

Sunday, 23 April		9am	ES3-1: E-Tattoos – Materials, Design, Manufacturing, Functionalities, and Applications
9am	<b>Educational Session 1: Crystal-Less Timing/Frequency References</b> <i>Salon A</i> Chaired by: Mark Stefan Oude Alink (Netherlands) and Wanghua Wu (United States)	10:45am	» <u>Nanshu Lu (</u> United States) <sup>1</sup> (1. The University of Texas, Austin) ES3-2: Brain Interface: High-Density Electrical Recording and Optical Modulation at Cellular Resolution
9am 10:45am	ES1-1: Integrated BAW-Based Frequency References »Danielle Griffith (United States) <sup>1</sup> (1. Fellow, Texas Instruments) ES1-2: MEMS for High-Performance Environmentally Robust Frequency References		» <u>Sung-Yun Park (Korea, Republic of</u> ) <sup>1</sup> ,Euisik Yoon (United States) <sup>2</sup> (1. Associate Professor, Dept. of Electronics Engineering, Pusan National University, Adjunct Research Scientist, Dept. of Electrical Engineering and Computer Science, University of Michigan, 2. Professor, Dept. of Electrical Engineering and Computer Science, Professor, Dept. of Biomedical Engineering, Professor, Dept. of Mechanical Engineering, Director, NSF International Program for Advancement of Neurotechnology)
	» <u>Sassan Tabatabaei (</u> United States) <sup>1</sup> (1. Senior VP Circuits Engineering, SiTime)	9am	Educational Session 4: Millimeter Wave/ sub-THz Phased Array Systems Salon F
9am	Educational Session 2: Emerging Devices and Systems for Storage and Computing		Chaired by: Mustafijur Rahman (India) and Sudipto Chakraborty (United States)
	<i>Salon B</i> Chaired by: Jong Seok Park (United States)	9am	ES4-1: Recent Advances in THz Radar Imaging: Towards Millimeter Ranging Resolution and 2D Electronic Beam Steering with 1- Degree Angular Resolution
9am	ES2-1: From in-memory computing to analog and neuromorphic computing: augmenting CMOS with emerging memory devices for greater efficiency and capabilities		» <u>Ruonan Han (</u> United States) <sup>1</sup> (1. Massachusetts Institute of Technology)
	»John Paul Strachan (Germany) <sup>1</sup> (1. Aachen University)	10:45am	ES4-2: CMOS Sub-Terahertz Wireless Communications Using High- Frequency Circuit Techniques Beyond Fmax
10:45am	ES2-2: In-memory Computing: Is this a good solution for you?		» <u>Minoru Fujishima (J</u> apan) <sup>1</sup> (1. Hiroshima University)
	» <u>Mingku Kang (</u> United States) <sup>1</sup> (1. University of California san diego)	12:15pm	Break
9am	Educational Session 3: Wearable and Implantable Sensors	12:15pm	Break
	Chaired by: Yaoyao Jia (United States) and Chul Kim (Korea, Republic of)	12:15pm	Break



Continued	from Sunday, 23 April	1:30pm
12:15pm	Break	
1:30pm	<b>Educational Session 1: Crystal-Less Timing/Frequency References</b> <i>Salon A</i> Chaired by: Wanghua Wu (United States) and Mark Stefan Oude Alink	3:15pm
	(Netherlands)	1:30pm
1:30pm	ES1-3: LC-Based Frequency References in CMOS	
	» <u>Anne-Johan Annema (</u> Netherlands) <sup>1</sup> (1. Professor at University of Twente, Enschede)	1:30nm
3:15pm	ES1-4: RC Frequency References in Standard CMOS	1.30pm
	» <u>Çağrı Gürleyük (</u> Netherlands)¹(1. Senior Member of Technical Staff, Ethernovia, Zeist)	3:15pm
1:30pm	Educational Session 2: Emerging Devices and Systems for Storage and Computing Salon B	
	Chaired by: Jong Seok Park (United States)	
1:30pm	ES2-3: Memory-Centric Computing	Monda
	» <u>Onur Mutlu (</u> Switzerland) <sup>1</sup> (1. ETH Zurich)	8am
3:15pm	ES2-4: Computing with p-Bits: Between a Bit and a q-Bit	8:20am
	» <u>Supriyo Datta (</u> United States) <sup>1</sup> (1. Purdue University)	
1:30pm	<b>Educational Session 3: Wearable and Implantable Sensors</b> <i>Salon E</i> Chaired by: Chul Kim (Korea, Republic of) and Yaoyao Jia (United States)	8:20am

1:30pm	ES3-3: Skin-Interfaced Wearable Biosensors
	» <u>Wei Gao (</u> United States) <sup>1</sup> (1. California Institute of Technology)
3:15pm	ES3-4: Near-field Data Transmission for Biomedical Implants
	» <u>Sohmyung Ha (</u> United States) <sup>1</sup> (1. New York University)
1:30pm	<b>Educational Session 4: Millimeter Wave/ sub-THz Phased Array</b> Systems Salon F Chaired by: Mustafijur Rahman (India) and Sudipto Chakraborty (United States)
1:30pm	ES4-3: CMOS mmWave/THz Phased-Array Transceiver Design for 6G
	»Kenichi Okada (Japan) <sup>1</sup> (1. Tokyo Institute of Technology)
3:15pm	ES4-4: Recent Baseband Discrete-time Delay Compensation for Large Scale Antenna Arrays
	» <u>Subhanshu Gupta (</u> United States) <sup>1</sup> (1. Washington State University)
Monda	<b>aV,</b> 24 April
8am	Welcome and Opening Remarks Salon C
8:20am	<b>Session 1: Keynote Session</b> Salon C
8:20am	Charting the Connected Future
	» <u>Daniel Cooley (</u> United States) <sup>1</sup> (1. Chief Technology Officer, Silicon Labs)



Continued	from Monday, 24 April	11:15am
9:30am	Digital Circuits, SoCs, and Systems I - Session 2: Low-power Digital Circuits Salon A Chaired by: Alicia Klinefelter (United States) and Visvesh Sathe (United States)	
9:30am	Introduction: Low-power Digital Circuits	9:30am
	nVidia, 2. Georgia Institute of Technology)	9:30am
9:35am	2-1: A 28nm All-Digital, 1.92-7.32mV/LSB, 0.5-2GS/s sample rate, 0- latency Voltage Sensor with Dynamic PVT Calibration for Wide- range Adaptive Voltage Scaling	10am
	» <u>Yuxuan Du (</u> China) <sup>1</sup> ,Haitao Ge (China) <sup>1</sup> ,Zhuo Chen (China) <sup>1</sup> ,Kaize Zhou (China) <sup>1</sup> ,Zhengguo Shen (China) <sup>1</sup> ,Weiwei Shan (China) <sup>1</sup> (1. Southeast University, Nanjing)	
10am	2-2: (Invited) Synchronous Die-to-Die Signaling Using Aeonic Connect	10:30am
	» <u>Marcus van lerssel (</u> Canada) <sup>1</sup> ,Fred Buhler (United States) <sup>1</sup> ,David Moore (United States) <sup>1</sup> ,Jeff Fredenburg (United States) <sup>1</sup> (1. Movellus Inc)	11am
10:50am	2-3: A 65nm 2.02mW 50Mbps Direct Analog to MJPEG Converter for Video Sensor Nodes using low-noise Switched Capacitor MAC-	
	<b>Quantizer with automatic calibration and Sparsity-aware ADC</b> »Gaurav Kumar K (United States) <sup>1</sup> , <u>Gourab Barik (</u> United States) <sup>1</sup> ,Baibhab Chatterjee (United States) <sup>2</sup> ,Sumon Bose (United States) <sup>3</sup> ,Shovan Maity (United States) <sup>3</sup> ,Shreyas Sen (United States) <sup>1</sup> (1. Purdue University, 2. University of Florida, 3. Quasistatics Inc)	9:30am

ing
ates)
vers
ne
ave
ishna
i



Continued	from Monday, 24 April
9:30am	Introduction: Gate Drivers and GaN ICs
	» <u>Alan Roth (</u> United States) <sup>1</sup> ,Raveesh Magod (United States) <sup>2</sup> (1. TSMC, 2. Texas Instruments)
9:35am	4-1: (Invited) Digital Gate ICs for Driving and Sensing Power Devices to Achieve Low-Loss, Low-Noise, and Highly Reliable Power Electronic Systems
	»Dibo Zhang (Japan)¹,Kohei Horii (Japan)¹,Katsuhiro Hata (Japan)¹ , <u>Makoto Takamiya (J</u> apan)¹(1. The University of Tokyo)
10:25am	4-2: A Monolithic GaN Driver and GaN Power Switch with Power- rail Charging Saturation Bootstrap Technique Achieving Gate Rising and Falling Time Ratio of 1.28
	»Yao Qin (China) <sup>1</sup> , <u>Xin Ming</u> (China) <sup>1</sup> ,Zhi-yi Lin (China) <sup>1</sup> ,Zhijiu Wu (China) <sup>1</sup> ,Chunwang Zhuang (China) <sup>1</sup> ,Jian-Jun Kuang (China) <sup>1</sup> ,Peng Luo (China) <sup>2</sup> ,Bo Zhang (China) <sup>1</sup> (1. University of Electronic Science and Technology of China, 2. Chengdu Danxi Technology Co., Ltd)
10:50am	4-3: (Invited) A GaN-on-Si Gate Driver with 14.7X Reduction in Tailing Current Loss and 37.0% Reduction of Reverse Conduction Loss
	» <u>Hsing-Yen Tsai (</u> Taiwan) <sup>1</sup> ,Kuo-Lin Zheng (Taiwan) <sup>2</sup> ,Ke-Horng Chen (Taiwan) <sup>1</sup> ,Ying-His Lin (Taiwan) <sup>3</sup> ,Shian-Ru Lin (Taiwan) <sup>3</sup> ,Tsung-Yen Tsai (Taiwan) <sup>3</sup> (1. National Yang Ming Chiao Tung University, 2. National Yang Ming Chiao Tung University & Chip-GaN Power Semiconductor Corp., 3. Realtek Semiconductor Corp.)
9:30am	Wireless Transceivers and RF/mm-Wave Circuits and Systems I - Session 5: Low Power Quantum Computing & Wireless Transceivers Salon E
	chance by, junari mani (oniced States) and Mustanjur Kalimar (india)

#### 9:30am

# Introduction: Low Power Quantum Computing and Wireless Transceivers

»<u>Julian Tham (</u>United States) <sup>1</sup>,Mustafijur Rahman (India)<sup>2</sup>(1. Infineon Technologies, 2. IIT Delhi)

9:35am

# 5-1: (Invited) Low power cryogenic RF ASICs for quantum computing

»<u>David Frank (</u>United States) <sup>1</sup>,Sudipto Chakraborty (United States) <sup>1</sup> ,Kevin Tien (United States) <sup>1</sup>,Pat Rosno (United States) <sup>2</sup>,Mark Yeck (United States) <sup>1</sup>,Joseph Glick (United States) <sup>1</sup>,Raphael Robertazzi (United States) <sup>1</sup>,Ray Richetta (United States) <sup>3</sup>,John Bulzacchelli (United States) <sup>1</sup>,Daniel Ramirez (United States) <sup>3</sup>,Dereje Yilma (United States) <sup>3</sup> ,Andy Davies (United States) <sup>3</sup>,Rajiv Joshi (United States) <sup>1</sup>,Scott Lekuch (United States) <sup>1</sup>,Ken Inoue (United States) <sup>1</sup>,Devin Underwood (United States) <sup>1</sup>, Dorothy Wisnieff (United States) <sup>1</sup>,Chris Baks (United States) <sup>1</sup>, John Timmerwilke (United States) <sup>1</sup>,Peilin Song (United States) <sup>1</sup>,Blake Johnson (United States) <sup>1</sup>,Brian Gaucher (United States) <sup>1</sup>,Daniel Friedman (United States) <sup>1</sup>(1. IBM T.J. Watson Research Center, 2. IBM Systems, 3. IBM Systems)

10:25am

#### 5-2: A -102dBm Sensitivity, 2.2μA Packet-Level-Duty-cycled Wake-Up Receiver with ADPLL achieving -30dB SIR

»<u>Linsheng Zhang (</u>United States) <sup>1</sup>,Divya Duvvuri (United States) <sup>1</sup> ,Suprio Bhattacharya (United States) <sup>1</sup>,Anjana Dissanayake (United States) <sup>1</sup>,Xinjian Liu (United States) <sup>1</sup>,Henry Bishop (United States) <sup>1</sup> ,Yaobin Zhang (United States) <sup>1</sup>,Travis Blalock (United States) <sup>1</sup>,Benton Calhoun (United States) <sup>1</sup>,Steven Bowers (United States) <sup>1</sup>(1. University of Virginia)

10:50am

#### 5-3: A 12.2µW Interference Robust Wake-Up Receiver

»<u>Hamid Jafari Sharemi</u> (Iran, Islamic Republic of) <sup>1</sup>,Mehrdad Sharif Bakhtiar (Iran, Islamic Republic of) <sup>1</sup>(1. Sharif University of Technology)



Continued from Monday, 24 April		10:25am	6-3: A 138-TOPS/W Delta-Sigma Modulator-Based Variable- Resolution Activation In-Memory Computing Macro
11:15am	5-4: A Digital-Intensive 6-to-11 GHz 1T2R IEEE 802.15.4/4z- Compliant Multi-Functional Joint-Radar-Communication Transceiver SoC for Wireless Indoor Sensing Data-fusion		» <u>Vasundhara Damodaran (</u> United States) <sup>1</sup> ,Ziyu Liu (United States) <sup>1</sup> ,Jae-sun Seo (United States) <sup>1</sup> ,Arindam Sanyal (United States) <sup>1</sup> (1. Arizona State University)
	»Bufan Zhu (China) <sup>1</sup> ,Wei Deng (China) <sup>1</sup> ,Ziying Huang (China) <sup>1</sup> ,Haikun Jia (China) <sup>1</sup> , <u>Haiyang Jia (</u> China) <sup>1</sup> ,Angxiao Yan (China) <sup>1</sup> ,Yumeng Yang (China) <sup>1</sup> ,Junfeng Liu (China) <sup>1</sup> ,Yu Fu (China) <sup>1</sup> ,Shiyan Sun (China) <sup>1</sup> ,Chao Tang (China) <sup>1</sup> ,Taikun Ma (China) <sup>1</sup> ,Jiajie Tang (China) <sup>1</sup> ,Baoyong Chi (China) <sup>1</sup> (1. Tsinghua University)	10:50am	6-4: DenseCIM: Binary Weighted-Capacitor SRAM Computation-In- Memory with Column-by-Column Dynamic Range Calibration SAR ADC
9:30am	<b>Emerging Technologies, Systems, and Applications I -</b> <b>Session 6: Architectures for Advancing Computing</b> <i>Salon F</i>		» <u>Yong-Iun Io (</u> Singapore)',Boon Peng Yap (Singapore)',Dong-Hyun Yoon (Singapore) <sup>1</sup> ,Hyunjoon Kim (Singapore) <sup>1</sup> ,Yuanjin Zheng (Singapore) <sup>1</sup> ,Tony Tae-Hyoung Kim (Singapore) <sup>1</sup> (1. Nanyang Technological University)
	Chaired by: Kaiyuan Yang (United States) and Jerald Yoo (Singapore)	11:15am	6-5: dToF LIDAR System Using Addressable Multi-Channel VCSEL Transmitter, 128x80 SPAD Sensor, and ML-Based Object Detection
9:30am	Introduction: Architectures for Advancing Computing		for Adaptive Beam-Steering
	» <u>KaiYuan Yang (</u> United States) <sup>1</sup> ,Jerald Yoo (Singapore) <sup>2</sup> (1. Rice University, 2. National University of Singapore)		» <u>Yifan Wu (</u> China) <sup>1</sup> ,Sifan Zhou (China) <sup>2</sup> ,Miao Sun (China) <sup>3</sup> ,Tao Xia (China) <sup>3</sup> ,Jian Qian (China) <sup>3</sup> ,Lei Wang (China) <sup>4</sup> ,Shi Shi (China) <sup>4</sup> ,Lebei Cui (China) <sup>3</sup> ,Iier Wang (China) <sup>3</sup> ,Yuan Li (China) <sup>3</sup> ,Hengwei Yu (China) <sup>3</sup>
9:35am	6-1: A 333TOPS/W Logic-Compatible Multi-Level Embedded Flash Compute-In-Memory Macro with Dual-Slope Computation	,Zhihong Lin (China) ⁵,Rui Bai (China)⁴,Xu ,Shenglong Zhuo (C	,Zhihong Lin (China) <sup>3</sup> ,Lei Qiu (China) <sup>1</sup> ,Yajie Qin (China) <sup>3</sup> ,Min Sun (China) <sup>5</sup> ,Rui Bai (China) <sup>4</sup> ,Xuefeng Chen (China) <sup>4</sup> ,Patrick Chiang (China) <sup>3</sup> ,Shenglong Zhuo (China) <sup>3</sup> (1. The college of electronics and information
	» <u>Edward Choi (</u> Korea, Republic of) <sup>1</sup> ,Injun Choi (Korea, Republic of) <sup>1</sup> ,Vincent Lukito (Korea, Republic of) <sup>1</sup> ,Dong-Hwi Choi (Korea, Republic of) <sup>1</sup> ,Donghyeon Yi (Korea, Republic of) <sup>1</sup> ,Ik-joon Chang (Korea, Republic of) <sup>2</sup> .Sohmyung Ha (United Arab Emirates) <sup>3</sup> .Minkyu le (Korea, Republic		University, Nanjing, 3. State Key Laboratory of ASIC and System, Fudan University, Shanghai, China, 4. PhotonIC Technologies, Shanghai, China, 5. Tencent Research)
	of) ¹(1. Korea Advanced Institute of Science and Technology, 2. Kyung Hee University, 3. New York University Abu Dhabi)	1pm	Digital Circuits, SoCs, and Systems II - Session 7: Compute in Memory and Ising Machines
10am	6-2: Sub-mW/qubit 5.2-7.2GHz 65nm Cryo-CMOS RX for Scalable Quantum Computing Applications		<i>Salon A</i> Chaired by: Bongjin Kim (United States) and Yongpan Liu (China)
	» <u>Aravind Nagulu</u> (United States) <sup>1</sup> ,Leonardo M Ranzani (United States) <sup>2</sup> ,Guilhem J Ribeill (United States) <sup>2</sup> ,Martin V Gustafsson (United States)	1pm	Introduction: Compute in Memory and Ising Machines
	<sup>3</sup> (1. Washington University in St. Louis, 2. Raytheon BBN Technologies, 3. Columbia University)		» <u>Bongjin Kim (</u> United States) <sup>1</sup> ,Yongpan Liu (China)²(1. University of California, Santa Barbara, 2. Tsinghua University)



Continued	d from <b>Monday, 24 April</b>	1pm	Introduction: Data Converter Design Techniques
1:05pm	7-1: A Calibration-Free 15-level/Cell eDRAM Computing-in-Memory Macro with 3T1C Current-Programmed Dynamic-Cascoded MLC achieving 233-to-304-TOPS/W 4b MAC »Jiahao Song (China) <sup>1</sup> ,Xiyuan Tang (China) <sup>1</sup> ,Haoyang Luo (China) <sup>1</sup> ,Haoyi Zhang (China) <sup>1</sup> ,Xin Qiao (China) <sup>1</sup> ,Zixuan Sun (China) <sup>1</sup> ,Xiangxing Yang	1:05pm	<ul> <li>»<u>Vanessa Chen (</u>United States) <sup>1</sup>(1. Carnegie Mellon University)</li> <li>8-1: (Best Invited Paper Candidate) Calibration Techniques for Optimizing Performance of High-Speed ADCs</li> <li>»<u>Ewout Martens</u> (Belgium)<sup>1</sup>,Nereo Markulic (Belgium)<sup>1</sup>,Jorge Lagos</li> </ul>
1:30pm	(United States) <sup>2</sup> ,Yuan Wang (China) <sup>1</sup> ,Runsheng Wang (China) <sup>1</sup> ,Ru Huang (China) <sup>1</sup> (1. Peking University, 2. pSemi Corporation) <b>7-2: CIMC: A 603TOPS/W In-Memory-Computing C3T Macro with</b> Boolean/Convolutional Operation for Cryogenic Computing	1:55pm	8-2: (Best Student Paper Candidate) A 4.6K to 400K Functional PVT- Robust Ringamp-Based 250MS/s 12b Pipelined ADC with Pole- Aware Bias Calibration
	» <u>Yuhao Shu (</u> China) <sup>1</sup> ,Hongtu Zhang (China) <sup>1</sup> ,Qi Deng (China) <sup>1</sup> ,Hao Sun (China) <sup>1</sup> ,Yajun Ha (China) <sup>1</sup> (1. ShanghaiTech University)	2:20pm	<ul> <li>»Kaoru Yamashita (Japan)<sup>1</sup>,Benjamin Hershberg (United States) <sup>1</sup></li> <li>,Kentaro Yoshioka (Japan)<sup>1</sup>,Hiroki Ishikuro (Japan)<sup>1</sup>(1. Keio University)</li> <li>8-3: A 1GS/s 6-Core Programmable A/D Converter Array Supporting</li> </ul>
1:55pm	7-3: A Double-Mode Sparse Compute-In-Memory Macro with Reconfigurable Single and Dual Layer Computation »Yuanzhe ZHAO (Macao) <sup>1</sup> , Minglei Zhang (Macao) <sup>1</sup> , Pengyu He (Macao) <sup>1</sup>		Architecture Restructuring and Multitasking » <u>Zhishuai Zhang (</u> China) <sup>1</sup> ,Zijie Gao (China) <sup>1</sup> ,Siyu Huang (China) <sup>1</sup> ,Nan Sun (China) <sup>1</sup> ,Lu Jie (China) <sup>1</sup> (1. Tsinghua University)
2:20pm	7-4: A Graph Neural Network Computing-in-Memory Macro and	1pm	Power Management II - Session 9: DC-DC Converters Salon C Chaired by: John Pigott (United States) and SriHarsh Pakala (United
	»Yipeng Wang (United States) <sup>1</sup> .Shanshan Xie (United States) <sup>1</sup> .lacob	1pm	States) Introduction: DC-DC Converters
	Rohan (United States) <sup>1</sup> ,Meizhi Wang (United States) <sup>1</sup> ,Mengtian Yang (United States) <sup>1</sup> ,Sirish Oruganti (United States) <sup>1</sup> ,Jaydeep P Kulkarni (United States) <sup>1</sup> (1. University of Texas at Austin)		» <u>John Pigott (</u> United States) <sup>1</sup> ,SriHarsh Pakala (United States) <sup>1</sup> (1. NXP)
1pm	<b>Data Converters I -</b> <b>Session 8: Data Converter Design Techniques</b> <i>Salon B</i> Chaired by: Vanessa Chen (United States)	1:05pm	9-1: 4C 3-Level Hybrid Buck Converter for 12~48V-to-1V Point-of- Load Applications » <u>Hon-Piu Lam (</u> Hong Kong) <sup>1</sup> ,Wing-Hung Ki (Hong Kong) <sup>1</sup> ,Philip K. T. Mok (Hong Kong) <sup>1</sup> (1. Hong Kong University of Science and Technology)



Continued from Monday, 24 April		1:05pm	10-1: (Invited) High-Power, Efficient THz Generation in Silicon for
1:30pm	9-2: Α 4-to-42V Input, 95.5% Efficiency, 3.2μΑ-IQ, DC-DC Buck Converter Featuring a Leakage-Emulated Bootstrap Refresher and Anti-Deadlock Self-Bias Supply for Battery-Powered Automotive Uses		» <u>Aydin Babakhani (</u> United States) <sup>1</sup> ,Sidharth Thomas (United States) <sup>1</sup> ,Sam Razavian (United States) <sup>1</sup> (1. University of California, Los Angeles)
	» <u>Heejun Lee (</u> Korea, Republic of) <sup>1</sup> ,Hyunki Han (Korea, Republic of) <sup>1</sup> ,Hyun-Sik Kim (Korea, Republic of) <sup>1</sup> (1. KAIST)	1:55pm	10-2: A 194-238GHz Fully On-Chip Self-Referenced Frequency Stabilized Radiator for High Range Resolution Imaging
1:55pm	<b>9-3: An 87.2%-peak efficiency 4.1W-output power switched</b> <b>capacitor 3-level inverting buck-boost dc-dc converter</b> »Samuele Fusetto (Italy) <sup>1</sup> , <u>Elisabetta Moisello (</u> Italy) <sup>1</sup> ,Holger Petersen (Germany) <sup>2</sup> ,Siamak Abedinpour (United States) <sup>2</sup> ,Piero Malcovati (Italy) <sup>1</sup> ,Edoardo Bonizzoni (Italy) <sup>1</sup> (1. University of Pavia, 2. Renesas Electronics)	2:20pm	»Bahareh Hadidian (United States) <sup>1</sup> ,Farzad Khoeini (United States) <sup>1</sup> ,S. M. Hossein Naghavi (United States) <sup>1</sup> ,Andreia Cathelin (France) <sup>2</sup> ,Kamal Sarabandi (United States) <sup>1</sup> ,Ehsan Afshari (United States) <sup>1</sup> (1. University of Michigan, Ann Arbor, 2. STMicroelectronics, Crolles) <b>10-3: A Compact CMOS 390 GHz Autodyne FMCW Radar with 57</b>
2:20pm	9-4: (Best Student Paper Candidate) A Li-ion Battery Input 96.8% Peak Efficiency Single-Inductor Off-Chip-Capacitor-Free 2-Switch LED Driver with Two-Color Mixing Capability » <u>Caiyu Tong</u> (China) <sup>1</sup> ,Zihao Fan (China) <sup>1</sup> ,Yuan Gao (China) <sup>1</sup> (1. Southern University of Science and Technology)		GHz Bandwidth for Dental Imaging » <u>Morteza Tavakoli Taba (</u> United States) <sup>1</sup> ,S. M. Hossein Naghavi (United States) <sup>1</sup> ,Morteza Fayazi (United States) <sup>1</sup> ,Ali Sadeghi (United States) <sup>2</sup> ,Mohammed Aseeri (Saudi Arabia) <sup>3</sup> ,Andreia Cathelin (France) <sup>4</sup> ,Ehsan Afshari (United States) <sup>1</sup> (1. University of Michigan, Ann Arbor, 2. University of Washington, 3. King Abdulaziz City for Science and Technology, 4. STMicroelectronics, Crolles)
1pm	Wireless Transceivers and RF/mm-Wave Circuits and Systems II - Session 10: Recent Advances in Silicon Based Terahertz Solutions Salon E Chaired by: Sudipto Chakraborty (United States) and Wanghua Wu (United States)	1pm	<b>Analog Circuits and Techniques I -</b> <b>Session 11: Analog Sensor Interfaces</b> <i>Salon F</i> Chaired by: Edoardo Bonizzoni (Italy) and DEVRIM AKSIN (United States)
1pm	Introduction: Recent Advances in Silicon Based Terahertz Solutions » <u>Sudipto Chakraborty (</u> United States) <sup>1</sup> ,Wanghua Wu (United States) <sup>2</sup> (1. IBM, 2. Samsung)	1pm	<b>Introduction: Analog Sensor Interfaces</b> » <u>Edoardo Bonizzoni (</u> Italy) <sup>1</sup> ,Devrim Aksin (United States) <sup>2</sup> (1. University of Pavia, 2. ADI)



Continued from Monday, 24 April		2:45pm	Break
1:05pm	11-1: A 72-Channel Resistive-and-Capacitive Sensor Interface Achieving 0.74µW/Channel and 0.038mm2/Channel by Noise- Orthogonalizing and Pad-Sharing Techniques	3pm	<b>Digital Circuits, SoCs, and Systems II cont'd -</b> <b>Session 7: Compute in Memory and Ising Machines</b> <i>Salon A</i> Chaired by: Bongjin Kim (United States) and Yongpan Liu (China)
	, Yangfan Xuan (China) <sup>1</sup> , Yunshan Zhang (China) <sup>1</sup> , Yili Shen (China) <sup>1</sup> , Changgui Yang (China) <sup>1</sup> , Qijing Xiao (China) <sup>1</sup> , Yong Chen (Macao) <sup>2</sup> , Bo Zhao (China) <sup>1</sup> (1. Zhejiang University, 2. University of Macau)	3pm	7-5: A 65 nm 1.4-6.7 TOPS/W Adaptive-SNR Sparsity-Aware CIM Core with Load Balancing Support for DL workloads
1:30pm	Opm <b>11-2: A 15.5b-ENOB 335mVpp-Linear-Input-Range 4.7GΩ-Input-</b> Impedance Direct-ADC Based Analog Front-End		» <u>Mustafa Ali (</u> United States) <sup>1</sup> ,Indranil Chakraborty (United States) <sup>1</sup> ,Sakshi Choudhary (United States) <sup>1</sup> ,Dong Eun Kim (United States) <sup>1</sup> ,Muya Chang (United States) <sup>2</sup> ,Arijit Raychowdhury (United States) <sup>2</sup> ,Kaushik Roy (United States) <sup>1</sup> (1. Purdue University, 2. Georgia Institute of Technology)
	» <u>Yijie Li (</u> China) <sup>1</sup> ,Weiqi Zhi (China) <sup>1</sup> ,Yuying Li (China) <sup>1</sup> ,Zhiliang Hong (China) <sup>1</sup> ,Jiawei Xu (China) <sup>1</sup> (1. Fudan University)		
1:55pm	11-3: A 0.06-mm² Current-Mode Noise-Shaping SAR based Temperature-to-Digital Converter with a 4.9-nJ Energy/Conversion	3:25pm	7-6: iMCU: A 102-μJ, 61-ms Digital In-Memory Computing-based Microcontroller Unit for Edge TinyML
	» <u>Antonio Aprile (</u> Italy)¹,Daniele Gardino (Italy)²,Michele Folz (Italy)²,Piero Malcovati (Italy)¹,Edoardo Bonizzoni (Italy)¹(1. University of Pavia, 2. TDK InvenSense)		» <u>Chuan-Tung Lin (</u> United States) <sup>1</sup> ,Paul Huang (United States) <sup>1</sup> ,Jonghyun Oh (United States) <sup>1</sup> ,Dewei Wang (United States) <sup>1</sup> ,Mingoo Seok (United States) <sup>1</sup> (1. Columbia University)
2:20pm	11-4: A 9.7fJ/ConvStep Capacitive Sensor Readout Circuit with Incremental Zoomed Time Domain Quantization	3:50pm	7-7: A Continuous-Time Ising Machine Using Coupled Inverter Chains Featuring Fully-Parallel One-Shot Spin Updates
	» <u>Zilong Shen</u> (China) <sup>1</sup> ,Xiyuan Tang (China) <sup>1</sup> ,Zhongyi Wu (China) <sup>1</sup> ,Haoyang Luo (China) <sup>1</sup> ,Zongnan Wang (China) <sup>1</sup> ,Mingjie Liu (United States) <sup>2</sup> ,Xing Zhang (China) <sup>1</sup> ,Yuan Wang (China) <sup>1</sup> (1. Peking University, 2. NVIDIA Corporation)		» <u>Chengshuo Yu</u> (Singapore) <sup>1</sup> ,JUNJIE MU (Singapore) <sup>1</sup> ,Kevin Chai (Singapore) <sup>2</sup> ,Tony Tae-Hyoung Kim (Singapore) <sup>1</sup> ,Bongjin Kim (United States) <sup>3</sup> (1. Nanyang Technological University, 2. Institute of Microelectronics, Agency for Science, Technology and Research (A*STAP) 3. University of California, Santa Barbara)
2:45pm	Break		(A"STAR), S. OHIVEISILY OF California, Santa Barbara)
2:45pm	Break	4:15pm	7-8: A Reconfigurable Ising Machine for Boolean Satisfiability Problems Featuring Many-Body Spin Interactions
2:45pm	Break		»Yuqi Su (Singapore) <sup>1</sup> ,Tony Tae-Hyoung Kim (Singapore) <sup>1</sup> ,Bongjin Kim (United States) <sup>2</sup> , <u>Yong-Jun Jo (</u> Singapore) <sup>1</sup> (1. Nanyang Technological
2:45pm	Break		University, 2. University of California, Santa Barbara)



Continued from Monday, 24 April		3pm	9-5: A 150nA IQ, 850mA ILOAD, <10mV Ripple Buck Converter with >90% Efficiency over 10μA to 450mA Loading Range
3pm	Data Converters I cont'd - Session 8: Data Converter Design Techniques Salon B		» <u>Baochuang Wang (</u> China) <sup>1</sup> ,Yiling Xie (China) <sup>1</sup> ,Jianping Guo (China) <sup>1</sup> ,Lin Cheng (China) <sup>2</sup> (1. Sun Yat-sen University, 2. University of Science and Technology of China)
	Chaired by: Vanessa Chen (United States)	3:25pm	9-6: A 5V-to-0.5V Inductor-First Inductor-on-Ground Switched Capacitor Multi-Path Hybrid DC-DC Converter
3pm	8-4: An 80.2-to-89.1dB-SNDR 24k-to-200kHz-BW VCO-Based Synthesized ΔΣ ADC with 105dB SFDR in 28-nm CMOS »Yi Zhong (China) <sup>1</sup> .Mingtao Zhan (China) <sup>1</sup> .Wei Wang (China) <sup>1</sup> .Xivuan		» <u>Junwei Huang (</u> China) <sup>1</sup> ,Zhiguo Tong (China) <sup>1</sup> ,Yan Lu (China) <sup>1</sup> ,Chi-Seng Lam (China) <sup>1</sup> ,R. P. Martins (China) <sup>1</sup> (1. University of Macau, Macau, China)
	Tang (China) <sup>2</sup> ,Lu Jie (China) <sup>1</sup> ,Nan Sun (China) <sup>1</sup> (1. Tsinghua University, 2. Peking University)	3:50pm	9-7: A 96.6%-Efficiency Inductively Assisted Switched-Capacitor DC-DC Converter with 0.5-to-1.5V Output Voltage Range
3:25pm	8-5: Sniff-SAR: A 9.8fl/cs 12b secure ADC with detection-driven		» <u>Sandeep Reddy Kukunuru (</u> United States) <sup>1</sup> ,Loai Salem (United States) <sup>1</sup> (1. University of California, Santa Barbara)
	<ul> <li>»<u>Ruicong Chen (</u>United States) <sup>1</sup>,Anantha P. Chandrakasan (United States) <sup>1</sup>,Hae-Seung Lee (United States) <sup>1</sup>(1. Massachusetts Institute of Technology)</li> </ul>	4:15pm	9-8: A 65nm Fully-integrated Fast-switching Buck Converter with Resonant Gate Drive and Automatic Tracking
			» <u>Xi Chen (</u> United States) <sup>1</sup> ,Aly Shoukry (United States) <sup>1</sup> ,Tianyu Jia (United States) <sup>1</sup> ,Xin Zhang (United States) <sup>2</sup> ,Raveesh Magod (United States) <sup>3</sup> ,Nachiket Desai (United States) <sup>4</sup> ,Jie Gu (United States) <sup>1</sup> (1. Northwestern University, 2. IBM, 3. Texas Instruments, 4. Intel)
3:50pm	8-6: A Fully-Dynamic kT/C-Noise-Canceled SAR ADC with Trimming- Free Dynamic Amplifier	4:40pm	9-9: (Best Student Paper Candidate) A Fully-Integrated Direct- Conversion Resonant Switched Capacitor Converter with Modular Multi-Winding Current Ballasting
«Haoyu Zhuang (China (China)¹,Qiang Li (China) Technology of China, 2	"Aboyu Zhuang (China)",Nan Sun (China)", <u>Linzhi Tao (</u> China)",Yizhan Li (China) <sup>1</sup> ,Qiang Li (China) <sup>1</sup> (1. University of Electronic Science and Technology of China, 2. Tsinghua University)		» <u>Kishalay Datta (</u> United States) <sup>1</sup> ,Prescott H Mclaughlin (United States) <sup>2</sup> ,Jason Stauth (United States) <sup>1</sup> (1. Dartmouth, 2. Intel)
3pm	Power Management II cont'd - Session 9: DC-DC Converters	3pm	Wireless Transceivers and RF/mm-Wave Circuits and Systems II cont'd - Session 10: Recent Advances in Silicon Based Terahertz Solutions
	Salon C Chaired by: John Pigott (United States) and SriHarsh Pakala (United		<i>Salon E</i> Chaired by: Sudipto Chakraborty (United States) and Wanghua Wu
	States)		(United States)



Continued from Monday, 24 April		3:50pm	11-6: A 3.9kHz bandwidth and 2µV offset current sensor analog front-end with a capacitively coupled amplifier using a dual fronguency conversion technique
3pm	10-4: An Ultra-Wideband Amplifier with A Novel Non-Distributed Butterfly Topology Achieving 2-250 GHz Bandwidth and 4.67 THz GBW in 130nm SiGe BiCMOS		» <u>Shotaro Wada (J</u> apan) <sup>1</sup> ,Yoshikazu Furuta (Japan) <sup>1</sup> ,Soya Taniguchi (Japan) <sup>1</sup> ,Masaya Kondo (Japan) <sup>1</sup> ,Shogo Kawahara (Japan) <sup>1</sup> ,Tomohiro Nezuka (Japan) <sup>1</sup> (1. MIRISE Technologies Corporation)
	» <u>Dawei Tang (</u> China)¹,Zekun Li (China)¹,Jixin Chen (China)¹,Peigen Zhou (China)¹,Zhe Chen (China)¹,Debin Hou (China)¹,Wei Hong (China)¹(1. Southeast University)	4:15pm	11-7: A 56fJ/Conversion-Step 178dB-FoMS Third-Order Hybrid CT-DT ΔΣ Capacitance-to-Digital Converter
3:25pm	10-5: A Low-Power 20Gb/s 196GHz BPSK Wireless Transmitter with Energy Efficiency FoM of 0.15pJ/bit/cm		» <u>Yoontae Jung</u> (Korea, Republic of) <sup>1</sup> ,Jimin Koo (Korea, Republic of) <sup>1</sup> ,Sein Oh (Korea, Republic of) <sup>1</sup> ,Seunga Park (Korea, Republic of) <sup>1</sup> ,Ji- Hoon Suh (Korea, Republic of) <sup>1</sup> ,Donghee Cho (Korea, Republic of) <sup>1</sup> ,Minkyu Je (Korea, Republic of) <sup>1</sup> (1. KAIST)
	» <u>Lili Chen (</u> United States) <sup>1</sup> ,Morteza Tavakoli Taba (United States) <sup>1</sup> ,Andreia Cathelin (France) <sup>2</sup> ,Ehsan Afshari (United States) <sup>1</sup> (1. University of Michigan, Ann Arbor, 2. STMicroelectronics, Crolles)	4:40pm	11-8: A 7.4μJ·ppm2 Resistance Sensor with ±120ppm (3σ) 1-Point- Trimmed Inaccuracy and <4ppm/°C Temperature Drift from −55°C to 125°C
3:50pm	10-6: (Best Student Paper Candidate) A 1.54mm2 Wake-Up Receiver Based on THz Carrier Wave and Integrated Cryptographic Authentication		»Sining Pan (China)¹, <u>Ning Pu (</u> China)¹,Haiyu Wang (China)¹,Hanjun Jiang (China)¹,Zhihua Wang (China)¹,Huaqiang Wu (China)¹(1. Tsinghua University)
	» <u>Eunseok Lee (</u> United States) <sup>1</sup> ,Muhammad Ibrahim Wasiq Khan (United States) <sup>1</sup> ,Xibi Chen (United States) <sup>1</sup> ,Utsav Banerjee (India) <sup>2</sup> Nathan Monroe (United States) <sup>1</sup> Pahia Tugge Vazicigil (United States) <sup>3</sup>	5:30pm	Welcome Reception Pool Deck - 7th Floor
	(1. Massachusetts Institute of Technology, 2. Indian Institute of Science, 3. Boston University)	Tuesc	ay, 25 April
3pm	<b>Session 11: Analog Sensor Interfaces</b> <i>Salon F</i> Chaired by: Edoardo Bonizzoni (Italy) and DEVRIM AKSIN (United States)	8am	Session 12: Forum: Recent Progress in LDOs and Voltage, Current, and Timing References Salon A
3pm	11-5: (Best Invited Paper Candidate) Analog Front-End Circuits for MEMS Microphones		(Taiwan)
		8am	12-1: Recent Advancements in Integrated LDO Regulators
	» <u>Piero Malcovati (</u> ltaly) <sup>1</sup> (1. University of Pavia)		» <u>Yan Lu (</u> China) <sup>1</sup> (1. University of Macau)



Continued from <b>Tuesday, 25 April</b>		9:30am	13-4: Soft Deformable Bioelectronics towards Seamless Integration with Tissues and Organs	
8:30am	12-2: Design of Ultra-low-power Bandgap Reference Circuits		» <u>Cunjiang Yu (</u> United States) <sup>1</sup> (1. Pennsylvania State University)	
	» <u>Jae-Yoon Sim (</u> Korea, Republic of) <sup>1</sup> (1. POSTECH)	8am	Foundation of System Design I -	
9am	12-3: Sub-μW Non-Bandgap Voltage References: Review & Recent Progress		Session 14: Heterogenous SoCs for Next-Gen Compute Applications Salon C Chaired by: Jaydeep P Kulkarni (United States) and Farhana Sheikh	
	» <u>Inhee Lee (</u> United States) <sup>1</sup> (1. University of Pittsburgh)		(United States)	
9:30am	12-4: Recent Developments in RC Frequency References	8am	Introduction: Heterogenous SoCs for Next-Gen Compute Applications	
	»Kofi A. A. Makinwa (Netherlands) <sup>1</sup> (1. Delft University of Technology)	<ul> <li>*Farhana Sheikh (United States) <sup>1</sup>, Jaydeep Intel, 2. The University of Texas at Austin)</li> <li>8:05am</li> <li>14-1: (Invited) System Aspects of Deploy Infrastructure</li> <li>*Derek Chiou (United States) <sup>1</sup>(1. The Univer Microsoft)</li> <li>8:55am</li> <li>14-2: (Best Student Paper Candidate) DE 1.46TOPS, 55 Giga Cache-Coherent 64-bis second, Heterogeneous Manycore SoC v Accelerators, Intelligent Storage, and el *Eei Gao (United States) <sup>1</sup>, Ting-Jung Chang (United States) <sup>1</sup>, Marcelo Orenes-Vera (Uni (United States) <sup>2</sup>, Paul Jackson (United States States) <sup>1</sup>, Georgios Tziantzioulis (United States <sup>1</sup>, Grigory Chirkov (United States) <sup>1</sup>, Gabriele Jonathan Balkind (United States) <sup>3</sup>, Margaro <sup>1</sup>, Luca Carloni (United States) <sup>2</sup>, David Went Princeton University, 2. Columbia University Santa Barbara)</li> </ul>	» <u>Farhana Sheikh (</u> United States) <sup>1</sup> ,Jaydeep Kulkarni (United States) <sup>2</sup> (1.	
8am	Session 13: Forum: Emerging Electrical and Optical Devices for Biomedical Applications Salon B Chaired by: Yaoyao Jia (United States) and Youngcheol Chae (Korea, Republic of)		8:05am <b>14-1: (Invited) System Aspects of Deploying FPGAs for Cluinfrastructure</b> »Derek Chiou (United States) <sup>1</sup> (1. The University of Texas at A	<b>14-1: (Invited) System Aspects of Deploying FPGAs for Cloud</b> <b>Infrastructure</b> »Derek Chiou (United States) <sup>1</sup> (1. The University of Texas at Austin and
8am	13-1: Future of Neural Interfaces: Multimodal Experiments and Neuromorphic Computing		Microsoft)	
	» <u>Duygu Kuzum (</u> United States) <sup>1</sup> (1. University of California, San Diego)		8:55am <b>14-2: (Best Student Paper Candidate) DECADES: A 67m</b> <b>1.46TOPS, 55 Giga Cache-Coherent 64-bit RISC-V Instru</b> <b>second, Heterogeneous Manycore SoC with 109 Tiles in</b> <b>Accelerators, Intelligent Storage, and eFPGA in 12nm F</b>	14-2: (Best Student Paper Candidate) DECADES: A 67mm2, 1.46TOPS, 55 Giga Cache-Coherent 64-bit RISC-V Instructions per second, Heterogeneous Manycore SoC with 109 Tiles including
8:30am	13-2: All-Electrical Imaging of Cultured Cells with Semiconductor Sensor Arrays			Accelerators, Intelligent Storage, and eFPGA in 12nm FinFET
	» <u>Jacob Rosenstein (</u> United States) <sup>1</sup> (1. Associate Professor of Engineering, Brown University)		» <u>Fei Gao (</u> United States) <sup>1</sup> , Jing-Jung Chang (United States) <sup>1</sup> , Ang Li (United States) <sup>1</sup> , Marcelo Orenes-Vera (United States) <sup>1</sup> , Davide Giri (United States) <sup>2</sup> , Paul Jackson (United States) <sup>1</sup> , August Ning (United States) <sup>1</sup> , Georgios Tziantzioulis (United States) <sup>1</sup> , Joseph Zuckerman (United States) <sup>2</sup> , Jinzheng Tu (United States) <sup>1</sup> , Kaifeng Xu (United States)	
9am	13-3: Novel Sensors and Systems for Digital Twin for Precision Health		<sup>1</sup> , Grigory Chirkov (United States) <sup>1</sup> , Gabriele Tombesi (United States) <sup>2</sup> Jonathan Balkind (United States) <sup>3</sup> , Margaret Martonosi (United States) <sup>1</sup> , Luca Carloni (United States) <sup>2</sup> , David Wentzlaff (United States) <sup>1</sup> (1. Princeton University 2, Columbia University 3, University of California	
	» <u>Roozbeh Jafari (</u> United States) <sup>1</sup> (1. Texas A&M University)		Santa Barbara)	



Continued from Tuesday, 25 April		9:20am	15-3: A 13.5-to-28.8GHz 72.3%-Locking Range Multi-Phase Injection-Locked Frequency Tripler with Improved Output Power and Wideband Subbarmonic-Spur Rejection in 28pm CMOS
9:20am	14-3: CIFER: A 12nm, 16mm2, 22-Core SoC with a 1541 LUT6/mm2, 1.92 MOPS/LUT, Fully Synthesizable, Cache-Coherent, Embedded FPGA		» <u>Chao Fan (</u> China) <sup>1</sup> ,Ya Zhao (China) <sup>1</sup> ,Yanlong Zhang (China) <sup>1</sup> ,Jun Yin (China) <sup>2</sup> ,Pui-In Mak (China) <sup>2</sup> ,Guohe Zhang (China) <sup>1</sup> ,Li Geng (China) <sup>1</sup> (1. Xi'an Jiaotong university, 2. University of Macau)
	»Ting-Jung Chang (United States) <sup>1</sup> , Ang Li (United States) <sup>1</sup> , Fei Gao (United States) <sup>1</sup> , Tuan Ta (United States) <sup>2</sup> , Georgios Tziantzioulis (United States) <sup>1</sup> , Yanghui Ou (United States) <sup>2</sup> , Moyang Wang (United States) <sup>2</sup> , Jinzheng Tu (United States) <sup>1</sup> , Kaifeng Xu (United States) <sup>1</sup> , Paul Jackson (United States) <sup>1</sup> , August Ning (United States) <sup>1</sup> , Grigory Chirkov (United States) <sup>1</sup> , Marcelo Orenes-Vera (United States) <sup>1</sup> , Shady Agwa (United States) <sup>2</sup> , Xiaoyu Yan (United States) <sup>1</sup> , Eric Tang (United States) <sup>2</sup>	8am	<b>Data Converters II -</b> <b>Session 16: ADCs with Noise Shaping</b> <i>Salon F</i> Chaired by: Seung-Tak Ryu (Korea, Republic of) and Chia-Hung Chen (Taiwan)
	, David Wentzlaff (United States) <sup>1</sup> (1. Princeton University, 2. Cornell University, 3. University of California, Santa Barbara)	8am	Introduction: ADCs with Noise Shaping
8am Wireless Transceivers and RF/mm-Wave Circuits and Systems III - Session 15: Frequency Generation, Clocking and Power Transfer Salon E Chaired by: Debo Chowdbury (United States) and Aritra Baperiee (United	Wireless Transceivers and RF/mm-Wave Circuits and Systems III - Session 15: Frequency Generation, Clocking and Power Transfer		» <u>Seung-Tak Ryu (</u> Korea, Republic of) <sup>1</sup> ,Chia-Hung Chen (Taiwan) <sup>2</sup> (1. KAIST, 2. National Chiao Tung University)
	Salon E Chaired by: Debo Chowdbury (United States) and Aritra Baneriee (United	8:05am	16-1: (Invited) Weightings in Incremental ADCs: A Tutorial Review
8am	States)		»Ruiqi Gao (Macao) <sup>1</sup> ,Mingqiang Guo (Macao) <sup>1</sup> , <u>Sai-Weng Sin (</u> Macao) <sup>1</sup> ,Liang Qi (China) <sup>2</sup> ,Biao Wang (Macao) <sup>1</sup> ,Guoxing Wang (China) <sup>2</sup> ,R. P. Martins (Macao) <sup>1</sup> (1. University of Macau, 2. Shanghai Jiao Tong University)
	» <u>Debopriyo Chowdhury (</u> United States) <sup>1</sup> ,Aritra Banerjee (United States) <sup>2</sup> (1. Broadcom, 2. Arionic)	8:55am	16-2: An ELDC-Free 2.78mW 20MHz-BW 75.5dB-SNDR 4th-Order CTSDM Facilitated by 2nd-Order CT NS-SAR and AC-Coupled Negative-R
8:05am	15-1: (Invited) Wireless Power Transfer at Distance		» <u>ZiXuan Xu (</u> Macao)¹,Kai Xing (Macao)¹,Yan Zhu (Macao)¹,Chi-Hang
	» <u>Ali Hajimiri (</u> United States) <sup>1</sup> (1. California Institute of Technology)		Chan (Macao)¹,R. P. Martins (Portugal)²(1. University of Macau, 2. Instituto Superior Tecnico/University of Lisboa)
8:55am	15-2: A 25.0-to-35.9GHz Dual-Layer Quad-Core Dual-Mode VCO with 189.1dBc/Hz FoM and 200.2dBc/Hz FoMT at 1MHz Offset in 65nm CMOS	9:20am	16-3: An 84dB-SNDR 1-0 Quasi-MASH NS SAR with LSB Repeating and 12-bit Bridge-Crossing Segmented CDAC
	» <u>Pingda Guan (</u> China) <sup>1</sup> ,Haikun Jia (China) <sup>1</sup> ,Wei Deng (China) <sup>1</sup> ,Ruichang Ma (China) <sup>1</sup> ,Huabing Liao (China) <sup>1</sup> ,Zhihua Wang (China) <sup>1</sup> ,Baoyong Chi (China) <sup>1</sup> (1. Tsinghua University)		» <u>Zihao Jiao (</u> China) <sup>1</sup> ,Hongrui Luo (China) <sup>1</sup> ,Jie Zhang (China) <sup>1</sup> ,Xiaofei Wang (China) <sup>2</sup> ,Liang Chen (China) <sup>3</sup> ,Hong Zhang (China) <sup>1</sup> (1. Xi'an Jiaotong University, 2. Xi'an Jiaotong university, 3. Changzhou Power Supply Company, State Grid Jiangsu Electric Power Company)



Continued from Tuesday, 25 April		10am	15-4: An 86.5-105.6GHz LO Generator with Cascaded Implicit
9:45am	Break		Noise and 191.2dBc/Hz FoM at 1MHz Offset
9:45am	Break		» <u>Hao Guo (</u> United States) <sup>1</sup> ,Taiyun Chi (United States) <sup>1</sup> (1. Rice University)
9:45am	Break	10:25.20	
10am	Break	10:25am	15-5: A 26GHz Fractional-N Charge-Pump PLL Based on A Dual-DTC- Assisted Time-Amplifying-Phase-Frequency Detector Achieving 37.1fs and 45.6fs rms Jitter for Integer-N and Fractional-N Channel
10am	Break		»Xinlin Geng (China) <sup>1</sup> , <u>Zonglin Ye (</u> China) <sup>1</sup> ,Yao Xiao (China) <sup>1</sup> ,Qian Xie
10am	Foundation of System Design I cont'd - Session 14: Heterogenous SoCs for Next-Gen Compute Applications		(China)',Zheng Wang (China)'(1. University of Electronic Science and Technology of China)
	Chaired by: Jaydeep P Kulkarni (United States) and Farhana Sheikh (United States)	10:50am	15-6: A 21.8-41.6GHz Fractional-N Sub-Sampling PLL with Dividerless Unequal-REF-Delay Frequency-Locked Loop Achieving
10am			»Wen Chen (China) <sup>1</sup> .Yivang Shu (China) <sup>1</sup> .Xun Luo (China) <sup>1</sup> (1. University
	14-4: (Invited) Open-Source AXI4 Adapters for Chiplet		of Electronic Science and Technology of China)
	Architectures	11:15am	15-7: A 6.5-to-8GHz Cascaded Dual-Fractional-N Digital PLL
	Sheikh (United States) <sup>2</sup> , Julie Zhang (United States) <sup>1</sup> , YunHui Huang (United States) <sup>1</sup> , Shawn Wang (United States) <sup>1</sup> (1, Intel Corporation, 2,		Achieving -63.7dBc Fractional Spurs with 50MHz Reference
	Intel)		» <u>Dingxin Xu (J</u> apan) <sup>1</sup> ,Yuncheng Zhang (Japan) <sup>1</sup> ,Hongye Huang (Japan) <sup>1</sup> ,Zheng Sun (Japan) <sup>1</sup> ,Bangan Liu (Japan) <sup>1</sup> ,Ashbir Aviat Fadila (Japan) <sup>1</sup> ,Junjun Qiu (Japan) <sup>1</sup> ,Zezheng Liu (Japan) <sup>1</sup> ,Wenqian Wang (Japan) <sup>1</sup> ,Yuang Xiong (Japan) <sup>1</sup> ,Waleed Madany (Japan) <sup>1</sup> ,Atsushi Shirane (Japan) <sup>1</sup> ,Kenichi Okada (Japan) <sup>1</sup> (1. Tokyo Institute of Technology)
10am	Wireless Transceivers and RF/mm-Wave Circuits and Systems III	10	
	cont'd - Session 15: Frequency Generation, Clocking and Power Transfer	Tuam	Data Converters II cont'd - Session 16: ADCs with Noise Shaping
	Salon E Chaired by: Debo Chowdhury (United States) and Aritra Baneriee (United		<i>Salon F</i> Chaired by: Seung-Tak Ryu (Korea, Republic of) and Chia-Hung Chen
	States)		(Taiwan)



Continued	from Tuesday, 25 April	10:10am	Introduction: Analog Techniques
10am	16-4: Α 243μW 97.4dB-DR 50kHz-BW Multi-Rate CT Zoom ADC with Inherent DAC Mismatch Tolerance		» <u>Mark Oude Alink (</u> Netherlands)¹,Antonio Liscidini (Canada)²(1. University of Twente, 2. University of Toronto)
	»Junghyun Yoon (Korea, Republic of) <sup>1</sup> ,MoonHyung Jang (United States) <sup>2</sup> ,Changuk Lee (United States) <sup>3</sup> ,Youngcheol Chae (Korea, Republic of) <sup>1</sup> ,Yong Lim (Korea, Republic of) <sup>4</sup> (1. Yonsei University, 2. Stanford University, 3. University of California, Berkeley, 4. Samsung Electronics)	10:15am	17-1: A 0.69-Noise-Efficiency-Factor 4x-Current-Reuse Dynamic Comparator with A Stacking FIA
10:25am	16-5: An 81.2dB-SNDR Dual-Residue Pipeline ADC with a 2nd-Order Noise-Shaping Interpolating SAR ADC		(China) <sup>1</sup> ,Qiang Li (China) <sup>1</sup> (1. University of Electronic Science and Technology of China, 2. Tsinghua University)
	» <u>Jae-Hyun Chung (</u> Korea, Republic of) <sup>1</sup> ,Ye-Dam Kim (Korea, Republic of) <sup>1</sup> ,Chang-Un Park (Korea, Republic of) <sup>1</sup> ,Kun-Woo Park (Korea,	10:40am	17-2: A 69MHz-Bandwidth 40V/µs-Slew-rate 3nV/√Hz-Noise 4.5µV- Offset Chopper Operational Amplifier
	Republic of) <sup>1</sup> ,Min-Jae Seo (Korea, Republic of) <sup>2</sup> ,Seung-Tak Ryu (Korea, Republic of) <sup>1</sup> (1. KAIST, 2. Gachon University)		»Yarallah Koolivand (Iran, Islamic Republic of) <sup>1</sup> , <u>Yasser Rezayean</u> (Denmark) <sup>2</sup> ,Milad Zamani (Denmark) <sup>2</sup> ,Meysam Akbari (Iran, Islamic Republic of) <sup>3</sup> Omid Shoaei (Iran, Islamic Republic of) <sup>4</sup> Kea-Tiong Tang
10:50am	16-6: Mixed-Order Correlated Dual-loop Sturdy MASH CT $\Delta\Sigma$ Modulator with Distributed Signal Feed-in and VCO quantizer		(Taiwan) <sup>5</sup> ,Farshad Moradi (Denmark) <sup>2</sup> (1. K. N. Toosi University of Technology, 2. Aarhus University, 3. University of Kurdistan, 4. University of Tehran, 5. National Tsing Hua University)
	» <u>xiaodong xu (</u> United States) <sup>1</sup> ,Beomsoo Park (United States) <sup>1</sup> ,Marino Guzman (United States) <sup>1</sup> ,Nima Maghari (United States) <sup>2</sup> (1. University of Florida, 2. Univeristy of Florida)	11:05am	17-3: A 92F2/bit Physically Unclonable Function Exploiting Channel Charge Injection and Mismatch Accumulation
11:02am	16-7: A 1-MHz-Bandwidth Continuous-Time Delta-Sigma ADC Achieving >90dB SFDR and >80dB Antialiasing Using Reference- Switched Resistive Feedback DACs		» <u>Injune Yeo (</u> Korea, Republic of) <sup>1</sup> ,Dong-Woo Jee (Korea, Republic of) <sup>2</sup> ,Jae-sun Seo (United States) <sup>3</sup> (1. Chosun University, 2. Ajou University, 3. Arizona State University)
	» <u>Sharvil Patil (</u> Canada) <sup>1</sup> ,Raviteja Theertham (India) <sup>1</sup> ,Hajime Shibata (Canada) <sup>1</sup> ,Victor Kozlov (Canada) <sup>1</sup> ,Asha Ganesan (Canada) <sup>1</sup> ,Efram Burlingame (Canada) <sup>1</sup> ,Zhao Li (Canada) <sup>1</sup> ,Rama Thakar (United States) <sup>1</sup> ,Qianqian Zhang (Canada) <sup>1</sup> ,Yue Yin (United States) <sup>2</sup> ,Aathreya Bhat (United States) <sup>3</sup> (1. Analog Devices, 2. Meta, 3. NVIDIA Corporation)	10:10am	<b>A-SSCC Best Student Papers</b> <i>Salon B</i> Chaired by: Sudipto Chakraborty (United States) and SungWon Chung (United States)
10:10am	Analog Circuits and Techniques II - Session 17: Analog Techniques	10:10am	A 110-120-GHz, 12.2% Efficiency, 16.2-dBm Output Power Multiplying Outphasing Transmitter in 22-nm FDSOI
	Saion A Chaired by: Mark Stefan Oude Alink (Netherlands) and Antonio Liscidini (Canada)		» <u>Jeff Shih-Chieh Chien (</u> United States) <sup>1</sup> (1. University of California, Santa Barbara)



Continued from Tuesday, 25 April		1:45pm	Introduction: Timing Circuits
10:30am	A 37-39GHz Phase and Amplitude Detection Circuit with 0.060 degree and 0.043dB RMS Errors for the Calibration of 5GNR Phased-Array Beamforming		»Antonio Liscidini (Canada) <sup>1</sup> , <u>Hiroki Ishikuro (</u> Japan)²,Edoardo Bonizzoni (Italy)³(1. University of Toronto, 2. Keio University, 3. University of Pavia)
10:50am 11:10am	<ul> <li>»<u>Yudai Yamazaki (Japan)</u><sup>1</sup>(1. Tokyo Institute of Technology)</li> <li>A 20-MHz 2.3-mW Receiver and a 25-V Transmitter for Ultrasound Capsule Endoscopy</li> <li>»<u>Kyeongwon Jeong (Korea, Republic of)</u> <sup>1</sup>(1. KAIST)</li> <li>A 0.56V/0.8V Vision Sensor with Temporal Contrast Pixel and Column-Parallel Local Binary Pattern Extraction for Dynamic Depth Sensing Using Stereo Vision</li> </ul>	1:50pm 2:15pm	<ul> <li>19-1: A 0.012mm2 36.41kHz Temperature-Insensitive Current-Reuse Ring Oscillator Achieving 0.077%/V Line Sensitivity across a 1.3V-to-3.7V Unregulated Supply</li> <li>»<u>Zhicheng Dong</u> (China)<sup>1</sup>,Shubin Liu (China)<sup>1</sup>,Xiaoteng Zhao (China)<sup>1</sup>,Baotian Hao (China)<sup>2</sup>,Hongzhi Liang (China)<sup>1</sup>,Haolin Han (China)<sup>1</sup>, Menghao Wang (China)<sup>1</sup>,Weijie Han (United States) <sup>3</sup>,Zhangming Zhu (China)<sup>1</sup>(1. Xidian University, 2. legendsemi, 3. University of Texas at Dallas)</li> <li>19-2: A 0.9V 2MHz 6 4x-Slope-Boosted Quadrature-Phase</li> </ul>
11:30am	<ul> <li>»Min Yang Chiu (Taiwan)<sup>1</sup>(1. National Tsing Hua University)</li> <li>A 0.95pJ/b 5.12Gb/s/pin Charge-Recycling IOs with 47% Energy Reduction for Big Data Applications</li> <li>»Han Wu (Singapore)<sup>1</sup>(1. National University of Singapore)</li> </ul>		Relaxation Oscillator with 164.2dBc/Hz FoM and 62.5ppm Period Jitter in 0.18μm CMOS » <u>Hoyong Seong (</u> Korea, Republic of) <sup>1</sup> ,Donghyun Youn (Korea, Republic of) <sup>1</sup> ,Injun Choi (Korea, Republic of) <sup>1</sup> ,Junghyup Lee (Korea, Republic of) <sup>2</sup> ,Sohmyung Ha (United Arab Emirates) <sup>3</sup> ,Minkyu Je (Korea, Republic of) <sup>1</sup> (1. KAIST, 2. DGIST, 3. New York University Abu Dhabi)
12pm	<b>Session 18: Keynote Luncheon</b> Salon D	2:40pm	19-3: A High-Order-Temperature-Compensated 328kHz On-Chip RC Timer Using Time-Interleaved Resistors Achieving 1.5pJ/Cycle and 5.86ppm/°C
12pm	<b>Terahertz CMOS Going Anywhere?</b> » <u>Kenneth O (</u> United States) <sup>1</sup> (1. Professor - Electrical Engineering, Texas Instruments Distinguished University Chair)	3:05pm	» <u>Jiawei Liao (</u> Switzerland) <sup>1</sup> ,Hesam Omdeh Ghiasi (Switzerland) <sup>1</sup> ,Giorgio Cristiano (Switzerland) <sup>1</sup> ,Taekwang Jang (Switzerland) <sup>1</sup> (1. ETH Zürich) <b>19-4: A 16GHz 33fs rms Integrated Jitter FLL-less Gear Shifting</b> <b>Reference Sampling PLL</b>
1:45pm	Analog Circuits and Techniques III - Session 19: Timing Circuits Salon A Chaired by: Hiroki Ishikuro (Japan) and Edoardo Bonizzoni (Italy)		» <u>Jusung Lee (</u> Korea, Republic of) <sup>1</sup> ,Youngwoo Jo (Korea, Republic of) <sup>1</sup> ,Wonsik Yu (Korea, Republic of) <sup>1</sup> ,WooSeok Kim (Korea, Republic of) <sup>1</sup> ,Michael Choi (Korea, Republic of) <sup>1</sup> ,Sanghune Park (Korea, Republic of) <sup>1</sup> ,Jongshin Shin (Korea, Republic of) <sup>1</sup> (1. Samsung Electronics)



Continued from Tuesday, 25 April		2:40pm	20-3: (Invited) Al SoC Design Challenges in the Foundation Model Era
1:45pm	<b>Digital Circuits, SoCs, and Systems III -</b> <b>Session 20: Machine Learning</b> <i>Salon B</i> Chaired by: Ningyuan Cao (United States) and Yoonmyung Lee (Korea, Republic of)		»Zhengyu Chen (United States) <sup>1</sup> ,Dawei Huang (United States) <sup>1</sup> ,Mingran Wang (United States) <sup>1</sup> ,Bowen Yang (United States) <sup>1</sup> ,Jinuk Luke Shin (United States) <sup>1</sup> ,Changran Hu (United States) <sup>1</sup> ,Bo Li (United States) <sup>1</sup> ,Raghu Prabhakar (United States) <sup>1</sup> ,Gao Deng (United States) <sup>1</sup> ,Yongning Sheng (United States) <sup>1</sup> ,Sihua Fu (United States) <sup>1</sup> ,Lu Yuan (United States) <sup>1</sup> ,Tian Zhao (United States) <sup>1</sup> ,Yun Du (United States) <sup>1</sup> ,Jun Yang (United States) <sup>1</sup> Chen Liu (United States) <sup>1</sup> Viren Shah (United
1:45pm			States) <sup>1</sup> ,Venkat Srinivasan (United States) <sup>1</sup> ,Sumti Jairath (United States) <sup>1</sup> (1. SambaNova Systems)
	» <u>Ningyuan Cao (</u> United States) <sup>1</sup> ,Yoonmyung Lee (Korea, Republic of) <sup>2</sup> (1. University of Notre Dame, 2. Sungkyunkwan University)	1:45pm	<b>Session 21: Mixed-Signal Foundational IPs for Emerging Systems</b> <i>Salon C</i> Chaired by: Siddharth Joshi (United States) and Jing (Jane) Li (United States)
1:50pm		1:45pm	Introduction: Mixed-Signal Foundational IPs for Emerging Systems
	20-1: Al Processor with Sparsity-adaptive Real-time Dynamic Frequency Modulation for Convolutional Neural Networks and Transformers		» <u>Siddharth Joshi (</u> United States) <sup>1</sup> ,Xuan (Silvia) Zhang (United States) <sup>2</sup> ,Jing (Jane) Li (United States) <sup>3</sup> (1. University of Notre Dame, 2. Washington University in St. Louis, 3. University of Pennsylvania)
» <u>Yugandhar Khodke (</u> U (United States) <sup>1</sup> ,Yidong <sup>2</sup> (1 University of Califor	» <u>Yugandhar Khodke (</u> United States) <sup>1</sup> ,Sadhana Shanmugasundaram (United States) <sup>1</sup> ,Yidong Li (United States) <sup>1</sup> ,Mingu Kang (United States) <sup>2</sup> (1, University of California san diego, 2, University of california, san	1:50pm	21-1: (Best Invited Paper Candidate) Silicon Process Technology Constraints for Vertical Die-to-Die Interconnects
	diego)		» <u>Harrison Liew (</u> United States) <sup>1</sup> ,Farhana Sheikh (United States) <sup>1</sup> ,David Kehlet (United States) <sup>1</sup> ,Borivoje Nikolić (United States) <sup>2</sup> (1. Intel, 2. University of California, Berkeley)
2:15pm		2:40pm	21-2: A 12-ADC 25-Core Smart MPSoC Using ABB in 22FDX for 77GHz MIMO Radars at 52.6mW Average Power
	<ul> <li><u>Separable CNN in 28nm CMOS</u></li> <li><u>Separable CNN in 28nm CMOS</u></li> <li><u>Separable CNN in 28nm CMOS</u></li> <li><u>Cai Li (China)<sup>1</sup>, Haochang Zhi (China)<sup>1</sup>, Long Chen (China)<sup>1</sup>, Kaiyue Yang (China)<sup>1</sup>, Junyi Qian (China)<sup>1</sup>, Zhihao Yan (China)<sup>1</sup>, Lixuan Zhu (China)<sup>1</sup>, Weiwei Shan (China)<sup>1</sup>(1. Southeast University)</u></li> </ul>		» <u>Hector Andres Gonzalez Diaz (</u> Germany) <sup>1</sup> ,Bernhard Vogginger (Germany) <sup>1</sup> ,Chen Liu (Germany) <sup>1</sup> ,Marco Stolba (Germany) <sup>1</sup> ,Florian Kelber (Germany) <sup>1</sup> ,Heiner Bauer (Germany) <sup>1</sup> ,Stefan Hänzsche (Germany) <sup>1</sup> ,Stefan Scholze (Germany) <sup>1</sup> ,Marc Berthel (Germany) <sup>1</sup> ,Tim Rosmeisl (Germany) <sup>1</sup> ,Liyuan Guo (Germany) <sup>1</sup> ,Dennis Walter (Germany) <sup>1</sup> ,Piash Das (Germany) <sup>1</sup> ,Khaleelulla Khan Nazeer (Germany) <sup>1</sup> ,Tilo Schubert (Germany) <sup>1</sup> ,Sebastian Höppner (Germany) <sup>1</sup> ,Christian Mayr (Germany) <sup>1</sup> (1. Technische Universität Dresden)



Continued from Tuesday, 25 April		2:15pm	23-2: A 1.8V 16µA 136.5dB DR PPG/NIRS Recording IC using Noise Shaping Triple Slope Light to Digital Converter
3:05pm	21-3: A Memristor-Based Analog Accelerator for Solving Quadratic Programming Problems » <u>Hsiang-Chun Cheng (</u> United States) <sup>1</sup> ,Shiyu Su (Canada) <sup>2</sup> ,Mayank Palaria (United States) <sup>1</sup> ,Qiaochu Zhang (United States) <sup>1</sup> ,Ce Yang (United States) <sup>1</sup> ,Sushmit Hossain (United States) <sup>1</sup> ,Ryan Bena (United States) <sup>1</sup> ,Buyun Chen (United States) <sup>1</sup> ,Zerui Liu (United States) <sup>1</sup> Juzheng Liu (United States) <sup>1</sup> ,Rezwan Rasul (United States) <sup>1</sup> ,Quan Nguyen (United States) <sup>1</sup> ,Wei Wu (United States) <sup>1</sup> ,Mike Chen (United States) <sup>1</sup> (1. University of Southern California, 2. University of Waterloo)	2:40pm	<ul> <li>»<u>Mengyu Li (China)</u><sup>1</sup>,Shuang Song (China)<sup>1</sup>,Dehong Wang (China)<sup>1</sup>,Feijun Zheng (China)<sup>1</sup>,Tian Yang (China)<sup>1</sup>,Yalong Wan (China)<sup>1</sup>,Kai Huang (China)<sup>1</sup>,Zhichao Tan (China)<sup>1</sup>,Menglian Zhao (China)<sup>1</sup>(1. Zhejiang University)</li> <li>23-3: (Best Student Paper Candidate) A 9V-Tolerant 71.4%-Efficiency Stacked-Switched-Capacitor Stimulation System with Level-Adaptive Switching Control and Rapid Stimulus-Synchronized Charge Balancing</li> </ul>
1:45pm 1:45pm	<ul> <li>Session 22: Panel: It's 2023. Where are our self-driving cars?</li> <li>Salon E</li> <li>Chaired by: Jerald Yoo (Singapore)</li> <li>Emerging Technologies, Systems, and Applications II -</li> <li>Session 23: Advances in Low-power, High-performance Sensor Interfaces</li> <li>Salon F</li> <li>Chaired by: Chul Kim (Korea, Republic of) and Constantine Sideris (United States)</li> </ul>	3:05pm	<ul> <li>»<u>Minju Park (</u>Korea, Republic of) <sup>1</sup>,Kyeongho Eom (Korea, Republic of) <sup>1</sup>,Han-Sol Lee (Korea, Republic of) <sup>1</sup>,Seung-Beom Ku (Korea, Republic of) <sup>1</sup>,Hyung-Min Lee (Korea, Republic of) <sup>1</sup>(1. Korea University)</li> <li>23-4: (Best Regular Paper Candidate) A 4 kHz, 25 µg/√Hz, 3-Axis MEMS Accelerometer ASIC Using Beyond-Resonant-Frequency Sensing</li> <li>»James Lin (United States) <sup>1</sup>,Long Pham (United States) <sup>1</sup>,Ran Tao (United States) <sup>1</sup>,A Gutmann (United States) <sup>1</sup>,Shanglin Guo (United States) <sup>1</sup>,Adam Cywar (United States) <sup>1</sup>,Adam Spirer (United States) <sup>1</sup>,Johan Mansson (United States) <sup>1</sup>,Khiem Nguyen (United States) <sup>1</sup>(1. Analog Devices)</li> </ul>
1:45pm	Introduction: Advances in Low-power, High-performance Sensor Interfaces » <u>Chul Kim</u> (Korea, Republic of) <sup>1</sup> ,Constantine Sideris (United States) <sup>2</sup> (1. KAIST, 2. University of Southern California)	3:30pm 3:30pm 3:30pm	Break Break Break
1:50pm	23-1: A CMOS BD-BCI Incorporating Stimulation with Dual-Mode Charge Balancing and Time-Domain Pipelined Recording »Haoran Pu (United States) <sup>1</sup> ,Ahmad Reza Danesh (United States) <sup>1</sup> ,Mahyar Safiallah (United States) <sup>1</sup> ,Jeffrey Lim (United States) <sup>1</sup> ,An H. Do (United States) <sup>1</sup> ,Zoran Nenadic (United States) <sup>1</sup> ,Payam Heydari (United States) <sup>1</sup> (1. University of California, Irvine)	3:30pm 3:45pm	Break Analog Circuits and Techniques III cont'd - Session 19: Timing Circuits Salon A Chaired by: Hiroki Ishikuro (Japan) and Edoardo Bonizzoni (Italy)



Continued from Tuesday, 25 April		4:10pm	20-5: A 22nm 0.43pJ/SOP Sparsity-Aware In-Memory Neuromorphic Computing System with Hybrid Spiking and Artificial Neural	
3:45pm 4:10pm	19-5: A 100 MHz-Reference, 10.3-to-11.1 GHz Quadrature PLL with 33.7-fsrms Jitter and -83.9 dBc Reference Spur Level using a -130.8 dBc/Hz Phase Noise at 1MHz offset Folded Series-Resonance VCO in 65nm CMOS » <u>Shiwei Zhang (China)</u> <sup>1</sup> ,Wei Deng (China) <sup>1</sup> ,Haikun Jia (China) <sup>1</sup> ,Hongzhuo Liu (China) <sup>1</sup> ,Shiyan Sun (China) <sup>1</sup> ,Pingda Guan (China) <sup>1</sup> ,Baoyong Chi (China) <sup>1</sup> (1. Tsinghua University)	4:35pm	<ul> <li>Network and Configurable Topology</li> <li>»<u>Ying Liu (China)</u><sup>1</sup>,Zhiyuan Chen (China)<sup>1</sup>,Zhixuan Wang (China)<sup>1</sup>, Wentao Zhao (China)<sup>1</sup>,Wei He (China)<sup>1</sup>,Jianfen Zhu (China)<sup>2</sup>,Tianyu Jia (China)<sup>1</sup>,Qijun Wang (China)<sup>2</sup>,Ning Zhang (China)<sup>2</sup>,Yufei Ma (China)<sup>1</sup>,Le Ye (China)<sup>1</sup>,Ru Huang (China)<sup>1</sup>(1. Peking University, 2. Nano Core Chip Electronic Technology)</li> <li>20-6: A 26.55TOPS/W Explainable AI Processor with Dynamic Workload Allocation and Heat Map Compression/Pruning</li> <li>»<u>Iunsoo Kim</u> (Korea, Republic of) <sup>1</sup>,Geonwoo Ko (Korea, Republic of) <sup>1</sup>,Ji- Hoon Kim (Korea, Republic of) <sup>1</sup>,Changha Lee (Korea, Republic of) <sup>1</sup>, Taewoo Kim (Korea, Republic of) <sup>1</sup>,Chan-Hyun Youn (Korea, Republic of) <sup>1</sup>,Joo-Young Kim (Korea, Republic of) <sup>1</sup>(1. KAIST)</li> </ul>	
	»Liqun Feng (China) <sup>1</sup> ,Woogeun Rhee (China) <sup>1</sup> ,Zhihua Wang (China) <sup>1</sup> (1. Tsinghua University)	3:45pm	<b>Session 21: Mixed-Signal Foundational IPs for Emerging Systems</b> <i>Salon C</i> Chaired by: Siddharth Joshi (United States) and Jing (Jane) Li (United States)	
3:45pm	<b>Digital Circuits, SoCs, and Systems III cont'd -</b> <b>Session 20: Machine Learning</b> <i>Salon B</i> Chaired by: Ningyuan Cao (United States) and Yoonmyung Lee (Korea, Republic of)	3:45pm	3:45pm <b>21-4: (Invited) Cryogenic CMOS: design considerations for fur</b> <b>quantum computing systems</b> »Rajiv Joshi (United States) <sup>1</sup> ,Jean-Oliver Plouchart (United States , <u>Sudipto Chakraborty</u> (United States) <sup>1</sup> ,George Zettles (United States) ,Scott Willenborg (United States) <sup>2</sup> ,Blake Johnson (United States) ,Andrew Wack (United States) <sup>2</sup> ,Brian Allison (United States) <sup>3</sup> ,Joh Timmerwike (United States) <sup>2</sup> , Kevin Tien (United States) <sup>3</sup> , Mark Y	21-4: (Invited) Cryogenic CMOS: design considerations for future quantum computing systems »Rajiv Joshi (United States) <sup>1</sup> ,Jean-Oliver Plouchart (United States) <sup>2</sup> , <u>Sudipto Chakraborty (</u> United States) <sup>1</sup> ,George Zettles (United States) <sup>3</sup> ,Scott Willenborg (United States) <sup>2</sup> ,Blake Johnson (United States) <sup>2</sup> ,Andrew Wack (United States) <sup>2</sup> ,Brian Allison (United States) <sup>3</sup> ,John Timmerwilke (United States) <sup>2</sup> , Brian Allison (United States) <sup>3</sup> ,John
3:45pm	20-4: A 28nm 1.07TFLOPS/mm² Dynamic-Precision Training Processor with Online Dynamic Execution and Multi-Level-Aligned		(United States) <sup>2</sup> ,Dereje Yilma (United States) <sup>3</sup> ,Daniel Friedman (United States) <sup>2</sup> (1. IBM T. J. Watson Research Center, 2. IBM T.J. Watson Research Center, 3. IBM Systems)	
	Block-FP Processing »Yixiong Yang (China) <sup>1</sup> , <u>Ruoyang Liu (</u> China) <sup>1</sup> ,Chenhan Wei (China) <sup>1</sup> ,Wenxun Wang (China) <sup>1</sup> ,Wenyu Sun (China) <sup>1</sup> ,Jinshan Yue (China) <sup>2</sup> ,Huazhong Yang (China) <sup>1</sup> ,Yongpan Liu (China) <sup>1</sup> (1. Tsinghua University, 2. Institute of Microelectronics, Chinese Acadamy of Sciences)	3:45pm	Emerging Technologies, Systems, and Applications II cont'd - Session 23: Advances in Low-power, High-performance Sensor Interfaces Salon F Chaired by: Constantine Sideris (United States) and Chul Kim (Korea, Republic of)	



Continued	from <b>Tuesday, 25 April</b>	Wednesday, 26 April	
3:45pm	23-5: (Best Student Paper Candidate) A Monolithic 3D Magnetic Sensor in 65nm CMOS with <10μTrms Noise and 14.8μW Power	8am	<b>Session 24: Keynote Session</b> Salon C
	» <u>Saransh Sharma (</u> United States) ',Hayward Melton (United States) ' ,Liliana Edmonds (United States) <sup>2</sup> ,Olivia Addington (United States) <sup>1</sup> ,Mikhail Shapiro (United States) <sup>1</sup> ,Azita Emami (United States) <sup>1</sup> (1. California Institute of Technology, 2. Massachusetts Institute of Technology)	8am	<b>Directions in Deep Learning Hardware</b> » <u>Billy Dally (</u> United States) <sup>1</sup> (1. Chief Scientist, NVIDIA)
4:10pm	23-6: A 44V Driver Array for Ultrasonic Haptic Feedback in Display Compatible Thin-Film Low Temperature Poly-Silicon	8:50am	Coffee Break
	» <u>lonas Pelgrims (</u> Belgium)¹,Kris Myny (Belgium)²,Wim Dehaene (Belgium)¹(1. MICAS, ESAT, KU Leuven, 2. COSIC diepenbeek, ESAT, KU Leuven)	9am	Session 25: Panel: Improving ASIC Productivity – Is Software-Like Design the Answer? How Architecture and EDA Are Shifting the Focus of Design for Digital ASIC Designers Salon E
4:35pm	23-7: A 2.67GΩ 454nVrms 14.9µW Dry-Electrode Enabled ECG-on- Chip with Arrhythmia Detection		Chaired by: Yingyan Lin (United States)
	» <u>Xinzi Xu (</u> China)¹,Yanxing Suo (China)¹,Peiyi Zhou (China)¹,Xiao Han (China)¹,Qiao Cai (China)¹,Guoxing Wang (China)¹,Yong Lian (China)¹ ,Yang Zhao (China)¹(1. Shanghai Jiao Tong University)	9am	<b>Session 26: Forum: Standardizing Chiplet Design</b> <i>Salon B</i> Chaired by: Divya Prasad (United States) and Monodeep Kar (United States)
5pm	23-8: A Wireless Implantable Opto-Electro Neural Interface ASIC for Simultaneous Neural Recording and Stimulation	9am	26-1: SerDes Architectures for Die to Die Interfaces in a Multi-Chip Module
	» <u>Linran Zhao (</u> United States) <sup>1</sup> ,Raymond Stephany (United States) <sup>1</sup> ,Yan Gong (United States) <sup>2</sup> ,Wei Shi (United States) <sup>1</sup> ,Wen Li (United States) <sup>2</sup> ,Yaoyao Jia (United States) <sup>1</sup> (1. University of Texas at Austin, 2. Michigan		» <u>Amin Shokrollahi (</u> Switzerland)¹(1. Kandou Bus)
	State University)	9:40am	26-2: The New Open Chiplet Economy
4:30pm	IEEE SSCS Young Professionals and Women in Circuits Mentoring Event Riverview – P1 Level		» <u>Shahab Ardalan (</u> United States) <sup>1</sup> (1. Luminous Computing)
5:30pm	CICC Conference Reception	10:20am	26-3: Emerging Photonic Technologies Enable Scaling the Chiplet Eco-System
	Salon D		» <u>Amr Helmy (</u> Canada) <sup>1</sup> (1. University of Toronto)



Continued from Wednesday, 26 April		10:45am	27-4: (Best Regular Paper Candidate) A 3D-integrated 8λ x 32
9am 9am	Wireline and Optical Communications Circuits and Systems I - Session 27: Advanced Techniques for Wireline Communications Salon C Chaired by: Tzu-Chien Hsueh (United States) and Zhipeng Li (United States)		» <u>Cooper Levy</u> (United States) <sup>1</sup> ,Zhe Xuan (United States) <sup>1</sup> ,Duanni Huang (United States) <sup>1</sup> ,Ranjeet Kumar (United States) <sup>1</sup> ,Jahnavi Sharma (United States) <sup>1</sup> ,Taehwan Kim (United States) <sup>1</sup> ,Chaoxuan Ma (United States) <sup>1</sup> ,Guan-Lin Su (United States) <sup>1</sup> ,Songtao Liu (United States) <sup>1</sup> ,Jinyong Kim (United States) <sup>1</sup> ,Xinru Wu (United States) <sup>1</sup> ,Ganesh Balamurugan (United States) <sup>1</sup> ,Haisheng Rong (United States) <sup>1</sup> ,James Jaussi (United States) <sup>1</sup> (1. Intel)
9:05am	<ul> <li>»<u>Tzu-Chien Hsueh</u> (United States) <sup>1</sup>,Zhipeng Li (United States) <sup>2</sup>(1. University of California san diego, 2. Marvell)</li> <li>27-1: (Invited) Short to Medium-Reach Wireline Transceivers Using Single-Ended Signaling, Clock Forwarding, and Spatial Encoding for</li> </ul>	9am	Wireless Transceivers and RF/mm-Wave Circuits and Systems IV - Session 28: mm-Wave Transceiver and Front-end Building Blocks for Radar and Communication Salon A Chaired by: Ritesh Bhat (United States) and Yanjie Wang (China)
	<b>Die-to-Die Applications</b> » <u>Scott Huss (</u> United States) <sup>1</sup> ,Chris Moscone (United States) <sup>1</sup> ,Mark Summers (United States) <sup>1</sup> ,James Vandersand (United States) <sup>1</sup> ,Kelvin McCollough (United States) <sup>1</sup> ,Randall Smith (United States) <sup>1</sup> (1. Cadence Design Systems, Inc)	9am	Introduction: mm-Wave Transceiver and Front-end Building Blocks for Radar and Communication » <u>Yanjie Wang (</u> China) <sup>1</sup> ,Ritesh Bhat (United States) <sup>2</sup> (1. South China University of Technology, 2. Intel)
9:55am	27-2: A 1.6pJ/b 65Gb/s Si-Dielectric-Waveguide based Multi-Mode Multi-Drop sub-THz Interconnect in 65nm CMOS »Xuan Ding (United States) <sup>1</sup> ,Hai Yu (United States) <sup>1</sup> ,Sajjad Sabbaghi (United States) <sup>1</sup> ,Qun Jane Gu (United States) <sup>1</sup> (1. University of California Davis)	9:05am	28-1: A 52-to-73GHz Tri-Coupled Transformer Based Noise-Self- Canceling and Gm-Boosting LNA with 3.78dB NF and 22.4dB Gain in 40nm CMOS » <u>liacong Ke (</u> China) <sup>1</sup> ,Guangyin Feng (China) <sup>1</sup> ,Yanjie Wang (Canada) <sup>1</sup> (1. South China University of Technology)
10:20am	27-3: A 0.99µs FFT-Based Fast-Locking, 0.82GHz-to-4.1GHz DPLL- Based Input-Jitter-Filtering Clock Driver with Wide-Range Mode- Switching 8-Shaped LC Oscillator for DRAM Interfaces » <u>Woosong Jung</u> (Korea, Republic of) <sup>1</sup> ,Hyojun Kim (Korea, Republic of) <sup>1</sup> ,Yeonggeun Song (Korea, Republic of) <sup>1</sup> ,Kwang-Hoon Lee (Korea, Republic of) <sup>1</sup> ,Deog-Kyoon Jeong (Korea, Republic of) <sup>1</sup> (1. Seoul National University)	9:30am	28-2: A 52-67GHz Ultra-Compact Bi-directional Gate-switching Cascode Amplifier with Tri-coil Broadband Matching in 40-nm CMOS » <u>Haoyang lia (</u> Ireland) <sup>1</sup> ,Yanjie Wang (China) <sup>2</sup> ,Anding Zhu (Ireland) <sup>1</sup> (1. University College Dublin, 2. South China University of Technology)



Continued from Wednesday, 26 April		9:30am	29-2: A 12b 1GS/s ADC with Lightweight Input Buffer Distortion Background Calibration Achieving >75dB SFDR over PVT
9:55am	28-3: A 38GHz Power-Combined Doherty PA Based on an Extended Rat-Race Coupler Achieving 27.5dBm Saturated Power and 15.0% Efficiency at 6dB Back-Off		» <u>Xianghui Pan (</u> China)¹,Buhui Rui* (China)¹,Yuefeng Cao (China)¹,Yan Zhu (China)¹,Chi-Hang Chan (China)¹,R. P. Martins (China)¹(1. University of Macau)
	» <u>Xiaohan Zhang (</u> United States) <sup>1</sup> ,Sensen Li (United States) <sup>2</sup> ,Taiyun Chi (United States) <sup>1</sup> (1. Rice University, 2. University of Texas at Austin)	9:55am	29-3: A 2GS/s 8.5-Bit Time-Based ADC Using a Segmented Stochastic Flash TDC
10:20am	28-4: An 8-Element 23-40 GHz Continuously Auto Link-Tracking Phased-Array Transceiver with Time Division Modulator Achieving 7µs Tracking Time, 25.3% TX System Efficiency, 800MHz-64QAM Modulation for 5G NR		» <u>Shiyu Su (</u> Canada) <sup>1</sup> ,Qiaochu Zhang (United States) <sup>2</sup> ,Mike Chen (United States) <sup>2</sup> (1. University of Waterloo, 2. University of Southern California)
		10:20am	29-4: A 0.009mm2, 6.5mW, 6.2b-ENOB 2.5GS/s Flash-and-VCO-Based Subranging ADC Using a Resistor-Ladder-Based Residue Shifter
	» <u>Zhixian Deng</u> (China)',Bingzheng Yang (China)',Wen Chen (China)',Jie Zhou (China) <sup>1</sup> ,Changxuan Han (China) <sup>1</sup> ,Yifan Li (China) <sup>1</sup> ,Yiyang Shu (China) <sup>1</sup> ,Xun Luo (China) <sup>1</sup> (1. University of Electronic Science and Technology of China)		» <u>Jeonghyun Lee (</u> Korea, Republic of) <sup>1</sup> ,Yoonseo Cho (Korea, Republic of) <sup>1</sup> ,Jintae Kim (Korea, Republic of) <sup>2</sup> ,Jaehyouk Choi (Korea, Republic of) <sup>1</sup> (1. Korea Advanced Institute of Science and Technology, 2. Konkuk University)
9am	Data Converters III - Session 29: Gigasample-Rate Data Converters	1pm	Digital Circuits, SoCs, and Systems IV - Session 30: Hardware Security
	Salon F Chaired by: Martin Kinyua (United States) and Filip Tavernier (Belgium)		Salon A Chaired by: Shreyas Sen (United States) and Elkim Roa (United States)
9am	Introduction: Gigasample-Rate Data Converters	1pm	Introduction: Hardware Security
	» <u>Martin Kinyua (</u> United States) <sup>1</sup> ,Filip Tavernier (Belgium) <sup>2</sup> (1. TSMC, 2. Katholieke Universiteit Leuven)		» <u>Shreyas Sen (</u> United States) <sup>1</sup> ,Elkim Roa (United States) <sup>2</sup> (1. Purdue University, 2. Global Foundries)
9:05am	29-1: A 12-bit 1GS/s Current-Steering DAC with Paired Current Source Switching Background Mismatch Calibration	1:05pm	30-1: Power and EM SCA Resilience in 65nm AES-256 Exploiting Clock-Slew Dependent Variability in CMOS Digital Circuits
	» <u>Chang-Un Park (</u> Korea, Republic of) <sup>1</sup> ,Jae-Hyun Chung (Korea, Republic of) <sup>1</sup> ,Seung-Tak Ryu (Korea, Republic of) <sup>1</sup> (1. KAIST)		» <u>Archisman Ghosh (</u> United States) <sup>1</sup> ,Md. Abdur Rahman (United States) <sup>1</sup> ,Debayan Das (United States) <sup>2</sup> ,Santosh Ghosh (United States) <sup>2</sup> ,Shreyas Sen (United States) <sup>1</sup> (1. Purdue University, 2. Intel)



Continued from Wednesday, 26 April		1:05pm	33-1: A Self-Bias-flip Piezoelectric Energy Harvester Array without External Energy Reservoirs achieving 488% Improvement with 4-
1:30pm	<b>30-2: A 166F2/bit 0.0136%-Native-BER Physically Unclonable Function Based on Gate-Overhang-Shortened Transistor</b> »Haibiao Zuo (China) <sup>1</sup> ,Jiacheng Hao (China) <sup>1</sup> ,Jianlin Zhong (China) <sup>1</sup> , <u>Xiaojin Zhao (</u> China) <sup>1</sup> (1. Shenzhen University)		Ratio Switched-PEH DC-DC Converter » <u>Zhen Li (</u> China) <sup>1</sup> ,Zhiyuan Chen (China) <sup>1</sup> ,Man-Kay Law (Macao) <sup>2</sup> ,Sijun Du (Netherlands) <sup>3</sup> ,Xu Cheng (China) <sup>1</sup> ,Xiaoyang Zeng (China) <sup>1</sup> ,Jun Han (China) <sup>1</sup> (1. Fudan University, 2. University of Macau, 3. Delft University of Technology)
1:55pm	<b>30-3: A 100-Bit-Output Modeling Attack-Resistant SPN Strong PUF</b> with Uniform and High-Randomness Response » <u>Kunyang Liu (Japan)</u> <sup>1</sup> ,Yichen Tang (Japan) <sup>1</sup> ,Shufan Xu (Japan) <sup>1</sup> ,Ruilin Zhang (Japan) <sup>1</sup> ,Hirofumi Shinohara (Japan) <sup>1</sup> (1. Waseda University)	1:30pm	33-2: (Best Student Paper Candidate) SLiMO: A 61.8% Efficiency Single-Link Multiple-Output Isolated DC-DC Converter Using Low- Cost FPC Micro-Transformer with Local Voltage and Global Power Regulation »liangiang liang (United States) <sup>1</sup> .lunyao Tang (United States) <sup>1</sup> .Lei Zhao
1pm	Session 31: Panel: Where is the balance between circuit and system- level innovation in our solid-state circuit conference? Salon E Chaired by: Mark Stefan Oude Alink (Netherlands) and Wanghua Wu (United States)	1:55pm	(United States) <sup>1</sup> , Chenchang Zhan (China) <sup>2</sup> , Cheng Huang (United States) <sup>1</sup> (1. Iowa State University, 2. Southern University of Science and Technology) <b>33-3: A 0.24mm2 Bridge-less Hybrid SSHI Interface Circuit for</b> <b>Biezoelectric Energy Harvesting with a Wide Load Pange and Up to</b>
1pm	<b>Session 32: Panel: CHIPS Act and Future of Semiconductor Innovation</b> <i>Salon F</i> Chaired by: Tod Dickson (United States)		» <u>Chuhui Wang (</u> China) <sup>1</sup> ,Dingxuan Zhang (China) <sup>1</sup> ,Jianping Guo (China) <sup>1</sup> (1. Sun Yat-sen University)
1pm	Power Management III - Session 33: Energy Harvesting and Wireless/Isolated Power Converters Salon B Chaired by: Cheng Huang (United States) and Hyun-Sik Kim (Korea, Republic of)	2:20pm	<ul> <li>33-4: A 13.56MHz Fully Integrated 91.8% Efficiency Single-Stage Dual-Output Regulating Voltage Doubler for Biomedical Wireless Power Transfer</li> <li>»<u>Tianqi Lu (Netherlands)</u><sup>1</sup>,Zu-yao Chang (Netherlands)<sup>1</sup>,Junmin Jiang (China)<sup>2</sup>,Kofi A. A. Makinwa (Netherlands)<sup>1</sup>,Sijun Du (Netherlands)<sup>1</sup>(1. Delft University of Technology, 2. Southern University of Science and Technology)</li> </ul>
1pm	Introduction: Energy Harvesting and Wireless/Isolated Power Converters » <u>Hyun-Sik Kim (</u> Korea, Republic of) <sup>1</sup> ,Cheng Huang (United States) <sup>2</sup> (1. KAIST, 2. Iowa State University)	1pm	<b>Data Converters IV -</b> <b>Session 34: SAR-based Gigasample-rate ADCs</b> <i>Salon C</i> Chaired by: Martin Kinyua (United States) and Filip Tavernier (Belgium)



# Continued from Wednesday, 26 April

1pm	Introduction: SAR-based Gigasample-rate ADCs
	» <u>Martin Kinyua (</u> United States) <sup>1</sup> ,Filip Tavernier (Belgium) <sup>2</sup> (1. TSMC, 2. Katholieke Universiteit Leuven)
1:05pm	34-1: A 7GHz ERBW 1.1GS/s 6-bit PVT Tolerant Asynchronous CI-SAR with only 8.5fF Input Capacitance
	» <u>Jongho Kim (</u> Korea, Republic of) <sup>1</sup> ,Gyuchan Cho (Korea, Republic of) <sup>1</sup> ,Jintae Kim (Korea, Republic of) <sup>1</sup> (1. Konkuk University, Seoul)
1:30pm	34-2: A 6-Bit 10-GS/s 17.6-mW CMOS ADC with 0.8-V Supply
	» <u>Matias Jara (</u> United States) <sup>1</sup> ,Behzad Razavi (United States) <sup>1</sup> (1. University of California, Los Angeles)
1:42pm	34-3: A 12b 1.5GS/s Single-Channel Pipelined SAR ADC with a Pipelined Residue Amplification Stage
	»Yi Shen (China) <sup>1</sup> ,Shubin Liu (China) <sup>1</sup> ,Yue Cao (China) <sup>1</sup> ,Haolin Han (China) <sup>1</sup> ,Hongzhi Liang (China) <sup>1</sup> , <u>Zhicheng Dong (</u> China) <sup>1</sup> ,Dengquan Li (China) <sup>1</sup> ,Ruixue Ding (China) <sup>1</sup> ,Zhangming Zhu (China) <sup>1</sup> (1. Xidian University)
2:07pm	34-4: A 7.9-ENOB 1.5GS/s Common-Mode and Temperature Insensitive Pipelined-SAR ADC with an On-Chip Temperature- Sensor-Based Stage-Gain Compensation
	» <u>Hwankyu Song (</u> Korea, Republic of) <sup>1</sup> ,Gyuchan Cho (Korea, Republic of) <sup>1</sup> ,Jintae Kim (Korea, Republic of) <sup>1</sup> (1. Konkuk University, Seoul)
3pm	Best Paper Poster Session & Closing and Awards Ceremony Salon C