

2018 14th IEEE International Conference on
Solid-State and Integrated Circuit Technology

ICSICT-2018

Final Program

Oct. 31- Nov. 3, 2018, Qingdao, China



2018 14th IEEE International Conference on Solid-State and Integrated Circuit Technology

Oct. 31- Nov. 3, 2018, Qingdao, China

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Tutorials

Room F+G

09:00-10:30, Oct. 31, 2018

T-1 Development of Electrostatic Discharge Protection Solutions Based on Silicon Controlled Rectifier

Prof. J. J. Liou, Zhengzhou University, China

10:45-12:15, Oct. 31, 2018

T-2 General Design Flow of a High Performance SAR-Type ADCs

Dr. Yan Zhu, University of Macao, China

14:00-15:30, Oct. 31, 2018

T-3 2D Electronics - Motivation, Prospects, and Challenges

Dr. Frank Schwierz, Technische Universität (TU) Ilmenau, Germany

15:45-17:15, Oct. 31, 2018

T-4 Interconnect Technologies for Post-Moore Era

Prof. Mansun Chan, Hong Kong University of Science & Technology, Hongkong, China

ICSICT 2018 Technical Program Overview

Date	Time	Room B	Room D	Room E	Room F	Room G	Room H	Room I	Room J
Oct.31 , Wed.	9:00-12:15				Tutorial T-1, T-2				
	14:00-17:15				Tutorial T-3,T-4				
Nov.1, Thu.	8:30-10:30	Opening & Keynote Session 1 (Room A)							
	10:45-12:15	Keynote Session 2 (Room A)							
	13:30-15:30	S01 Advanced FinFET and Nanowire FET I	S02 RRAM I	S03 Low-Power and Steep Slope Switching Device I	S04 Device/Process Simulation & Modeling I	S05 Novel Process Technologies	S06 Advanced Front End Process & Technology	S07 RF Circuits and Systems I	S08 Processors & Signal Processing
	15:45-17:45	S09 Advanced FinFET and Nanowire FET II	S10 RRAM II	S11 Low-Power and Steep Slope Switching Device II	S12 Device/Process Simulation & Modeling II	S13 Ge related Device and Process	S14 Front End Reliability	S15 RF Circuits and Systems II	S16 SOC
	17:45-18:45	Poster Session I (P1)							
	19:00-21:00	Reception							
	8:30-10:00	Keynote Session 3 (Room A)							
Nov.2, Fri.	10:15-12:15	S17 Advanced Power Device and Reliability I	S18 MEMS Technology	S19 2D Device & Technology I	S20 Device/Process Simulation & Modeling III	S21 Novel Memory & Memory Reliability	S22 IOT (Circuits & System)	S23 RF Circuits and Systems III	S24 Analog Circuits I
	13:30-15:30	S25 Advanced Power Device and Reliability II	S26 Sensor I	S27 2D Device & Technology II	S28 AI (Process & Device) I	S29 Back-End Technology & Reliability	S30 Data Convertors I	S31 RF Circuits and Systems IV	S32 Analog Circuits II
	15:45-17:45	S33 Advanced Power Device and Reliability III	S34 Sensor II	S35 Compound semiconductor device and Technology	S36 AI (Process & Device) II	S37 IOT (Process & Device)	S38 Data Convertors II	S39 RF Circuits and Systems V	S40 Analog Circuits III
	17:45-18:45	Poster Session II (P2)							
	20:00-22:00	Panel Discussion (Room C)							
	8:30-10:00	Keynote Session 4 (Room A)							
Nov.3, Sat.	10:15-12:15	S41 Memory Circuits	S42 Photoelectron Device	S43 Flash Memory	S44 Thin Film Transistor	S45 AI (Circuits & System) I	S46 Advanced Clock I	S47 FPGA I	S48 Analog Circuits IV
	13:30-15:30		S50 EDA	S51 System-Level Modeling/Simulation & Synthesis	S52 Physical Design	S53 AI (Circuits & System) II	S54 Advanced Clock II	S55 FPGA II	S56 Analog Circuits V
	19:00-21:00	Closing Banquet							

Paper Presentation Information

The 2018 IEEE ICSICT will have oral and poster sessions. All the papers included in the conference program should be presented in English by one of the authors at the arranged session.

1. Oral Presentation

Presentation time:

Invited paper (30 minutes): 25 min talk + 5 min Q/A

Regular paper (15 minutes): 12 min talk + 3 min Q/A

Computer and digital projector will be provided in each room. No special PPT format is required.

2. Poster Presentation

Poster size: 120 cm (high) × 100 cm (wide)

Poster Session 1:

Setup time: 8:30-17:30 on Nov. 1, 2018.

Presentation time: 17:45-18:45 on Nov. 1, 2018.

Display time: 8:30-18:45 on Nov. 1, 2018.

Poster Session 2:

Setup time: 8:30-17:30 on Nov. 2, 2018.

Presentation time: 17:45-18:45 on Nov. 2, 2018.

Display time: 8:30-18:45 on Nov. 2, 2018.

Please prepare the poster yourself. Thumb pins, adhesive tapes, and scissors will be provided at the registration desk. The poster should be taken off by 21:30 by the author if he or she would like to keep it. After that time, it will be removed and be regarded as being discarded by the authors.

Technical Sessions

Nov.1 08:30

Opening (Room A)

K1 Keynote Session 1 (Room A)

- Session Chair:** Prof. Ru Huang, Peking University, China
- 9:00 K1-1** **The Next Era of Hyper Scaling in Electronics**
 Nov.1 **(Keynote)** Suman Datta
 University of Notre Dame, USA
- 9:45 K1-2** **Energy-Efficient Electronic Technologies for Internet of Things**
 Nov.1 **(Keynote)** Adrian M. Ionescu
 Nanolab, Ecole Polytechnique Fédérale de Lausanne, Switzerland

Coffee Break

K2 Keynote Session 2 (Room A)

- Session Chair:** Dr. Bin Zhao, Fairchild, USA
- 10:45 K2-1** **All-solid-state battery - History, current status and future perspectives**
 Nov.1 **(Keynote)** Ryoji Kanno
 Tokyo Institute of Technology, Japan
- 11:30 K2-2** **Emerging Terahertz Technologies for Security, Quality Control, Vision and Medical Applications**
 Nov.1 **(Keynote)** Thomas Skotnicki^{(1),(2)} & Wojciech Knap^{(1),(3)}
⁽¹⁾Institute of High Pressure Physics, Polish Academy of Sciences, Poland; ⁽²⁾Warsaw University of Technology, Poland; ⁽³⁾Laboratory Charles Coulomb, Montpellier University & CNRS, France

S01 Advanced FinFET and Nanowire FET I (Room B)

- Session Chair:** Prof. Ming Li, Peking University, China
- 13:30 S01-1** **Orientation controlled GaSb nanowires: from growth to application**
 Nov.1 **(Invited)** Zaixing Yang¹, Johnny C. Ho²
¹Shandong University, China; ²City University of Hong Kong, Hong Kong
- 14:00 S01-2** **A New Quantum Scaling Theory for Nanometer Multiple-gate MOSFETs**
 Nov.1 **(Invited)** Te-Kuang Chiang
 National University of Kaohsiung, Taiwan, China
- 14:30 S01-3** **Impact of channel and spacer engineering on DC and RF performance of Gate-all-around FET**
 Nov.1 Zhen Zhou¹, Ya-Bin Sun¹, Xiao-Jin Li¹, Yan-Ling Shi¹, Shou-Mian Chen², Shao-Jian Hu², Ao Guo²
¹East China Normal University, China; ²Shanghai Integrated Circuit Research & Development Center Ltd., China,
- 14:45 S01-4** **A Study of LDE on Stdcell Device Performance in Advance FinFET Technology**
 Nov.1 Yu-Zhu Gu¹, Hai-Sheng Lu¹, Xiang-Qiang Zhang¹, Meng Lin¹, Xiao-wei Zou¹, Waisum Wong¹
¹Huawei Technologies Co., Ltd., China
- 15:00 S01-5** **Sub-10 nm silicon FinFET devices on SOI substrate made by block copolymer lithography**
 Nov.1 Dong-Xue Li^{1,2}, Chien-Liang Chien³, Xinnian Wei¹, Yanwei Huang¹, Xin-Ping Qu², Tzu-Hsuan Chang³, Shisheng Xiong¹
¹Fudan University, China; ²Fudan University, China; ³National Taiwan University, Taiwan, China
- 15:15 S01-6** **Investigation on Impact of Fin Width on Single-Event-Transient in Bulk and SOI FinFETs**
 Nov.1 Gensong Li¹, Xia An¹, Zhexuan Ren¹, Jianing Wang², and Ru Huang¹
¹Peking University, China; ²Beijing University of Technology, China

S02 RRAM I (Room D)

Session Chair: Prof. Kunji Chen, Nanjing University, China

13:30	S02-1	Analysis of switching, degradation and failure mechanisms by RTN signals in non-filamentary (a-VMCO) RRAM devices
Nov.1	(Invited)	W.Zhang, Z.Chai, J. Ma, J. F. Zhang Liverpool John Moores University, UK
14:00	S02-2	Studies on ReRAM Conduction Mechanism and the Varying-bias Read Scheme for MLC and Wide Temperature Range TMO ReRAM
Nov.1	(Invited)	Ming-Hsiu Lee, Yu-Hsuan Lin, Yu-Yu Lin, Feng-Ming Lee, Dai-Ying Lee, Kuang-Yeu Hsieh Macronix Emerging Central Lab.; Macronix International Co., Ltd.
14:30	S02-3	The dependence of bottom electrode materials on resistive switching characteristics for HfO₂/TiO_x bilayer structure RRAM
Nov.1		Jian Liu ^{1,2} , Kun-Ji Chen ^{1,2} , Zhong-Yuan Ma ^{1,2} , Hua-Feng Yang ^{1,2} , Xin-Xin Zhang ^{1,2} , Yang Sun ^{1,2} , Xin-Fan Huang ^{1,2} ¹ Nanjing University, China; ² Nanjing University, China
14:45	S02-4	Ru-based Oxide Resistive Random Access Memory for BEOL-Compatible Novel NVM Applications
Nov.1		Yulin Feng, Peng Huang, Zheng Zhou, Dongbin Zhu, Runze Han, Xiangxiang Ding, Lifeng Liu, Xiaoyan Liu and Jinfeng Kang Peking University, China
15:00	S02-5	Plasma oxidation induced ultra-low power performance from a-SiN_x:H resistive switching memory
Nov.1		Dingwen Tan, Zhongyuan Ma, Xinxin Zhang, Xiaofan Jiang, Hui Zhang, Yang Sun, Wei Li, Ling Xu, Kunji Chen, Duan Feng Nanjing University, China
15:15	S02-6	Actually Mimicking of Neuron Action Potential by A Single RRAM Device
Nov.1		Bowen Wang, Zongwei Wang, Yichen Fang, Qingyu Chen, Lin Bao, Yuchao Yang, Yimao Cai, Ru Huang Peking University, China

S03 Low-Power and Steep Slope Switching Device I (Room E)

Session Chair:		Prof. Qing-Tai Zhao, Research Center Juelich, Germany
13:30	S03-1	Nanoscale FETs for high performance and ultra low power operation at the end of the Roadmap
Nov.1	(Invited)	Francis Balestra Univ. Grenoble Alpes, France
14:00	S03-2	A New Type of Gated-PN TFET to Overcome the Ambipolar and Trap-Assisted Tunneling Effects
Nov.1	(Invited)	Jyi-Tsong Lin ¹ , Chih-Ting Yeh ¹ , Steve W. Hoga ² , Cheng-Chun Kuo ¹ , Chun-Shuo Chou ¹ ¹ National Sun Yat-Sen University, Taiwan, China; ² National Sun Yat-Sen University, Taiwan, China
14:30	S03-3	Steep-Slope Hysteresis-Free Negative-Capacitance 2D Transistors
Nov.1	(Invited)	Peide D. Ye Purdue University, USA
15:00	S03-4	Recessed-Gate PN iTFET to Improve Subthreshold Swing and Suppress Ambipolar
Nov.1		Yu-Jhe Li ¹ , Jyi-Tsong Lin ¹ , Yeh-Chih Ting ¹ , Abhinav Kranti ² ¹ National Sun Yat-sen University, Taiwan, China; ² Discipline of Electrical Engineering Indian Institute of Technology Indore, India
15:15	S03-5	Characterization of Double-Gate PN Type Tunneling Field-Effect Transistor
Nov.1		Cheng-Chun Kuo ¹ , Jyi-Tsong Lin ¹ , Chih-Ting Yeh ¹ , Abhinav Kranti ² ¹ National Sun Yat-Sen University, Taiwan China; ² Discipline of Electrical Engineering Indian Institute of Technology Indore, India

S04 Device/Process Simulation & Modeling I (Room F)

Session Chair:		Prof. Takashi Sato, Kyoto University, Japan
13:30	S04-1	A Novel Customized RC Tightened Corner Modeling Methodology Using Statistical SPICE Simulation in Advanced FinFET Technology
Nov.1	(Invited)	Lijie Sun, Waisum Wong, Hung HsuTseng, Renbin Shi, Xiaobo Jiang, Jiewen Fan, Guangxing Wan Hisilicon Corporation, China
14:00	S04-2	Recent Challenges in Compact Modeling of Short-Channel Effect for Leading-Edge Types of MOSFETs

Nov.1	(Invited)	F.Ávila Herrera ¹ , Y.Hirano ¹ , T.Iizuka ¹ , M. Miura-Mattausch ¹ , H. Kikuchiara ¹ , D. Navarro ¹ , H. J. Mattausch ¹ , A. Ito ² ¹ Hiroshima University, Japan; ² Broadcom Inc., USA
14:30	S04-3	Recent Advancement in High-Frequency Noise Characterization for Nano-Scale FETs
Nov.1	(Invited)	Chih-Hung Chen, Xuesong Chen, Phillip V. Do McMaster University, Canada
15:00	S04-4	Assessment of Surface Roughness Limited Mobility in Ultra-thin GeOI pMOSFET and a Mobility Enhancement Strategy
Nov.1		Xiaolei Wang, Wenwu Wang Institute of microelectronics, Chinese academy of sciences, China
15:15	S04-5	U-Gate SiGeSn/GeSn Heterojunction Tunneling Field-Effect Transistors
Nov.1		Meng Liu, Genquan Han, Yan Liu, and Yue Hao Xidian University, China

S05 Novel Process Technologies (Room G)

Session Chair:		Dr. An Chen, IBM, US
13:30	S05-1	Low Temperature Bonding Technology Development for 3D and Heterogeneous Integration
Nov.1	(Invited)	Kuan-Neng Chen National Chiao Tung University, Taiwan, China
14:00	S05-2	Can AI help reliability analysis of 3D IC mobile devices?
Nov.1	(Invited)	K. N. Tu, Yingxia Liu UCLA, USA
14:30	S05-3	Atomic Layer Defect-free Top-down Process for Future Nano-devices
Nov.1	(Invited)	Seiji Samukawa Tohoku University, Japan
15:00	S05-4	An enlightening and feasible process concept for irradiated SJ-VDMOS to realize high-speed body diode and stable threshold voltage
Nov.1		Shaohong Li ¹ , Qingxi Tang ¹ , Ling Sun ¹ , Hao Wang ¹ , Long Zhang ¹ , Jing Zhu ¹ , Xin Tong ¹ , Weifeng Sun ¹ , Sen Zhang ² and Shikang Cheng ² ¹ National ASIC System Engineering Research Center, China; ² CSMC Technologies Corporation, China
15:15	S05-5	High Aspect Ratio TGV Fabrication Using Photosensitive Glass Substrat
Nov.1		Xudong Zhao ^{1,2} , Yudan Pi ² , Wei Wang ^{2,3} , Shenglin Ma ⁴ , Yufeng Jin ^{1,2,3} ¹ Peking University Shenzhen Graduate School, China; ² Peking University, China; ³ National Key Laboratory of Science and Technology on Micro/Nano Fabrication, Beijing; ⁴ Xiamen University, China.

S06 Advanced Front End Process & Technology (Room H)

Session Chair:		Dr. Hans-Joachim Gossmann, Applied Materials, US
13:30	S06-1	Interfacial perfection for pushing InGaAs and Ge MOS device limits
Nov.1	(Invited)	M. Hong ¹ , Y. H. Lin ¹ , H. W. Wan ¹ , W. S. Chen ¹ , Y. T. Cheng ¹ , C. P. Cheng ² , T. W. Pi ³ , J. Kwo ⁴ ¹ Natl. Taiwan Univ., Taiwan, China; ² National Chiayi University, Taiwan, China; ³ National Synchrotron Radiation Research Center, Taiwan, China; ⁴ National Tsing Hua University, Taiwan, China
14:00	S06-2	On the Low-Frequency Noise of High-k Gate Stacks: What Did We Learn?
Nov.1	(Invited)	Eddy Simoen ^{1,2} , Romain Ritzenthaler ¹ , Tom Schram ¹ , Hiroaki Arimura ¹ , Naoto Horiguchi ¹ , Cor Claeys ³ ¹ Imec, Belgium; ² Ghent University, Belgium; ³ KU Leuven, Belgium
14:30	S06-3	Interfacial Layer Engineering for Ge MOSFET by Metal Element Doping and Characterization of Interface Density
Nov.1	(Invited)	Chao-Hsin Chien National Chiao-Tung University, Taiwan, China
15:00	S06-4	Investigation of the relationship between the total dose effect and thickness of Al₂O₃ gate dielectric under gamma-ray irradiation
Nov.1		Hui-Ping Zhu ^{1,2} , Xi Chen ^{1,2,4} , Zhong-Shan Zheng ^{1,2} , Bo Li ^{1,2} , Jian-Tou Gao ¹ , Duo-Li Li ¹ , Jia-Jun Luo ^{1,2} , and Zheng-Sheng Han ^{1,2,3} ¹ Chinese Academy of Sciences, China; ² Chinese Academy of Sciences, China; ³ University of Chinese Academy of Sciences, China; ⁴ North China University of Technology, China

S07 RF Circuits and Systems I (Room I)

Session Chair:		Prof. Jing Jin, Shanghai jiaotong University, China
13:30	S07-1	300-GHz-Band Wireless Transceiver with CMOS Integrated Circuits
Nov.1	(Invited)	Minoru Fujishima Hiroshima University, Japan
14:00	S07-2	A 28-GHz Two-Stage Power Amplifier with a Shunt Built-in Linearizer Using 0.1-μm GaAs pHEMT Process
Nov.1		Shuxin Ming, Dixian Zhao Southeast University, China
14:15	S07-3	A K-band Wideband Power Amplifier in 40-nm CMOS with 7.6-dBm Output Power
Nov.1		Guixiang Jin, Wei Luo, Na Yan , Yun Yin, Hongtao Xu Fudan University, China
14:30	S07-4	25-45 GHz Wideband Mixer with Simultaneous RF- and LO-port Inductive Peaking Technique
Nov.1		Geliang Yang ¹ , Keping Wang ² ¹ 54th Research Institute of China Electronics Technology Group Corporation, China; ² Southeast University, China
14:45	S07-5	A 23-30 GHz LNA with Noise-Cancelling in 28nm CMOS
Nov.1		Tao Wang, Wei Li, Jie Gong, Jiao Ye, Jintao Hu, Yuanyuan Xu Fudan University, China
15:00	S07-6	An 8-18GHz class-AB power amplifier with 16dBm output power and 23% PAE over entire X-Ku band
Nov.1		Jie Gong, Wei Li , Jiao Ye, Jintao Hu, Tao Wang Fudan University, China.

S08 Processors & Signal Processing (Room J)

Session Chair:		Dr. Chaojiang Li, Globalfoundries, US
13:30	S08-1	SPAD LiDARs: Modeling and Algorithms
Nov.1	(Invited)	Sung-You Tsai, Yu-Cheng Chang, Tzu-Hsien Sang ¹ National Chiao Tung University, Taiwan, China
14:00	S08-2	Overview of Efficient Compressive Sensing Reconstruction Engines for E-Health Applications
Nov.1	(Invited)	Ting-Sheng Chen, Kai-Ni Hou, Yo-Woei Pua, An-Yeu (Andy) Wu National Taiwan University, Taiwan, China
14:30	S08-3	A 5.3 Gpixels/s Frame Memory Recompression Method for QHD Video Coding
Nov.1		Chenhao Gu ¹ , Xiaoyang Zeng ¹ , and Yibo Fan ¹ ¹ Fudan University, Shanghai, China
14:45	S08-4	Design of RLWE Cryptoprocessor Based on Vector-Instruction Extension with RISC-V Architecture
Nov.1		Quan Zhang, Yujie Huang, Yujie Cai, Yalong Pang, Jun Han Fudan University, China
15:00	S08-5	Detecting the Control Flow Attacks Based on Built-in Secure Register Bank
Nov.1		Yun-Fei Yu ¹ , Peng-Jun Wang ¹² , Yue-Jun Zhang ¹ ¹ Ningbo University, China; ² Wenzhou University
15:15	S08-6	HITSM: A Heuristic Algorithm for Independent Task Scheduling in Multicore
Nov.1		Yu-Jie Huang, Quan Zhang, Chen-Lu Li, Ming-E Jing, Xiao-Yang Zeng Fudan University, China

Coffee Break

S09 Advanced FinFET and Nanowire FET II (Room B)

Session Chair:		Prof. Zai-xing Yang, Center of Nanoelectronics and School of Microelectronics, Shandong University, China
15:45	S09-1	ESD Robustness of Silicon Nanowire Transistor (SNWT) Combined with Thermal Analysis and Optimization
Nov.1	(Invited)	Ming Li, Jiewen Fan Peking University, China

16:15	S09-2	FinFET and Nanowire-FET Device Design and Integration: FEOL Challenges and Solutions
Nov.1	(Invited)	Hans-Joachim L. Gossmann ^a , Benjamin Colombeau ^b , Nicolas Breil ^c ^a Applied Materials, USA; ^b Applied Materials, USA; ^c Applied Materials, USA
16:45	S09-3	Impact of Process Imperfection of CNFET on Circuit-level Performance and Proposal to Improve Using Approximate Circuits
Nov.1	(Invited)	Lan Wei, Kaship Sheikh University of Waterloo, Canada
17:15	S09-4	Self-Heating Effects Investigation on Nanoscale FinFET and Its Thermal Resistance Modeling
Nov.1		Jun-Ya Sun ¹ , Ren-Hua Liu ¹ , Xiao-Jin Li ¹ , Ya-Bin Sun ¹ , Yan-Ling Shi ¹ , Shou-Mian Chen ² , Shao-Jian Hu ² , Ao Guo ² ¹ East China Normal University, China; ² Shanghai Intergrated Circuit Research & Development Center Ltd., China
17:30	S09-5	Statistical Variability Analysis in Vertically Stacked Gate All Around FETs at 7 nm Technology
Nov.1		Yue Zhuo ¹ , Xiang-Long Li ¹ , Ya-Bin Sun ¹ , Xiao-Jin Li ¹ , Yan-Ling Shi ¹ , Shou-Mian Chen ² , Shao-Jian Hu ² , Ao Guo ² ¹ East China Normal University, China; ² Shanghai Integrated Circuit Research & Development Center Ltd, China

S10 RRAM II (Room D)

Session Chair:		Prof. Weidong Zhang, Liverpool John Moores Univerity, UK
15:45	S10-1	Conductive defect states based filament in MOM structure RRAM
Nov.1	(Invited)	Kun-Ji Chen ^{1,2} , Jian Liu ^{1,2} , Yuefei Wang ^{1,2} , Huafeng Yang ^{1,2} , Zhongyuan Ma ^{1,2} , Xinfan Huang ^{1,2} ¹ Nanjing University, China; ² Nanjing University, China
16:15	S10-2	Resistive Switching Non-volatile Memory Feasible for 28nm and Beyond Embedded Logic CMOS Technology
Nov.1	(Invited)	Steve S. Chung National Chiao Tung University, Taiwan, China
16:45	S10-3	Ultra-low voltage resistive switching of HfO₂-buffered NiO epitaxial films on metal seed layers
Nov.1	(Invited)	Xiao-Yan Qiu ¹ , Ming-Long Wei ¹ , Xue Jiang ¹ , Hei-Man Yau ² , Jing-Wei Gao ² , Ji-Yan Dai ² ¹ Southwest University, China; ² The Hong Kong Polytechnic University, Hong Kong, China.
17:15	S10-4	Low-power, multilevel and analog characteristics in the multi-layer-oxide based RRAM devices compatible with CMOS technology
Nov.1		Xiangxiang Ding, Dongbin Zhu, Yulin Feng, Linlin Cai, Peng Huang, Lifeng Liu, Jinfeng Kang Peking University, China
17:30	S10-5	Non-filamentary Pd/Al₂O₃/TaO_x/Ta Memristor as Artificial Synapse for Neuromorphic Computing
Nov.1		Rui Wang ¹ , Xumeng Zhang ¹ , Tuo Shi ¹ , Jinsong Wei ¹ , Hangbing Lv ¹ , Qi Liu ¹ and Ming Liu ¹ ¹ Chinese Academy of Sciences, China

S11 Low-Power and Steep Slope Switching Device II (Room E)

Session Chair:		Dr. Francis Balestra, IMEP, France
15:45	S11-1	Subthreshold Behavior of MFMIS and MFIS Transistors caused by Ferroelectric Polarization Switching
Nov.1	(Invited)	Qinghua Han, Paulus Aleksa, Juergen Schubert, Siegfried Mantl, Qing-Tai Zhao Peter Grünberg Institute (PGI-9) and JARA-FIT, Germany
16:15	S11-2	New Directions of Nanoelectronics Research for Computing
Nov.1	(Invited)	An Chen ^{1,2} ¹ Semiconductor Research Corporation, Durham; ² IBM Research, CA
16:45	S11-3	Performance Enhancement by Gate Tunable Strain in p-type Piezoelectric FinFETs
Nov.1		Yuxiong Long ¹ , Hongjuan Wang ¹ , Jun Z. Huang ² , Jian Gong ³ , Xiangwei Jiang ¹ ¹ Chinese Academy of Sciences, China; ² MaxLinear Inc., USA; ³ Inner Mongolia University, China.
17:00	S11-4	A Novel Planar InAs/Si Hetero-TFET with Buried Drain Design and Face-tunneling Technique
Nov.1		Bin Lu, Hongliang Lu, Yuming Zhang, Yimen Zhang, Zhijun Lv, Yingxiang Zhao

		School of Microelectronics, Xidian University, China
17:15	S11-5	The Application of Gate-Drain underlap Architecture in TFET-based Inverters
Nov.1		Fankang Meng, Hongliang Lu, Yuming Zhang, Yimen Zhang, Bin Lu, Zhijun Lv, Yingxiang Zhao Xidian University, China
17:30	S11-6	An Optimized GaAsSb/InGaAs Heterojunction L-shape Tunnel Field-Effect Transistor
Nov.1		Zhi-Rui Yan, Cong Li, Jia-Min Guo, Hao-Feng Jiang, Jian-Ping Chen, Yi-Qi Zhuang Xidian University, China

S12 Device/Process Simulation & Modeling II (Room F)

	Session Chair:	Prof. Chih-Hung Chen, McMaster University, Canada
15:45	S12-1	On-wafer Low-frequency Noise Characterization of Transistors Over a Wide Range of Operating Currents
Nov.1	(Invited)	James Ma, Fahad Ali Usmani, Lianfeng Yang, Zhihong Liu ProPlus Design Solutions Inc., USA.
16:15	S12-2	A Transient Approach for Input Capacitance Characterization of Power Devices
Nov.1	(Invited)	Takashi Sato Kyoto University, Japan
16:45	S12-3	A Novel Modeling Approach of Single Event Transients for Particle Strikes
Nov.1		Xue-Bing Cao, Li-Yi Xiao, Jie Li, Rong-Sheng Zhang, Lin-Zhe Li, Jin-Xiang Wang Harbin Institute of Technology, China
17:00	S12-4	Simulation of a Novel Integrated 4H-SiC Temperature Sensor
Nov.1		Hang Gu ^{1,2} , Yourun Zhang ¹ , Juntao Li ³ , Yidan Tang ² , Yun Bai ² ¹ University of Electronics Science and Technology of China, China; ² Institute of Microelectronics of Chinese Academy of Sciences, China; ³ China Academy of Engineering Physics, China.

S13 Ge related Device and Process (Room G)

	Session Chair:	Prof. Peide (Peter) Ye, Purdue University, US
15:45	S13-1	Back to the Future: Germanium nanoengineering reemerges as the savior of Si functional devices
Nov.1	(Invited)	Pei-Wen Li National Chiao Tung University, Taiwan, China
16:15	S13-2	Langmuir-Type Mechanism for In-Situ Boron Doping in CVD Si_{1-x}Ge_x Epitaxial Growth
Nov.1	(Invited)	Junichi Murota Tohoku University, Japan.
16:45	S13-3	Recent achievements and remaining challenges in Ge-MOSFETs from interface engineering viewpoints
Nov.1	(Invited)	Akira Toriumi The University of Tokyo, Japan
17:15	S13-4	Self-aligned Ge nMOSFETs with gate-last process on GeOI platform
Nov.1		Yi Zhang, Genquan Han, Yan Liu, Huan Liu, Jing Li, and Yue Hao Xidian University, China

S14 Front End Reliability (Room H)

	Session Chairs:	Dr. Yingxia Liu, Intel corp, USA Prof. Eddy Roger Simoen, IMEC, Belgium
15:45	S14-1	A framework for defects in PBTi and hot carrier ageing
Nov.1	(Invited)	Jian FuZhang, Meng Duan, Zhigang Ji, Weidong Zhang Liverpool John Moores University, UK
16:15	S14-2	Recent insights in CMOS reliability characterization by the use of degradation maps
Nov.1	(Invited)	E. Bury ¹ , A. Chasin ¹ , B. Kaczer ¹ , K.-H. Chuang ^{1,2} , J. Franco ¹ , M. Simicic ^{1,2} , P. Weckx ¹ , D. Linten ¹ ¹ imec, Belgium; ² KU Leuven, Belgium
16:45	S14-3	New Insights into the Off-state Stress Induced Degradation in Ultra-scaled FinFET Technology
Nov.1		Pengpeng Ren, Changze Liu, Canhui Zhan, Dan Gao, Zhenghao Gan, Waisum Wong, Zanfeng Chen, Yu Xia Hisilicon Technologies Co., LTD, China

17:00	S14-4	Investigation of DIBL Degradation in Nanoscale FinFETs under Various Hot Carrier Stresses
Nov.1		Zixuan Sun ^{1,2} , Zhuoqing Yu ² , Runsheng Wang ² , Jiayang Zhang ² , Zhe Zhang ² , Peimin Lu ¹ , Ru Huang ² ¹ Fuzhou University, China; ² Peking University, China
17:15	S14-5	The Study on the Variation of NBTI Degradation in highly-scaled FinFET technology
Nov.1		Dan Gao, Changze Liu, Zhenghao Gan, Pengpeng Ren, Canhui Zhan, Waisum Wong, Zanfeng Chen, Yu Xia Hisilicon Technologies Co., LTD, China

S15 RF Circuits and Systems II (Room I)

Session Chair:		Prof. Renxi Zhang, East China Normal University, China
15:45	S15-1	Ka Band FEM Design Comparison with 45nm RFSOI CMOS and High Performance SiGe BiCMOS
Nov.1	(Invited)	Chaojiang Li ¹ , Arvind Kumar ¹ , Xiaowei Tian ¹ , Ned Cahoon ¹ , Myra Boenke ¹ , Dawn Wang ¹ , Alvin Joseph ¹ , Hua Wang ² , Gabriel Rebeiz ³ ¹ GLOBALFOUNDRIES, USA; ² Georgia Institute of Technology, USA; ³ University of California, USA
16:15	S15-2	A 6~18GHz Ultra-Wideband LNA Using 0.13μm SiGe BiCMOS Technology
Nov.1		Weipeng He, Zhiqun Li, Yan Yao, Yongbin Xue, Qin Li Southeast University, China
16:30	S15-3	15-32 GHz Broad Band Low-Noise Amplifier using 100nm GaN on Silicon Technology
Nov.1		Shi-yong Zhang ¹ , Jian-xing Xu ¹ , Peng-hui Zheng ¹ , Xiao-dong Tong ¹ ¹ China Academy of Engineering Physics, China
16:45	S15-4	A 26.5-40GHz SiGe Stacked Cascode Power Amplifier
Nov.1		Quan Zhou, Zhiqun Li, Guoxiao Cheng, Weipeng He, Huan Wang Southeast University, China
17:00	S15-5	A 7W 23-30GHz Power Amplifier in a 100-nm GaN on Si technology
Nov.1		Penghui Zheng, Shiyong Zhang, Jianxing Xu, Rong Wang, and Xiaodong Tong, Microsystem & Terahertz Research Center of China Academy of Engineering Physics, China
17:15	S15-6	A 25-31 GHz 6-bit Switch-type Phase Shifter in 0.13um SOI CMOS Process for 5G mmWave Phased Array Communications
Nov.1		Minghua Wang ^{1,2} , Farman Ullah ^{1,2} , Xiaosong Wang ¹ , Yanbin Xiao ¹ , Yu Liu ¹ ¹ Institute of Microelectronics of Chinese Academy of Sciences, China; ² University of Chinese Academy of Sciences, China.

S16 SOC (Room J)

Session Chair:		Prof. Sang Tzu-Hsien, Department of Electronics Engineering, National Chiao Tung University, Taiwan, China
15:45	S16-1	LED-Based Visible Light Communication and Positioning Technology and SoCs
Nov.1	(Invited)	Tian Lang ¹ , Zening Li ¹ , Fei Lu ^{1,2} , Zongyu Dong ^{1,3} , Li Wang ^{1,4} , Cheng Li ¹ , Feilong Zhang ¹ , Gang Chen ¹ , Albert Wang ¹ ¹ University of California, USA; ² Marvell; ³ Qualcomm; ⁴ Skyworks
16:15	S16-2	Aging Impacts on SOC Timing in Advanced FinFET Technologies
Nov.1		Yongsheng Sun, Canhui Zhan, Yiwei Fu, Zhenghao Gan, Waisum Wong HiSilicon Technologies Co., LTD, China
16:30	S16-3	Obfuscation Algorithm Design Based on Fully Homomorphism
Nov.1		Zhao Pan ¹ , Yue-Jun Zhang ¹ , Jia-Wei Wang ¹ , Peng-jun Wang ^{1,2} ¹ Ningbo University, China; ² Wenzhou University, China
16:45	S16-4	A VLSI Implement of CABAC Encoder for H.265/HEVC
Nov.1		Wei Li ¹ , Xiang Yin ¹ , Xiaoyang Zeng ¹ , Xulin Yu ² , Wenqiang Wang ² and Yibo Fan ¹ ¹ Fudan University, China; ² Alibaba Group, China
17:00	S16-5	Design of a GNSS Signal Synchronization Chip
Nov.1		Min Luo ¹ , Yue-Hong Gong ² , Jin-Xiang Wang ¹ ¹ Harbin Institute of Technology, China; ² Shandong Jiaotong University, China.
17:15	S16-6	A High Speed All-Digital True Random Number Generator
Nov.1		Jianfei Jiang ¹ , Nin Guan ² , Qin Wang ¹ , Chaoyang Li ¹ ¹ Shanghai Jiao Tong University, China; ² Shanghai Institute of Aerospace Electronic Communication Equipment, China

P1 Poster Session I

Session Chair: Prof. Hui-Hua Yu, Fudan University, China

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| 17:45 | P1-01 | Effect of Surface and Interface on the Back-Gated n-MOSFET with Two-Dimensional MoS₂ Channel Grown by Chemical Vapor Deposition
Nov.1 Fuyu Bai, Hui Shen, and Daming Huang
Fudan University, China |
| 17:45 | P1-02 | Current Mirrors Based on Graphene Field-effect Transistors
Nov.1 Pei Peng, Zhongzhen Tian, Muchan Li, Zidong Wang, Liming Reng, Yunyi Fu
Peking University, China |
| 17:45 | P1-03 | Design of A Graphene-based Plasmonic Half-adder
Nov.1 Jian Ding ¹ , Li-Qiang Zhou ¹ , Shi-Qi Li ¹ , Wei-Wei Chen ¹ , Peng-Jun Wang ^{1,2}
¹ Ningbo University, China; ² Wenzhou University, China |
| 17:45 | P1-04 | Perfect spin-filter and negative differential resistance for a carbon chain device with defective graphene nanoribbons connected
Nov.1 Feng Cao, Tong-sheng Xia, Wei-sheng Zhao
Beihang University, China |
| 17:45 | P1-05 | Phonon Limited Electron Mobility in Germanium nFinFETs: Fin Direction Dependence
Nov.1 Ying Jing, Genquan Han, Yan Liu, Jincheng Zhang, and Yue Hao
Xidian University, China |
| 17:45 | P1-06 | MEOL Parasitic Capacitance Study based on State-of-Art FinFET Technology Platform
Nov.1 Chunlei Wu, Xiaowei Zou, Zan Li, Meng Lin, Xiangqiang Zhang, Yuzhu Gu, Waisum Wong
Hisilicon Technologies Corp. Ltd. China |
| 17:45 | P1-07 | Impact of Gate Asymmetry on Gate-All-Around Silicon Nanowire Transistor Parasitic Capacitance
Nov.1 Xiaoqiao Dong ^{1,2} , Yuancheng Yang ² , Gong Chen ² , Shuang Sun ² , Qifeng Cai ² , Xiaokang Li ² , Xia An ² , Xiaoyan Xu ² , Wanrong Zhang ¹ , Ming Li ²
¹ Beijing University of Technology, China; ² Peking University, China |
| 17:45 | P1-08 | A Transistor Cornering Strategy for Multiple-V_t HKMG FinFET with Undoped Channel
Nov.1 Guang-Xing Wan, Hung-Hsu Tseng, Zi-Cai Zhao, Waisum Wong
Hisilicon Technologies Corp. Ltd., China |
| 17:45 | P1-09 | A Physical Current Model for Self-Depleted T-gate Schottky Barrier Tunneling FET with Low SS and High ION/IOFF
Nov.1 Jin Luo, Zhu Lv, Qian-Qian Huang, Cheng Chen and Ru Huang
Institute of Microelectronics Peking University, China. |
| 17:45 | P1-10 | A Comprehensive Investigation on FinFET Gate Resistance for High-Speed Analog and RF Design
Nov.1 Jiewen Fan ¹ , Qianmin Yu ¹ , Changhong Chen ¹ , Xiaobo Jiang ¹ , Amin Zhou ¹ , Xiangqiang Zhang ¹ , Zicai Zhao ¹ , Xiaowei Zou ¹ , Waisum Wong ¹
¹ Hisilicon Technologies, China |
| 17:45 | P1-11 | The Impact of PTS Doping and Fin Angle on TID Response of 14-nm bulk FinFETs
Nov.1 Jia-Ning Wang ^{1,2} , Xia An ² , Zhe-Xuan Ren ² , Gen-Song Li ² , Wan-Rong Zhang ¹ , Ru Huang ²
¹ Beijing University of Technology, China; ² Peking University, China |
| 17:45 | P1-12 | Temperature-dependent mobility characteristics in one-dimension transport in junctionless nanowire transistor
Nov.1 Ya-Mei Dou ^{1,2} , Yang-Yan Guo ^{1,3} , Wei-Hua Han ^{1,3} , Xiao-Song Zhao ^{1,3} , and Fu-Hua Yang ^{1,3,4}
¹ Chinese Academy of Sciences, China; ² University of Chinese Academy of Sciences, China; ³ University of Chinese Academy of Sciences, China; ⁴ Chinese Academy of Sciences, China. |
| 17:45 | P1-13 | One-Dimensional Transport through Two Subbands in Silicon Junctionless Nanowire Transistors
Nov.1 Xiao-Song Zhao ^{1,2} , Wei-Hua Han ^{1,2} , Yang-Yan Guo ^{1,2} , Ya-Mei Dou ^{1,2} and Fu-Hua Yang ^{1,2}
¹ Chinese Academy of Sciences, China; ² Chinese Academy of Sciences, China; |
| 17:45 | P1-14 | Numerical Simulations of Diamond Cross-Section Germanium Nanowire Transistors for CMOS Compatible Assembly
Nov.1 Guan-Qing Wang, Hao-Yu Kong, Liang-Kui Liu and Lei Sun
Peking University, China |
| 17:45 | P1-15 | Coulomb Interaction in One Dimensional Transport of Silicon Junctionless Nanowire Transistor |

Nov.1		Yang-Yan Guo ^{1,2} , Wei-Hua Han ^{1,2} , Xiao-Song Zhao ^{1,2} , Ya-Mei Dou ^{1,2} , and Fu-Hua Yang ^{1,2,3} ¹ Chinese Academy of Sciences, China; ² University of Chinese Academy of Sciences, China; ³ Chinese Academy of Sciences, China
17:45	P1-16	Influence of Emitter-side Deep-oxide Trenches on Dynamic Avalanche Capability of SOI Lateral IGBTs Used for Monolithic Power ICs
Nov.1		Jie Ma ¹ , Long Zhang ^{1,2} , Jing Zhu ¹ , Shilin Cao ¹ , Shaohong Li ¹ , Siyang Liu ¹ , Weifeng Sun ¹ , Jianfeng Zhao ² , Yan Gu ³ and Sen Zhang ³ ¹ Southeast University, China; ² Southeast University, China; ³ CSMC Corporation, China
17:45	P1-17	Analysis of Novel 3300V Embedded Ballast Resistor IGBT with Robust Short-circuit Capability
Nov.1		Xin Peng ¹ , Ze-Hong Li, Yu-Zhou Wu, Jin-Ping Zhang, Wei Gao, Min Ren, Bo Zhang ¹ University of Electronic Science and Technology of China, China
17:45	P1-18	Anti-Single-Event Technology Based on the Novel Hole-Current Diversionary Structure
Nov.1		Sun Xiao ^{1,3} , Yu Minfeng ^{1,3} , Zhang Yanfei ³ , Wang Lixin ^{1,3} , Liu Mengxin ^{1,2} ¹ Chinese Academy of Sciences, China; ² Chinese Academy of Sciences, China; ³ Beijing Zhongke Newmicro Technology Co.,LTD. China
17:45	P1-19	High-Voltage SOI Deep Trench LDMOS with Quasi Vertical Super Junction Structure
Nov.1		Jinping Zhang, Hua Zou, Qian Zhao, Kang Wang, Zehong Li, Zhaoji Li and Bo Zhang University of Electronic Science and Technology of China, China
17:45	P1-20	High Voltage Lateral Bidirectional Super Junction IGBT with Fast Turn-off Speed
Nov.1		Jinping Zhang, Qian Zhao, Kang Wang, Yang Zhao, Zehong Li, Zhaoji Li and Bo Zhang University of Electronic Science and Technology of China, China
17:45	P1-21	Research on IGBT junction temperature measurement via pre-threshold voltage method based on FPGA control
Nov.1		Yu-Qian Huo, Xiao-Ling Zhang, Xue-Song Xie, Meng Guo, Shuai-Bing Qi, and Dong-Dong Hu Beijing University of Technology, China
17:45	P1-22	A Novel Super-Junction Structure to Improve SEB Performance
Nov.1		Lin Wang ^{1,2,3} , Limei Song ^{1,2} , Lixin Wang ^{1,2,3} , Bo Li ^{1,3} , Jiajun Luo ^{1,2,3} , Zhengsheng Han ^{1,2,3} ¹ Chinese Academy of Sciences, China; ² University of Chinese Academy of Sciences, China; ³ Chinese Academy of Sciences, China
17:45	P1-23	A Base Resistance Controlled Thyristor with N-type Buried Layer to Suppress the Snapback Phenomenon
Nov.1		Fei Hu ^{1,2,3} , Limei Song ^{1,2} , Bo Li ^{1,3} , Lixin Wang ^{1,2,3} , Jiajun Luo ^{1,2,3} , Zhengsheng Han ^{1,2,3} ¹ Chinese Academy of Sciences, China; ² University of Chinese Academy of Sciences, China; ³ Chinese Academy of Sciences, China
17:45	P1-24	Improved Drain Current Density of E-Mode AlGaIn/GaN HEMT with Double-Doped P-Gate
Nov.1		Wenteng Kuang ¹ , Hui Sun ² , Meihua Liu ¹ , Xinnan Lin ¹ and Dongmin Chen ² ¹ Peking University Shenzhen Graduate School, China; ² Peking University, China
17:45	P1-25	Research on Radiation-Induced Threshold Voltage Shifts in Power MOSFET Based on Charge-Pumping Method
Nov.1		Ding Yan ^{1,3} , Wang Lixin ^{1,3} , Zhang Yanfei ³ , Liu Mengxin ^{1,2} ¹ Chinese Academy of Sciences, China; ² Chinese Academy of Sciences, China; ³ Beijing Zhongke Newmicro Technology Co., LTD., China
17:45	P1-26	The Characteristics and Modeling of 600V and 1200V SiC Power MOSFET
Nov.1		Hong Chen ¹ , Jilong Hao ¹ , QianFei Zhou ² , Qi Feng ² , Yun Bai ¹ ¹ Chinese Academy of Sciences, China; ² SAIC. Motor Automotive Industry Cooperation. Ltd, China
17:45	P1-27	An Improved Edge Termination Structure to Optimize 3.3kV IGBTs Ruggedness
Nov.1		Xiao-Li Tian, Jiang Lu, Yun Bai, Hong Chen and Xin-Yu Liu Institute of Microelectronics of Chinese Academy of Sciences, China
17:45	P1-28	Analysis of Thermal Reliability for Press Package Dual-GCT
Nov.1		Cailin Wang, Jing An, Tianci Xie Xi'an University of Technology, China.
17:45	P1-29	Passivated lateral β-Ga₂O₃ Schottky Barrier Diode on Sapphire Substrate with Reverse Blocking Voltage of 1.9 kV
Nov.1		Zhuangzhuang Hu ¹ , Hong Zhou ¹ , Zhaoqing Feng ¹ , Qian Feng ¹ , Jincheng Zhang ¹ , and Yue Hao ¹ ¹ Xidian University, China
17:45	P1-30	Deep Learning Modeling Attack Analysis for Multiple FPGA-based APUF Protection Structures
Nov.1		Ji-Quan Huang ¹ , Min Zhu ² , Bo Liu ¹ , Wei Ge ¹

		¹ Southeast University, China; ² Southeast University, China
17:45	P1-31	Reconfigurable Logic based on Voltage-Controlled Magnetic Tunnel Junction (VC-MTJ) for Stochastic Computing
Nov.1		Zuodong Zhang ¹ , Yawen Zhang ¹ , Runsheng Wang ¹ , Lang Zeng ^{2,3} , Ru Huang ¹ ¹ Peking University, China; ² Beihang University, China; ³ Beihang University, China.
17:45	P1-32	Numerical Simulations on Nanosecond Pulse Laser Annealing in Vertical Polycrystalline Si Macaroni Channel
Nov.1		Fushuai Ma, Xuepeng Zhan, Yuan Li, Jiezhi Chen Shandong University, China
17:45	P1-33	The thermal characteristics of SOI SiGe HBT with SiO₂/Si₃N₄/SiO₂ insulators
Nov.1		Bin Guo ¹ , Dong-Yue Jin ¹ , Wan-Rong Zhang ¹ , Rui Chen ¹ , Li-Fan Wang ¹ , Hu Chen ¹ , Feng-Yang Li ¹ ¹ Beijing University of Technology, CHINA.
17:45	P1-34	TCAD Simulations of Nano-scale Functional Neuron MOSFETs with Splitted Gate Bias on Floating Gate
Nov.1		Hao-Yu Kong, Guan-Qing Wang and Lei Sun Peking University, China
17:45	P1-35	A Comprehensive Extraction Method to Decompose Different Random Variation Impacts in bulk FinFET Technology
Nov.1		Zhe Zhang ¹ , Runsheng Wang ¹ , Xiaobo Jiang ¹ , Xingsheng Wang ² , Yangyuan Wang ¹ , Ru Huang ¹ ¹ Peking University, China; ² Huazhong University of Science and Technology, China
17:45	P1-36	Investigation on the Variation of Flicker Noise and VCO Phase Noise for FinFET Technology: Modeling and Simulation Methodology
Nov.1		Xiaobo Jiang and Waisum Wong Hisilicon Technologies Co., LTD, China
17:45	P1-37	MoM Capacitor Variation Models for FinFET Era
Nov.1		Yu Yong, Waisum Wong, Zou Xiaowei, Yu Qianmin, Sun Lijie, Zhao Zicai, Li Zan, Cheng Changhong Hisilicon Technologies Corp. Ltd., China
17:45	P1-38	Experimental Study of FinFET-based FOI-MAHAS Charge Trapping Memory with Improved Operation Characteristics
Nov.1		Zhao-Zhao Hou ^{1,2} , Hua-Xiang Yin ^{1,2} , Zhen-Hua Wu ^{1,2} ¹ Chinese Academy of Sciences, China; ² University of Chinese Academy of Sciences, China
17:45	P1-39	Charge Trapping Memory with Al₂O₃/HfO₂/Al₂O₃ Multilayer High-κ Dielectric Stacks and High Work Function Metal Gate Featuring Improved Operation Efficiency
Nov.1		Zhao-Zhao Hou ^{1,2} , Hua-Xiang Yin ^{1,2} , Zhen-Hua Wu ^{1,2} ¹ Institute of Microelectronics, Chinese Academy of Sciences, China; ² University of Chinese Academy of Sciences, China
17:45	P1-40	Charge Trapping Memory Based on Tri-layers ALD-Alumina Gate Stack and InGaZnO Channel Layer
Nov.1		Pengfei Ma ¹ , Yuxiang Li ¹ , Aimin Song ^{1,2} ¹ Shandong University, China; ² University of Manchester, United Kingdom
17:45	P1-41	Investigation of Reducing Bow during High Aspect Ratio Trench Etching in 3D NAND Flash Memory
Nov.1		Yuan Ye ^{1,2,3} , Zhi-Liang Xia ^{1,2,3} , Li-Peng Liu ³ , Zong-Liang Huo ^{1,2,3} ¹ Chinese Academy of Sciences, China; ² University of Chinese Academy of Sciences, China; ³ Yangtze Memory Technologies Co.Ltd., China
17:45	P1-42	A High Performance DRAM Design Using U-FinFET as Access Transistor
Nov.1		Meng-Qi Wen, Zhi-Yuan Ye, Yue Li, Zheng-Yuan Su, Yao Yao, Lei Liu and Peng-Fei Wang Fudan University, China
17:45	P1-43	Influence of trap-assisted tunneling on Subthreshold Slope of Ge/Si heterojunction L-shaped TFETs
Nov.1		Jia-Min Guo, Cong Li, Zhi-Rui Yan, Hao-Feng Jiang, Jian-Ping Chen, Yi-Qi Zhuang Xidian University, China
17:45	P1-44	Investigation of Polarization Hysteresis and Transient Current Switching in Ferroelectric Aluminum-Doped Hafnium Oxides
Nov.1		Chien Liu ¹ , Chia-Chi Fan ² , Chih-Yang Tseng ³ , Hsiao-Hsuan Hsu ⁴ , Chun-Hu Cheng ⁵ , Yen-Liang Chen ⁵ , Chun-Yen Chang ² , Wu-Ching Chou ¹ , Chien-Liang Lin ⁴ , Yu-Chi Fan ⁴ , Tsung-Ming Lee ⁴ ¹ National Chiao Tung University, Taiwan, China; ² National Chiao Tung University, Taiwan, China; ³ National Chiao Tung University, Taiwan, China; ⁴ National Taipei University of Technology, Taiwan, China; ⁵ National Taiwan Normal University, Taiwan, China
17:45	P1-45	Current Degradation and Delay Analysis of Series-Connected Circuits Based on Novel

		TFET Design
Nov.1		Yuan Zhong ^{1,2} , Cheng Chen ¹ , Qianqian Huang ¹ , Zhixuan Wang ¹ , Le Ye ¹ , Jenchung Lou ² and Ru Huang ¹ ¹ Peking University, China; ² Peking University, China.
17:45	P1-46	Inverted π-shaped Si/Ge Tunneling Field Effect Transistor
Nov.1		Ru Han ¹ , Haichao Zhang ¹ , Danghui Wang ¹ ¹ Northwestern Polytechnical University, China
17:45	P1-47	Simulation of Gallium Nitride Cantilevers Integrated with AlGaIn/GaN HEMTs
Nov.1		Qi Cheng ^{1,2} , Zhenchuan Yang ¹ ¹ Peking University, China; ² Peking University, China
17:45	P1-48	Microfabrication and Characterization of Parylene AF4
Nov.1		Han Xu ¹ , Yu-Chao Hua ² , Bing-Yang Cao ² , Wei Wang ^{1,3} ¹ Peking University, China; ² Tsinghua University, China; ³ National Key Laboratory of Science and Technology on Micro/Nano Fabrication, China.
17:45	P1-49	MEMS Turbine Based Triboelectric Generator with Compound Sequential Current Spikes
Nov.1		Zhang-Xiong Chen, Ling Bu, Xin Zeng, Xuan-Zi Xu, Zhe-Wei Chen, Fei-Yu Zhang China University of Geosciences, China
17:45	P1-50	A dual-parameter on-chip test platform based on thermal actuator for testing fracture strength of microstructure
Nov.1		Zikun Chen ^{1,2} , Zexin Fan ² , Fang Yang ² , Longzhao Shi ¹ , Dacheng Zhang ² ¹ Fuzhou University, China; ² Peking University, China
17:45	P1-51	Bipolar resistive switching in Electrolyte-Oxide-Semiconductor (EOS) Structure
Nov.1		Tian Kang ^{1,2} , Jia Zhu ² , Yun Huang ² , Xiaoyu Chen ² , Zhuojie Chen ² , Guanzhou Lin ^{2,3} , Shengxiao Jin ² , Wengang Wu ² ¹ Shenzhen Graduate School of Peking University, China; ² Peking University, China; ³ Fuzhou University, China
17:45	P1-52	Optimization of Thin Metal Layer Etch Process for MEMS/Sensor Application
Nov.1		Xiaoxu Kang ¹ , Xingwang Zhu ² , Shanshan Liu ² , Xiaolan Zhong ¹ , Ruoxi Shen ¹ , Shoumian Chen ¹ , Yuhang Zhao ¹ , Limin Zhu ² , Jianmin Wang ² , Hanwei Lu ² , Wei Wang ² , Bo Zhang ² ¹ Shanghai IC R&D Center, China; ² Shanghai Huahong Grace Semiconductor Manufacturing Corporation, China
17:45	P1-53	Design of a flexible MEMS pressure sensor array in dog's artificial knee joint
Nov.1		Shengzhan Cheng, Chengchen Gao Peking University, China;
17:45	P1-54	Analysis and Optimization of a Diode-Bridge Based Differential Capacitance Readout Circuit for MEMS Gyroscopes
Nov.1		Zesen BAI, Qiancheng Zhao, and Zhenchuan Yang Peking University, China
17:45	P1-55	Droplet Morphology Correction in Single-planar EWOD Devices to Enhance Luminescence Detection Sensitivity
Nov.1		Wei Wang, Kaidi Zhang, Xubo Wang, Jia Zhou Fudan University, China
17:45	P1-56	A Scale Factor Self-Calibration Method for a Batch of MEMS Gyroscopes Based on Virtual Coriolis Force
Nov.1		Yazhou Wang ¹ , Yang Zhao ² , Guoming Xia ³ , Anping Qiu ⁴ , Qin Shi ⁵ , Risheng Liu ⁶ Nanjing University of Science and Technology, China.
17:45	P1-57	GaN Epitaxy in High Aspect Ratio Nanoscale Trenches over Silicon Substrate
Nov.1		Kejia Wang ¹ , Yuzei Song ¹ , Pengwei Du ¹ , Yahong Xie ² , Zhiyuan Cheng ¹ ¹ Zhejiang University, China; ² University of California Los Angeles, USA.
17:45	P1-58	GaN Heteroepitaxy over Si Substrate via Serpentine Channel Patterned Mask
Nov.1		Kejia Wang ¹ , Tiantian We ² , Yuzei Song ¹ , Yijun Sun ¹ , Yahong Xie ³ , Xiaodong Hu ² , and Zhiyuan Cheng ¹ , ¹ Zhejiang University, China; ² Peking University, China; ³ University of California Los Angeles, USA.
17:45	P1-59	An Experimental Design of Robust Current-mode Arbiter PUF using Organic Thin Film Transistors
Nov.1		Zhaoxing Qin ¹ , Michihiro Shintani ² , Kazunori Kuribara ³ , Yasuhiro Ogasahara ³ , and Takashi Sato ¹ ¹ Kyoto University Yoshida-hon-machi, Japan; ² Nara Institute of Science and Technology, Japan; ³ National Institute of Advanced Industrial Science and Technology (AIST), Japan
17:45	P1-60	Measurement and Modeling of Frequency Degradation of an oTFT Ring Oscillator
Nov.1		Michiaki Saito ¹ , Michihiro Shintani ² , Kazunori Kuribara ³ , Yasuhiro Ogasahara ³ , and Takashi Sato ¹

¹Kyoto University, Japan; ²Nara Institute of Science and Technology, Japan; ³National Institute of Advanced Industrial Science and Technology (AIST), Japan.

- 17:45 P1-61 A Novel photodetector with the embedded field-induced p-n photodiode in the SOI Substrate**
Nov.1 Xiao-Ying Cao^{1,2}, Wen-Song Lin², Jia-Nan Deng¹, Hong-Bin Liu¹, Kun-Ming Zhu¹, Muhammad Arsalan¹, Jing Wan¹
¹Fudan University, China; ²Shanghai University of Engineering Science, China
- 17:45 P1-62 A novel SiGe heterojunction phototransistor detector based on silicon-on-insulator substrat**
Nov.1 Rui Liu¹, Hong-Yun Xie¹, Rui-Wen Jia¹, Pei Shen², Liang Chen³, Pei Ma¹, Wan-Rong Zhang¹
¹Beijing University of Technology, China; ²Global Energy Interconnection Development and Cooperation Organization, China; ³Taishan University, China
- 17:45 P1-63 Influence of base structural parameters on responsivity and characteristic frequency of SiGe Heterojunction Phototransistor**
Nov.1 Pei Ma¹, Hong-Yun Xie¹, Quan-Xiu Chen¹, Rui Liu¹, Liang Chen², Jia-hui Wu¹, Wan-Rong Zhang¹
¹Beijing University of Technology, China; ²Taishan University, China
- 17:45 P1-64 Growth of Ga2O3 film by Mist-CVD and its application in UV photodetectors and thin film transistors**
Nov.1 Yu Xu, Zhiyuan An, Qian Feng, Jincheng Zhang, Chunfu Zhang, Yue Hao
Xidian University, China
- 17:45 P1-65 An Active Rectifier with P-SSHI for Piezoelectric Energy Harvesting System**
Nov.1 Xing Zhou, Yi-Die Ye, Hua-Kang Xia
Ningbo University, China
- 17:45 P1-66 Recessed Back-Surface-Field Crystalline Silicon Solar Cells with Heterojunction for Bifacial Application**
Nov.1 Wen-Hao Chen¹, Jyi-Tsong Lin¹, Steve Haga², Kung-Yu Ho¹, and Shih-Chin Huang¹
¹National Sun Yat-Sen University, Taiwan; China ²National Sun Yat-Sen University, Taiwan, China
- 17:45 P1-67 Efficient sodium-doped compact TiO2 layers for high performance and hysteresis-less perovskite solar cells**
Nov.1 Jing Ma, Xing Guo, Long Zhou, Zhenhua Lin, Jingjing Chang
Xidian University, China
- 17:45 P1-68 Low-temperature processed TiO2 compact layer for perovskite solar cell**
Nov.1 Xing Guo¹, Zhenhua Lin¹, Jing Ma¹, Long Zhou¹, Jingjing Chang¹
¹Xidian University, China
- 17:45 P1-69 RTN impacts on RRAM-based Nonvolatile logic circuit**
Nov.1 Yao-Tian Ling¹, Zong-Wei Wang¹, Yi-Chen Fang¹, Jian Kang¹, Lin-Dong Wu¹, Yu-Chao Yang¹, Yi-Mao Cai¹, Ru Huang¹
¹Peking University, China
- 17:45 P1-70 Digit Recognition Through Unsupervised Learning by Lithium Silicate Synapses**
Nov.1 HuiYang¹, BOWEI Chen¹, Yuhui He¹ and Xiang Shui Miao¹
¹Huazhong University of Science and Technology, China
- 17:45 P1-71 Effect of post-deposition annealing pressure on bipolar resistive switching in RF sputtered BiFeO3/Nb:SrTiO3 heterostructure**
Nov.1 Ying Yang¹, Hui Zhu¹, Xiao Meng¹, Lei Jin¹, Chen Wang¹, Si Wang¹, Shiwei Feng¹, Chunsheng Guo¹, Yamin Zhang¹
¹Beijing University of Technology, China
- 17:45 P1-72 Study on High-Resistance State Instability of TaOx-Based RRAM**
Nov.1 Lindong Wu¹, Zongwei Wang¹, Yichen Fang¹, Zhizhen Yu¹, Jian Kang¹, Qingyu Chen¹, Yuchao Yang¹, Zhigang Ji², Yimao Cai¹, Ru Huang¹
¹Peking University, China; ²Liverpool John Moores University, UK.
- 17:45 P1-73 Bipolar resistive switching characteristics of Sm2O3 solid electrolyte thin film for nonvolatile memory applications**
Nov.1 Hongbin Zhao, Hailing Tu, Qingzhu Zhang, Yanyan Fan, Feng Wei
General Research Institute for Nonferrous Metals, China.
- 17:45 P1-74 Transient Thermal Behavior of Third-Generation SiGe HBTs with Shallow Trench Isolation**
Nov.1 Rui Chen, Dong-Yue Jin, Wan-Rong Zhang, Li-Fan Wang, Bin Guo, Hu Chen, Ling-Han Yin
Beijing University of Technology, China
- 17:45 P1-75 Ar RIE to improve the source/drain contact in GaN HEMT**

Nov.1		KM. Zhu, JN. Deng, XY. Cao, J. Wan Fudan University, China
17:45	P1-76	Dual-metal-gate AlGaIn/GaN HEMTs for Power Application
Nov.1		Limeng Shi ¹ , Meihua Liu ¹ , Ninggang Dong ¹ , Xinnan Lin ¹ Peking University Shenzhen Graduate School, China
17:45	P1-77	A Non-Destructive Method to Obtain Sheet Resistance and Mobility of 2DEG in GaN-Based Heterostructures Using Frequency Dispersion of Capacitance
Nov.1		Wei Lin ^{1,2} , Cheng P. Wen ¹ , Yilong Hao ¹ , Bo Shen ² , and Maojun Wang ¹ ¹ Peking University, China; ² Peking University, China
17:45	P1-78	The Influence of Gate Line Edge Roughness and Thickness of Silicon Film on the Performance of UTBB MOSFETs
Nov.1		Yuqi Ren ¹ , Lei Shen ² , Kunliang Wang ² , Wangyong Chen ² , Liqiao Liu ² , Shizhen Huang ¹ , Gang Du ² , Xiaoyan Liu ² ¹ Fuzhou University, China; ² Peking University, China
17:45	P1-79	Experimental Investigation of the Scalability of RRAM Device with Pt/[HfO_x/AlO_y]/m/TiN Structure
Nov.1		Wensheng Shen, Peng Huang, Yulin Feng, Zheng Zhou, Dongbin Zhu, Lifeng Liu, Jinfeng Kang, and Xing Zhang Peking University, China
17:45	P1-80	HfO₂ self-rectifying selector in RRAM array
Nov.1		Xinlei Zhang, Hao Ji and Ran Jiang Shandong University, China
17:45	P1-81	First observation of Pt₃Si phase at Ni_{0.86}Pt_{0.14} and Si Silicide Reactions
Nov.1		Qingzhu Zhang ^{1,2} , Hailing Tu ¹ , Huaxiang Yin ^{2,5} , Feng Wei ¹ , Hongbin Zhao ¹ , Zhaohao Zhang ² , Jianfeng Gao ² , Qianhui Wei ¹ , Xiao Zhang ¹ , Zhangyu Zhou ² , Yanyan Fan ¹ , Jiang Yan ³ ¹ General Research Institute for Nonferrous Metals, China; ² Chinese Academy of Sciences, China; ³ North China University of Technology, China; ⁵ University of Chinese Academy of Sciences, China.

K3 Keynote Session 3 (Room A)

	Session Chair:	Prof. Hiroshi Iwai, Tokyo Institute of Technology, Japan
8:30	K3-1	Silicon Technology Solutions for 5G millimeter-wave Applications
Nov.2	(Keynote)	Alvin Joseph Essex Junction, USA
9:15	K3-2	The Path to Saving Moore's Law
Nov.2	(Keynote)	Sanjay Natarajan Applied Materials, USA

Coffee Break

S17 Advanced Power Device and Reliability I (Room B)

	Session Chair:	Dr. Nobuyuki Otsuka, Panasonic, Japan
10:15	S17-1	High Mobility 4H-SiC MOSFET
Nov.2	(Invited)	A. O'Neill, F. Arith, J. Urresti, K. Vasilevskiy, N. Wrightand, S. Olsen Newcastle University, UK
10:45	S17-2	Reliability and Stability of Normally-off GaN Power MIS-FETs with LPCVD-SiN_x Gate Dielectric
Nov.2	(Invited)	Mengyuan Hua, Kevin J. Chen The Hong Kong University of Science and Technology, Hong Kong, China
11:15	S17-3	Junction Temperature measurement of SiC BJT via the voltage drop of V_{BC}
Nov.2		Bang-Bing Shi, Shi-Wei Feng, Quan-Bo He, Ya-Min Zhang, and Kun Bai Beijing University of Technology, China

11:30	S17-5	A High Breakdown Voltage Superjunction MOSFET By Utilizing Double Trench Filling
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		Epitaxy Growth
Nov.2		¹ Dajie Zeng, ¹ Wei Zhang, ² Shengan Xiao
		¹ Fudan University, China; ² Sanrise Technology, China
11:45	S17-6	An improved dynamic characteristics 600V PiN diode with recessed anode and double-side Schottky contact for fast reverse recovery
Nov.2		Shaohong Li ¹ , Long Zhang ¹ , Jing Zhu ¹ , Qingxi Tang ¹ , Ling Sun ¹ , Hao Wang ¹ , Xin Tong ¹ and Weifeng Sun ¹
		¹ National ASIC System Engineering Research Center, China

S18 MEMS Technology (Room D)

		Session Chair: Prof. Liu Liyuan, Institute of Semiconductors, CAS, China
10:15	S18-1	Electrochemically Synthesized Nanocomposites for MEMS Device Performance Enhancement
Nov.2	(Invited)	C. C. Chen ¹ , Y. T.Cheng ²
		¹ National Central University, Taiwan, China; ² National Chiao Tung University, Taiwan, China.
10:45	S18-2	Self Powered Smart Sensing System
Nov.2	(Invited)	Haixia Zhang
		Peking University, China
11:15	S18-3	HIGH-PRESSURE HIGH-TEMPERATURE BULK-TYPE PIEZORESISTIVE PRESSURE SENSOR
Nov.2	(Invited)	Elena Chan ¹ , Dequan Lin ^{1, 2, 3} , Zili Tang ¹ , Lei Lu ^{1, 4} , Kevin Chau ^{1, 2} , Man Wong ¹
		¹ The Hong Kong University of Science and Technology, Hong Kong, China; ² Chinese Academy of Sciences, China; ³ The University of Chinese Academy of Sciences, China; ⁴ The HKUST Jockey Club Institute for Advanced Study, Hong Kong, China
11:45	S18-4	Micropore-array Confining Assisted Young's Modulus Measurement of Suspended Cells Using Atomic Force Microscopy
Nov.2		Xinyue Deng ^{1, 2} , Yaoping Liu ¹ , Congying Wu ² and Wei Wang ^{1, 3}
		¹ Peking University, China; ² Peking University Health Science Center, China; ³ Peking University, China.
12:00	S18-5	Glass-on-Silicon Interposer with High Heat Dissipation Capacity and Excellent RF Compatibility
Nov.2		Longguang Zhu ^{1, 2} , Yudan Pi ² , Wei Wang ^{2, 3} , and Yufeng Jin ^{1, 2, 3}
		¹ Peking University Shenzhen Graduate School, China; ² Peking University, China; ³ Peking University, China.

S19 2D Device & Technology I (Room E)

		Session Chair: Prof. Jason Woo, UCLA, US
10:15	S19-1	Nanoscale Devices Based on Two-dimensional Materials and Ferroelectric Materials
Nov.2	(Invited)	Zihan Yao, Hojoon Ryu, Kai Xu, Jialun Liu, Yuhang Cai, Yueming Yan, Wenjuan Zhu
		University of Illinois at Urbana-Champaign, USA
10:45	S19-2	High Performance WSe₂ Transistors with Multilayer Graphene Source/Drain
Nov.2	(Invited)	Chenhsin Lien [§] , Hao-Ling Tang ^{†§} , Ming-Hui Chiu [†] , Kuan-Jih Hou [§] , Shih-Hsien Yang ^{§‡} , Jhih-Fong Su [§] , Yen-Fu Lin [‡] , Lain-Jong Li [¶]
		[§] National Tsing Hua University, Taiwan; [†] King Abdullah University of Science & Technology (KAUST), Saudi Arabia; [‡] National Chung Hsing University, Taiwan, China; [¶] Taiwan Semiconductor Manufacturing Company, Taiwan, China
11:15	S19-3	High-performance two-dimensional transistors and circuits
Nov.2	(Invited)	Mengchuan Tian, Xiong Xiong, Mingqiang Huang, Tiaoyang Li, Shengman Li, Qianlan Hu, Xuefei Li, Yanqing Wu
		Huazhong University of Science and Technology, China
11:45	S19-4	Simulation of 1-Nanometer Gate MoS₂ MOSFETs
Nov.2	(Invited)	Sebastian Thiele, Frank Schwierz
		Technische Universität Ilmenau, Germany

S20 Device/Process Simulation & Modeling III (Room F)

		Session Chair: Dr. James Ma, ProPlus Design Solutions Inc, US
10:15	S20-1	TCAD Based Design Technology Co-Optimisation in Advanced CMOS Technology
Nov.2	(Invited)	Asen Asenov

		The University of Glasgow and Synopsys, UK
10:45	S20-2	Robustness Analysis of Quantum State Transfer through Spin-Chain in Diamond for Room-Temperature Quantum Computing
Nov.2	(Invited)	Zhiping Yu, *Jiaqi Jiang, Yan Wang Tsinghua University, China; *Stanford University, USA
11:15	S20-3	Circuit Level ESD Simulation with SPICE: Successes and Challenges
Nov.2	(Invited)	Yuanzhong (Paul) Zhou, Jean-Jacques Hajjar, Srivats Parthasarathy Analog Devices Inc., USA
11:45	S20-4	SVM Based Intrusion Detection Using Nonlinear Scaling Scheme
Nov.2	(Invited)	Xiaotang Tang*, Sheldon X.-D. Tan [†] , Hai-Bao Chen* *Shanghai Jiaotong University, China; [†] University of California, CA

S21 Novel Memory & Memory Reliability (Room G)

Session Chair:		Prof. Steve Chung, National Chiao Tung University, Taiwan, China
10:15	S21-1	Chalcogenide-Based Artificial Intelligence Synaptic Device
Nov.2	(Invited)	You Yin, Ryoya Satoh, Keita Sawao Gunma University, Japan
10:45	S21-2	Exploring potentials of NAND-like spintronics MRAM for cache design(Invited)
Nov.2	(Invited)	Bi Wu ¹ , Beibei Zhang ¹ , Yansong Xu ¹ , Zhaohao Wang ^{1,2,3} , Dijun Liu ⁴ , Youguang Zhang ¹ and Weisheng Zhao ^{1,2,3} ¹ Beihang University, China; ² Beihang University, China; ³ Beihang University, China ⁴ China Academy of Information and Communications Technology (CAICT), China
11:15	S21-3	Correlation between the Decoupling Capacitor Layouts and Single-Event-Upset Resistances of SRAM cells
Nov.2		Zhong-Shan Zheng ^{1,2} , Zhen-Tao Li ¹ , Kai Zhao ¹ , Bo Li ^{1,2} , Jia-Jun Luo ^{1,2} , Zheng-Sheng Han ^{1,2} ¹ Chinese Academy of Sciences, China; ² Chinese Academy of Sciences, China
11:30	S21-4	SRAM Single Event Effect Simulation Method Based on Random Injection Mechanism
Nov.2		Zhi-Bing Li, Yi Liu, Chang-Qing Xu, Lu-Tao Song, Han-Peng Wu Xidian University, China
11:45	S21-5	The total ionizing dose effects on non-volatile memory cells based on silicon-oxide-nitride-oxide-silicon (SONOS) and floating gate (FG) technologies
Nov.2		Mei Li ^{1,2} , Jinshun Bi ¹ , Yannan Xu ^{1,2} , Lanlong Ji ¹ and Ming Liu ¹ ¹ Chinese Academy of Sciences, China; ² University of Chinese Academy of Science, China
12:00	S21-6	Efficient Implementations of Multiple Bit Burst Error Correction for Memories
Nov.2		Jia-Qiang Li ¹ , Li-Yi Xiao ¹ , Jing Guo ² , Xue-Bing Cao ¹ ¹ Harbin Institute of Technology, China; ² North University of China, China

S22 IOT (Circuits & System) (Room H)

Session Chair:		Dr. He Tang, University of Electronic Science and Technology of China, China
10:15	S22-1	Circuit Design Challenges and Considerations for Portable Medical Instrument System Applications
Nov.2	(Invited)	Song Ma, Yuhua Cheng Peking University, China
10:45	S22-2	A Low-power Reliability Enhanced Arbiter Physical Unclonable Function Based on Current Starved Multiplexers
Nov.2	(Invited)	Si Wang ¹ , Yuan Cao ^{2,3} , Chip-Hong Chang ¹ ¹ Nanyang Technological University, Singapore; ² Hohai University, China; ³ Southeast University, China
11:15	S22-3	A reconfigurable accelerator based on fast Winograd algorithm for convolutional neural network in Internet of Things
Nov.2		Chen Yang, YiZhou Wang, XiaoLi Wang, Li Geng Xi'an Jiaotong University, China
11:30	S22-4	Implementation of SM4 Algorithm based on Asynchronous Dual-Rail Low-power Design
Nov.2		Youqi Li, Xingjun Wu, Guoqiang Bai Tsinghua University, China
11:45	S22-5	2.4-GHz Pre-bias RF Energy Harvesting Rectifier with -35-dBm Sensitivity for Self-powered Chips
Nov.2		Enbin Gong, Mingxiao He, Hao Zhang, Yongan Zheng, Luyao Zhang, Xiucheng Hao, Le Ye, Huailin Liao and Ru Huang

Peking University, China

- 12:00 S22-6 110 pA, 170 ppm/V, -77 dB@100Hz voltage reference for IoT systems**
Nov.2
Huachao Xu¹, Yao Chen^{2,3}, Jinlong Hu⁴, Hongyan Cai¹, Tao Du¹, Ke Liang¹, Guofeng Li¹
¹Nankai University, China; ²Guangdong University of Technology, China; ³Advanced Digital Sciences Center, Singapore; ⁴Tianjin University of Technology, China

S23 RF Circuits and Systems III (Room I)

Session Chair: Prof. Ruonan Han, Massachusetts Institute of Technology, US

- 10:15 S23-1 A 0.5-V 400-MHz Transceiver Using Injection-Locked Techniques in 180-nm**
Nov.2 **(Invited)** Chong-Rong Lee, Tse-Wei Wang, Yi-Lin Tsai, Tsung-Hsien Lin
National Taiwan University, Taiwan, China
- 10:45 S23-2 A 13.5mW 4Gb/s Filter-less UWB Transmitter for High Data Rate Mobile Applications**
Nov.2 Yuguang Liu¹, Haixin Song¹, Woogeun Rhee¹, and Zhihua Wang¹
¹Tsinghua University, China
- 11:00 S23-3 A 76-81GHz Millimeter-Wave Quadrature Transmitter for Automotive Radar System**
Nov.2 Runxi Zhang¹, Jinghong Chen², Chunqi Shi¹, and Shengyu Rao¹
¹East China Normal University, China; ²University of Houston, USA
- 11:15 S23-4 An All-Digital Reconfigurable RF Transmitter for Walkie-Talkie Applications based on 1-bit/3-bit Sigma-Delta Modulation**
Nov.2 Feiyi Li, Weixing Liu, Pan Xue, Zhiliang Hong
Fudan University, China
- 11:30 S23-5 A Low-Noise 56Gbps PAM-4 Linear Optical Receiver in 40nm CMOS**
Nov.2 Ting-Yu Yao¹, Dan Li², Yang Xie², Patrick Yin Chiang¹, Zhi-Liang Hong¹
¹Fudan University, China; ²Xi'an Jiaotong University, China
- 11:45 S23-6 A 10Gbps QPSK Carrier Recovery Circuit for 60GHz Millimeter-wave Receiver in 65nm CMOS**
Nov.2 Jialiang Ye, Wankai Zheng, Zhiyuan Chen, Yibo Liu, Wei Wang and Baoyong Chi
Tsinghua University, China

S24 Analog Circuits I (Room J)

Session Chair: Prof. Haruo Kobayashi, Gunma University, Japan

- 10:15 S24-1 A 5th-Order Butterworth Active-RC Complex Band-pass Filter with New Passive Compensation**
Nov.2 Ya-Ping Li, Yong Wang
Shandong University, China
- 10:30 S24-2 A Low-power Third-Order Butterworth Filter for NB-IoT Application**
Nov.2 Cheng Kang, Sizheng Chen, Na Yan, Yunyong Yu, Hao Min
Fudan University, China
- 10:45 S24-3 Design of a low electrode offset and high CMRR instrumentation amplifier for ECG acquisition systems**
Nov.2 Ji-Wei Huang, Tai-Ming Huang, Fan-Yang Li
Fuzhou University, China
- 11:00 S24-4 Silicon Verification of Improved Nagata Current Mirrors**
Nov.2 Mayu Hirano¹, Nene Kushita¹, Yoichi Moroshima², Hiromichi Harakawa², Takeshi Oikawa², Nobukazu Tsukiji¹, Takashi Ida¹, Yukiko Shibasaki¹, Haruo Kobayashi¹
¹Gunma University, Japan; ²ASO Corp., Japan
- 11:15 S24-5 Design of A Silicon Waveguide Admittance Detecting Circuit Using Quadratic Cross-Correlation Method**
Nov.2 Wen-Hui Li¹, Shi-Qi Li¹, Wei-Wei Chen¹, Peng-Jun Wang^{1,2}
¹Ningbo University, China; ²Wenzhou University, China
- 11:30 S24-6 On-chip Adaptive Voltage Scaling Based on Flexible Critical Path Emulation Enabled by Buck Converter**
Nov.2 Ping Luo, Jinyuan Meng, Xinyi Zheng, Xiang Zhang
University of Electronic Science and Technology of China, China

S25 Advanced Power Device and Reliability II (Room B)

Session Chair: Dr. Hao Jifa, ON Semiconductor, US

13:30	S25-1	Recent Progress in GaN Device Technology
Nov.2	(Invited)	Nobuyuki Otsuka, Yuji Kudoh, Hiroaki Ueno, Asamira Suzuki Automotive & Industrial Systems Company, Panasonic, Japan
14:00	S25-2	Evaluations of GaN-on-Si devices for Power Electronics Applications
Nov.2	(Invited)	Huiqing Wen, Wen Liu, Cezhou Zhao Xi'an Jiaotong-Liverpool University, China
14:30	S25-3	Failure Mechanism Investigations of Type II Short-Circuit in Trench Gate IGBT Device
Nov.2		Xin Tong ¹ , Zhiyuan Xu ¹ , Siyang Liu ¹ , Wangran Wu ¹ , Weifeng Sun ¹ , Zhuo Yang ² , Shaohong Li ¹ ¹ Southeast University, China; ² WUXI NCE Power CO., LTD China
14:45	S25-4	Comparative Study on the Total Ionizing Dose Effects of the Superjunction and the Conventional Power MOSFETs
Nov.2		Min Ren ¹ , Wen-Jing He ¹ , Wei Gao ¹ , Shao-Feng Cai ² , Ze-Hong Li ¹ , Jin-Ping Zhang ¹ , Bo Zhang ¹ ¹ University of Electronic Science and Technology of China, China; ² Sichuan LIPTAI Electronic Co., LTD, China
15:00	S25-5	A Study on the Voltage-Clamping caused by Dynamic Avalanche at Over-stress Turn-Off of GCTs
Nov.2		Wu-Hua Yang ¹ , Cai-Lin Wang ² ^{1,2} Xi'an University of Technology, China
15:15	S25-6	Wide SOA and High Reliability 60-100 V LDMOS Transistors with Low Switching Loss and Low Specific On-Resistance
Nov.2		Jun-ichi Matsuda, Anna Kuwana, Jun-ya Kojima, Nobukazu Tsukiji, and Haruo Kobayashi Gunma University, Japan

S26 Sensor I (Room D)

Session Chair: Prof. Shideh Kabiri Ameri, Queens University, Canada

13:30	S26-1	AlGaIn/GaN HEMT micro-sensor technology for gas sensing applications
Nov.2	(Invited)	Robert Sokolovskij ^{1,3} , Jian Zhang ² , Yang Jiang ^{3,4} , Ganhui Chen ^{3,4} , Guo Qi Zhang ¹ , Hongyu Yu ^{3,4} ¹ Delft University of Technology, Netherlands; ² Fudan University, China; ³ Southern University of Science and Technology, China; ⁴ Shenzhen Key Laboratory of the Third Generation Semi-conductor, China
14:00	S26-2	Design, Implementation and Characteristic of CMOS Terahertz Detectors: an overview
Nov.2	(Invited)	Li-yuan Liu ^{1,2} , Tong Fang ^{1,2} , Jian Liu ^{1,2} , Nan-jian Wu ^{1,2} ¹ Chinese Academy of Sciences, China; ² The University of Chinese Academy of Sciences, China
14:30	S26-3	Optimization of novel Interdigitated Electrode Structure for Capacitive Humidity Sensing
Nov.2		Hong Liu, Jia Zhou Fudan University, China
14:45	S26-4	A LOW-POWER HIGH-RESOLUTION ALL-DIGITAL ON-CHIP JITTER SENSOR FOR A 1-3 GHZ CLOCK GENERATOR
Nov.2		Pei-Yuan Chou ¹ , Wei-Ling Lin ¹ , Chiang Hu Cheng ¹ , Tay-Jyi Lin ² , Jyh-Herng Wang ³ and Jinn-Shyan Wang ¹ ¹ National Chung Cheng University, Taiwan, China; ² National Chung Cheng University, Taiwan, China; ³ Faraday Technology Corporation, Taiwan, China
15:00	S26-5	Detection of Abrin Using a Polyimide-based Piezoresistive Microcantilever Biosensor
Nov.2		Yang Wang#, Yuan Tian#, Xiaomei Yu Peking University, China.
15:15	S26-6	Real-time Marker Recognition Using Vision-based Tactile Sensor
Nov.2		Chuan-Bo Hu ¹ , Chun Zhang ² , Xiang Xie ² , Jian-Ye He ¹ , Wen-Ao Xie ¹ ¹ Tsinghua University, China; ² Tsinghua University, China

S27 2D Device & Technology II (Room E)

Session Chair: Prof. Wenjuan Zhu, University of Illinois at Urbana-Champaign, US

13:30	S27-1	Electrical Properties of Compound 2D Semiconductor $\text{Mo}_{1-x}\text{Nb}_x\text{S}_2$
Nov.2	(Invited)	Peng Lu ¹ , Yen Teng Ho ² , Yung-Ching Chu ² , Ming Zhang ¹ , Po-Yen Chien ¹ , Tien-Tung Luong ² , Edward Yi Chang ² , Jason C.S. Woo ¹ ¹ University of California, USA; ² National Chiao Tung University, Taiwan, China
14:00	S27-2	Engineering of Graphene-to-Semiconductor Contacts
Nov.2	(Invited)	Xintong Zhang ¹ , Lining Zhang ² , Mansun Chan ¹ ¹ The Hong Kong University of Science and Technology, Hong Kong, China; ² Shenzhen University,

14:30	S27-3	China
Nov.2	(Invited)	High-Performance MoS₂ Field Effect Transistors Lei Liao, Xuming Zou, Jingli Wang Hunan University, China
15:00	S27-4	Degradation Mechanisms for CdSe Quantum dot down converted LEDs
Nov.2	(Invited)	Preetpal Singh ¹ , Cher Ming Tan ^{1, 2, 3, 4} , Hao-Chung Kuo ⁵ ¹ Chang Gung University, Taiwan, China; ² Chang Gung University, Taiwan, China; ³ Chang Gung Memorial Hospital, Taiwan, China; ⁴ Ming Chi University of Technology, Taiwan, China; ⁵ National Chiao Tung University, Taiwan, China

S28 AI (Process & Device) I (Room F)

Session Chair:		Prof. Runsheng Wang, Peking University, China
13:30	S28-1	3D AND-type NVM for In-Memory Computing of Artificial Intelligence
Nov.2	(Invited)	Hang-Ting Lue, Keh-Chung Wang, Chih-Yuan Lu Macronix International Co., Taiwan, China
14:00	S28-2	Nonvolatile memristor as a new platform for non-von Neumann computing
Nov.2	(Invited)	Liyang Xu, Lin Bao, Teng Zhang, Ke Yang, Yimao Cai, Yuchao Yang, Ru Huang Peking University, China.
14:30	S28-3	Semi-Supervised Classification of Wafer Map Based on Ladder Network
Nov.2	(Invited)	YutingKong ¹ , DongNi ¹ ¹ Zhejiang University, China
15:00	S28-4	Investigation on Stochastic Computing Neuron Circuit Based on FinFET Technology
Nov.2		Yawen Zhang, Zhenghan Lin, Runsheng Wang*, Jiahao Song, Xinyue Zhang, Yuan Wang, Ru Huang Peking University, China
15:15	S28-5	Impacts of Key Parameters on the Performance of NOR Flash Computing Array based Convolution
Nov.2		Yachen Xiang ¹ , Peng Huang ^{1,2} , Runze Han ¹ , Zheng Zhou ¹ , Xiaoyan Liu ^{1,2} , Jinfeng Kang ^{1,2} , Hong Hu ³ , Lu Liu ³ , Zhiqiang Su ³ , and Qingming Shu ³ ¹ Peking University, China; ² National Key Laboratory of Science and Technology on Micro/Nano Fabrication, China; ³ GigaDevice Semiconductor Inc, China.

S29 Back-End Technology & Reliability (Room G)

Session Chair:		Prof. Jian Fu Zhang, Liverpool John Moores University, UK
13:30	S29-1	Investigations of using NMOS parasitic bipolar transistor for ESD protection circuits
Nov.2	(Invited)	Teruo Suzuki Socionext Inc., Japan
14:00	S29-2	Modeling Mutual Coupling Capacitance Effects of Package RDL to Chip on Radio Frequency ICs
Nov.2	(Invited)	Jiansheng Xu, Xingang Wang Skyworks Solutions, Inc., CA
14:30	S29-3	Voidless metal filling and elimination of metal diffusion in PVD barrier and seed process for high performance Cu interconnect
Nov.2		Zheng-Jun Hu ^{1,2} , Xin-Ping Qu ¹ , Hong Lin ² , Qing-Yun Zuo ² , Jun-Wei Wang ² , Ming Li ² , Shou-Mian Chen ² , Yu-Hang Zhao ² ¹ Fudan University, China; ² Shanghai IC R&D Center, China.
14:45	S29-4	Temperature Dependence of Diode and ggNMOS ESD Protection Structures in 28nm CMOS
Nov.2		Cheng Li ¹ , Feilong Zhang ¹ , Chenkun Wang ¹ , ChenQi ¹ , Fei Lu ¹ , Han Wang ¹ , Mengfu Di ¹ , Yuhua Cheng ² , Haijun Zhao ³ and Albert Wang ¹ ¹ University of California, USA; ² Peking University, China; ³ SMIC.
15:00	S29-5	Chip-Level CDM Circuit Modeling and Simulation for ESD Protection Design in 28nm CMOS
Nov.2		Han Wang, Feilong Zhang, Cheng Li, Mengfu Di and Albert Wang University of California, USA.
15:15	S29-6	Design of Power Clamp Circuit with Diode String and Feedback Enhanced Triggering in advanced SOI BCD Process
Nov.2		Hongju Tang ^{1,2,3} , Xiaowu Cai ^{1,2} , Xinghui Liu ³ , Hainan Liu ^{1,2} , Jiajun Luo ^{1,2} , Haitao ZHAO ^{1,2} , Rui Peng ^{1,2} , Dongsheng Xu ^{1,2}

S30 Data Convertors I (Room H)

Session Chair: Mr. Samuel Lee, SUTD, Singapore

- 13:30 S30-1** **A New Capacitor Mismatch Calibration Technique for SAR ADCs**
 Nov.2 **(Invited)** Xizhu Peng¹, Tujian Fu¹, Qingqing Bao¹, Chuanwei Peng¹, Haoyu Zhuang¹, He Tang¹
¹University of Electronic Science and Technology of China, China
- 14:00 S30-2** **An 11-bit 350MS/s 2b/cycle-Assisted SAR ADC with Improved Comparator Clock Generator**
 Nov.2 Shuai Li, Yong-Zhen Chen, Fan Ye, Jun-Yan Ren
 Fudan University, CHINA
- 14:15 S30-3** **A 10-bit 16-MS/s Ultra-low Power SAR ADC for IoT Applications**
 Nov.2 Na Yan, Cheng Kang, Geng Mu, Sizheng Chen, Maodong Wang, Hao Min
 Fudan University, China
- 14:30 S30-4** **Analog sub-circuits for 10 bit, 2.5Msps ADC IP core**
 Nov.2 Byambajav Ragchaa¹, Liji Wu¹, Xiangmin Zhang², Honghao Chu³
²Tsinghua University, China
- 14:45 S30-5** **An ADC Input Buffer with Optimized Linearity**
 Nov.2 Zekai Wu, Chengwei Wang, Yang Ding, Fule Li, Zhihua Wang
 Tsinghua University, China
- 15:00 S30-6** **A histogram based calibration algorithm for MDAC linear and nonlinear errors in pipeline ADCs**
 Nov.2 Yue-Hong Gong¹, Min Luo², Hao-Yu Wang², Shao-Jun Zhang¹, Xiong-Fei Meng¹
¹Shandong Jiaotong University, China; ²Harbin Institute of Technology in Weihai, China.
- 15:15 S30-7** **A Digital Blind Adaptive Calibration Technique based on Timing Mismatch of Adjacent Channels in TIADC**
 Nov.2 Sujuan Liu, Zhiyue Deng, Ze Li, Yuezhong Zhou
 Beijing University of Technology, China

S31 RF Circuits and Systems IV (Room I)

Session Chair: Prof. Minoru Fujishima, Hiroshima University, Japan

- 13:30 S31-1** **Millimeter-Wave FMCW Signal Generators for Radar Applications**
 Nov.2 **(Invited)** Jianxi Wu, Jianfu Lin, Haikun Jia, Baoyong Chi
 Tsinghua University, China
- 14:00 S31-2** **Harmonic Suppression Technique of Magnetic Field Coupling Type Wireless Power Transmission System Using ATAC Circuit**
 Nov.2 Tomonori Yanagida¹, Kosuke Machida², Koji Asami¹, Yuki Endo¹, Haruo Kobayashi²
¹Advantest Corporation, Japan; ²Gunma University, Japan
- 14:15 S31-3** **A Digitally-Controlled Variable Gain Amplifier with 0.5-dB Step and Constant-Bandwidth for Passive MM-wave Imaging Receiver**
 Nov.2 Long He, Lianming Li, Xu Wu and Zhigong Wang
 Southeast University, China
- 14:30 S31-4** **Non-Linearity Analysis for Digital Class-D RF Power Amplifier**
 Nov.2 Wei Luo, Yun Yin, Hongtao Xu
 Fudan University, China
- 14:45 S31-5** **Hybrid Class-G Doherty Digital Power Amplifier with Deep Back-off Efficiency Enhancement**
 Nov.2 Liang Xiong, Tong Li, Yun Yin, Hongtao Xu
 Fudan University, China
- 15:00 S31-6** **Modeling of On-Chip Vertically Coiled Solenoid Inductors for Silicon RF IC**
 Nov.2 Xiangliang Jin^{1,2}, Xiao Xiao^{1,2}, Yongfeng Sun^{1,2}
¹Xiangtan University, China; ²Hunan Engineering Laboratory for Microelectronics, China

S32 Analog Circuits II (Room J)

Session Chair: Prof. Dongsheng Brian Ma, UNIVERSITY OF TEXAS AT DALLAS, US

- 13:30 S32-1** **Unified Methodology of Analog/Mixed-Signal IC Design Based on Number Theory**

Nov.2	(Invited)	Haruo Kobayashi, Yuto Sasaki, Hirotaka Arai, Dan Yao, Yujie Zhao, Xueyan Bai, Anna Kuwana Gunma University, Japan
14:00	S32-2	A 10 MHz Current Mode Buck DC-DC Converter With a Novel On-Chip Current Sensing Method
Nov.2		Yanzhao Ma ^{1,2} , Zhengjie Ye ^{1,2} , Kai Cui ^{1,2} , Song Fang ^{1,2} , and Xiaoya Fan ^{1,2} ¹ Research & Development Institute of Northwestern Polytechnical University in Shenzhen, China; ² Northwestern Polytechnical University, China
14:15	S32-3	A 88.3%-91.2% Efficient Buck DC-DC Converter in 0.5um CMOS
Nov.2		Jialiang Ye, Zhiyuan Chen, Yibo Liu and Baoyong Chi Tsinghua University, China
14:30	S32-4	An Asynchronous Start Mode Suitable for DC-DC Converters in Parallel
Nov.2		Zekun Zhou ¹ , Xiaolin Liu ¹ , Xiang Li ¹ , Wang Shi ¹ , Yue Shi ² , Zhuo Wang ¹ , Bo Zhang ¹ ¹ University of Electronic Science and Technology of China, China; ² Chengdu University of Information Technology, China
14:45	S32-5	EMI Reduction and Output Ripple Improvement of Switching DC-DC Converters with Linear Swept Frequency Modulation
Nov.2		Minh Tri Tran, Natsuko Miki, Yifei Sun, Yasunori Kobori and Haruo Kobayashi Gunma University, Japan
15:00	S32-6	EMI Noise Reduction for PFC Converter with Improved Efficiency and High Frequency Clock
Nov.2		Noriyuki Oiwa, Shotaro Sakurai, Yifei Sun, Minh Tri Tran, Jing Li, Yasunori Kobori and Haruo Kobayashi Gunma University, Japan
15:15	S32-7	DAC-Controlled Soft-Start Circuit for AC/DC Converters
Nov.2		Min Qi ^{1,2} , Quan Sun ³ , Dong-hai Qiao ² , An-qiang Guo ^{1,2} ¹ University of Chinese Academy of Sciences, China; ² Institute of Acoustics, Chinese Academy of Sciences, China; ³ Southern Methodist University, USA

Coffee Break

S33 Advanced Power Device and Reliability III (Room B)

Session Chair:		Prof. Cezhou Zhao, Xi'an Jiaotong-Liverpool University, China
15:45	S33-1	Drift region engineering to reduce hot carrier effects on high voltage MOSFETs
Nov.2	(Invited)	J. Hao ¹ , D. Hahn ¹ , A. Ghosh ¹ , M. Rinehimer ² , J. Yedinak ² , B. McGowan ¹ , C. Choi ¹ , T. Kopley ³ ¹ ON Semiconductor, USA; ² ON Semiconductor, USA; ³ ON Semiconductor, USA
16:15	S33-2	Design Trends in Smart Gate Driver ICs for Power GaN HEMTs
Nov.2	(Invited)	Wai Tung Ng, Jingshu Yu, Mengqi Wang, Rophina Li, Weijia Zhang University of Toronto, Canada
16:45	S33-3	600V Integrable Dual-Trench LDMOS with Ultralow Specific On-Resistance and Enhanced Switching Performance
Nov.2		Guo-Liang Yao ¹ , Xiao-Rong Luo ² , Shao-Hua Zhang ¹ , Mei-Fei Wu ¹ , Jian-Xing Wu ¹ ¹ Hangzhou silan Micro-electronics Co., Ltd, China; ² University of Electronic Science and Technology of China, China
17:00	S33-4	Analysis of SenseFET Performance Degradation under Electric Stress
Nov.2		Yang Yang, Ze-Hong Li, Peng-Fei Jia, Xin Peng, Min Ren, Jin-Ping Zhang, Wei Gao, Bo Zhang University of Electronic Science and Technology of China, China
17:15	S33-5	Design and Optimization of Four-Region Multistep Field Limiting Rings for 10kV 4H-SiC IGBTs
Nov.2		Ben Tan ^{1,2} , Xiao-Li Tian ¹ , Jiang Lu ¹ , Yun Bai ¹ , Xiao-Chuan Deng ² , Cheng-Zhan Li ³ and Xin-Yu Liu ¹ ¹ Institute of Microelectronics of Chinese Academy of Sciences, China; ² University of Electronic Science and Technology of China, China; ³ ZhuZhou CRRC Times Electric Co., Ltd, China.
17:30	S33-6	Research on IGBT Module Failure Caused by Thermal Stress Damage
Nov.2		Meng Guo, Xiao-Ling Zhang, Xue-Song Xie, Yu-Qian Huo, Shuai-Bing Qi, and Dong-Dong Hu Beijing University of Technology, China

S34 Sensor II (Room D)

Session Chair:		Prof. HongYu Yu, Southern University of Science and Technology, China
15:45	S34-2	Imperceptible Graphene Electronic Tattoos for Health Monitoring and Human Machine

Nov.2	(Invited)	Interface Shideh Kabiri Ameri ^{1,2} ¹ Queen's University, Canada; ² The University of Texas at Austin, USA
16:15	S34-3	A high-density flexible tactile sensor array for fingertip sensing Nov.2 Qi ZHANG ^{1,2} , Xu ZHANG ¹ , XiaoHui HU ^{1,2} , Ming LIU ¹ , Lin LU ¹ , HongDa CHEN ¹ ¹ Chinese Academy of Sciences, China; ² University of Chinese Academy of Sciences, China
16:30	S34-4	Selection of the Band-Pass Range of the Normalizing Signal Transducer of the Sensing Element in the Instrumentation and Control Systems Nov.2 Leontiy K. Samoylov ¹ , Nikolay N. Prokopenko ^{2,3} , Anna V. Bugakova ² ¹ Southern Federal University, Russia; ² Don State Technical University, Russia; ³ Institute for Design Problems in Microelectronics of Russian Academy of Sciences, Russia
16:45	S34-5	Analysis of Open-Cell planar conductivity and temperature sensors based on PCB Nov.2 Bojie Zhang ^{1,2} , Zhenchuan Yang ¹ , ¹ National Key Laboratory of Science and Technology on Micro/Nano Fabrication; ² Peking University, CHINA

S35 Compound semiconductor device and Technology (Room E)

Session Chair:		Prof. Anthony ONeill, Newcastle University, UK
15:45	S35-1	Semiconductor Technologies for next Generation Mobile Communications Nov.2 (Invited) N.Collaert, A.Alian, S.-H.Chen, V.Deshpande, M.Ingels, V.Putcha ¹ , A.Sibaja-Hernandez, B.van Liempd, A.Vais, A. Vandooren, A.Walke, L.Witters, H.Yu ¹ , D.Linten, B.Parvais ² , P.Wambacq ² , N.Waldron Imec, Belgium; ¹ KU Leuven, Leuven, Belgium; ² Vrije Universiteit Brussel, Belgium
16:15	S35-2	Monolithic III-V/CMOS Co-integrated Technology, Scalable Compact Modeling, and Hybrid Circuit Design Nov.2 (Invited) Xing Zhou, Siau Ben Chiah Nanyang Technological University, Singapore
16:45	S35-3	Integration of III-V Compounds on Silicon by Hetero-epitaxy Nov.2 (Invited) Kei May Lau Hong Kong University of Science and Technology, Hong Kong, China
17:15	S35-4	Optimization of Ohmic Resistance and Its Application to Improve the Performance of β-Ga₂O₃ nano-membrane MOSFETs Nov.2 Zhaoqing Feng ¹ , Qian Feng ¹ , Hong Zhou ¹ , Zhuangzhuang Hu ¹ , Wenwu Xiao ¹ , Dan Zhang ² , Feng Huang ² , Jincheng Zhang ¹ , and Yue Hao ¹ , ¹ Xidian University, China.; ² Sun Yat-sen University, China
17:30	S35-5	Design, Fabrication and Characterization of Ultra-High Voltage 4H-SiC MOSFET Transistors Nov.2 Xiao-Chuan Deng ^{1,2} , Ben Tan ^{1,2} , Jun-Tao Li ³ , Xuan Li ^{1,2} , Bo Zhang ¹ ¹ University of Electronic Science and Technology of China, China; ² University of Electronic Science and Technology of China, China; ³ China Academy of Engineering Physics, China.

S36 AI (Process & Device) II (Room F)

Session Chair:		Prof. Dong Ni, Zhejiang University, China
15:45	S36-1	Stochastic Computing for Sub-0.2V Applications --Technology Evaluation and Design Optimization Nov.2 (Invited) Runsheng Wang Peking University, China
16:15	S36-2	Multi-port SRAM with Multi-bank for Self-organizing Maps Neural Network(Invited paper) Nov.2 (Invited) Fengwei An Panasonic Semiconductor Solutions Co., Ltd
16:45	S36-3	Memristive devices by ALD: design aspects for high density 3D arrays for memory and neuromorphic applications Nov.2 (Invited) Boris Hudec, Che-Chia Chang, and Tuo-Hung Hou National Chiao-Tung University, Taiwan, China
17:15	S36-4	CNN Oriented Fast CU Partition Decision and PU Mode Decision for HEVC Intra Coding Nov.2 Ke CHEN ¹ , Xiaoyang ZENG ¹ , Yibo FAN ¹

17:30	S36-5	Fudan University, China
Nov.2		Design and simulation of a novel multi-floating-gate synaptic nanowire transistor for neuromorphic computing Xiaokang Li, Yuancheng Yang, Gong Chen, Shuang Sun, Qifeng Cai, Xiaoqiao Dong, Xiaoyan Xu, Xia An, Ming Li, Ru Huang Peking University, China

S37 IOT (Process & Device) (Room G)

	Session Chair:	Prof. Weisheng ZHAO, Beihang University, China
15:45	S37-1	Improving Data Retention Voltage in SRAM by Post-Fabrication Multiple Stress Application
Nov.2	(Invited)	Toshiro Hiramoto, Tomoko Mizutani, Kiyoshi Takeuchi, Takuya Saraya, Masaharu Kobayashi University of Tokyo, Japan
16:15	S37-2	Fast Development of IC Technologies in AI and IoT Era
Nov.2	(Invited)	Min-hwa Chi, Deyuan Xiao, Richard Chang SiEn Integrated Circuits Co., China
16:45	S37-3	40nm Ultra-Low Leakage (40ULL) SRAM - Challenges and Solutions
Nov.2		Beiping Liu, Sriram Balasubramanian, Hari Balan, Zhihong Luo, Wah Peng NEO, Kevin KHUA, Tze Ho CHAN GLOBALFOUNDRIES Singapore Pte, Ltd., Singapore

S38 Data Convertors II (Room H)

	Session Chair:	Dr. Akira Matsuzawa, Tech Idea Co., Ltd., Japan
15:45	S38-1	Performance Improvement of Delta-Sigma ADC/DAC/TDC Using Digital Technique
Nov.2	(Invited)	Haruo Kobayashi, Jiang-Lin Wei, Masahiro Murakami, Jun-ya Kojima, Nene Kushita, Yuanyang Du, Jianlong Wang Gunma University, Japan
16:15	S38-2	DWA Algorithm for Band-Pass $\Delta\Sigma$ DAC with Ternary Unit Cells
Nov.2		Jun-ya Kojima, Nene Kushita, Masahiro Murakami, Anna Kuwana, Haruo Kobayashi Gunma University, Japan
16:30	S38-3	Limit Cycle Suppression Technique Using Random Signal In Delta-Sigma DA Modulator
Nov.2		Jiang-Lin Wei, Nene Kushita, Haruo Kobayashi Gunma University, Japan
16:45	S38-4	A 4.7-mW 12-bit 100-MS/s Hybrid DAC
Nov.2		Wei Wang, Runxi Zhang, and Chunqi Shi East China Normal University, China
17:00	S38-5	A Nonlinear ADC for CMOS Image Sensor
Nov.2		Miao Xie, Ningmei Yu, Hejiu Zhang, Nan Lyu Xi'an University of Technology, China.
17:15	S38-6	A 10-bit Dual-Channel Current Steering DAC in 40nm technology
Nov.2		Wen-Tao Zhu, Hua-Lian Tang, Cong Li, and Li Zhang Xidian University, China
17:30	S38-7	Integral-type Time-to-Digital Converter
Nov.2		Yuto Sasaki, Haruo Kobayashi Gunma University, Japan

S39 RF Circuits and Systems V (Room I)

	Session Chair:	Dr. Yuan Cao, Hohai University, China
15:45	S39-1	Wave-Matter Interactions at the Chip Scale: Devices, Systems and Opportunities
Nov.2	(Invited)	Ruonan Han Massachusetts Institute of Technology, MA
16:15	S39-2	High Efficiency AC-Coupling Hybrid Envelope Tracking Supply Modulator for LTE Applications
Nov.2		Hui-Yuan Liu, Xiao-Jun Pan, Hong-Guang Zhang, Peng Xu, Zhi-Liang Hong

		Fudan University, China
16:30	S39-3	A Low-Power, Regulated Cascode, Low Noise Amplifier in 40nm CMOS for Millimeter-Wave Applications
Nov.2		Xia-Meng Lian, Peng-Li Hong, Ting-Ting Mo Shanghai Jiao Tong University, China; Laboratory of Center for Analog and RF Integrated Circuits, China.
16:45	S39-4	A Multi-Standard and Multi-Band Low-Noise Amplifier for 5G/4G-LTE/WiMAX Applications
Nov.2		Zhe-Yang Huang Shanghai Fudan Microelectronics Group Company Limited, China.
17:00	S39-5	A 8-12 GHz Vector-Sum Phase Shifter Using a Marchand Balun and Gilbert-Cell Structure
Nov.2		Jincheng Zhang, Tianxiang Wu, Shunli Ma, Qun Hong, Fan Ye, Junyan Ren Fudan University, China.
17:15	S39-6	Approach of schottky diode nonlinear capacitance measurement for RF/microwave energy harvester
Nov.2		Baohong Liu ^{1,2} , Yanling Liu ² , Ying Chen ³ , Tanghuai Fan ^{1,2} ¹ Nanchang Institute of Technology, China; ² Nanchang Institute of Technology, China; ³ Nanchang Institute of Technology, China.

S40 Analog Circuits III (Room J)

	Session Chair:	Dr. Na Yan, Fudan University, China
15:45	S40-1	State-of-the-Art Monolithic Switched-Capacitor Voltage Regulators for Ultra-Low Power Internet of Things
Nov.2	(Invited)	Kang Wei, D. Brian Ma The University of Texas at Dallas, USA
16:15	S40-2	A Low Noise LDO with Pre-amplified Stage and Base-current Compensation
Nov.2		Meng Chang ¹ , Lianxi Liu ^{1,2} & Junchao Mu ¹ ¹ Xidian University, China; ² Xidian University, China
16:30	S40-3	A High Precision Bandgap Voltage Reference with MOS Transistor Curvature Compensation in 65-nm CMOS Process
Nov.2		Jipeng Wei, Longheng Luo, Shunli Ma, Fan Ye, Junyan Ren Fudan University, China
16:45	S40-4	73 pA, 250 ppm/V, -74 dB@100Hz voltage reference using one type of MOSFETs
Nov.2		Huachao Xu ¹ , Yao Chen ^{2,3} , Jinlong Hu ⁴ , Tao Du ¹ , Hongyan Cai ¹ , Jin Wang ¹ , Guofeng Li ¹ ¹ Nankai University, China; ² Guangdong University of Technology, China; ³ Advanced Digital Sciences Center, Singapore; ⁴ Tianjin University of Technology, China
17:00	S40-5	A 0.8V Supply, 4nW, 621mV Bandgap Voltage Reference Circuits for Ultra-low Power IoT Systems
Nov.2		Peng Cao, Dehong Lv, Zhiliang Hong Fudan University, China
17:15	S40-6	Full Automatic Notch Generation in Noise Spectrum of Pulse Coding Controlled Switching Converter
Nov.2		Yi-Fei Sun ¹ , Yasunori Kobori ¹ , Haruo Kobayashi ¹ ¹ Gunma University, Japan
17:30	S40-7	A 13.56MHz Integrated CMOS Active Rectifier With Adaptive DelayCompensated Loop for Wireless Power Transfer Systems
Nov.2		Yanzhao Ma ^{1,2} , Kai Cui ^{1,2} , Zhengjie Ye ^{1,2} , Song Fang ^{1,2} , and Xiaoya Fan ^{1,2} ¹ Research & Development Institute of Northwestern Polytechnical University in Shenzhen, China; ² Northwestern Polytechnical University, China.

P2 Poster Session II

	Session Chair:	Prof. Hui-Hua Yu, Fudan University, China
17:45	P2-01	A novel trimming circuit based on D type flip-flop
Nov.2		Shi-Lin Luo, Ze-Hong Li, Nian Zhao, Han-Feng Xiong, Cheng-Fa Zhang University of Electronic Science & Technology of China, China.
17:45	P2-02	A Power System for Passive UHF RFID Temperature Sensor with Ultra-Low Power
Nov.2		Ang Wang ^{1,2} , Wan'ang Xiao ^{1,2} , Shibo Fu ^{1,2} , Lina Yu ^{1,2} , Wanlin Gao ^{3,4}

¹Chinese Academy of Sciences, China; ²University of Chinese Academy of Sciences, China; ³China Agricultural University, China; ⁴Ministry of Agriculture and Rural Affairs, China

- 17:45 P2-03**
Nov.2
A 69.5-79 GHz Low Noise Amplifier in 65-nm CMOS employing transformer feedback technique
Yan Wang¹, Dongfang Pan², Zongming Duan^{1,2}, Bowen Wu¹
¹East China Research Institute of Electronic Engineering, China; ²University of Science and Technology of China, China
- 17:45 P2-04**
Nov.2
A novel Time-to-Digital Converter for All Digital Phase-Locked Loop
GAI Lin-chong^{1,2}, CHEN Lan^{1,2,3}, WANG Hai-yong^{1,2}
¹Institute of Microelectronics of Chinese Academy of Sciences, China; ²University of Chinese Academy of Sciences, China; ³Beijing Key Laboratory of Three-dimensional and Nanometer Integrated Circuit Design Automation Technology, China
- 17:45 P2-05**
Nov.2
A Multiplexed Low Power and High Linearity Cascaded Phase Interpolator Design
Yitong Kong, Li Ding and Jing Jin
Shanghai Jiaotong University, China
- 17:45 P2-06**
Nov.2
A 400MHz Fractional-N Frequency Synthesizer with Charge Pump Output Leakage Balancing
Peilin Yang, Hanjun Jiang
Tsinghua University, China
- 17:45 P2-07**
Nov.2
A 0.032-mm² Fully-Integrated Low-Power Phase-Locked Loop Based on Passive Dual-Path Loop Filter
Fangbo Li, Li Ding and Jing Jin
Shanghai Jiaotong University, China
- 17:45 P2-08**
Nov.2
A Class-C LC VCO for 802.11 b/g/n and Bluetooth
Qinmiao Kang^{1,2}, Zhifeng Xie¹, Yongquan Liu², and Ming Zhou¹
¹Tsinghua University, China; ²Chinese Aeronautical Establishment, China
- 17:45 P2-09**
Nov.2
A 38 ~ 40.5 GHz Frequency Divider Chain for FMCW PLL
Yingyu Chen, Yuanchun Zhou, Dan Liu, Zhangwen Tang
Fudan University, China
- 17:45 P2-10**
Nov.2
Analysis and Design of a W-band Frequency-Multiplier-by-Six
Qian-Nan Ren, Chen-Xi Liu, Fei Yang
Southeast University, China
- 17:45 P2-11**
Nov.2
A Ka-Band 6-bits Phase Shifter for 5G Application Using SiGe BiCMOS Process
Chen Liang^{1,2}, Chen Yuepeng^{1,2}, Chen Xinyu^{1,2}, Li Zhiqun³
¹Guobo Electronics Co. Ltd, China; ²Nanjing Electronic Devices Institute, China; ³Southeast University, China
- 17:45 P2-12**
Nov.2
A new method for generating variable frequency and multimode signals of electroacupuncture treatment for insomnia
An-feng Hu, Su-zhen Wang, Zhong-jie Shen, Wei Wang, Hao Zhang
Qingdao University, China
- 17:45 P2-13**
Nov.2
A Self-Timed Ring Based Time-to-Digital Converter on FPGA
Minmin Zhang¹, Jianfei Jiang¹, Qin Wang¹, Jia Huang²
¹Shanghai Jiao Tong University, China ²Shanghai Chest Hospital, China
- 17:45 P2-14**
Nov.2
A Self-Timed Ring Based True Random Number Generator on FPGA
Yifan Zhang¹, Jianfei Jiang¹, Qin Wang¹, Nin Guan²
¹Shanghai Jiao Tong University, China ²Shanghai Institute of Aerospace Electronic Communication Equipment, China
- 17:45 P2-15**
Nov.2
A Novel Recycled FPGA Identification Flow with High Precision
Song-Hao Ru¹, Xiao-Xiao Wang¹
¹Beihang University, China
- 17:45 P2-16**
Nov.2
A Standalone FPGA-test Platform with Bi-directional Ports Supported
Hao Deng, Jian Wang, Xinxuan Tao, Jinmei Lai
Fudan University, China
- 17:45 P2-17**
Nov.2
FPGA-based Acceleration System for Visual Tracking
Ke Song^{1,2}, Chun Yuan², Peng Gao¹, Yunxu Sun¹
¹Harbin Institute of Technology, China; ²Tsinghua University, China
- 17:45 P2-18**
Nov.2
Design of High-Speed Data Transmission System for IC Test
Jia-Bao Gao¹, Jian Wang, Xin-xuan Tao³, Jin-Mei Lai⁴
Fudan University, China.
- 17:45 P2-19**
A 116 dB Gain, 556.1 MHz GBW Four-Stage OTA in 65 nm CMOS

Nov.2		Zhe Li, Zhangming Zhu, Yi Xie, Maliang Liu Xidian University, China
17:45	P2-20	A 13GS/s One-Bit ADC with 18GHz Analog Bandwidth Based On InP DHBT Technology
Nov.2		Xiaopeng Li ^{1,2,3,4} , Zhigong Wang ¹ , Yi Zhang ^{4,5,6} , Youtao Zhang ^{2,3,7} , Min Zhang ^{2,3} ¹ Southeast University, China; ² Nanjing GuoBo Electronics Co., Ltd, China; ³ Nanjing Electronic Devices Institute, China; ⁴ National and Local Joint Engineering Laboratory of RF Integration and Micro-assembly Technology, China; ⁵ Southeast University, China; ⁶ JiangSu HengXin Technology Co., Ltd, China; ⁷ Science and Technology on Monolithic Integrated Circuits and Modules laboratory, China
17:45	P2-21	A High-linearity CMOS Analog Baseband Circuit with reconfigurable Gain and Bandwidth for 76-81GHz Automotive Radar
Nov.2		Bowen Wu ¹ , Zongming Duan ¹ , Dongfang Pan ² , Yan Wang ¹ , and Yang Zhou ¹ ¹ East China Research Institute of Electronic Engineering, China; ² University of Science and Technology of China, China
17:45	P2-22	A 10-Bit CMOS SAR ADC for Low-Power Sensor Applications
Nov.2		An-Qiang Guo ^{1,2} , Quan Sun ³ , Min Qi ^{1,2} , Dong-Hai Qiao ¹ ¹ Chinese Academy of Sciences, China; ² The University of Chinese Academy of Sciences, China; ³ Southern Methodist University, USA
17:45	P2-23	Status Counting Double Edge Slope ADC for CMOS Image Sensors
Nov.2		Cheng Ma ^{1,2} , Guo-Song Xin ² , Jing Li ² , Yang Li ² , Yang Liu ² , Quan Zhou ² , Xin-Yang Wang ² , Yu-Chun Chang ¹ ¹ Jilin University, China; ² Gpixel Inc., China
17:45	P2-24	A 11-bit ENOB Noise-shaping SAR ADC with Non-binary DAC Array
Nov.2		Zhiyuan Dai, Hang Hu, Fan Ye and Junyan Ren Fudan University, China
17:45	P2-25	A 10-bit 160MS/s SAR ADC with Fast-Response Reference Voltage Buffer
Nov.2		Jianfeng Xue, Hanie Ghaedrahmati, Jing Jin Shanghai Jiao Tong University, China
17:45	P2-26	A 1.2V 4bit 25dB SNDR Flash ADC with Configurable Output for GNSS Receiver
Nov.2		H. J. Wu, B. Li, Y. P. Zeng, H. C. Ji, Z. G. Yu, Y. Z. Li and C. H. Ma
17:45	P2-27	A 16-bit 8-channel Sigma-Delta ADC for Harmonics Detection System in Power Network
Nov.2		Guangyi Chen ^{1,2} , Wengao Lu ^{1,2} , You You ¹ , Zhongjian Chen ^{1,2} and Yacong Zhang ^{1,2} ¹ Peking University, China; ² Peking University Information Technology Institute (Tianjin Binhai), China.
17:45	P2-28	A Multi-Bit Quantization Delta-Sigma ADC using Global Chopper
Nov.2		Yongsheng Wang ¹ , Xunzhi Zhou ¹ , Anyi Wang ¹ , Fengchang Lai ¹ ¹ Department of Microelectronics, Harbin Institute of Technology, China
17:45	P2-29	A Low-Power High-Voltage Power Management Circuit for BMIC
Nov.2		Guangqian Zhu ¹ , Yintang Yang ¹ , Qidong Zhang ¹ ¹ Xidian University, China
17:45	P2-30	An Efficient Power Management Circuit for RF Energy Harvesting
Nov.2		Qi Xiong ¹ , Zunchao Li ¹ , Haitao Sun ² , Lvchen Zhou ¹ ¹ Xi'an Jiaotong University, China; ² Xidian University, China
17:45	P2-31	A Maximum Efficiency Point Tracking Modulation for Switched-Capacitor Voltage Regulator
Nov.2		Xinyi Zheng, Ping Luo, Bo Zhang University of Electronic Science and Technology of China, China
17:45	P2-32	Failure mode and effect analysis method of SiP component
Nov.2		Zhimin Ding, Chao Duan, Zhaoxi Wu, Meng Meng, Xiaoqing Wang China Aerospace Components Engineering Center, China
17:45	P2-33	Implementing RISC-V System-on-Chip for Acceleration of Convolution Operation and Activation Function Based on FPGA
Nov.2		Dong-Ze Li, Hao-Ran Gong, Yu-Chun Chang Jilin University, China
17:45	P2-34	A High Order Switched-Capacitor Bandpass Filter with Passband Tunable and -76dB/Octave Attenuation at Transition Band
Nov.2		Yongsheng Wang, Zhixin Zhang, Chenfeng Lin, Yue Ma, Fengchang Lai Harbin Institute of Technology, China
17:45	P2-35	Design of Gain and Bandwidth Configurable Elliptic Low-pass Filter
Nov.2		Xiangcheng Liu, Dan Liu, Yingyu Chen, Yuanchun Zhou, Zhangwen Tang Fudan University, China

17:45	P2-36	A 30nW Process-and-Voltage Invariant Proportional-to-Absolute Temperature Current Reference
Nov.2		Peiqing Han ^{1,2} , Niansong Mei ¹ and Zhaofeng Zhang ¹ ¹ Chinese Academy of Sciences, China; ² University of Chinese Academy of Sciences, China
17:45	P2-37	High speed, Low Resource and Non-volatile MTJ-CMOS Hybrid Logical Circuits
Nov.2		Jianjun Chen, Ningyuan Yin, Zhiyi Yu Sun Yat-sen University, China
17:45	P2-38	A High-reliability Reading Scheme for STT-MRAM with a Symmetric Dual-reference Sensing Amplifier
Nov.2		Jin Yan ¹ , Dong-Sheng Liu ¹ , Hong-Mei Yu ¹ , Hao Meng ² , Peng Liu ² ¹ Huazhong University of Science and Technology, China; ² CETHIK Group Co., Ltd., China
17:45	P2-39	A 16KByte SRAM Memory Containing Peripheral Circuit Hardened
Nov.2		Yongsheng Wang, Ruoyang Wang, Fangfa Fu, Rui Guo, Xiaoyu Yang, Fengchang Lai Harbin Institute of Technology, China
17:45	P2-40	A Pre-Fabrication Malicious Hardware Implementation Method
Nov.2		Wenheng Ma, Ningmei Yu, Ga Liu, Qilong Sheng, Meng Wang, Li Dai Xi'an University of Technology, China
17:45	P2-41	A 14-BIT 1.2GS/S TIME-INTERLEAVED PIPELINE ADC WITH CALIBRATION
Nov.2		Jie Pu ¹ , Xingfa Huang ¹ , Mingyuan Xu ¹ , Xiaofeng Shen ¹ , Xi Chen ¹ and Liang Li ¹ ¹ Science and Technology on Analog Integrated Circuit Laboratory, CHINA
17:45	P2-42	A High Performance Op-amp with Power-on Protection Technologies in Multi-power Domain SAR-assisted Pipeline ADC
Nov.2		Xingchen Shen, Fubiao Cao, Yongzhen Chen, Fan Ye, Junyan Ren Fudan University, China
17:45	P2-43	Image signal processing based on DFCA technology Special high speed high precision analog-to-digital Converter
Nov.2		Bing-yan Hu, Yu-ping Guo, Hai-bin Li, Yu-chun Chang Jilin University, China
17:45	P2-44	A FPGA-based Hardware Accelerator for Multiple Convolutional Neural Networks
Nov.2		Yuchen Yao ¹ , Qinghua Duan ² , Zhiqian Zhang ³ , Jiabao Gao ⁴ , Jian Wang ⁵ , Meng Yang ⁶ , Xinxuan Tao, Jinmei Lai ¹ Fudan University, China; ² Chengdu Sino Microelectronics Technology Co., Ltd, China
17:45	P2-45	Research on Field Programmable Neuron Array (FPNA) Based on Reusable ANN Neurons
Nov.2		Jia Guo,Zijin Yan, Ligang Hou, Ang Lv, Nan Jiang Beijing University of Technology, China
17:45	P2-46	An All-Digital Quadrature RF Transmitter Front-End Using 3-bit $\Sigma\Delta$ Modulators in 65-nm CMOS
Nov.2		Weixing Liu, Feiyi Li, Pan Xue, Zhiliang Hong Fudan University, China
17:45	P2-47	Study on Electrical Artifact Cancellation Approaches for Neural Signal Recording System
Nov.2		Xiao-Fu Pei, Xian-Liang Chen, Jun-Yu Wang Fudan University, China
17:45	P2-48	A high-speed dynamic comparator with low-power supply voltage
Nov.2		Ya-Bo Ni ^{1,3} , Ting Li ^{1,3} , Zheng-Bo Huang ^{2,3} , Yong Zhang ³ , and Shi-Liu Xu ^{1,3} ¹ Science and Technology on Analog Integrated Circuits Laboratory, China; ² Xi'an Jiaotong University, China; ³ The 24th institute, CETC
17:45	P2-49	Features of Increasing the Fast Response of Differential Operational Amplifiers on the Basis of a “Folded” Cascode
Nov.2		Nikolay N. Prokopenko ^{1,2} , Anna V. Bugakova ¹ , Alexey E. Titov ³ , Petr S. Budyakov ^{1,4} ¹ Don State Technical University, Russia; ² Institute for Design Problems in Microelectronics of RAS, Russia; ³ Southern Federal University, Russia; ⁴ JSC “SPE“Pulsar”, Russia
17:45	P2-50	An Accurate Current Scaling Circuit for Self-Emissive Microdisplay Driving Circuit
Nov.2		Bohua Zhao, Ran Huang, Chang Su, Huan Du Chinese Academy of Sciences, China
17:45	P2-51	A novel area efficient ESD power clamp with feedback technology
Nov.2		Dongsheng Xu ^{1,2,3} , Xiaowu Cai ^{1,3} , Lan Dai ² , Hainan Liu ^{1,3} , Jiajun Luo ^{1,3} , Haitao Zhao ^{1,3} , Hongju Tang ^{1,3} , Rui Peng ^{1,3}

¹Chinese Academy of Sciences, China; ²North China University of Technology, China; ³Chinese Academy of Sciences, China

- 17:45 P2-52 A monolithic switches matrix with wide operating voltage for implantable bladder function restoration**
 Nov.2 Hanbing Yan^{1,2}, Xu Zhang¹, Ming Liu¹, Fang Yuan¹, Sikai Wang^{1,2}, Hongda Chen¹
¹Chinese Academy of Sciences, China; ²University of Chinese Academy of Sciences, China
- 17:45 P2-53 High Speed, Low Power Dynamic Comparator with Dynamic Biasing in Pre-amplifier Phase**
 Nov.2 Jingchao Lan, Yongzhen Chen, Zhekan Ni, Fan Ye, Junyan Ren
 Fudan University, China
- 17:45 P2-54 Design of High Dynamic Range Front-end Readout Circuit Based on MCP Detectors**
 Nov.2 Ruoxi Wang, Yuping Guo, Haoran Gong, Jingzhi Yin, Yuchun Chang
 Jilin University, China
- 17:45 P2-55 Noise Immunity Improvement in High Voltage Gate Driver IC**
 Nov.2 Rui Peng^{1,2,3}, Xiaowu Cai^{1,2}, Hainan Liu^{1,2}, Jiajun Luo^{1,2}, Haitao Zhao^{1,2}, Hongju Tang^{1,2}, Dongsheng Xu^{1,2}, Xiulong WU³
¹Chinese Academy of Sciences, China; ²Chinese Academy of Sciences, China; ³Anhui University, China.
- 17:45 P2-56 A Dynamic Range Enhanced Current Feedback PGA Used In High-frequency Ultrasound Imaging Applications**
 Nov.2 Yi-Min Wu, Jian-Guo Diao, Long-Heng Luo, Fan-Ye, Jun-Yan Ren
 Fudan University, China.
- 17:45 P2-57 Evaluating the Practicability of Error-Detection Circuit Exposed to Single-Event Upsets in 65 nm CMOS Technology**
 Nov.2 Wei He¹, Jia Wang¹, Zhun Zhang², Jianhua Wu¹, and Sheng Luo²
¹Shenzhen University, China; ² Shenzhen University, China
- 17:45 P2-58 Research of Special Instructions for Composite Field Multiplications in Symmetric Cryptographic Algorithms**
 Nov.2 Long-mei Nan^{1,2}, Xiao-yang Zeng¹, Wei Li², Chen Lin², Yi-ran Du², Zi-bin Dai²
¹Fudan University, China; ²Zhengzhou Institute of Information Technology, China
- 17:45 P2-59 An Ultra Low-power Processor with Dynamic Regfile Configuration**
 Nov.2 Meng Wang, Ningmei Yu, Wenheng Ma, Qilong Sheng, Wendong Zhang, Zili Huang
 Xi'an University of Technology, China
- 17:45 P2-60 Design and Analysis of Two-Stage Harmonic Rejection Mixers with 16-Phase LO**
 Nov.2 Yuanchun Zhou, Dan Liu, Yingyu Chen, Zhangwen Tang
 Fudan University, China
- 17:45 P2-61 Design of a Wideband Low Noise Amplifier for 70-1000MHz Frequency Range**
 Nov.2 Dan Liu, Yingyu Chen, Yuanchun Zhou, Zhangwen Tang
 Fudan University, China
- 17:45 P2-62 A 1.2-dB Noise Figure Broadband GaAs Low-Noise Amplifier with 17-dB Gain for Millimeter-Wave 5G Base-Station**
 Nov.2 Chenyu Xu, Dixian Zhao
 Southeast University, China
- 17:45 P2-63 0.3GHz to 3.5GHz High Linearity downconverting Mixer on 0.18um SiGe BiCMOS Process**
 Nov.2 Xudong Wang, Bill Beckwith, Tom Schiltz and Mike Bagwell
 Analog Devices Inc, USA
- 17:45 P2-64 Design of Broadband LNA and RFVGA for DVB Receiver Tuner using CMOS 0.18-μm Process**
 Nov.2 Yang Li¹, Cong Wang², Zhao Yao³
¹University of Jinan, China; ²Harbin Institute of Technology, China; ³Qingdao University, China
- 17:45 P2-65 A wideband 6-bit Digital Attenuator with high accuracy in 65nm CMOS**
 Nov.2 Jiao Ye, Wei Li, Jie Gong, Jintao Hu, Lai He, Tao Wang
 Fudan University, China
- 17:45 P2-66 A Low Flicker Noise Automatic Amplitude Control ASIC for a Split-Mode MEMS Gyroscope**
 Nov.2 Yang Zhao, Guo-Ming Xia, Qin Shi, An-Ping Qiu
 Nanjing University of Science and Technology, China
- 17:45 P2-67 A 1MHz-BW 45dB-SNDR CNT analog front-end design**

Nov.2		Cong Wei, Hengyu Liu, Lin Zhang, Luming Yi, Xinyu Xu, Chengying Chen Fujian Xiamen, China
17:45	P2-68	An SRAM-free HEVC Deblocking Filter VLSI Architecture for 8K Application
Nov.2		Genwei Tang ¹ , Xiaoyang Zeng ¹ , Yibo Fan ¹ ¹ Fudan University, Shanghai China
17:45	P2-69	Method for Practical Use of Parasitic Capacitances of Reference Current Sources in Dual-Input-Stages for Increasing the SR of Operational Amplifiers in Inverting Connection Circuits
Nov.2		Anna V. Bugakova ¹ , Nikolay N. Prokopenko ^{1,2} , Alexey A. Zhuk ¹ ¹ Don State Technical University, Russia; ² Institute for Design Problems in Microelectronics of RAS, Russia
17:45	P2-70	Codesign of 12-22 GHz Integrated PIN-diode Limiter and Low Noise Amplifier
Nov.2		Lu Cui, Xin Zhou, Yuan-Peng Li, Hong-Tao Wei Hebei Semiconductor Research Institute, China
17:45	P2-71	A 22.3-31.2 GHz GaN LNA With 1.74 dB NF and 22.1 dBm P1dB
Nov.2		Xiaodong Tong ¹ , Shiyong Zhang ¹ , Jianxing Xu ¹ , Penghui Zheng ¹ ¹ China Academy of Engineering Physics, China
17:45	P2-72	EESR: Edge Enhanced Super-Resolution
Nov.2		Ying-Yue Li ¹ , Yun-Dong Zhang ² , Xue-Wu Zhou ² , Wei Xu ¹ ¹ Fudan University, China; ² Vimicro AI Chip Technology Corporation, China
17:45	P2-73	An Ultra-Low Power CMOS Readout Circuit for a MEMS Resonant Accelerometer
Nov.2		Yang Zhao, Guo-Ming Xia, Qin Shi, An-Ping Qiu Nanjing University of Science and Technology, China

Panel Discussion (Room A3)

20:00	Title: Consolidation of the semiconductor industry: is it real? Is it a good thing?
Nov.2	Moderator: Ken Rim, Qualcomm
	Panelists:
	Sanjay Natarajam, Applied Materials
	Thomas Skotnicki, Institute of High Pressure Physics, Polish Academy of Sciences and Warsaw University of Technology
	Kazu Ishimaru, Toshiba
	Minhwa Chi, SiEN
	Suman Datta, U of Notre Dame

K4 Keynote Session 4 (Room A)

	Session Chair:	Prof. Jason Woo, UCLA, USA
8:30	K4-1	Blurring the Lines Between Mind, Body and Prosthetics
Nov.3	(Keynote)	Ralph Etienne-Cummings Johns Hopkins University, USA
9:15	K4-2	System-on-Chip in the Age of AI
Nov.3	(Keynote)	Yong Lian York University, UK

Coffee Break

S41 Memory Circuits (Room B)

	Session Chair:	Prof. Xiulong Wu, Anhui University, China
10:15	S41-1	Ultra-Low-Standby Power 6T Single-port and 8T Dual-port SRAMs on 65 nm Silicon-on-Thin-Box (SOTB) for Smart IoT Applications
Nov.3	(Invited)	Koji Nii ¹ , Makoto Yabuuchi ¹ , Yohei Sawada ¹ , Shinji Tanaka ¹ , Yoshihiro Shinozaki ² , Kyoji Ito ² , Yukiko Umemoto ² , Yoshiki Yamamoto ¹ , Takumi Hasegawa ¹ , Hiroki Shinkawata ¹ , and Shiro Kamohara ¹ ¹ Renesas Electronics Corporation, Japan; ² Nippon Systemware Co. Ltd., Japan
10:45	S41-2	A Low-Overhead Radiation Hardened Flip-Flop Design for Soft Error Detectio
Nov.3		Jie Li ¹ , Li-Yi Xiao ¹ , Hong-Chen Li ¹ , Chun-Hua Qi ² ¹ Harbin Institute of Technology, China; ² Harbin Institute of Technology, China
11:00	S41-3	High Robust and Low Cost Soft Error Hardened Latch Design for Nanoscale CMOS

Technology

Nov.3		Hong-Chen Li ¹ , Li-Yi Xiao ¹ , Jie Li ¹ , Xue-Bing Cao ¹ ¹ Harbin Institute of Technology, China
11:15	S41-4	A 12 V Low-Ripple and High-Efficiency Charge Pump with Continuous Regulation Scheme for 3D NAND Flash Memories
Nov.3		Qianqian Wang ^{1,2} , Fei Liu ^{1,2} , Cece Huang ^{1,2} , Liyin Fu ¹ , Zongliang Huo ^{1,2} 1Chinese Academy of Sciences, China; ² University of Chinese Academy of Sciences, China
11:30	S41-5	CMOS-compatible Hf0.5Zr0.5O2-based Ferroelectric Capacitors for Negative Capacitance and Non-volatile Applications
Nov.3		Jianjian Wang ^{1,2} , Jinshun Bi ¹ , HuaBai ² , Gaobo Xu ¹ and Ming Liu ¹ ¹ Chinese Academy of Sciences, China; ² Tianjin Polytechnic University, China
11:45	S41-6	Impact of BTI Aging Effect and Process Variation on Single Event Upset of DICE
Nov.3		Lin-Zhe Li ¹ , Li-Yi Xiao ¹ , Xue-Bing Cao ¹ , Chun-Hua Qi ² , Jie Li ¹ , Zhi-Gang Mao ¹ ¹ Harbin Institute of Technology, China; ² Harbin Institute of Technology, China
12:00	S41-7	Novel Hybrid Computing Architecture with Memristor-Based Processing-in-Memory for Data-Intensive Applications
Nov.3		Xunming Zhang ^{1,2} , Quan Zhang ¹ , Jianguo Yang ¹ , Zedai Wanghen ¹ , Ming'e Jing ¹ , Mingyu Wang ¹ , Xiaoyang Zeng ¹ , Xiaoyong Xue ¹ ¹ Fudan University, China; ² Tongji University, China.

S42 Photoelectron Device (Room D)

Session Chair: Prof. KEI MAY LAU, HKUST, Hong Kong, China

10:15	S42-2	ICPD: an SOI-based photodetector with high responsivity and tunable response spectrum
Nov.3	(Invited)	J. Wan ¹ , WZ. Bao ¹ , JN. Deng ¹ , ZX. Guo ¹ , XY. Cao ¹ , BR. Lu ¹ , YF. Chen ¹ , A. Zaslavsky ² , S. Cristoloveanu ³ , M. Bawedin ³ ¹ Fudan University, China; ² Brown University, USA; ³ IMEP-LAHC, France
10:45	S42-3	Structure Optimization for UTBB Based Image Sensor to Suppress Crosstalk
Nov.3		Liqiao Liu ¹ , Lei Shen ¹ , Kai Zhao ² , Xiaoyan Liu ¹ , Gang Du ¹ ¹ Peking University, China; ² Information Science and Technology University, China
11:00	S42-4	A Novel Three-Layer Color-Modulating Optical Coating Non-volatile Display Structure based on Phase Change Material
Nov.3		Tong Zhou ¹ , Zhigang Ni ¹ , Shenghong Mou, Zhiyuan Cheng Zhejiang University, China
11:15	S42-5	A Three-Terminal ZnS-based CIGS Solar Cell
Nov.3		Shih-Chin Huang ¹ , Jyi-Tsong Lin ¹ , Steve Haga ² , Wen-Hao Chen ¹ and Kung-Yu Ho ¹ ¹ National Sun Yat-Sen University, Taiwan, China; ² National Sun Yat-Sen University, Taiwan, China
11:30	S42-6	Symmetrical and Crossed Double-sided Passivation Emitter and Surface Field Solar Cells for Bifacial Applications
Nov.3		Kung-Yu Ho ¹ , Jyi-Tsong Lin ¹ , Steve Haga ² , Wen-Hao Chen ¹ and Shih-Chin Huang ¹ ¹ National Sun Yat-Sen University, Taiwan, China; ² National Sun Yat-Sen University, Taiwan, China

S43 Flash Memory (Room E)

Session Chair: Prof. Toshiro Hiramoto, The University of Tokyo, Japan

10:15	S43-1	On the Reliability of Charge-Trap (CT) Type Three-dimensional (3D) NAND Flash Memory
Nov.3	(Invited)	Jiezhi Chen Shandong University, P. R. China
10:45	S43-2	Non-volatile Memory Technology for Data Age
Nov.3	(Invited)	Kazunari Ishimaru Toshiba Memory Corporation, JAPAN
11:15	S43-3	Error Bit Distributions in Triple-level Cell Three-dimensional (3D) NAND Flash Memory
Nov.3		Rui Cao, Jixuan Wu, Wenjing Yang, Yuan Li, Jiezhi Chen Shandong University, China
11:30	S43-4	A Novel High-Density Source-Side-Injection Flash Memory Cell with Vertical Channel
Nov.3		Yue Li, Zheng-Yuan Su, Meng-Qi Wen, Yao Yao, Zhi-Yuan Ye, Lei Liu and Peng-Fei Wang

		Fudan University, China
11:45	S43-5	Investigation on High Aspect Ratio Multi-level Contact Holes Etching Process in Three-Dimensional Flash Memory Manufacturing
Nov.3		Yu-qi Wang ^{1,2,3,4} , Li-peng Liu ³ , Bao-you Chen ³ , Wen-jie Zhang ³ , Chuan-bin Zeng ^{1,2} ¹ University of Chinese Academy of Sciences, China; ² Chinese Academy of Sciences, China; ³ Yangtze Memory Technologies Co. Ltd., China; ⁴ East Lake High-Tech Development Zone, China
12:00	S43-6	Impact of BEOL Film Deposition on Poly-Si 3D NAND Device Characteristics
Nov.3		Yue-Xin Zhao ¹²³ , Jun Liu ³ , Xiao-Long Hu ³ , Yuan Li ³ , Zi-Qun Hua ³ , Lei Jin ¹²³ , Zong-Liang Huo ¹²³ ¹ Institute of Microelectronics of Chinese Academy of Sciences, China; ² University of Chinese Academy of Sciences, China; ³ Yangtze Memory Technologies Co., Ltd., China.

S44 Thin Film Transistor (Room F)

Session Chair:		Prof. Shisheng Xiong, Fudan University, China
10:15	S44-1	Progress of Thin Film Transistor Technology
Nov.3	(Invited)	Yue Kuo Texas A&M University, USA
10:45	S44-2	Modeling of Threshold Voltage and Drain Current for Independent Dual-Gate a-InGaZnO Thin-Film Transistors
Nov.3		Min-Xi Cai, Ruo-He Yao South China University of Technology, China
11:00	S44-3	Solution Processed Metal Oxide in Emerging Electronic Devices
Nov.3		Chun Zhao ^{1,2} , Ce Zhou Zhao ^{1,2} , Li Yang ³ , Wang Ying Xu ⁴ ¹ Xi'an Jiaotong-Liverpool University, China; ² University of Liverpool, UK; ³ Xi'an Jiaotong-Liverpool University, China; ⁴ Shenzhen University, China
11:15	S44-4	High-Performance Flexible ZnO Thin-Film Transistors by Atomic Layer Deposition
Nov.3		Mengfei Wang, Dan Zhan, Jian Song, Xuefei Li, and Yanqing Wu Huazhong University of Science and Technology, China

S45 AI (Circuits & System) I (Room G)

Session Chair:		Prof. Pingqiang Zhou, ShanghaiTech University, China
10:15	S45-1	Computing-in-Memory with SRAM and RRAM for Binary Neural Networks
Nov.3	(Invited)	Xiaoyu Sun ¹ , Rui Liu ¹ , Xiaochen Peng ¹ , Shimeng Yu ² ¹ Arizona State University, USA; ² Georgia Institute of Technology, USA
10:45	S45-2	A Neural Network Trojan Detection Method Based on Particle Swarm Optimization
Nov.3		Chen-Xu Wang ¹ , Shi-Yao Zhao ¹ , Xin-Sheng Wang ¹ , Min Luo ¹ and Min Yang ¹ Harbin Institute of Technology, China; ² State Oceanic Administration, China
11:00	S45-3	RRAM-Based Binary Neural Networks Using Back-Propagation Learning
Nov.3		Yuning Jiang, Yunfan Yang, Zheng Zhou, Yachen Xiang, Peng Huang, and Jinfeng Kang Peking University, China
11:15	S45-4	Context Combined Cascaded Region Proposal Network with Dual Loss Function for Accurate Car Detection
Nov.3		Xin-Yu Zhu ¹ , Jun Zhang ¹ , Geng-Sheng Chen ¹ ¹ Fudan University, China
11:30	S45-5	FPGA Implementation of LSTM Based on Automatic Speech Recognition
Nov.3		Chen-Lu Li, Yu-Jie Huang, Yu-Jie Cai, JunHan, Xiao-Yang Zeng ¹ Fudan University, China; ² Fudan University, China
11:45	S45-6	A Computing Efficient Hardware Architecture for Sparse Deep Neural Network Computing
Nov.3		Yanwen Zhang ¹ , Peng Ouyang ^{1,2} , Shouyi Yin ³ , Youguang Zhang ¹ , Weisheng Zhao ^{1,2} , Shaojun Wei ³ ¹ Beihang University, China; ² Beihang University, China; ³ Tsinghua University, China

S46 Advanced Clock I (Room H)

Session Chair:		Dr. Francois RIVET, Univ. Bordeaux, France
10:15	S46-1	A Temperature-Compensated LC-VCO PLL and a Power-Efficient Decision Feedback Equalizer for Multi-Standard Serial Links
Nov.3	(Invited)	Yang You, Jinghong Chen University of Houston, USA

10:45	S46-2	Analytical and Experimental Study of Wide-Range CMOS Static Frequency Divider for 5G mm-Wave Applications
Nov.3		Rong Zeng ¹ , Runxi Zhang ¹ , Chunqi Shi ² , Zitong Zhang ¹ , and Naizao Zhong ¹ ¹ East China Normal University, China; ² East China Normal University, China
11:00	S46-3	Design of Improved Phase Frequency Detector and Charge-Pump for a 12-18 GHz CMOS PLL
Nov.3		Yupeng Fu, Lianming Li, Dongming Wang Southeast University, China
11:15	S46-4	Design of a LC-VCO in 65 nm CMOS Technology for 24GHz FMCW Radar Transceiver
Nov.3		Na Yan, Chao Zhang, Xingjiang Hou Fudan University, China
11:30	S46-5	A Novel High-Precision RC Oscillator
Nov.3		Lei Shu ¹ , Yinghao Liao ² , Tingting Mo ¹ ¹ Shanghai Jiao Tong University, China; ² Shenzhen Pango Microsystems Co., LTD, China
11:45	S46-6	A Low Power and Wideband 28-41GHz PLL Design for mm-Wave Applications
Nov.3		Chang Yu, Zhi-Gang Li, Yu Ji, Ting-Ting Mo Shanghai Jiao Tong University, China
12:00	S46-7	Phase-Locked Loop of SerDes for Satellite Laser Communication
Nov.3		Dengrong Li, Liji Wu, Shuai Yuan and Xiangmin Zhang Tsinghua University, China

S47 FPGA I (Room I)

Session Chair:		Prof. Deming Chen, University of Illinois at Urbana-Champaign, US
10:15	S47-1	High SFDR Pipeline ROM-less DDFS Design on FPGA Platform Using Parabolic Equations
Nov.3	(Invited)	Chua-Chin Wang, Hsiang-Yu Shih, Wei Wang National Sun Yat-Sen University, Taiwan, China
10:45	S47-2	A Fast Scrubbing Method Based on Triple Modular Redundancy for SRAM-Based FPGAs
Nov.3		Rong-Sheng Zhang, Li-Yi Xiao, Xue-Bing Cao, Jie Li, Jia-Qiang Li, and Lin-Zhe Li Harbin Institute of Technology, China
11:00	S47-3	Nonvolatile Memory Pre-Silicon Power Loss Test Using FPGA
Nov.3		Qamrul Hasan, Yuichi Ise, Shinsuke Okada, Pan Lijun Cypress Semiconductor Corporation, USA
11:15	S47-4	Design of a Bit Error Ratio Testing and Error Correction System Based on High-Speed Serial Interface
Nov.3		Lingjun Zhu, Jian Wang, Jinmei Lai Fudan University, China
11:30	S47-5	Temperature distribution measurement for chips based on FPGA
Nov.3		Wen-Juan Yu, Shi-Wei Feng, Shi-Jie Pan, Ya-Min Zhang, and Bang-Bing Shi Beijing University of Technology, China
11:45	S47-6	Research on Circuit-Level Design of High Performance and Low Power FPGA Interconnect Circuits in 28nm Process
Nov.3		Yunbing Pang, Jiqing Xu, Yufan Zhang, Xinxuan Tao, Jian Wang, Meng Yang, Jinmei Lai Fudan University, China
12:00	S47-7	Design and Implementation of DDR3 SDRAM Controller
Nov.3		Xing Wang, Jian Wang, Xinxuan Tao, Meng Yang, Jinmei Lai Fudan University, China

S48 Analog Circuits IV (Room J)

Session Chair:		Prof. Dongshen Liu, Huazhong University of Science and Technology, China
10:15	S48-1	Low Energy ADCs using Dynamic Amplifiers
Nov.3	(Invited)	Akira Matsuzawa Tech Idea Co., Ltd.; Tokyo Institute of Technology, Japan.
10:45	S48-2	Reconfigurable Active-RC LPF with Self-Adaptive Bandwidth Calibration for Software-Defined Radio in 130 nm CMOS
Nov.3		Songting Li, Lihu Chen, Yong Zhao

		National University of Defense Technology, China
11:00	S48-3	A High-Performance Gate Driver with Dynamically Adjustable Slope
Nov.3		Zhuo Wang ¹ , Song Li ¹ , Yue Shi ² , Zekun Zhou ¹ , Bo Zhang ¹ , ¹ University of Electronic Science and Technology of China, China; ² Chengdu University of Information Technology, China
11:15	S48-4	A floating high voltage gate driver with latch function
Nov.3		Han-Feng Xiong, Ze-Hong Li, Ren-Ren Hu, Zhi-Chao Hong University of Electronic Science & Technology of China, China
11:30	S48-5	A Programmable High-Speed Current Detection Circuit
Nov.3		Yue Shi ¹ , Jiani Wang ² , Yadong Sun ² , Zekun Zhou ² ¹ Chengdu University of Information Technology, China; ² University of Electronic Science and Technology of China, China
11:45	S48-6	A High-efficiency Switched Capacitor Converter for Always-on Block
Nov.3		Chun-Fei Chen, Xin-Ning Liu Southeast University, China
12:00	S48-7	A Low Power High Output Frequency Two-stage Output Buffer for 2720×2704 Infrared Focal Plane Array
Nov.3		Meicen Jin ^{1,2} , Yuze Niu ^{1,2} , Wengao Lu ^{1,2} , Yacong Zhang ^{1,2} , Zhongjian Chen ^{1,2} , Yi Zhuo ¹ ¹ Peking University, China; ² Peking University Information Technology Institute (Tianjin Binhai), China.

S50 EDA (Room D)

	Session Chair:	Prof. Jinmai Lai, Fudan University, China
13:30	S50-1	Recent Advance on Floating Random Walk Based Capacitance Solver for VLSI Circuit Design
Nov.3	(Invited)	Wenjian Yu, Mingye Song, Zhezha Xu Tsinghua University, China.
14:00	S50-2	Accelerate Innovations in Robust Circuit Design with Python API to Circuit Simulation
Nov.3	(Invited)	Frank Lee Synopsys Inc., USA
14:30	S50-3	Approximate logic optimization for ISFPRM function
Nov.3		Hao-kai yin, Yin-shui Xia Ningbo University, China
14:45	S50-4	A Novel Design of Quantum-Dots Cellular Automata Comparator Using Five-Input Majority Gate
Nov.3		Li Jun-wen, Xia Yin-shui Ningbo University, China
15:00	S50-5	Path Delay Variation Prediction Model with Machine Learning
Nov.3		Jingjing Guo, Peng Cao, Jiangping Wu, Bingqian Xu, Jun Yang Southeast University, China

S51 System-Level Modeling/Simulation & Synthesis (Room E)

	Session Chair:	Prof. Jun Han, Fudan University, China
13:30	S51-1	Sparse Tensor Network System Identification for Nonlinear Circuit Macromodeling
Nov.3	(Invited)	Yuke Zhang, Ching-Yun Ko, Cong Chen, Kim Batselier, Ngai Wong The University of Hong Kong, Hong Kong, China
14:00	S51-2	System Simulation for Robot Control Based on AI Approach
Nov.3	(Invited)	S. Bhattacharya, T. K Maiti, S. Dutta, A. Luo, M. Miura-Mattausch, H. J. Mattausch Hiroshima University, Japan
14:30	S51-3	An Aging Fault Prediction Sensor Circuit Based Guardband Violation
Nov.3		Xinsheng Wang, Hao Wu Harbin Institute of Technology at Weihai, China
14:45	S51-4	Approximate computing for 4-bit Adder Design
Nov.3		Qi Yu, Lun-Yao Wang, Zhu-Fei Chu, Yin-Shui Xia Ningbo University, China
15:00	S51-5	Area Optimization for FPRM Circuit Based on BDD
Nov.3		Zhi-Wen Chen ¹ , Hui-Hong Zhang ¹ , Peng-Jun Wang ^{1,2} ¹ Ningbo University, China; ² Wenzhou University, China

S52 Physical Design (Room F)

Session Chair: Prof. Jun Tao, Fudan University, China

- 13:30 S52-1** **Efficient Statistical Analysis for Correlated Rare Failure Events**
 Nov.3 **(Invited)** Jun Tao¹, Zhengqi Gao¹, Dian Zhou^{1,2}, Xuan Zeng¹
¹Fudan University, China; ²University of Texas at Dallas, USA,
- 14:00 S52-2** **Chip Variability Mitigation through Continuous Diffusion Enabled by EUV and Self-Aligned Gate Contact**
 Nov.3 Stephane Badel, Miao Xu, Xiaolong Ma, Wen Yang, Wei Zheng, Xiangqiang Zhang, Meng Lin, Yong Yu, Wei Wei, Qiuling Zeng, Zanfeng Chen, Xiaowei Zou, Waisum Wong, Yanxiang Liu, Sunhom Steve Paak, Yu Xia
 HiSilicon Technologies Co., Ltd, China
- 14:15 S52-3** **Efficient Design of Decimal Full Adder Using Quantum-dot Cellular Automata**
 Nov.3 Zeqiang Li, Zhufei Chu, Lunyao Wang, Yinshui Xia
 Ningbo University, China
- 14:30 S52-4** **A Self-Adaptive LSE Wirelength Model for VLSI Global Placement**
 Nov.3 Zhiping Lai¹, Zhipeng Huang², Zhen Chen², and Jianli Chen²
¹Fuzhou University, China; ²Fuzhou University, China.

S53 AI (Circuits & System) II (Room G)

Session Chair: Prof. Shimeng Yu, Georgia Institute of Technology, US

- 13:30 S53-1** **Deep Learning for Spatial Supply Noise Estimation in a Processor Chip**
 Nov.3 **(Invited)** Rusong Weng, Yaguang Li, Wei Gao, Leilei Wang, Xufeng Kou, Pingqiang Zhou
 ShanghaiTech University, China
- 14:00 S53-2** **Machine-Learning-Based Early-Stage Timing Prediction in SoC Physical Design**
 Nov.3 Lida Bai and Lan Chen
 Chinese Academy of Sciences, China
- 14:15 S53-3** **A High Speed SoftMax VLSI Architecture Based on Basic-Split**
 Nov.3 Qiwei Sun¹, Zhixiong Di^{1,2}, Zhengyang Lv¹, Fengli Song¹, Qianyin Xiang^{1,2}, Quanyuan Feng^{1,2}, Yibo Fan³, Xulin Yu⁴, Wenqiang Wang⁴
¹Southwest Jiaotong University, China; ²Southwest Jiaotong University, China; ³Fudan University, China; ⁴Alibaba Group, China
- 14:30 S53-4** **An Energy-Efficient and Flexible Accelerator based on Reconfigurable Computing for Multiple Deep Convolutional Neural Networks**
 Nov.3 Chen Yang, HaiBo Zhang, XiaoLi Wang, Li Geng
 Xi'an Jiaotong University, China
- 14:45 S53-5** **An Efficient Convolutional Neural Network Accelerator on FPGA**
 Nov.3 Junye Si¹, Jianfei Jiang¹, Qin Wang¹, Jia Huang²
¹Shanghai Jiao Tong University, China; ²Shanghai Chest Hospital, China

S54 Advanced Clock II (Room H)

Session Chair: Dr. Jinghong Chen, University of Houston, US

- 13:30 S54-1** **DLL-Enhanced PLL Frequency Synthesizer with Two Feedback Loops and Body Biasing for Noise Cleaning**
 Nov.3 **(Invited)** Yann Deval, Andrés Asprilla, David Cordova, Hervé Lapuyade, François Rivet
 Université de Bordeaux, France
- 14:00 S54-2** **A 781Mbps-5Gbps DLL-Based CDR with Starting-Control Circuit**
 Nov.3 Cheng Li, Yuequan Liu, Song Jia, and Yuan Wang
 Peking University, China.
- 14:15 S54-3** **A TAF-DPS DCO Based Full-Digital FLL and PLL: A Frequency And Phase Control Loop Built On Time-Average-Frequency Principle**
 Nov.3 Shenghong Mou¹, Xuhang Zhang¹, Jingzhou Shi¹, Zhiyuan Cheng¹, Liming Xiu²
¹Zhejiang University, China; ²BOE Technology Group Co., Ltd, China.
- 14:30 S54-4** **A 23-30.8 GHz Digital-Controlled-Oscillator in 28nm CMOS**
 Nov.3 Yun-kun Li, Jie-yang Li, Zhi-liang Hong
 Fudan University, China
- 14:45 S54-5** **A 12.5Gbps Dual Loop CDR with Multi-band VCO and Novel Frequency Band Switch**

Nov.3		Weijia Han, Yongsheng Wang, Jinxiang Wang Harbin Institute of Technology, China
15:00	S54-6	Design of a Low Noise Clock Generator Based on TSMC65nm Process
Nov.3		Ke-wei Xin, Fang-xu Lv, Jian-ye Wang, Lei Bao, Meng-yang Cui Air Force Engineering University, China

S55 FPGA II (Room I)

	Session Chair:	Prof. Wang Chua-Chin, National Sun Yat-Sen University, Taiwan, China
13:30	S55-1	Deep Neural Network Model and FPGA Accelerator Co-Design: Opportunities and Challenges
Nov.3	(Invited)	Cong Hao, Deming Chen University of Illinois, Urbana-Champaign

14:00	S55-3	A new hyper-graph partitioning for 3D-FPGA
Nov.3		Li-Ran Hu, Qing-hua Duan, zhu-jun Qi, Jian Wang, Jin-Mei Lai, and Meng Yang ¹ Fudan University, China; ² Chengdu Sino Microelectronics Technology Co., Ltd
14:15	S55-4	Research on Design and Test Method of High Performance 6 Input LUT
Nov.3		Yufan Zhang, Yunbing Pang, Jiqing Xu, Xinxuan Tao, Jian Wang, Meng Yang, Jinmei Lai Fudan University, China
14:30	S55-5	Timing Model For GRM FPGA Based Routing
Nov.3		Zhu-Jun Qi ¹ , Qinghua Duan ² , Li-Ran Hu, Xin-Xuan Tao, Jian Wang, Meng Yang, Jin-Mei Lai ¹ Fudan University, China; ² ChengduSino Microelectronic Technology Co., Ltd.
14:45	S55-6	A Resource-Sharing & Pipelined Design Scheme for Dynamic Deployment of CNNs on FPGAs
Nov.3		Han-Chen Ye, Geng-Sheng Chen Fudan University, China

S56 Analog Circuits V (Room J)

	Session Chair:	Prof. Yuhua Cheng, Shanghai Research Institute of Microelectronics, Peking University, China
13:30	S56-1	An Inductorless Differential Transimpedance Amplifier Design for 5 GHz Optical Communication using 0.18-μm CMOS
Nov.3	(Invited)	Lee Bai Song Samuel, Thangarasu Bharatha Kumar, Zou Qiong, Yeo Kiat Seng Singapore University of Technology and Design, Singapore
14:00	S56-2	Low-Distortion Signal Generation for Analog/Mixed-Signal IC Testing Using Digital ATE Output Pin and BOST
Nov.3		Kosuke Machida ¹ , Tomonori Yanagida ² , Koji Asami ² , Masayuki Kawabata ² , Shohei Shibuya ¹ , Haruo Kobayashi ¹ ¹ Gunma University, Japan; ² Advantest Corporation, Japan
14:15	S56-3	CCD Signal Processing Circuit Based On Correlated Double Sampling
Nov.3		Yan Zeng, Wen-Gang Huang, Xiao-Zong Huang Sichuan Institute of Solid-state Circuits, China
14:30	S56-4	Design of low noise and low power Chopper Stabilized Amplifier for Neural Recording Applications
Nov.3		Lv-chen Zhou ¹ , Zun-chao Li ¹ , Jia Li ² , Qi Xiong ¹ ¹ Xi'an Jiaotong University, China; ² Aviation Industry Corporation of China, Ltd., China
14:45	S56-5	A Supply-Doubled 3-Level Pulse-Shaping Pulser for Ultrasound Medical Imaging Applications
Nov.3		Jian-Guo Diao, Yi-Min Wu, Long-Heng Luo, Fan Ye, Jun Xu Fudan University, China
15:00	S56-6	Design and Analysis of a Wideband&High compression ratio Anglog to Information Converter
Nov.3		Su-juan Liu, Yi-hui Fan, Ning Lyu, Ze Li, Yuezhong Zhou Beijing University of Technology, China

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