 - 14:30	Lunch Break			
14:30 - 15:50 Session 1: Materials for Memristive/Emerging Devices; Chair: Gunuk Wang				
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	Ioannis Messaris	Utilizing Global Fading Memory Effects in Non-Volatile Memristors to Tune Resistive States	
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 - 17:10	Invited	Thomas Dalgaty	Overcoming catastrophic forgetting through Bayesian Metaplasticity in Memristor based In-Memory Computing	
17:10 - 17:25	Oral	Anugerah Firdausi	A Current-Mode SAR ADC for Memristor Readout in 28nm CMOS	
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 Saiki	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 Shaikh	Facile Solution-Processed Flexible and Biodegradable Organic Memristor for Wearable and Transient Electronics	
12:50 - 13:05	Oral	Takashi Tsuchiya	Iono-Magnonic 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 - 15:10	Oral	Yingjie Yu	Memristive Ternary Content Addressable Memory for In-Memory Search	
15:10 - 15:25	Oral	Samarth Jain	Compute-in-Memory Hardware Featuring Low Latency	
15:25 - 15:40	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	Oliver Solfronk	Time dependent evolution of the transient voltage drop on a ReRAM operated in a 1T1R configuration under constant load	
17:15 - 17:30	Oral	Andrea Silva	Approaching bio-voltages with copper liquid-based artificial synapses	
Common	17:30 - 19:00 Poster Session #3			

Day 4. Wed, November 13, 2024				
Korean Time	Registration			
	08:15 - 09:00	Registration: Lobby		
Plenary session - Room 1				
09:00 - 09:45	Plenary	Jong-Ho Lee	AI semiconductor policy and flash memory-based neural networks	Chair: Cheol Seong Hwang
09:45 - 10:15	Plenary	Cheol Seong Hwang	Korean National Neuromorphic and PIM Program	Chair: Jong-Ho Lee
Room 1				
10:15 - 12:05 Session 2: Two terminal neuromorphic devices; Chair: Jung Ho Yoon				
10:15 - 10:40	Invited	Juerg Leuthold	Photonic-Electronic Memristive Devices for Fast Neuronal Networks	
10:40 - 11:05	Invited	Keon Jae Lee	Simultaneous emulation of synaptic and intrinsic plasticity using a memristive synapse	
11:05 - 11:20	Oral	Sung Keun Shim	Thresholding Computing with Heterogeneous Integration of Memristive Kernel with MOS Capacitor for Temporal Data Analysis	
11:20 - 11:35	Oral	Fernando Aguirre	Verilog-AMS compact model for memristor-based circuit simulation	
11:35 - 12:05	Coffee Break - Lobby			
12:05 - 13:45 Session 5: Memristor-based non-conventional computing (In-sensor, Photonic, Quantum, etc ); Chair: Kyeong-sik Min				
12:05 - 12:30	Invited	Hyungjin Kim	In-Memory Computing Applications with Memristor Crossbar Array	
12:30 - 12:45	Oral	Dániel Molnár	Autonomous Neural Information Processing by a Dynamical Memristor Circuit	
12:45 - 13:00	Oral	Max Talanov	Neuropunk revolution and AI energy consumption reduction	
13:00 - 13:15	Oral	Angela Slavova	Bioinspired memristor CNN computations in cardiology and neurophysiology	
13:15 - 13:30				
13:30 - 15:00	Lunch Break			
Room 2				
10:15 - 12:05 Session 1: Materials for Memristive/Emerging Devices; Chair: Sreetosh Goswami				
10:15 - 10:40	Invited	Min Hyuk Park	Self-rectifying ferroelectric tunnel based on HfO <sub>2</sub> /ZrO <sub>2</sub> superlattices	
10:40 - 11:05	Invited	Tamalika Banerjee	Memristive devices based on complex oxides as synapses and neurons	
11:05 - 11:20	Oral	Eszter Piros	Yttrium oxide based memristors: an alternative material for stable analog switching and quantized conductance	
11:20 - 11:35	Oral	Till Zellweger	Amorphous Germanium as Multi-Functional Switching Layer for Electro-Optical Memristors	
11:35 - 12:05	Coffee Break - Lobby			
12:05 - 13:45 Session 1: Materials for Memristive/Emerging Devices; Chair: Juerg Leuthold				
12:05 - 12:30	Invited	Alexandros Emboras	Bio-Inspired Learning Rules on Opto-Electronic Memristive Hardware	
12:30 - 12:45	Oral	Tao Zeng	Approaching the Ideal Linearity in Epitaxial Crystalline-Type Memristor by Controlling Filament Growth	
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 - 13:30				
13:30 - 15:00	Lunch Break			
Common	15:15 - 18:00	MEMRISYS 2024 Closure		

**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
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
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
Yeunwoo Kwon	Effect of molecular alignment on off current and switching properties in PEDOT:PSS-based RRAM

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

Yanzhen He	Memimpedance-based Neural Adaptation Circuit with Hybrid CMOS/Volatile Memristor LIF Neuron
Taehoon Park	Low Power and Reliable Dynamic Memtransistor with Step-Wise Potential Barrier for Energy-Efficient Computing
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
Su-Jin Sung	Low-Power and Thermally Stable Phase Change Memory by Material Engineering of Phase-Changeable Nano-Filament
Keunho Soh	Stochastic Ion-motion Mediated Volatile Threshold Switching Memristor Enables Probabilistic Computing
Naoya Yamashita	Development and Resistive Switching Properties of Amorphous GaOx Four-Terminal Crossbar Memristor
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
Jieun Kim	Cluster type selector-less 1R memristor array for spiking neural network
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
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
László Pósa	Size-Dependent Study on Nanosized VO <sub>2</sub> Phase Change Memory Devices
Yihan Pan	Energy-Efficient Capacitive-RRAM Dually Addressable Read Memory Core
Timo Oster	Long-Term Stability Testing of Memristors: Pulsed Read Endurance Measurements On Ytria-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
Yuan Fa	Volatile and Nonvolatile Resistive Switching in Wafer-Scale MoS <sub>2</sub> -based Memristors
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
Tomasz Mazur	Thiazolothiazole Derivatives for Information Processing with Fine-Tuning Capabilities