

2016 13th IEEE International Conference on
Solid-State and Integrated Circuit Technology

ICSICT-2016

Final Program

Oct. 25- Oct. 28, 2016, Hangzhou, China



2016 13th IEEE International Conference on Solid-State and Integrated Circuit Technology

Oct. 25- Oct. 28, 2016, Hangzhou, China

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Tutorials

Room 1

9:00 – 12:00, Oct. 25, 2016

T-1 Neural Networks: Past, Present and Future

Dr. Lin Yang, CNNPU Ltd.

13:30 – 15:15, Oct. 25, 2016

T-2 EOS and ESD: Implications of Technology Scaling on Components, Systems, and IoT

Dr. Steven H. Voldman, Silicon Space Technology / VORAGO Corporation

15:30 – 17:00, Oct. 26, 2016

T-3 Challenges and Trends of Memory Circuit Designs for IoTs

Prof. Meng-Fan (Marvin) CHANG, National Tsing Hua University (NTHU)

ICSICT 2016 Technical Program Overview

Date	Time	Room 1	Room 3A	Room 3B	Room 3C	Room 5	Room 7	Room 8	VIP Room
Oct.25 Tue.	9:00-12:00	Tutorial T-1							
	13:30-17:00	Tutorial T-2,T-3							
Oct.26 Wed.	8:30-10:30	Opening & Keynote Speech Session 1 (K-1, K-2), (Ballroom, Tower 7/Tower 8)							
	10:45-12:15	Keynote Speech Session 1 (K-3, K-4), (Ballroom, Tower 7/Tower 8)							
	13:30-15:30	S01 Advanced CMOS and Emerging Devices	S03 Compound semiconduct or devices and Technology I	S05 Analog Circuits I	S07 RF Circuits and Systems I	S09 Optoelectroni c Devices & Technology I	S11 Memory I	S13 SOC	S15 Special Session on Neuromorphi c Computing
	15:45-17:45	S02 Nano CMOS and Emerging Devices I	S04 Compound semiconduct or devices and Technology II	S06 Analog Circuits II	S08 RF Circuits and Systems II	S10 Optoelectroni c Devices & Technology II	S12 Memory II	S14 EDA I	S16 MEMS Technology
	17:45-18:45	Poster Presentation (1), (Hall, Tower 7/Tower 8)							
	19:00-21:00	Reception							
Oct.27 Thur.	8:30-10:00	Keynote Speech Session 2 (K-5, K-6), (Ballroom, Tower 7/Tower 8)							
	10:15-12:15	S17 Nano CMOS and Emerging Devices II	S20 Novel Process Technologies	S23 Internet of Things I	S26 RF Circuits and Systems III	S29 2D Devices & Technologies I	S32 Advanced Process Technology I	S35 PLL and CDR	S38 New Computing Architectures and Technology I
	13:30-15:30	S18 Ge-based Devices and Technology I	S21 Advanced 3D Integration	S24 Internet of Things II	S27 CMOS Reliability I	S30 2D Devices & Technologies II	S33 Advanced Process Technology II	S36 Memory Circuits	S39 New Computing Architectures and Technology II
	15:45-17:45	S19 Ge-based Devices and Technology II	S22 Ultra High Speed Transistors	S25 Power Devices and Reliability	S28 CMOS Reliability II	S31 2D Devices & Technologies III	S34 Interconnect Technology	S37 EDA II	S40 Thin Film Transistors
	17:45-18:45	Poster Presentation (2) , (Ballroom, Tower 7/Tower 8)							
	20:00-22:00	Panel Discussion, (Meeting Room 1, Tower 7/Tower 8)							
Oct.28. Fri.	8:30-10:00	Keynote Speech Session 3 (K-7, K-8), (Ballroom, Tower 7/Tower 8)							
	10:15-12:15	S41 Nano CMOS and Emerging Devices III	S44 FPGA	S47 Signal Processing	S50 Device Simulation & Modeling I	S53 2D Devices & Technologies IV	S56 Memory III	S59 High-Performanc e Data Converters I	S62 Analog Circuits III
	13:30-15:30	S42 Sensors I	S45 Low-Power Nyquist ADCs	S48 System-Level Modeling & Simulation/Veri fication	S51 Device Simulation & Modeling II	S54 Physical Design	S57 Memory IV	S60 High-Performanc e Data Converters II	S63 Analog Circuits IV
	15:45-17:45	S43 Sensors II	Session46	S49 Special Session on Internet of Things	Session52	Session55	Session58	Session61	Session64
	19:00-21:00	Closing Banquet							

Paper Presentation Information

The 2016 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 Oct. 26, 2016.

Presentation time: 17:45 - 18:45 on Oct. 26, 2016.

Display time: 8:30 - 18:45 on Oct. 26, 2016.

Poster Session 2:

Setup time: 8:30 - 17:30 on Oct. 27, 2016.

Presentation time: 17:45 - 18:45 on Oct. 27, 2016.

Display time: 8:30 - 18:45 on Oct. 27, 2016.

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

Oct. 26 08:30

Opening

Ballroom, Tower 7/8

Keynote Session 1

Session Chair: Hiroshi Iwai, 1)Tokyo Institute of Technology, Japan; 2) National Chiao Tung University, Taiwan, China

Kevin Zhang, Intel Corporation, USA

9:00 K1 The Present and Future of Moore's Law

Oct. 26 **(Keynote)** Peng Bai
Ballroom, Intel Corporation, USA
Tower 7/8

9:45 K2 Versatile Memory: A Software Configurable Memory Technology Based on Ferroelectric FETs

Oct. 26 **(Keynote)** T.P. Ma
Ballroom, Yale University, USA
Tower 7/8

Coffee Break

10:45 K3 Soft Electronics for the Human Body

Oct. 26 **(Keynote)** John A. Rogers
Ballroom, University of Illinois at Urbana/Champaign, USA
Tower 7/8

11:30 K4 The Challenges of Physical Implementation for Advanced Technology

Oct. 26 **(Keynote)** Chin-Chi Teng
Ballroom, Cadence Corporate, USA
Tower 7/8

S01 Advanced CMOS and Emerging Devices

Session Chair: Albert Chin, Chiao Tung University, Taiwan, China

Dohun Kim, Seoul National University, South Korea

13:30 S01-1 Silicon Based Semiconductor Quantum Dot Hybrid Qubits

Oct. 26 **(Invited)** Dohun Kim
Room 1 Seoul National University, South Korea

14:00 S01-2 28FDSOI Technology for Low-Voltage, Analog and RF applications

Oct. 26 **(Invited)** Nicolas Planes*, S.Kohler, A.Cathelin, C.Charbuillet, P.Scheer, F.Arnaud
Room 1 STMicroelectronics, France

14:30 S01-3 Ferroelectric, Small Bandgap and Wide Bandgap Materials for Ultra-Low Power Green Electronic Devices

Oct. 26 **(Invited)** Albert Chin¹, Cheng W. Shih¹, Kai-Zhi Kan¹, Tim Chen²
Room 1 ¹ Chiao Tung University, Taiwan, China; ² AUCMOS Technologies, USA

15:00 S01-4 High Mobility Ultrathin Ge and GeSn Channel pMOSFETs Fabricated on Si Platform

Oct. 26 Hongjuan Wang, Genquan Han*, Yibo Wang, Yan Liu, Chunfu Zhang, Jincheng Zhang, Yue Hao
Room 1 Xidian University, China

15:15 S01-5 A Novel Low Bias and High Speed Non-Classical CMOS Inverter with Unique Shared

Contact

Oct. 26 Tzu-Chi Wang, Jyi-Tsong Lin*, Kai-Cheng Juang, Wei-Han Lee, Ting-Pi Hsu, Jing-Hao Lai
Room 1 National Sun Yat-Sen University, Taiwan, China

Coffee Break

S02 Nano CMOS and Emerging Devices I

Session Chair: **Ming Li, Peking University, China**

- 15:45 S02-1 An Overview of Nanoelectronics Research Initiative (NRI)**
Oct. 26 **(Invited)** An Chen^{1,2,*}
Room 1 ¹Semiconductor Research Corporation, USA; ²IBM Research, USA
- 16:15 S02-3 Silicon GAA NW TFET Inverters With Suppressed Ambipolarity**
Oct. 26 **(Invited)** K. Narimani, G. V. Luong, A. T. Tiedemann, P. Bernardy, S. Trelenkamp, S. Mantl and Q. T. Zhao
Room 1 Peter-Grünberg-Institute, Germany
- 16:45 S02-4 Investigation the Impact of Composition on the Performance of SiGe Nanowire pMOSFETs by Different Simulation Methods**
Oct. 26 Xianle Zhang, Xiaoyan Liu*, Yijiao Wang, Longxiang Yin, Gang Du
Room 1 Peking University, China
- 17:00 S02-5 Resistive-Gate Field-Effect Transistor Exhibiting Steep Subthreshold Slope of 5mV/dec and High ION/IOFF Ratio**
Oct. 26 Qianqian Huang, Zongwei Wang, Yue Pan, Yangyuan Wang, Ru Huang*
Room 1 Peking University, China

S03 Compound semiconductor devices and Technology I

Session Chair: **Baikui Li, Shenzhen University, China**

- 13:30 S03-1 HfO₂/AlN/In_{0.53}Ga_{0.47}As MOS Devices Electrical Properties and Reliability Studies**
Oct. 26 **(Invited)** Edward Yi-Chang^{1,2*}, Quang-Ho Luc¹, Huy-Binh Do¹, Po-Chun Chang², Yueh-Chin Lin¹
Room 3A ¹ National Chiao Tung University, Taiwan, China; ² National Chiao Tung University, Taiwan, China
- 14:00 S03-2 1/f Noise in GaN/AlGaN HEMTs**
Oct. 26 **(Invited)** D. M. Fleetwood, P. Wang, J. Chen, R. Jiang, E. X. Zhang, M. W. McCurdy, R. D. Schrimpf
Room 3A Vanderbilt University, USA
- 14:30 S03-3 RF Energy Harvesting Using Emerging TFET Technology**
Oct. 26 **(Invited)** Jiann-Shiun Yuan¹, Ekavut Kritchanchai²
Room 3A University of Central Florida Orlando, U.S.A
- 15:00 S03-4 A Novel Enhance-mode AlGaIn/GaN HEMT with Split Floating Gates**
Oct. 26 **(Invited)** Hui Wang^{1,2}, Ling-Li Jiang^{1,2}, Hong-Yu Yu^{1,2*}
Room 3A ¹ Southern University of Science and Technology, China; ² Shenzhen Key Laboratory of The Third Generation Semi-conductor, China

Coffee Break

S04 Compound semiconductor devices and Technology II

Session Chair: **D. M. Fleetwood, Vanderbilt University, USA**

- 15:45 S04-1 High-Resistivity SiGe BiCMOS for Switch+LNA Integration for WiFi Front-End IC Applications**
Oct. 26 **(Invited)** Alvin J., Ananth S.¹, Shrinivas P.¹, Mike Z., Vibhor J., Chaojiang L.², James A.
Room 3A GLOBALFOUNDRIES, USA; ¹ Model Development, India; ² Application Engineering, USA
- 16:15 S04-2 Enhancing Dynamic Performance of GaN-on-Si Power Devices with On-Chip Photon Pumping**

Oct. 26 Room 3A	(Invited)	Baikui Li ^{1*} , Xi Tang ² , Jiannong Wang ³ , Kevin J. Chen ^{2,4*} ¹ Shenzhen University, China; ² Hong Kong University of Science & Technology, Hong Kong, China; ³ Hong Kong University of Science & Technology, Hong Kong, China; ⁴ HKUST Shenzhen Research Institute, China
16:45	S04-3	Hetero-integration of III-V and Ge-based Transistors on Silicon Enabled by Interfacial Misfit Technique
Oct. 26 Room 3A	(Invited)	Xiao Gong ^{1*} , Sachin Yada ¹ , Kian Hui Goh ¹ , Kian Hua Tan ² , Annie ¹ , Kian Lu Low ¹ , Bowen Jia ² , Soon-Fatt Yoon ² , Gengchiao Liang ¹ , Yee-Chia Yeo. ^{1*} ¹ National University of Singapore, Singapore; ² Nanyang Technological University, Singapore.
17:15	S04-4	Interface Properties Study on SiC MOS with High-κ Al2O3 Gate Dielectric
Oct. 26 Room 3A		Lin Liang ¹ , Wei Li ¹ , SichaoLi ^{1,2} , Xuefei Li ² , Yanqing Wu ^{2*} ¹ Huazhong University of Science and Technology, CHINA; ² Huazhong University of Science and Technology, CHINA
17:30	S04-5	Study of DC Sputtered SnO Growth and Its Applications in Thin Film Transistors
Oct. 26 Room 3A		Ji-Yu Feng, Chun-Feng Hu, Xin-Ping Qu* Fudan University, China

S05 Analog Circuits I

Session Chair: Wai Tung Ng, University of Toronto, Canada

13:30	S05-1	Design of High Accuracy High Conversion Ratio Single-Stage Switching Power Converter for Modern FPGAs at 10MHz
Oct. 26 Room 3B	(Invited)	Xugang Ke, Lenian He*, D. Brian Ma The University of Texas at Dallas, USA; *Zhejiang University, China
14:00	S05-2	Ultra-High Precision Bandgap Voltage Reference Using a Novel Current Trimming Technique
Oct. 26 Room 3B	(Invited)	Fei Lu ¹ , Zongyu Dong ² , Chenkun Wang ¹ , Qi Chen ¹ , Rui Ma ¹ , Feilong Zhang ¹ , Cheng Li ¹ , Albert Wang ¹ ¹ University of California, USA; ² Qualcomm, USA
14:30	S05-3	Hysteretic Controlled Buck Converter with Switching Frequency Insensitive to Input/Output Voltage Ratio
Oct. 26 Room 3B		Koyo Asaishi*, Nobukazu Tsukiji, Yasunori Kobori, Yoshiki Sunaga, Nobukazu Takai, Haruo Kobayashi Gunma University, Japan
14:45	S05-5	Analysis and Design of Operational Amplifier Stability Based on Routh-Hurwitz Method
Oct. 26 Room 3B		JianLong Wang*, Gopal Adhikari, Haruo Kobayashi, Nobukazu Tsukiji, Mayu Hirano, Keita Kurihara, Akihito Nagahama †, Ippei Noda †, Kohji Yoshii † Gunma University, Japan
15:00	S05-6	Simple Reference Current Source Insensitive to Power Supply Voltage Variation - Improved Minoru Nagata Current Source
Oct. 26 Room 3B		Mayu Hirano, Nobukazu Tsukiji, Haruo Kobayashi* Gunma University, Japan

Coffee Break

S06 Analog Circuits II

Session Chair: Ya-Jie Qin, Fudan University, China

15:45	S06-1	A Comparison between GaN and Silicon Based Class D Audio Power Amplifiers with Pulse Density Modulation
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Oct. 26	(Invited)	Joshua Chung, Robert McKenzie, Wai Tung Ng
Room 3B		University of Toronto, Canada
16:15	S06-2	Comparator Circuit Automation by Combination of Game Tree Search and Partial Optimization
Oct. 26		Satoshi Yoshizawa*, Nobukazu Takai, Kento Suzuki, Yoshiki Sugawara, Kazuto Okochi, Haruo Kobayashi
Room 3B		Gunma University, Japan
16:30	S06-3	Study of Gray Code Input DAC Using MOSFETs for Glitch Reduction
Oct. 26		Gopal Adhikari*, Richen Jiang, Haruo Kobayashi
Room 3B		Gunma University, Japan
16:45	S06-4	A 4 MHz Digital Single Inductor Dual Outputs Buck/Boost DC-DC Converter with 10-bit $\Sigma\Delta$ Digital Pulse Width Modulation
Oct. 26		Hongguang Zhang, Yao Qian, Yi Cao, Kang Wei, Zhiliang Hong*
Room 3B		Fudan University, China
17:00	S06-5	Single-Inductor Dual-Output Soft-Switching Converter with Voltage-mode Resonant Switch
Oct. 26		Yasunori Kobori*, Nobukazu Tsukiji, Yoshiki Sunaga, Takuya Arafune, Nobukazu Takai, Haruo Kobayashi
Room 3B		Gunma University, Japan
17:15	S06-6	A 4-channel ASIC for X-ray CCD Readout Based on Incremental Sigma Delta ADC
Oct. 26		Qian Yu ¹ , Kerou Wang ¹ , Xiaofei Cao ¹ , Yanchao Wang ¹ , Ting Yi ¹ , Bo Lu ² , Yong Chen ² , Zhiliang Hong ^{1*}
Room 3B		¹ Fudan University, CHINA; ² Chinese Academy of Sciences, CHINA
17:30	S06-7	Derivation of Loop Gain from Output Impedances in DC-DC Buck Converter
Oct. 26		Nobukazu Tsukiji*, Yasunori Kobori, Haruo Kobayashi
Room 3B		Gunma University, Japan

S07 RF Circuits and Systems I

	Session Chair:	Chaojiang Li, Globalfoundries, USA
13:30	S07-1	Silicon Based Power Amplifiers for 4G/5G Handset Applications
Oct. 26	(Invited)	Yan Li ^{1*} , Jerry Lopez ² , Donald Y.C. Lie ³
Room 3C		¹ Qorvo Inc., USA; ² NoiseFigure Research, USA; ³ Texas Tech University, USA
14:00	S07-2	Linear-in-decibel Variable Gain Amplifier Design in 0.18μm SiGe BICMOS Technology
Oct. 26	(Invited)	Muting Lu ¹ , Thangarasu Bharatha Kumar ¹ , Xiaopeng Yu ² , Kiat Seng Yeo ¹
Room 3C		¹ Singapore University of Technology and Design, Singapore; ² Zhejiang University, China
14:30	S07-3	A High-Linearity and High-Resolution All-Digital Phase Modulator with Calibration Algorithm for LINC Transmitters
Oct. 26		Yang Wang, Linlin Xie, Shushan Qiao*
Room 3C		¹ Chinese Academy of Sciences, China; ² University of Chinese Academy Sciences, China
14:45	S07-4	Operational Frequency of Ring Oscillators under Periodical Interference on the Supply
Oct. 26		Xiaohui Qiu ¹ , Tao Su ² , Zixin Wang ^{2*}
Room 3C		¹ Sun Yat-sen University, China; ² Sun Yat-sen University, China
15:00	S07-5	A Single-Element of Ka-Band 0.13μm CMOS All-RF Phased-Array Receiver with 4-bit Phase Resolution
Oct. 26		Tianyu Shen ¹ , Runxi Zhang ¹ , Chunqi Shi ²
Room 3C		¹ East China Normal University, China; ² East China Normal University, China

15:15 S07-6 **A 24.25-26.65 GHz 6-bit Vector-Sum Phase Shifter in 65nm CMOS**
Oct. 26 Jintao Hu¹, Wei Li^{1*}, Jiexiong Liang¹, Lai He¹
Room 3C ¹ Fudan University, China

Coffee Break

S08 RF Circuits and Systems II

Session Chair: Yumei Huang, Fudan University, China

15:45 S08-1 **Power Constrained Sig/SOI Sub 6ghz LNA Design Analysis And Comparison**
Oct. 26 (Invited) *Chaojiang Li, Randy Wolf, Myra Boenke, Alvin Joseph
Room 3C Globalfoundries, USA

16:15 S08-2 **High Data-Rate mm-Wave CMOS Transceiver IC Design**
Oct. 26 (Invited) Akira Matsuzawa
Room 3C Tokyo Institute of Technology, Japan

16:45 S08-3 **Coupled Resonator Based Wideband Millimeter-Wave Circuits**
Oct. 26 (Invited) Haikun Jia, Zheng Song, Zhihua Wang And Baoyong Chi*
Room 3C Tsinghua University, China;

17:15 S08-4 **A 150ghz Injection-Locked Frequency Divider With 19.8% Locking Range Based On Adjustable Inductor Tuning Method In 65-Nm CMOS**
Oct. 26 Xinxin Zhu, Lei Zhang*, Yan Wang, Zhiping Yu
Room 3C Tsinghua University, China

17:30 S08-5 **A 50ghz VCO In 65nm LP CMOS For Mm-Wave Applications**
Oct. 26 Xiaokang Niu¹, Lianming Li^{1*}, Dongming Wang^{1*}
Room 3C ¹Southeast University, China

S09 Optoelectronic Devices & Technology I

Session Chair: Jin He, Peking University, China

13:30 S09-1 **Quantum Dot Lasers For Silicon Photonics**
Oct. 26 (Invited) Yasuhiko Arakawa
Room 5 The University Of Tokyo

14:00 S09-2 **High-density Optical Interconnection Based on Integrated Silicon Photonics Technologies**
Oct. 26 (Invited) Yu Tanaka
Room 5 Advanced Industrial Science and Technology, Japan

14:30 S09-3 **Characteristics Evaluation of Ytterbium-Doped Linear-cavity Fiber Lasers**
Oct. 26 (Invited) Shien-Kuei Liaw¹, Yilin Yu²
Room 5 ¹National Taiwan University of Science and Technology, Taiwan, China; ² Academia Sinica, Taiwan, China

15:00 S09-4 **Silicon-Quantum-Dot Light-Emitting Diodes With Varying Emission Layer Thickness**
Oct. 26 (Invited) Wei Gu, Xiangkai Liu, Shuangyi Zhao, Xiaodong Pi*, And Deren Yang
Room 5 Zhejiang University, China

Coffee Break

S10 Optoelectronic Devices & Technology II

Session Chair: Yu Tanaka, Advanced Industrial Science and Technology, Japan

15:45 S10-1 **Mode (De)Multiplexers Based On Asymmetric Y Junctions**
Oct. 26 (Invited) Weiwei Chen

Room 5		Ningbo University
16:15	S10-2	Study Progress On FET-Based Terahertz Wave Generation And Detection
Oct. 26	(Invited)	Jin He ^{1*} , Guoqing Hu ¹ , Zhiping Zhou ¹ , Guangjin Ma ¹ , Yandong He ¹ , Mansun Chan ² , Lei Song ³
Room 5		¹ Peking University, China; ² Hong Kong University Of Science And Technology, China; ³ Shenzhen Superd Co. Ltd, China
16:45	S10-3	Multi-Color Modulation In Solid-State Display Based On Phase Changing Materials
Oct. 26		Yanbiao Lyu ¹ , Shenghong Mou ¹ , Yu Bai ² , Ying Sun ¹ , Zhiyuan Cheng ^{1*}
Room 5		¹ Zhejiang University, China; ² Xi'an Jiaotong University, China
17:00	S10-4	Improve Conventional HIT Solar Cell Structure By Using Nano-Pillar
Oct. 26		Chung-Tse Lee ¹ , Jyi-Tsong Lin [*] , Chien-Chia Lai ² , Po-Cheng Yan ³ , Yu-Yan Hu ³
Room 5		National Sun Yat-Sen University, Taiwan, China
17:15	S10-5	Tunable Hysteresis Behaviors In Perovskite Transistors
Oct. 26		Yilin Sun ¹ , Dan Xie ^{1*} , Mengxing Sun ¹ , Changjiu Teng ¹ , Ruixuan Dai ¹ , Pu Yang ¹ , Zhixin Li ¹
Room 5		¹ Tsinghua University, China

S11 Memory I

Session Chair: J. Joshua Yang, University Of Massachusetts, USA

13:30	S11-1	Analysis Of RTN Signals In Resistive-Switching RAM Device And Its Correlation With Device Operations
Oct. 26	(Invited)	W.Zhang, Z.Chai, J. Ma, J. F. Zhang, Z. Ji
Room 7		Liverpool John Moores University, UK
14:00	S11-2	Reliability Projecting For Reram Based On Stochastic Differential Equation
Oct. 26	(Invited)	Zhiqiang Wei ¹ , Koji Eriguchi ² , Shunsaku Muraoka ¹ , Koji Katayama ¹ , Ryotaro Yasuhara ¹ , Kawai Ken ¹ , Yukio Hayakawa ¹ , Kazuhiko Shimakawa ¹ , Takumi Mikawa ¹ , Yoneda Shinichi ¹
Room 7		¹ Panasonic Semiconductor Solutions Co., Ltd., Japan; ² Kyoto University, Japan;
14:30	S11-3	Resistance Control Of Transition Metal Oxide Resistive Memory (TMO Reram)
Oct. 26	(Invited)	Ming-Hsiu Lee [*] , K.C. Hsu, F.M. Lee, Y.Y. Lin, E.K. Lai, J.Y. Wu, D.Y. Lee, K.Y. Hsieh
Room 7		Macronix International Co., Ltd., Taiwan, China
15:00	S11-4	A 3D Multi-Layer CMOS-RRAM Accelerator For Multi-Layer Machine Learning (Invited)
Oct. 26	(Invited)	Hantao Huang, Leibin Ni And Hao Yu
Room 7		Nanyang Technological University, Singapore

Coffee Break

S12 Memory II

Session Chair: Zhiqiang Wei, Panasonic Semiconductor Solutions Co., Ltd., Japan

15:45	S12-1	Challenges And Solutions For Memristors Used For Memory And Neuromorphic Computing
Oct. 26	(Invited)	Zhongrui Wang, Saamil Joshi, Hao Jiang, Rivu Midya, Peng Lin, Qiangfei Xia, And J. Joshua Yang [*]
Room 7		University Of Massachusetts, USA
16:15	S12-2	Design And Application Of Resistive Switching Devices For Novel Computing/Memory Architectures
Oct. 26	(Invited)	Jinfeng Kang [*] , Peng Huang, Haitong Li, Bin Gao [#] , Yudi Zhao, Runze Han, Zheng Zhou, Zhe Chen, Chen Liu, Lifeng Liu, And Xiaoyan Liu
Room 7		Peking University, China; [#] Tsinghua University, China
16:45	S12-3	High-Desity Nonvolatile Ferroelectric Resisitive Memory

Oct. 26	(Invited)	An Quan Jiang, * Jun Jiang And Ting Ao Tang
Room 7		Fudan University, China
17:15	S12-4	Advanced Nanofabrication And Its Application To Nano Phase-Change Memory for Reducing Writing Current
Oct. 26	(Invited)	You Yin ^{1*} , Dai Nishijo ¹ , Keita Sawao ¹ , Kazumasa Ohyama ² , Takashi Akahane ² , Takuya Komori ² , Miftakul Huda ³ , Hui Zhang ¹ , And Sumio Hosaka ¹
Room 7		¹ Gunma University, Japan; ² Gunma University, Japan; ³ Tokyo Institute Of Technology, Japan

S13 SOC

Session Chair: Ya-Jie Qin, Fudan University, China

13:30	S13-1	System-On-A-Chip Brain-Machine-Interface Design -A Review And Perspective
Oct. 26	(Invited)	Jan Van Der Spiegel [†] , Milin Zhang*, Xilin Liu [†]
Room 8		[†] University Of Pennsylvania, U.S.A.; *Tsinghua University, China
14:00	S13-2	A 125 Khz Single Chip Security Transponder For Automotive Keyless Entry
Oct. 26		Bing Li*, Wei Wang, Jia Liu, Wen-Jun Liu, Jian-Min Cao, Qian Yang
Room 8		Shenzhen University, China
14:15	S13-3	An Intelligent And Power-Saving Wireless DSP Design For The Wearable EEG's Fatigue Monitoring
Oct. 26		Sunjianhui ^{1,2*} , Wanggongtang ¹ , Huaqing ¹ , Wangchunxing ¹ , Wanjinfeng ¹ , Liu Juntao ² , Caixinxia ² , Houligang ³
Room 8		¹ *Shandong Normal University; ² Chinese Academy Of Sciences University; ³ Beijing University Of Technology
14:30	S13-4	An Automatic Parallelizer For Coarse-Grained Reconfigurable Processor
Oct. 26		Ping Mi ^{1*} , Zhongyuan Zhao ² , Weiguang Sheng ³ , Weifeng He ⁴
Room 8		¹ Shanghai Jiao Tong University, China
14:45	S13-5	High-Speed, Low-Power Transmitter Based On Charge Redistribution For Noc Links
Oct. 26		Changqing Xu ^{1*} , Yi Liu, And Yintang Yang
Room 8		¹ Xidian University, China
15:00	S13-6	Distributed Model Predictive Control For Dynamic Thermal Management Of Multi-Core Systems
Oct. 26		Lei Xu*, Hai Wang*, Sheldon X.-D. Tan [†] , Chi Zhang*, Yuan Yuan [‡] , Keheng Huang [§] , And Zhenghong Zhang [§]
Room 8		*University Of Electronic Science & Technology Of China, China; [†] University Of California, USA; [‡] University Of Electronic Science & Technology Of China, China; [§] Southwest China Research Institute Of Electronic Equipment, China
15:15	S13-7	Balancing Clock Skew For Near-Threshold Multi-Voltage Multipower-Mode Designs Using A Multi-Stage PMAB Approach
Oct. 26		Yan He ¹ , Xiaoyan Xiang ^{2*} , Chen Chen ² , Jianyi Meng ²
Room 8		¹ Zhejiang University, China; ² Fudan University, China

Coffee Break

S14 EDA I

Session Chair: Pingqiang Zhou, Shanghaitech University, China

15:45	S14-1	Applications Of Monte Carlo Method To 3-D Capacitance Calculation And Large Matrix Decomposition
Oct. 26	(Invited)	Wenjian Yu
Room 8		Tsinghua University, China
16:15	S14-2	Methodology To Optimize Analog And RF Circuit Simulations Performance For Best

Efficiency

- Oct. 26 **(Invited)** Bin Wan¹, Xingang Wang²
Room 8 ¹Skyworks Solutions, United States; ²Skyworks Solutions, United States
- 16:45 S37-1 Power-Aware Testing For Low-Power VLSI Circuits**
Oct. 26 **(Invited)** Xiaoqing Wen
Room 8 Kyushu Institute Of Technology, Japan
- 17:15 S14-5 Layout Decomposition Algorithms For Double Patterning Lithography**
Oct. 26 Xuelian Zhang^{1,2}, Yuping Wu^{1,2,3*}, Lan Chen^{1,2}, Qi Zhang^{1,2}, Weicheng Shi^{1,2}
Room 8 ¹Institute Of Microelectronics Of Chinese Academy Of Sciences, China; ²Beijing Key Laboratory Of 3D & Nano IC Design Automation Technology, China; ³Key Laboratory Of Microelectronic Devices & Integrated Technology, China
- 17:30 S14-6 A Fast Full-Chip Static Power Estimation Method**
Oct. 26 Jiachun Wan*, Hai Wang*, Sheldon X.-D. Tan[†], Chi Zhang*, Yuan Yuan[‡], Keheng Huang[§], And Zhenghong Zhang[§]
Room 8 *University Of Electronic Science & Technology Of China, China; [†]University Of California, USA; [‡]University Of Electronic Science & Technology Of China, China; [§]Southwest China Research Institute Of Electronic Equipment, China

S15 Special Session on Neuromorphic Computing

Session Chair: Fengwei An, Hiroshima University, Japan

- 13:30 S15-1 Efficient Statistical Validation of Machine Learning Systems for Autonomous Driving**
Oct. 26 **(Invited)** Xin Li
VIP Room Carnegie Mellon University, US
- 14:00 S15-2 Neuromorphic Computing Based on Resistive Switching Devices**
Oct. 26 **(Invited)** Wei Lu
VIP Room University of Michigan, US
- 14:30 S15-3 Neuromorphic Computing Systems: Challenges and Opportunities**
Oct. 26 **(Invited)** Hai Li
VIP Room Univ. of Pittsburgh, US
- 15:00 S15-4 Weight Tuning Of Resistive Memories And Convolution Kernel Operation On Cross-Point Array For Neuro-Inspired Computing**
Oct. 26 **(Invited)** Ligang Gao, Pai-Yu Chen, And Shimeng Yu*
VIP Room Arizona State University, USA

Coffee Break

S16 MEMS Technology

Session Chair: Jia Zhou, Fudan University, China

- 15:45 S16-1 Self Powered Smart Sensing System**
Oct. 26 **(Invited)** Haixia (Alice) Zhang
VIP Room Peking University, China
- 16:15 S16-2 Safety Analysis on a Novel Solid State Thermal Mechanical Discriminator**
Oct. 26 JIA Le¹, GAO Yang^{2*}, WANG Yu-hang^{1,3}, LV Jun-guang⁴
VIP Room ¹ Southwest University of Science and Technology, China; ² China Academy of Engineering Physics, China; ³ Chongqing University, China; ⁴ CAS, China
- 16:30 S16-3 Designable Regulation of Cell Filtration Through a Micropore-arrayed Filter**
Oct. 26 Yaoping Liu^{1,2}, Xiaolong Rao³, Wengang Wu^{1,4,5}, Yan Sun^{2,6}, Wei Wang*^{1,4,5}
VIP Room ¹ Peking University, Beijing, CHINA; ² Chinese Academy of Sciences, CHINA; ³ No. 1 Hospital of Peking University, CHINA; ⁴ National Key Laboratory of Science and Technology on Micro/Nano

Fabrication, CHINA; ⁵ Innovation Center for Micro-Nano-electronics and Integrated System, CHINA; ⁶ Beihang University, CHINA

- 16:45 S16-4 A Combined Wafer Bonding Method using Spin-coated Water Glass Adhesive Layer and Spot Pressing Bonding Technique**
Oct. 26 VIP Room Yang Xu^{1,2,3}, Shengkai Wang^{1,3*}, Yinghui Wang², Dapeng Chen², Honggang Liu^{1,3}
¹ Institute of MicroElectronics of the Chinese Academy of Sciences, China; ² Institute of MicroElectronics of the Chinese Academy of Sciences, China; ³ Institute of MicroElectronics of the Chinese Academy of Sciences, China
- 17:00 S16-5 3D-printed Novel Triboelectric Generator Based on Saw-toothed Button Structure**
Oct. 26 VIP Room Shengjiang Quan¹, Ling Bu^{1*}, Zhongwen Zhou¹, Weiyu Xu¹, Bin Liang¹, Lei Song²
¹ China University of Geosciences, China; ² State Grid Jibei Electric Power Co., Ltd., China
- 17:15 S16-6 Chromatic Confocal Imaging Based Mechanical Test Platform for Micro Porous Membrane**
Oct. 26 VIP Room Wangzhi Dai¹, Yaoping Liu¹, Fei Su^{*2}, Wei Wang^{*1,3,4}
¹ Peking University, China; ² Beihang University, China; ³ National Key Laboratory of Science and Technology on Micro/Nano Fabrication, China; ⁴ Innovation Center for Micro-Nano-electronics and Integrated System, China
- 17:30 S16-7 Dielectrophoretic Microfluidic Chip with 3D Vertical Side-wall Electrodes**
Oct. 26 VIP Room Xiumin Ji¹, Jian Pan², Jia Zhou^{*}
Fudan University, China

Poster Session I

Session Chair: Guang-Xi Hu, Fudan University, China

- 17:45 P1-001 Carrier-Mobility Improvement For Pentacene OTFT With LaZrO Dielectric By Using Pd Gate**
Oct. 26 Hall, Tower 7/8 Yuan-xiao Ma^{1*}, Chuan-Yu Han², P.T.Lai³
¹The University of Hong Kong, Hong Kong, China; ²The Xi'an Jiao Tong University, China; ³The University of Hong Kong, Hong Kong, China
- 17:45 P1-002 Characterization Of HfO₂/Al₂O₃ Gate Dielectric Nanometer-Stacks Grown By Atomic Layer Deposition On InAlAs Substrates**
Oct. 26 Hall, Tower 7/8 Li-Fan Wu^{1,2}, Yu-Ming Zhang¹, Hong-Liang Lu^{1*}, Yi-Men Zhang¹
¹Xidian University, China; ²Xi'an University of Posts and Telecommunications, China
- 17:45 P1-003 On The Frequency Dependence Of Oxide Trap Coupling In Nanoscale MOSFETs: Understanding Based On Complete 4-State Trap Model**
Oct. 26 Hall, Tower 7/8 Peng Hao, Dongyuan Mao, Runsheng Wang^{*}, Shaofeng Guo, Pengpeng Ren, Ru Huang
Peking University, China
- 17:45 P1-004 An Optimization Algorithm For Pre-Bond TSV Probing Tests And Fault Localization**
Oct. 26 Hall, Tower 7/8 Long Chen¹, Xiaole Cui^{1*}, Chi Yu¹, Xiaoyan Xu¹, Shengming Zhou²
¹Peking University Shenzhen Graduate School, China; ²National Integrated Circuit Design Shenzhen Industrial Center, China
- 17:45 P1-005 A Prebond TSV Test Scheme Using Oscillator**
Oct. 26 Hall, Tower 7/8 Chi Yu¹, Xiaole Cui^{1*}, Shengming Zhou²
¹Peking University Shenzhen Graduate School, Shenzhen, China; ²National Integrated Circuit Design Shenzhen Industrial Center, China
- 17:45 P1-006 TSV-To-TSV Crosstalk Induced Delay Analysis For 3D ICs**
Oct. 26 Qifan Hu¹, Qin Wang^{1*}, Jing Chen², Jing Xie¹, ZhiGaNg Mao¹

Hall, Tower 7/8		¹ Shanghai Jiao Tong University, PR China; ² Shanghai Aerospace Electronics Technology Institute, China
17:45	P1-007	Improved Crystallinity Of Ultra-Thin Amorphous Film By 2D-Limited Regrowth: Process And Characterization
Oct. 26 Hall, Tower 7/8		Yuancheng Yang, Ming Li*, Gong Chen, Hao Zhang, Xiaoyan Xu, Ru Huang Peking University, China
17:45	P1-008	Wafer Level Chip Scale Packing For Si-Based Driver Application
Oct. 26 Hall, Tower 7/8		Xiu-bo Liu ¹ , Shao-dong Wang ² , Yong-zhi Zhao ³ , Zhi-qiang Wang ⁴ Hebei Semiconductor Research Institute, China
17:45	P1-009	Si-Based Horizontal InAs Nanowire Transistors
Oct. 26 Hall, Tower 7/8		Wang Zhang, Wei-Hua Han*, Qi-Feng Lv, Hao Wang, Fu-Hua Yang Chinese Academy of Sciences, China
17:45	P1-010	Study On Neutron Radiation Effect Of FinFET SRAM
Oct. 26 Hall, Tower 7/8		Yi Liu ¹ , Zhi-Jiao Wang ^{2*} , Jin-Bao Hao ³ ^{1,2,3} Xidian University, China
17:45	P1-011	Research Of Transient Radiation Effects On FinFET SRAMs Compared With Planar SRAMs
Oct. 26 Hall, Tower 7/8		Jin-Bao Hao*, Yi Liu, Zhi-Jiao Wang Xidian University, China
17:45	P1-012	Source/Drain Architecture Design Of Vertical Channel Nanowire FET For 10nm And Beyond
Oct. 26 Hall, Tower 7/8		Gong Chen, Ming Li*, Jiayang Zhang, Yuancheng Yang, Ru Huang* Peking University, China
17:45	P1-013	MTJ Based Data Restoration In Non-Volatile SRAM
Oct. 26 Hall, Tower 7/8		Yifu Gong ¹ , Na Gong ¹ , LiGaNg Hou ² , Jinhui Wang ^{1*} ¹ North Dakota State University, USA; ² Beijing University of Technology, China
17:45	P1-014	Plasma Enhanced Atomic Layer Deposition Of Molybdenum Oxide From Mo(CO)₆ And O₂ Plasma For 2D Electronic Device Application
Oct. 26 Hall, Tower 7/8		Mao-Lin Shi, Jing Xu, Ya-Wei Dai, Qian Cao, Lin Chen*, Qing-Qing Sun, Peng Zhou, Shi-Jin Ding, David Wei Zhang Fudan University, China
17:45	P1-015	Band Gap Engineering Of Graphene: From The Point View Of Polymerization Of Porphyrins
Oct. 26 Hall, Tower 7/8		Jia Liu ^{1*} , Zhiyong Wang ^{2*} , Ruzhang Li ¹ ¹ Science and Technology on Analog Integrated Circuit Laboratory, China; ² Renmin University of China, China
17:45	P1-016	Electrical Properties Of OrGaNic Field-Effect Transistors Based On Ribbon-Like Tips-Pentacene Crystals
Oct. 26 Hall, Tower 7/8		Chen Wei-Bo Chen, Jian Zhang, Yu-Long Jiang*, Guo-Dong Zhu ^{#*} Fudan University, CHINA; [#] Fudan University, CHINA

- 17:45 P1-017 Simulation Of OrGaNic Thin Film Transistors With Stacked Pentacene Channel And Analysis Of Electrical Characteristics Improvement**
 Oct. 26 Cheng Shi, Liang-kui Liu, Lei Sun*
 Hall, Peking University, China
 Tower 7/8
- 17:45 P1-018 ITO-Free Perovskite Solar Cells Using Photolithography Processed Metal Grids As Transparent Anodes**
 Oct. 26 Hong-xiao Zhang, Da-zheng Chen*, Chun-fu Zhang*
 Hall, Xidian University, China
 Tower 7/8
- 17:45 P1-019 Spin-Dependent Shot Noise Through ZnMnSe Based Diluted Magnetic Semiconductor Heterostructures**
 Oct. 26 Z. Y. Du¹, B. Munkhbat¹, J. Gong^{1*}, R. Q. Zhang², L. L. Wei¹, W. Huang¹
 Hall, ¹Inner Mongolia University, China; ²City University of Hong Kong, Hong Kong, China
 Tower 7/8
- 17:45 P1-020 Effect Of Sulfur Adsorption On Different Surface Reconstruction Of 6H-SiC**
 Oct. 26 Miaomiao Chao, Ying Yang*, Qingqing Xing, Jin Chen, Li Zhang
 Hall, Xi'an University of Technology, CHINA
 Tower 7/8
- 17:45 P1-021 Investigation Of The Reverse Voltage Stress On The Fluorine Plasma Treated AlGaIn/GaN Schottky Barrier Diodes**
 Oct. 26 Ya-Song Zhang¹, Yan-Rong Cao^{1,2*}, Peng Li¹, Feng Dai¹, Qing Zhu², Ling Lv², Xiao-Hua Ma², Yue Hao²
 Hall, ¹Xidian University, China; ²Xidian University, China
 Tower 7/8
- 17:45 P1-022 High Performance Normally-Off Al₂O₃/GaN MOSFETs With Record High Threshold Voltage By Interface Charge Engineering**
 Oct. 26 Ruopu Zhu, Qi Zhou[†], A. Zhang, Y. Shi, Z. Wang, L. Liu, B. Chen, Y. Jin, Wanjun Chen, Bo Zhang
 Hall, University of Electronic Science and Technology of China, China
 Tower 7/8
- 17:45 P1-023 0.3 V_T/1.1 Kv AlGaIn/GaN Lateral Power Diode With MIS-Gated Hybrid Anode On Silicon Substrate**
 Oct. 26 Yi Yang, Qi Zhou[†], Yuanyuan Shi, Zeheng Wang, Li Liu, Kai Hu, Ruopu Zhu, Wanjun Chen, Bo Zhang
 Hall, University of Electronic Science and Technology of China (UESTC), China
 Tower 7/8
- 17:45 P1-024 Study Of A Novel Two Mesas Termination SiC Schottky Barrier Diode**
 Oct. 26 Hui Wang^{1,2}, Ling-Li Jiang^{1,2}, Hong-Yu Yu^{1,2*}
 Hall, ¹Southern University of Science and Technology, China; ²Shenzhen Key Laboratory of The Third
 Tower 7/8 Generation Semi-conductor, China
- 17:45 P1-025 Static And Dynamic Study In High-Voltage 4H-SiC PiN Rectifiers**
 Oct. 26 Xiaochuan Deng^{1,2*}, Xixi Chen^{1,2}, XuanLi^{1,2}, Chengzhan Li³, Jia Wu³, Yourun Zhang¹
 Hall, ¹University of Electronic Science and Technology of China, China; ²Institute of Electronic and
 Tower 7/8 Information Engineering in Dongguan UESTC, China; ³Zhuzhou CRRC Times Electric Co.,Ltd, China
- 17:45 P1-026 Mechanism Of Ohmic Contact Formation In AlGaIn/GaN High Electron Mobility Transistors Using Microwave Annealing**
 Oct. 26 Zhuo Liu, Lin-Qing Zhang, Jin-Shan Shi, Xiao-Yong Liu, Sheng-Xun Zhao, Hong-Fan Huang, Peng-Fei Wang*

Hall, Tower 7/8		Fudan University, China
17:45	P1-027	Characterization Of Trap Behaviors In AlGaIn/GaN MIS-HEMT Via Transient Capacitance Measurement
Oct. 26 Hall, Tower 7/8		Bin Dong ¹ , Jie Lin ¹ , Ning Wang ¹ , Ling-li Jiang ¹ , Zong-dai Liu ¹ , Kai Cheng ² , Hong-yu Yu ¹ ¹ South University of Science and Technology of China, China; ² Enkris Semiconductor Inc., China
17:45	P1-028	Characteristics Of ELDRS At High And Low-Level Injection In Double Polysilicon Self-Aligned NPN Bipolar Transistors
Oct. 26 Hall, Tower 7/8		Q. N. Yi ¹ , P. J. Zhang ^{2*} , X. Wu ² , W. S. Chen ² , Y. H. Yang ¹ , K. F. Zhu ¹ , Y. Zhong ¹ ¹ Chongqing Semi-chip Electronics Co.,Ltd, China; ² Science and Technology on Analog Integrated Circuit Laboratory, China
17:45	P1-029	The Influence Mechanism Of Al₂O₃ Layer And Etching Depth On 2DEG Sheet Density In Gate-Recessed Al₂O₃/AlGaIn/GaN MOS-HEMTs
Oct. 26 Hall, Tower 7/8		Peng Li ¹ , Yan-Rong Cao ^{1,2*} , Feng Dai ¹ , Ya-Song Zhang ¹ , Qing Zhu ² , Ling Lv ² , Xiao-Hua Ma ² , Yue Hao ² ¹ Xidian University, China; ² Xidian University, China
17:45	P1-030	The Effect Of Proton Irradiation On The Characteristics Of InP/InGaAs Heterojunction
Oct. 26 Hall, Tower 7/8		Xiao-Hong Zhao, Hong-Liang Lu [*] , Yu-Ming Zhang, Yi-Men Zhang, Min-Ru Hao, Yi-Hao Zhang Xidian University, China
17:45	P1-031	A Threshold Voltage Model For GaN-Based Heterostructure-Free Normally-Off FinFET
Oct. 26 Hall, Tower 7/8		Haisheng Qian ¹ , Guangxi Hu ^{1,*} , Ran Liu ¹ , Lirong Zheng ¹ , Xing Zhou ² ¹ Fudan University, China; ² Nanyang Technological University, Singapore
17:45	P1-032	Flexible RGO/Perovskite Hybrid Photodetector With High Performance
Oct. 26 Hall, Tower 7/8		Changjiu Teng ¹ , Dan Xie ^{1,*} , Mengxing Sun ¹ , Yilin Sun ¹ , Pu Yang ¹ ¹ Tsinghua University, CHINA
17:45	P1-033	A Dynamic Carrier-Storage Trench-Gate IGBT With Low Switching Loss
Oct. 26 Hall, Tower 7/8		Yu An, Min-Zhi Lin, Xiao-Yong Liu, Lin-Qing Zhang, Jun Wu, Peng-Fei Wang [*] Fudan University, China
17:45	P1-034	Investigation On Catastrophic Optical Damage Related To The Facet Coating In High Power GaAs-Based Laser Diodes
Oct. 26 Hall, Tower 7/8		Yan-Bin Qiao ^{1*} , Yan-Ning Chen ¹ , Jin Shao ¹ , Dong-Yan Zhao ¹ , Hai-Feng Zhang ¹ , Yang Zhao ¹ , Wei Yang ¹ Beijing Smart-Chip Microelectronics Technology Company Limited, China; ² Global Energy Interconnection Research Institute, China
17:45	P1-035	Study Of RBSOA Reliability Of Nanoscale Partially Narrow Mesa IGBT (PNM-IGBT)
Oct. 26 Hall, Tower 7/8		Jiang Lu [*] , Hainan Liu, Jiajun Luo, Lixin Wang, Guohuan Zhang, Zhengsheng Han Chinese Academy of Science, China; Chinese Academy of Sciences, China
17:45	P1-036	An Improved Structure Of 3.3kv 4H-Sic VdMOSFETs With Lower On-Resistance And Reverse Transfer Capacitance

- Oct. 26
Hall,
Tower 7/8
17:45 **P1-037** **Research Of RF LDMOS Device With Partial Stepped Oxygen Layer**
Shengqi Shi, Xintian Zhou, Ruifeng Yue, Yan Wang
Tsinghua University, China
- Oct. 26
Hall,
Tower 7/8
17:45 **P1-038** **A Novel 4H-SiC MESFET With Localized High-Doped P-Buffer Layer**
Xiao-Li La*, Bao-Xing Duan, Song Yuan
Xidian University, China
- Oct. 26
Hall,
Tower 7/8
17:45 **P1-039** **Trench SOI LDMOS With Trench-Field-Enhanced Structure For High Performance**
Hu-jun Jia*, Zhi-hui Yang, Pei-miao Ma, Qiu-yuan Wu, Ye-hui Luo
Xidian University, China
- Oct. 26
Hall,
Tower 7/8
17:45 **P1-040** **A Low Turnoff Loss SOI LIGBT With P-Buried Layer And Double Gates**
Bing Wang, Zhi-GaNg Wang*, Jiang Sun
Southwest Jiao Tong University, China
- Oct. 26
Hall,
Tower 7/8
17:45 **P1-041** **Experimental Studies On Robustness Of Super Junction VDMOS During The Body Diode Reverse Recovery**
Yi-Tao He*, Ming Qiao, Zuo Wang, Bo Zhang, Zhao-Ji Li
University of Electronic Science and Technology of China, China
- Oct. 26
Hall,
Tower 7/8
17:45 **P1-042** **Statistical Analysis On Performance Degradation Of 90 Nm Bulk Si MOS Devices Irradiated By Heavy Ions**
Min Ren*, Yuci Lin, Xiaofeng Cao, Chi Xie, Zehong Li, Bo Zhang
University of Electronic Science and Technology of China, China
- Oct. 26
Hall,
Tower 7/8
17:45 **P1-043** **Improved On-Resistance And Breakdown Voltage Vertical Gan-Based Field Effect Transistors**
Zhhexuan Ren, Xia An*, Weikang Wu, Xing Zhang, Ru Huang*
Peking University, China
- Oct. 26
Hall,
Tower 7/8
17:45 **P1-044** **Charge Storage In Si-Nanocrystals Embedded NOS Structure Characterized By Kelvin Probe Force Microscopy**
Zhonghao Sun¹, Huolin Huang^{1,2,*}, Rensheng Shen¹, Zifeng Zhang³, YC Liang², And Lizhong Hu¹
¹Dalian University Of Technology, China; ²National University Of Singapore, Singapore; ³Chaohu University, China
- Oct. 26
Hall,
Tower 7/8
17:45 **P1-045** **Bipolar Resistive Switching Characteristics And Mechanism In The TiN/SiO_x/Pt Structure**
Jie Xu^{1,2*}, Zewen Lin², Dameng Tan², Wei Li^{1,2}, Jun Xu²
¹Nanjing University of Posts and Telecommunications, China; ²Nanjing University, China.
- Oct. 26
Hall,
Tower 7/8
17:45 **P1-046** **The W Oxidation Time Effect On Resistive Switching Speed In AlO_x/WO_x-Based RRAM**
Hai-Xia Gao*, Xi-Xi Gu, Jiang-Zhou Guo, Yin-Tang Yang
Xidian University, China
- Oct. 26
Hall,
17:45 **P1-046** **The W Oxidation Time Effect On Resistive Switching Speed In AlO_x/WO_x-Based RRAM**
Juan Xu¹, Jianguo Yang¹, Yanqing Zhao¹, Yarong Fu¹, Ryan Huang², Qingtian Zhou², JinGaNg Wu², Yinyin Lin^{1*}
¹Fudan University, China; ²Semiconductor Manufacturing International Corp, China

- Tower 7/8
17:45 P1-047 TaOx Based Memristors With Recessed Bottom Electrodes And Built-In Ion Concentration Gradient As Electronic Synapses
 Oct. 26 Minghui Yin, Yuchao Yang*, Zongwei Wang, Teng Zhang, Yichen Fang, Xue Yang, Yimao Cai, Ru Huang*
 Hall, Peking University, China
 Tower 7/8
- 17:45 P1-048 Simulation Method For Forming And Switching Processes Of NbO₂ Based Selector**
 Oct. 26 Junjie Hu, Yudi Zhao, Longxiang Yin, Zhiyuan Lun, Peng Huang*, Jinfeng Kang, Xiaoyan Liu
 Hall, Peking University, China,
 Tower 7/8
- 17:45 P1-049 High Uniformity, Low-Power HfO_x-Based RRAM Enable By A Heterogeneous CeO₂-Nb:SrTiO₃ Interface**
 Oct. 26 Hong-Bin Zhao^{1,2}, Hai-Ling Tu^{2*}, Feng Wei^{1,2}, Yu-Hua Xiong^{1,2}, Zhi-Min Yang^{1,2}, Jun Du^{1,2}
 Hall, ¹General Research Institute for Nonferrous Metals, China; ²General Research Institute for
 Tower 7/8 Nonferrous Metals, China
- 17:45 P1-050 Simulation On Threshold Voltage Of L-Shaped Bottom Select Transistor In 3D NAND Flash Memory**
 Oct. 26 Xingqi Zou¹, Zhiliang Xia^{1*}, Lei Jin¹, Yu Zhang¹, Dandan Jiang¹, Dong Hua Li¹, Qiang Xu¹, Peizhen
 Hall, Hong¹, Ming Zeng², Jing Gao², Zhaoyun Tang¹, Shaoning Mei², Zongliang Huo^{1*}
 Tower 7/8 ¹Institute of Microelectronics of Chinese Academy of Sciences, China; ²Wuhan Xinxin
 Semiconductor Manufacturing Corporation (XMC), China
- 17:45 P1-051 Experimental Validation Of A Novel Bulk Acoustic Wave Sensor Read-Out Circuit**
 Oct. 26 GAO Yang^{1*}, YIN Xi-yang², HUANG Zhen-hua², LV Jun-guang³
 Hall, ¹China Academy of Engineering Physics, China; ²Southwest University of Science and Technology,
 Tower 7/8 China; ³Institute of High Energy Physics, China
- 17:45 P1-052 Four-Step FBAR Filters Design Method And SOI BOX Buffered Via-Hole Etching Scheme**
 Oct. 26 GAO Yang^{1,4*}, CAI Xun², HE Xuefeng³
 Hall, ¹China Academy of Engineering Physics, China; ²Southwest University of Science and Technology,
 Tower 7/8 China; ³Chongqing University, China; ⁴CAS, China
- 17:45 P1-053 Application Of Graphene Sheet As Intermediate Heat Spreading Layer In LED Modules**
 Oct. 26 Xiaoxu Kang^{1*}, Weijun Wang¹, Qingyun Zuo¹, Lanfang Shi¹, Chao Yuan¹, Bin Jiang¹, Shoumian
 Hall, Chen¹, Yuhang Zhao¹, WeiGaNg Li², Qiang Li², Xinping Chen²
 Tower 7/8 ¹Shanghai IC R&D Center, China; ²Hengdian Group Tospo Lighting Co. Ltd., China
- 17:45 P1-054 Ultrasensitive Sers Detection Of Ricin Through Controllably Synthesised Gold Nanostructures**
 Oct. 26 Jia Zhu^{12†}, Jiaorong Fan^{2†}, Yifei Mao², WenGaNg Wu^{2*}
 Hall, ¹Shenzhen Graduate School of Peking University, China; ²Peking University, China
 Tower 7/8
- 17:45 P1-055 Characteristic Research Of Zinc Oxide Based Thin Film Transistor By ALD Technology**
 Oct. 26 Yukun Yang^{1,2}, Dedong Han^{2*}, Guodong Cui², Wen Yu^{1,2}, Huijin Li², Junchen Dong², Xing Zhang²,
 Hall, Yi Wang², Shengdong Zhang^{1,2}
 Tower 7/8 ¹Shenzhen Graduate School of Peking University, PRC; ²Peking University, PRC
- 17:45 P1-056 Instability Of Flexible Low-Temperature Polycrystalline Silicon Thin-Film**

Transistors Under Mechanical Stresses

- Oct. 26
Hall,
Tower 7/8
17:45 **P1-057** **Optimization Of Crystallization Energy Density For Excimer Laser Annealed Polycrystalline Silicon Thin Film Transistors**
Zhipeng Sun, Mingxiang Wang*, Siwei Xu, Xialing Wang
Soochow University, China
- Oct. 26
Hall,
Tower 7/8
17:45 **P1-058** **Complexity Of The Total Dose Radiation Response Of Fully Depleted Silicon-On-Insulator NMOSFETs**
Dongyu Qi¹, Dongli Zhang¹, Mingxiang Wang^{1*}, Jianwen Li²
¹Soochow University, China; ²Govisionox Optoelectronics Co. Ltd., China
- Oct. 26
Hall,
Tower 7/8
17:45 **P1-059** **The Analysis Of ESD Degradation In P-Type Poly-Si Thin Film Transistor**
Zhong-Shan Zheng*, Bin-Hong Li, Jian-Tou Gao, Jia-Jun Luo, Zheng-Sheng Han
Institute of Microelectronics of Chinese Academy of Sciences, China; Chinese Academy of Sciences, China
- Oct. 26
Hall,
Tower 7/8
17:45 **P1-060** **Leakage Current Analysis Using High Resistivity Silicon Gated Diodes For PIN Detectors Application**
Kai Liu^{1,2}, Yuan Liu^{2*}, Yu-Rong Liu¹, Rong-Sheng Chen¹, Yun-Fei En²
¹South China University of Technology, China; ²China Electronic Product Reliability and Environmental Testing Research Institute, China
- Oct. 26
Hall,
Tower 7/8
17:45 **P1-061** **Calibration Strategy Based On Reference Sensor For GMR Biosensing And Biodetection System**
Hao Wang¹, Min Yu^{1*}, Baohua Shi¹, Yahuan Huang¹, Xinyang Zhao¹, Yufeng Jin¹
¹Peking University, China
- Oct. 26
Hall,
Tower 7/8
17:45 **P1-062** **Digital Closed-Loop Fiber Optic Gyroscope Design Based On The FPGA**
Cheng Zhu¹, Lei Zhang¹, Xizeng Shi², He Qian¹
¹Tsinghua University, China; ²Dongguan Bosh Biotechnologies, LTD, China
- Oct. 26
Hall,
Tower 7/8
17:45 **P1-063** **Inkjet Printable Conducting Polymer Hydrogel And Its Applications In Biosensors**
Dong-Sheng Yang
The first aeronautical college of air force, china
- Oct. 26
Hall,
Tower 7/8
17:45 **P1-064** **Efficient Flexible Planar Heterojunction Solar Cells Based On Chloride Incorporated Mixed Halide Perovskite**
Lijia Pan*, Wen Cheng, Yi Shi*
Nanjing University, China
- Oct. 26
Hall,
Tower 7/8
17:45 **P1-065** **Evaluation Of Blue Energy Harvest By Utilizing Nanochannel Devices**
Haifeng Yang, Jincheng Zhang, Jingjing Chang, Chunfu Zhang*
Xidian University, China
- Oct. 26
Hall,
Tower 7/8
17:45 **P1-066** **Short Channel Effect On The Nanochannel Energy Converting Device**
Zhuo Huang, Bo Wei Chen, Yabo Li, Shi Jie Li, Yuhui He, Xiang Shui Miao*
Huazhong University of Science and Technology, China
- Oct. 26
Hall,
Tower 7/8
17:45 **P1-066** **Short Channel Effect On The Nanochannel Energy Converting Device**
Yan Zhang¹, Bo Wei Chen, Ya Bo Li, Shi Jie Li, Yuhui He, Xiang Shui Miao*
¹Huazhong University of Science and Technology, China

- 17:45 P1-067 1.1% DMF Incorporation In MAI/IPA Precursor For 50% Efficiency Enhancement Of Planar Perovskite Solar Cells**
Oct. 26 Hall, Tower 7/8
Jiajie Mo, He Xi, Jingjing Chang, Chunfu Zhang*, Yue hao
¹XiDian University, China
- 17:45 P1-068 A Comparison Of The Reliability Of ⁶⁰Co_γ Ray Irradiation On Bulk-Si Substrate And SOI Substrate DPSA Bipolar Transistors**
Oct. 26 Hall, Tower 7/8
P. J. Zhang^{1*}, X. Wu¹, J. C. Jia², Q. N. Yi³, W. S. Chen¹, Y. H. Yang³, K. F. Zhu³, W. Lu², Y. Zhong³
¹Science and Technology on Analog Integrated Circuit Laboratory, China; ²Chinese Academy of Science, China; ³Chongqing Semi-chip Electronics Co., Ltd, China
- 17:45 P1-069 Influence Of The Channel Length On Hot-Carrier Effect In NMOSFET**
Oct. 26 Hall, Tower 7/8
Yan-Rong Cao^{1,2*}, Feng Dai¹, Cheng Cao¹, Ya-Song Zhang¹, Peng Li¹, Xiao-Hua Ma², Yue Hao²
¹Xidian University, China; ²Xidian University, China
- 17:45 P1-070 On The Assessment Of End-Of-Life Variability Induced By Stochastic NBTI In Nanoscale MOSFETs Accompanying Conspicuous RTN**
Oct. 26 Hall, Tower 7/8
Tao Sun, Runsheng Wang*, Pengpeng Ren, Xiaobo Jiang, Ru Huang
Peking University, China
- 17:45 P1-071 Investigation Of A Layout Technique For Single-Event Transient Mitigation**
Oct. 26 Hall, Tower 7/8
Luo Sheng^{1,2}, He Wei^{1,2*}, Zhang Zhun^{1,2}, He Lingxiang^{1,2}, Cao Jianmin², Wu Qingyang²
¹Shenzhen University, China; ²Shenzhen Key Laboratory of Micro-Nano Photonic Information Technology, China
- 17:45 P1-072 Proton Irradiation Effects And Annealing Behaviors Of 16Mb Magneto-Resistive Random Access Memory(MRAM)**
Oct. 26 Hall, Tower 7/8
Haohao Zhang¹, Jinshun Bi^{1*}, Yuan Duan^{1,2}, Yannan Xu^{1,2}, Ming Liu¹
¹Chinese Academy of Sciences, China; ²Beijing Jiaotong University, China
- 17:45 P1-073 Sensitivity Of Proton Single Event Effect Simulation Tool To Variation Of Input Parameters**
Oct. 26 Hall, Tower 7/8
Kai Xi^{1,2*}, Jinshun Bi¹, Ming Liu¹, Jie Liu², Yan Wang¹, Mingdong Hou²
¹Chinese Academy of Sciences, CHINA; ²Chinese Academy of Sciences, CHINA
- 17:45 P1-074 The Impacts Of Total Ionizing Dose Irradiation On NOR Flash Memory**
Oct. 26 Hall, Tower 7/8
Jinshun Bi^{1*}, Jin Li¹, Lanlong Ji¹, Hongyang Hu¹, Ming Liu¹
¹Chinese Academy of Sciences, CHINA
- 17:45 P1-075 Novel Time Redundant Flip-Flop Structure To Attenuate The Single-Event Transient**
Oct. 26 Hall, Tower 7/8
Chunmei Hu^{1*}, Yankang Du², Jianjun Chen¹, Yaqing Chi¹, Haiyan Chen¹
¹National University of Defence Technology, China; ²China National Digital Switching System Engineering & Technology R&D Center, China
- 17:45 P1-076 A SCR-LDMOS ESD Device For 150V HV SOI BCD Process**
Oct. 26 Hall, Tower 7/8
Cai Xiaowu^{1*}, Wei Junxiu¹, Gao zhe¹, Liang Chao¹, Lv Chuan¹, Lv Kai²
¹Light Industry College of Liaoning University, China; ²Hangzhou Dianzi University, China
- 17:45 P1-077 Total Ionizing Dose Response Of 0.18 Um Narrow Channel I/O NMOSFETs**
Oct. 26 Hall,
Tiehu Li^{1,2*}, Yintang Yang¹, Tao Liu²
¹Xidian University, CHINA; ²Science and Technology on Analog Integrated Circuit Laboratory,

- Tower 7/8
17:45 P1-078 **A Simulation Model For The PN Junction Based On SOI**
 Oct. 26 Jianhui Bu, Ying Li, Jiajun Luo, Zhengsheng Han*
 Hall, Institute of Microelectronics of Chinese Academy of Sciences, China; Chinese Academy of
 Tower 7/8 Sciences, China
- 17:45 P1-079** **Effects Of Doping Concentration On Semi-Floating Gate Image Sensor**
 Oct. 26 Jun Wu, Peng-Fei Wang*
 Hall, Fudan University, China
 Tower 7/8
- 17:45 P1-080** **Research On The Reliability Of Junctionless MOSFETs Based Inverter By 3D TCAD Simulation**
 Oct. 26 Ren-hua Yang^{1*}, Lei Xie¹, Le Zhong¹, Qiu-ye Lyu¹, Yong Peng¹, Xin Liu¹, Guang Mao¹, GaNg Dai¹
 Hall, ¹China Academy Of Engineering Physics, China
 Tower 7/8
- 17:45 P1-081** **A Novel AlGaIn/GaN High Electron Mobility Transistors With The Partial Fixed Positive Charge In Buffer Layer**
 Oct. 26 Hai-Jun Guo*, Bao-Xing Duan, Song Yuan
 Hall, Xidian University, China
 Tower 7/8
- 17:45 P1-082** **Atomic Level Simulation Of TiO₂ -Based Resistive Switching Memory**
 Oct. 26 Xixi Gu¹, Haixia Gao^{1*}, Mei Yang², Jiangzhou Guo¹
 Hall, ¹Xidian University, China; ²Xidian University, China
 Tower 7/8
- 17:45 P1-083** **A SPICE Model Of Bi-Layer Resistive Random Access Memory With Stepped Reset Phenomenon**
 Oct. 26 Yarong Fu, Juan Xu, Yanqing Zhao, Xiaoyong Xue, Yinyin Lin*
 Hall, Fudan University, China
 Tower 7/8
- 17:45 P1-084** **Performance-Improved Normally-Off AlGaIn/GaN High-Electron Mobility Transistors With A Designed P-GaN Area Under The Recessed Gate**
 Oct. 26 Huolin Huang^{12*}, Zhonghao Sun¹, Zifeng Zhang³, Rensheng Shen¹, YC Liang², Hongwei Liang¹,
 Hall, Jiming Bian¹, Guotong Du¹, Lizhong Hu¹.
 Tower 7/8 ¹Dalian University of Technology, China; ²National University of Singapore, Singapore; ³Chaohu University, China
- 17:45 P1-085** **Theoretical Investigation On Hydrogen-Related Oxide Traps In HfO₂ Gate Dielectrics: An Ab-Initio Study**
 Oct. 26 Yawen Zhang, Peng Hao, Runsheng Wang*, Jingwei Ji[†], Ru Huang
 Hall, Peking University, China; [†]Stanford University, USA
 Tower 7/8
- 17:45 P1-086** **A NBTI Inhibition Method With Channel Doping Concentration In PMOSFETs**
 Oct. 26 Jian-Min Cao*, Yi Liu, Rui-Ze Sun, Wei He, Bing Li
 Hall, Shenzhen University, China
 Tower 7/8
- 17:45 P1-087** **Role Of Ohmic Contact Resistance On Current Characteristics Of SiC Diodes**
 Oct. 26 RuiRui Feng, XueSong Xie*, Ju Meng, Ce Tian, YiNan Zhang
 Hall, Beijing University of Technology, China
 Tower 7/8
- 17:45 P1-088** **Stress Analysis Of N-Channel MOSFET With SiGe Channel For Different Dummy Poly Gate Number And Pitch**

Oct. 26 Hall, Tower 7/8		Hung-Wen Hsu ^{1*} , C.C. Lee ² ¹ PuTian University, China; ² Chung Yuan Christian University, China
17:45	P1-089	Tunnel MOSFET With Partial Channel Underlap Exhibiting Low Subthreshold Slope
Oct. 26 Hall, Tower 7/8		Wen-Hao Zhang ¹ , Zun-Cao Li ^{1*} , Yun-He Guan ¹ , Qi Xiong ¹ , Chuang Zheng ¹ ¹ Xi'an Jiaotong University, China
17:45	P1-090	Impact Of Critical Geometry Dimension On Channel Boosting Potential In 3D NAND Memory
Oct. 26 Hall, Tower 7/8		Dandan Jiang ^{1,2} , Zhiliang Xia ^{1*} , Lei Jin ¹ , Yu Zhang ¹ , Xingqi Zou ¹ , Peizhen Hong ¹ , Qiang Xu ¹ , Zhaoyun Tang ¹ , Jing Gao ³ , Ming Zeng ³ , Shaoning Mei ³ , Zongliang Huo ^{1,3*} ¹ Institute of Microelectronics of Chinese Academy of Sciences, CHINA; ² Chengdu University of Information Technology, CHINA; ³ Wuhan Xinxin Semiconductor Manufacturing Corporation (XMC), CHINA
17:45	P1-091	A Novel Temperature Analysis Method For Compound Semiconductor Integrated Circuits Based On Iterative Algorithm
Oct. 26 Hall, Tower 7/8		Shi-Zheng Yang ¹ , Hong-Liang Lu ^{1*} , Yu-Ming Zhang ¹ , Yi-Men Zhang ¹ ¹ Xidian University, China
17:45	P1-092	Intelligent Transformation Of Hydraulic Workshop Based On RFID And Sensing Technology
Oct. 26 Hall, Tower 7/8		Min-Li Wang ^{1*} , Xun Li ² , Jie Tan ³ ^{1,2,3} Chinese Academy of Sciences Institute of Automation, China
17:45	P1-093	Stackable Amorphous Indium Gallium Zinc Oxide Thin-Film Transistors for High-Density 3-Dimension Memory Applications
Oct. 26 Hall, Tower 7/8		Jae Chul Park ¹ , Dong Jin Kim ² , Ho-Nyeon Lee ^{2*} ¹ Yonsei University, Korea; ² Soonchunhyang University, Korea

Keynote Session II

Session Chair: Bin Zhao, Fairchild Semiconductor, USA

8:30	K5	End of the scaling theory and Moore's law, and what after?
Oct. 27 Ballroom, Tower 7/8	(Keynote)	Hiroshi Iwai ¹ Tokyo Institute of Technology, Japan; ² National Chiao Tung University, Taiwan, China
9:15	K6	Current Technologies and Opportunities of Emerging Non-volatile Memories
Oct. 27 Ballroom, Tower 7/8	(Keynote)	GitaeJeong, Kyupil Lee and ES Jung Samsung Electronics Co. Ltd., Korea

Coffee Break

S17 Nano CMOS and Emerging Devices II

Session Chair: Q. T. Zhao, Peter-Grünberg-Institute, Germany

10:15	S17-1	Variability in Extremely Narrow (~2nm) Silicon Nanowire FETs Induced by Quantum Confinement Variation Due to Line Width Roughness
Oct. 27 Room 1	(Invited)	Toshiro Hiramoto [*] , Tomoko Mizutani, Takuya Saraya, Kiyoshi Takeuchi and Masaharu Kobayashi The University of Tokyo, Japan

10:45	S17-2	Impact of strain and interface traps on the performance of III-V nanowire TFETs
Oct. 27	(Invited)	E. Gnani*, M. Visciarelli, A. Gnudi, S. Reggiani, G. Baccarani
Room 1		University of Bologna, ITALY
11:15	S17-3	Device and Process Design of Leading Edge Transistors for Performance and Yield
Oct. 27	(Invited)	Hans-Joachim L. Gossmann, Steven S. Sherman, Morgan Evans and Kevin Anglin
Room 1		Varian Semiconductor Equipment, USA
11:45	S17-4	GIDL Challenge of GAA SNWT For Low Power Application
Oct. 27	(Invited)	Ming Li*, Jiewen Fan, Yuancheng Yang, Gong Chen and Ru Huang
Room 1		Peking University, China

S18 Ge-based Devices and Technology I

Session Chair: Yi Zhao, Zhejiang University, China

Chao-Hsin Chien, National Chiao-Tung University, Taiwan, China

13:30	S18-1	Materials And Process Controls For Scalable And Reliable Germanium Gate Stacks
Oct. 27	(Invited)	Akira Toriumi
Room 1		The University Of Tokyo
14:00	S18-2	Ge CMOS Devices And Logic Circuits
Oct. 27	(Invited)	Peide D. Ye
Room 1		Purdue University, U.S.A
14:30	S18-3	Low-Frequency And Random Telegraph Noise Performance Of Ge-Based And III-V Devices On A Si Platform
Oct. 27	(Invited)	Cor Claeys ^{1,2*} , Paula Agopian ^{3,4} , Alirezza Alian ¹ , Hiroaki Arimura ¹ , Wen Fang ⁵ , Joao Martino ⁴ , Jerome Mitard ¹ , Felipe Neves ⁴ , Alberto Oliviera ⁴ , Eddy Simoen ^{1,6}
Room 1		¹ Imec, Belgium; ² KU Leuven, Belgium; ³ Univ Estadual Paulista, Brazil; ⁴ University Of Sao Paulo, Brazil; ⁵ Microsystem & Terahertz Research Center, China; ⁶ Ghent University, Belgium
15:00	S18-4	Nanoscale Ge Fin Etching Using Inductively Coupled Plasma For Ge-Based Multi-Gate Devices
Oct. 27		Bingxin Zhang, Xia An*, Yuxuan Xia, Ming Li, Meng Lin, Peilin Hao, Xing Zhang And Ru Huang*
Room 1		Key Laboratory Of Microelectronic Devices And Circuits, Institute Of Microelectronics, Peking University, China
15:15	S18-5	Reduction Of Junction Leakage Current In Sub-10 Nm Ultra-Shallow Nige/N-Ge Schottky Junctions By Dopant Segregation
Oct. 27		Rui Zhang ¹ , Yi Wang ¹ , Junkang Li ¹ , Feng Chen ¹ , Yi Zhao ^{1,2*}
Room 1		¹ Zhejiang University, China; ² Zhejiang University, China

Coffee Break

S19 Ge-based Devices and Technology II

Session Chair: Akira Toriumi, The University Of Tokyo, Japan

15:45	S19-1	On The Assessment Of Electrically Active Defects In High-Mobility Materials And Devices
Oct. 27	(Invited)	Eddy Simoen ^{1,2*} , Geert Eneman, Alberto Vinicius De Oliveira ³ , Kai Ni ⁴ , Jerome Mitard ¹ , Liesbeth Witters ¹ , Paula Ghedini Der Agopian ^{3,5} , Joao Antonio Martino ³ , Daniel M. Fleetwood ⁴ , Ronald D. Schrimpf ⁴ , Robert A. Reed ⁴ , Nadine Collaert ¹ , Aaron Thean ¹ And Cor Claeys ^{1,6}
Room 1		¹ Imec, Belgium; ² also At Ghent University, Belgium; ³ University Of Sao Paulo, Brazil; ⁴ Vanderbilt University, USA; ⁵ also At UNESP, Brazil; ⁶ also At KU Leuven, Belgium
16:15	S19-2	High Performance Ge Schottky Pmosfets With Ternary-Phase Alloy
Oct. 27	(Invited)	Chung-Chun Hsu ¹ , Wei-Chun Chi ¹ , Chen-Han Chou ¹ , Che-Wei Chen ¹ , Hung-Pin Chien ¹ , And Chao-Hsin Chien ^{1,*}

Room 1		¹ National Chiao-Tung University, Taiwan, China
16:45	S19-3	Device design and process of SiGe based MOSFETs
Oct. 27	(Invited)	Huiming Bu
Room 1		IBM Semiconductor Technology Research, USA
17:15	S19-4	Reliability Improvement Of Ge Pmosfets With Al₂O₃ Dielectric By Ozone Post Annealing
Oct. 27		Jiabao Sun ¹ , Xiaoyu Dong ³ , Rui Zhang ¹ , And Yi Zhao ^{1,2*}
Room 1		¹ Zhejiang University, China; ² Zhejiang University, China; ³ Zhejiang Construction Supervision Co., LTD, China
17:30	S19-5	A Systematic Study On Dry Etching Process Of Germanium For Ge 3D-Fets Applications
Oct. 27		Yan-Yan Zhang ¹ , Ran Cheng ¹ , Shun Xu ¹ , Rui Zhang ¹ , Yi Zhao ^{1,2*}
Room 1		¹ Zhejiang University, China; ² Zhejiang University, China

S20 Novel Process Technologies

Session Chair:		Hong-Liang Lu, Fudan University, China
10:15	S20-1	Neutral Beam Technology –Defect-Free Nanofabrication For Novel Nano-Materials And Nano-Devices-
Oct. 27	(Invited)	Seiji Samukawa
Room 3A		Tohoku University, Japan
10:45	S20-2	Atomically Controlled Processing For Ge CVD Epitaxial Growth
Oct. 27	(Invited)	Junichi Murota ^{1*} , Yuji Yamamoto ² , Ioan Costina ² , Bernd Tillack ^{2,3} , Vinh Le Thanh ⁴ , Roger Loo ⁵ And Matty Caymax ⁵
Room 3A		¹ Tohoku University, Japan; ² IHP, Germany; ³ Technische Universität Berlin, Germany; ⁴ Aix-Marseille Université, France; ⁵ imec, Belgium.
11:15	S20-3	Accurate Temperature Monitoring Scheme For Microwave Annealing With Silicon Substrate
Oct. 27		Yan Wang, Chaochao Fu, Ming Xu, Peng Xu And Dongping Wu*
Room 3A		Fudan University, China
11:30	S20-4	Block Copolymer Lithography And Transferred Patterns On The Substrate Used For SERS
Oct. 27		Dong-Xue Li, Xin-Ping Qu*
Room 3A		Fudan University, China
11:45	S20-5	The Epitaxy Of Gan In Deep And Submicron Holes Over Si Substrate
Oct. 27		Anqi Wang ¹ , Qingbin Ji ² , Kejia Wang ¹ , Xiaodong Hu ² , Yahong Xie ³ , Binbin Tang ⁴ , Ying Sun ¹ , Zhiyuan Cheng ^{1*}
Room 3A		¹ Zhejiang University, China; ² Peking University, China; ³ University Of California Los Angeles, USA; ⁴ Nanchang University, China

S21 Advanced 3D Integration

Session Chair:		Kuan-Neng Chen, National Chiao Tung University
		Lutz Hofmann, Fraunhofer Institute For Electronic Nano Systems, Germany
13:30	S21-1	Key Technologies And Materials Investigation For FOWLP And 3D Integration
Oct. 27	(Invited)	Kuan-Neng Chen
Room 3A		National Chiao Tung University
14:00	S21-2	Modeling And Simulation Of TSV Induced Keep-Out Zone Using Silicon Data
Oct. 27	(Invited)	C. W. Liu*, Jihh-Yang Yan, And Sun-Rong Jan
Room 3A		National Taiwan University, Taiwan, China
14:30	S21-3	3D Integration Technologies For MEMS

Oct. 27	(Invited)	Thomas Geßner ^{1,2} , Lutz Hofmann ^{2,*} , Wei-Shan Wang ² , Mario Baum ² , Tobias Seifert ^{1,2} , Maik Wiemer ² , Stefan Schulz ^{1,2}
Room 3A		¹ University Of Technology Chemnitz, Germany; ² Fraunhofer Institute For Electronic Nano Systems, Germany
15:00	S21-4	New Multichip-To-Wafer 3D Integration Technology Using Self-Assembly And Cu Nano-Pillar Hybrid Bonding
Oct. 27	(Invited)	M. Koyanagi ^{1*} , K.W. Lee ¹ , T. Fukushima ² , And T. Tanaka ²
Room 3A		¹ Tohoku University, Japan; ² Tohoku University, Japan

Coffee Break

S22 Ultra High Speed Transistors

	Session Chair:	Xiao-Rong Luo, University Of Electronic Science And Technology Of China, China Y. Jin, CNRS/C2N, France
15:45	S22-1	Ultra-Low Noise Cryohemts For Cryogenic High-Impedance Readout Electronics: Results And Applications
Oct. 27	(Invited)	Y. Jin [*] , Q. Dong, U. Gennser, L. Couraud, A. Cavanna, C. Ulysse
Room 3A		CNRS/C2N, France
16:15	S22-2	Analysis Of The Hybrid Trapping Effect In Gan Hemts Based On The Current Transient Spectroscopy
Oct. 27		Xiang Zheng, Shiwei Feng [*] , Yamin Zhang, Xin He, And Yu Wang
Room 3A		Beijing University Of Technology, Chian
16:30	S22-3	A Novel Design Methodology For Breakdown Voltage Enhancement In The Third-Generation Sige Hbts
Oct. 27		Yanling Guo ¹ , Dongyue Jin ^{1*} , Wanrong Zhang ¹ , Xiao Wang ¹ , Xinyi Zhao ¹ , Qiang Fu ¹
Room 3A		¹ Beijing University Of Technology, China
16:45	S22-4	Study On Electron Mobility Model For Aln/Gan MIS-Hemts With Embedded Source Field-Plate Structures
Oct. 27		K. Kurihara ^{1*} , H. Aoki ^{1**} , N. Tsukiji ¹ , H. Sakairi ² , K. Chikamatsu ² , N. Kuroda ² , S. Shibuya ¹ , M. Higashino ¹ , R. Takahashi ¹ , H. Kobayashi ¹ , And K. Nakahara ²
Room 3A		¹ Electronics And Informatics Division, Gunma University, Japan; ² ROHM Co., Ltd., Japan
17:00	S22-5	Ultralow ON-Resistance High-Voltage Vertical HEMT With An Accumulation Effect Trench Gate
Oct. 27		Chao Yang, Jun-Feng Wu, Fu Peng, Jie Wei, Si-Yu Deng, Xiao-Rong Luo [*] , Bo Zhang
Room 3A		University Of Electronic Science And Technology Of China, China
17:15	S22-6	Influence Of The BEOL Metallization Design On The Overall Performances Of Sige Hbts
Oct. 27		R. D'Esposito ¹ , M. De Matos ¹ , S. Fregonese ¹ , S. Balanethiram ² , A. Chakravorty ² , K. Aufinger ³ , T. Zimmer ¹
Room 3A		¹ Université De Bordeaux, France; ² Indian Institute Of Technology, India

S23 Internet of Things I

	Session Chair:	Thomas Ernst, Université Grenoble Alpes, France
10:15	S23-1	UTBB FDSOI and Energy Harvesting—two key technologies for IoT Applications
Oct. 27	(Invited)	Thomas Skotnicki
Room 3B		STMicroelectronics, France
10:45	S23-2	Smart Sensing for IoT Applications
Oct. 27	(Invited)	Wai Lee and Ajit Sharma
Room 3B		Texas Instruments Incorporated, USA

11:15	S23-3	Design and Verification Network Self-adaption Dual-core Microprocessor Architecture
Oct. 27 Room 3B		Li-Gang Hou ^{1*} , Zhong-Chao Wang ¹ , Xiao-Hong Peng ¹ , Jin-Hui Wang ² , Fang-Wen Fan ¹ ¹ Beijing University of Technology, China; ² North Dakota State University, USA
11:30	S23-4	Design of Outdoor Air Quality Monitoring System Based on ZigBee Wireless Sensor Network
Oct. 27 Room 3B		Yun-Liang He ^{1*} , Shu-Qin Geng ¹ , Xiao-Hong Peng ¹ , Li-Gang Hou ¹ , Xiang-Kai Gao ¹ , Jin-Hui Wang ² ¹ Beijing University of Technology, China; ² North Dakota State University, USA

S24 Internet of Things II

Session Chair: Wai Lee, Texas Instruments Incorporated, USA

13:30	S24-2	Emerging nano-devices for IOT applications
Oct. 27 Room 3B	(Invited)	Thomas Ernst, Vincent Agache, Lionel Rudan, Thomas Alava, Elisa Vianello, Louis Hutin, Christian Gamrat [*] , Edith Beigné, Fabien Clermidy, Maud Vinet, Luca Perniola, Barbara de Salvo and Sébastien Hentz Université Grenoble Alpes, France
14:00	S24-3	Design of 3D TOF Camera System Based on CW Modulation Technique
Oct. 27 Room 3B		Xiang-Liang Jin ^{1,2*} , Shao-Qing Zeng ^{1,2} ¹ Xiangtan University, China; ² Hunan Engineering Laboratory for Microelectronics, China
14:15	S24-4	A Design of Hand-held Remote Controller for An Implantable Stimulator Based on 51 MCU and WiFi
Oct. 27 Room 3B		YiNan Zhang, XiaoHong Peng [*] , LiGang Hou, Jun Zhao, GuoQing Sun, RuiRui Feng Beijing University of Technology, China
14:30	S24-5	A Low-power Real-time Air Quality Monitoring System Using LPWAN based on LoRa
Oct. 27 Room 3B		Sujuan Liu [*] , Chuyu Xia, Zhenzhen Zhao Beijing University of Technology, China
14:45	S24-6	A System of Fall Detection Using a Wearable Device Based on Bluetooth Communication
Oct. 27 Room 3B		Kewei Chen, Yun Chen [*] , Yixin Sun, Jie Liu Fudan University, China

Coffee Break

S25 Power Devices and Reliability

Session Chair: Peng-Fei Wang, Fudan University, China

15:45	S25-1	On The Progressive Performance Of A 700-V Triple RESURF LDMOS Based On Substrate Termination Technology
Oct. 27 Room 3B	(Invited)	Ming Qiao ^{1*} , Liang-Liang Yu ¹ , Hui-Hui Wang ² , Feng Jin ² , Zhao-Ji Li ¹ And Bo Zhang ^{1*} ¹ University Of Electronic Science And Technology Of China, China; ² Shanghai Huahong Grace Semiconductor Manufacturing Corporation, China
16:15	S25-2	Influence Of Trench Oxide On Schottky Barrier Height For Tisix/Si Power Diode
Oct. 27 Room 3B		Bi-Zan Yang, Lin-Lin Wang, And Yu-Long Jiang [*] Fudan University, China
16:30	S25-3	Optimization And Analysis Of High Reliability 30-50V Dual RESURF LDMOS
Oct. 27 Room 3B		Jun-Ya Kojima, Jun-Ichi Matsuda, Masataka Kamiyama, Nobukazu Tsukiji, Haruo Kobayashi Gunma University, Japan
16:45	S25-4	Thermal Analysis Of Slow-Wave Structure Of Helix TWT Based On Transient Temperature Rise Measurement Technology

Oct. 27 Room 3B		Fang Yang ¹ , Shiwei Feng ^{1*} , Dong Shi ¹ , Haizhen Zhou ² ¹ Beijing University Of Technology, China; ² State Grid Beijing Huairou Electric Power Supply Company
17:00	S25-5	Comparison Of The Three Dimensional Effect Of Multi-Finger Layout In VLD/VLT/RESURF LDMOS
Oct. 27 Room 3B		Ke-Meng Yang, Yu-Feng Guo [*] , Jun Zhang, Man Li, Ling Du, Zhi-Kuang Cai, Zi-Xuan Wang ¹ National & Local Joint Engineering Laboratory For RF Integration And Micro-Packaging Technologies, China; ² Nanjing University Of Posts And Telecommunications, China
17:15	S25-6	Low On-State Losses Trench IGBT With High-K Dielectric Layer
Oct. 27 Room 3B		Wei Wu [*] , Yong Xiang, And Hong Ji University Of Electronic Science And Technology Of China, China
17:30	S25-7	Fabrication And Optimization Of A High Speed Deep-Trench Super-Junction MOSFET With Improved EMI Performance
Oct. 27 Room 3B		Fei Wang ¹ , Min-Zhi Lin ² , Yuan-Lin Yuan ³ , Lei Liu ³ , Yuhua Cheng ¹ , Peng-Fei Wang ^{2*} ¹ Peking University, China; ² Fudan University, China; ³ Suzhou Oriental Semiconductor, China

S26 RF Circuits and Systems III

Session Chair: Baoyong Chi, Tsinghua University, China

10:15	S26-1	Reduced Complexity Look-up Table Based π-Rotation LDPC Decoder
Oct. 27 Room 3C	(Invited)	Hao Wang ¹ , Hongda Wang ¹ , Gerald E. Sobelman ^{2*} , Chiu-Sing Choy ¹ ¹ The Chinese University of Hong Kong, China; ² University of Minnesota, USA
10:45	S26-2	Terahertz Wireless Communication Using 300ghz CMOS Transmitter
Oct. 27 Room 3C	(Invited)	Minoru Fujishima Hiroshima University, Japan
11:15	S26-3	A 2.4GHz CMOS Doherty Power Amplifier with Capacitance Compensation Technique
Oct. 27 Room 3C		Fa-Ke Xiong, Ting-Ting Mo [*] Shanghai Jiao Tong University, China
11:30	S26-4	A Wide Locking Range and Low Phase Noise Quadrature Frequency Synthesizer Suitable for Next Generation Wireless Communication Systems
Oct. 27 Room 3C		Y. J. He ¹ , R. X. Zhang ¹ , C. Q. Shi ² ¹ East China Normal University, China; ² East China Normal University, China
11:45	S26-5	A Heterodyne Low IF Receiver Front End for Short Range Communication
Oct. 27 Room 3C		Lei Wang, Ying Luo, Zhangwen Tang [*] Fudan University, China
12:00	S26-6	A Modulation Depth and Output Power Tunable 5.8-GHz CMOS Direct-Conversion Transmitter
Oct. 27 Room 3C		Ying Luo, Lei Wang, Zhangwen Tang [*] Fudan University, China

S27 CMOS Reliability I

Session Chair: Steven H. Voldman, Dr Steven H Voldman LLC, USA

13:30	S27-1	The Understanding Of Breakdown Path In Both High-K Metal-Gate CMOS And Resistance RAM By The RTN Measurement
Oct. 27 Room 3C	(Invited)	Steve S. Chung National Chiao Tung University, Taiwan, China
14:00	S27-2	Hot Carrier Aging Of Nano-Meter Devices
Oct. 27 Room 3C	(Invited)	Jian F. Zhang [*] , Meng Duan, Zhigang Ji And Weidong Zhang Liverpool John Moores University, UK

- 14:30** **S27-3** **There Is Plenty Of Noise At The Bottom? $\frac{3}{4}$ Understanding Random Telegraph Noise (RTN) In Nanoelectronics From Devices To Circuits**
- Oct. 27 **(Invited)** Runsheng Wang
Room 3C Peking University, China
- 15:00** **S27-4** **A Study Of Accurate Extraction Of ESD Parasitic Capacitance**
- Oct. 27 **(Invited)** Chenkun Wang¹, Fei Lu¹, Rui Ma¹, Qi Chen¹, Feilong Zhang¹, Cheng Li¹, Yuhua Cheng², Tianshen Tang³ And Albert Wang¹
- Room 3C ¹University Of California, USA; ²Peking University, China; ³Semiconductor Manufacturing International Corporation, China

Coffee Break

S28 CMOS Reliability II

Session Chair: Jian F. Zhang, Liverpool John Moores University, UK

- 15:45** **S28-1** **Evolution and Revolution of Electrostatic Discharge (ESD) and Electrical Overstress (EOS) Testing for Components and Systems**
- Oct. 27 Steven H. Voldman*
Room 3C Dr Steven H Voldman LLC, USA
- 16:00** **S28-2** **Device and Mixed-mode Simulations of Single Photon Avalanche Diode**
- Oct. 27 Hong-Jiao Yang^{1,2}, Xiang-Liang Jin^{1,2*}
Room 3C ¹Xiangtan University, China; ²Hunan Engineering Laboratory for Microelectronics, China
- 16:15** **S28-3** **A Cross-Layer Framework for Early-Stage Full Chip Oxide Breakdown Reliability Analysis**
- Oct. 27 Cheng Zhuo*
Room 3C Zhejiang University, China
- 16:30** **S28-4** **Characterization of Single Event Transient Effects Fabricated in Triple Well Process**
- Oct. 27 Zhun Zhang¹, Wei He^{2*}, Sheng Luo¹, Lingxiang He¹, Jia Wang¹, Qingyang Wu² and Jianmin Cao²
Room 3C ^{1,2}Shenzhen University, China
- 16:45** **S28-5** **Investigation on the Amplitude of Random Telegraph Noise (RTN) in Nanoscale MOSFETs—Scaling Limit of “Hole in the Inversion Layer” Model**
- Oct. 27 Zexuan Zhang¹, Zhe Zhang¹, Shaofeng Guo¹, Runsheng Wang^{1*}, Xingsheng Wang², Binjie Cheng³, Asen Asenov^{2,4}, Ru Huang¹
Room 3C ¹Peking University, China; ²Synopsys, UK; ³Gold Standard Simulation Ltd., UK; ⁴University of Glasgow, UK
- 17:00** **S28-6** **The Study of Double-triggered Phenomenon in 5V Multi-fingered GCNMOS ESD device with Ballasting-resistor**
- Oct. 27 Zi-Jie Zhou^{1,2}, Xiang-Liang Jin^{1,2*}, Yang Wang^{1,2}
Room 3C ¹Xiangtan University, China; ²Hunan Engineering Laboratory for Microelectronics, China
- 17:15** **S28-7** **Analysis of Self-heating Effect in a SOI LDMOS Device under an ESD Stress**
- Oct. 27 Tianxing Li^{1,2}, Jian Cao^{1,2*}, Lizhong Zhang² and Yuan Wang^{2*}
Room 3C ^{1,2}Peking University, China;

S29 2D Devices & Technologies I

Session Chair: Jeffrey Kelber, University Of North Texas, USA

- 10:15** **S29-1** **Novel Graphene-Based Resistive Random Access Memory**
- Oct. 27 **(Invited)** Yu-Tao Li, Hai-Ming Zhao, He Tian, Xue-Feng Wang, Wen-Tian Mi, Yi Yang, Tian-Ling Ren*
Room 5 Tsinghua University, China
- 10:45** **S29-2** **Complex Impedance, Permittivity and Other Electrical Materials Properties at Broadband 20 GHz: The New SMM Applications for Semiconductors & Buried**

structures and 2D Materials

- Oct. 27 **(Invited)** Xiu Qiang Tong
Room 5 keysight Technologies Inc., PR China
- 11:15 S29-3 Work function engineering for Granphene Transistor**
- Oct. 27 **(Invited)** Chao Sung Lai
Room 5 Chang Gung University, Taiwan,China

S30 2D Devices & Technologies II

Session Chair: Chun-Xiao Cong, Fudan University, China

- 13:30 S30-1 MOSFET Scaling: Impact Of Two-Dimensional Channel Materials**
- Oct. 27 **(Invited)** Ralf Granzner*, Zhansong Geng, Wilhelm Kinberger, And Frank Schwierz
Room 5 Technische Universität, Germany
- 14:00 S30-2 Direct Growth Of Graphene On Dielectric Substrates: Epitaxy At Incommensurate And Reactive Interfaces**
- Oct. 27 **(Invited)** Jeffrey Kelber^{1*}, Jessica Jones¹, Brock Beauclair¹, Opeyemi Olanipekun¹, Sherard Lightbourne¹, Mofei Zhang¹ And Brittany Pollok¹, John Beatty¹, M. Sky Driver¹, Tao Cheng², Yuanyue Liu², And William A. Goddard III²
- Room 5 ¹University Of North Texas, USA; ²California Institute Of Technology, USA
- 14:30 S30-3 Recent Progress Of Graphene-Based Nanoelectronic Devices And NEMS For Challenging Applications**
- Oct. 27 **(Invited)** Hiroshi Mizuta^{1,2}, Ahmed Hammam¹, Jothiramalingam Kulothungan¹, Shunei Suzuki¹, Marek E. Schmidt¹, Jian Sun¹ And Manoharan Muruganathan¹
- Room 5 ¹Japan Advanced Institute Of Science And Technology (JAIST), Japan; ²Univ. Of Southampton, UK
- 15:00 S30-4 Tunable Transfer Behaviors Of Single-Layer Wse₂ Field Effect Transistors By Hydrazine**
- Oct. 27 Mengxing Sun¹, Dan Xie^{1*}, Yilin Sun¹, Zhixin Li¹, Jianlong Xu², Ruixuan Dai¹, Xian Li¹, Cheng Zhang¹, Changjiu Teng¹ And Pu Yang¹
- Room 5 ¹Tsinghua University, China; ²Soochow University, China
- 15:15 S30-5 Trapping And Detrapping Of Oxide Border Traps In Al₂O₃ Gate Dielectric In Mos₂ N-Mosfets Under PBTI Stress**
- Oct. 27 Hui-Wen Yuan¹, Hui Shen¹, Jun-Jie Li¹, Jinhai Shao¹, Daming Huang¹, Yi-Fang Chen¹, P. F. Wang¹, S. J. Ding¹, Albert Chin², And Ming-Fu Li¹
- Room 5 ¹Fudan University, China; ²National Chiao-Tung University, Taiwan, China

Coffee Break

S31 2D Devices & Technologies III

Session Chair: Hiroshi Mizuta, 1)Japan Advanced Institute Of Science And Technology (JAIST), Japan; 2)Univ. Of Southampton, UK

- 15:45 S31-1 Contact Engineering For Emerging TMD Materials**
- Oct. 27 **(Invited)** Chenhsin Lien^{1*}, Hao-Ling Tang^{1,2}, Ming-Hui Chiu², Chien-Chih Tseng², Ang-Yu Lu², Tzu-Yang Tsai¹, Chia-Chin Cheng², Kung-Hua Wei², Tao Wu², Lain-Jong Li² And Chun-Hsing Shih³
- Room 5 ¹National Tsing Hua University, Taiwan, China; ²King Abdullah University Of Science & Technology (KAUST), Saudi Arabia; ³National Chi Nan University, Taiwan, China
- 16:15 S31-2 In-Situ Nanoengineering Of 2D Materials**
- Oct. 27 **(Invited)** Litao Sun
Room 5 Southeast University, China
- 16:45 S31-3 Ab Initio Simulation On Mono-Layer Mos₂ Tunnel FET: Impact Of Metal Contact Configuration And Defect Assisted Tunneling**

Oct. 27 Room 5		Xiang-Wei Jiang ^{1,*} , Juan Lv ^{1,2} , Jun-Wei Luo ¹ , Shu-Shen Li ¹ , Jian Gong ² , And Lin-Wang Wang ³ ¹ Chinese Academy Of Sciences, China; ² Inner Mongolia University, China; ³ Lawrence Berkeley National Laboratory
17:00	S31-4	Monolayer Mos₂ For Nonvolatile Memory Applications
Oct. 27 Room 5		Kai-Ping Chang ¹ , Jer-Chyi Wang ^{1,2,*} , Chang-Hsiao Chen ⁵ , Lain-Jong Li ⁶ , And Chao-Sung Lai ^{1,3,4*} ¹ Chang Gung University, Taiwan, China; ² Chang Gung Memorial Hospital, Taiwan, China; ³ Chang Gung Memorial Hospital, Taiwan, China; ⁴ Ming Chi University Of Technology, Taiwan, China; ⁵ Feng Chia University, Taiwan, China; ⁶ Academia Sinica, Taiwan, China
17:15	S31-5	Graphene Based Field Effect Transistors For Novel Nonvolatile Memories
Oct. 27 Room 5		Jia-Hui Xie ¹ , Youwei Zhang ¹ , Qiyuan Wang ¹ , Laigui Hu ^{1*} , Pengfei Tian ¹ , Chunxiao Cong ¹ , Sunil Shim ² , Ran Liu ¹ , Zhi-Jun Qiu ^{1*} ¹ Fudan University, China; ² Samsung Electronics Co., Ltd.

S32 Advanced Process Technology I

	Session Chair:	Cher Ming Tan, 1Chang Gung University, Taiwan, China; 2Chang Gung University, Taiwan, China; 3Chang Gung Memorial Hospital, Taiwan, China; 4Ming Chi University Of Technology, Taiwan, China; 5Chang Gung University, Taiwan, China
10:15	S32-1	Defects And Reliability Of High K Gate Stacks On Si, Ge And III-Vs
Oct. 27 Room 7	(Invited)	John Robertson, Y Guo Cambridge University, UK
10:45	S32-2	Reduction Of Interface States In Ge/High-K Gate Stacks And Its Reliability Implications
Oct. 27 Room 7	(Invited)	D. Misra, Y.M. Ding, S. Mukhopadhyay, K.L. Ganapathi, And N. Bhat New Jersey Institute Of Technology, USA; New Jersey Institute Of Technology, USA; Indian Institute Of Science, India
11:15	S32-3	Formation Of Ultrathin, Stable And Epitaxial Silicides For Semiconductor Contacts
Oct. 27 Room 7	(Invited)	F.A. Geenen ¹ , C. Mocuta ² , C. Detavernier ^{1*} ¹ Ghent University, Belgium; ² Synchrotron SOLEIL, France
11:45	S32-4	Formation Of Solid Phase Epitaxial Gesn And Its Application To High-Performance N-Mosfets And Low-Resistivity Contact
Oct. 27 Room 7	(Invited)	Yung-Hsien Wu [*] , Chuan-Pu Chou, Yung-Chin Fang, Chang-Chia Su, Ching-Wei Lee National Tsing Hua University, Taiwan, China

S33 Advanced Process Technology II

	Session Chair:	John Robertson, Cambridge University, UK
13:30	S33-1	Reliability And Performance Of Carbon Nanotube Vias
Oct. 27 Room 7	(Invited)	Changjian Zhou ¹ , Anshul Vyas ² , And Cary Y. Yang ² ¹ South China University Of Technology, China; ² Santa Clara University, USA
14:00	S33-2	Effect Of ULSI Interconnect Layout On Its Electromagnetic Emission
Oct. 27 Room 7	(Invited)	Cher Ming Tan ^{1,2,3,4,5,*} , Dipesh Kapoor ^{1,2} And Vivek Sagawan ^{1,2} 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 Chang Gung University, Taiwan, China
14:30	S33-3	An Ultra-Fast Single Pulse (UFSP) Technique For Channel Effective Mobility Measurement
Oct. 27 Room 7	(Invited)	Tektronix ¹ ¹ 14150 SW Karl Braun Drive, United States
15:00	S33-4	Evolutionary Process Of Nanoscale Finfet Channel In Hydrogen Thermal Treatment Technology

Oct. 27 Room 7		Gang Wang, Yi Shi*, Tianhong Chen, Yu Wang, Junzhuan Wang, Lijia Pan, Linwei Yu Nanjing University, China.
15:15	S33-5	Observation Of Contact Resistivity Independence From Schottky Barrier Height On Heavily Doped P-Type Sige
Oct. 27 Room 7		Jian Zhang ¹ , H. Yu [#] , M Schaeckers [#] , N. Horiguchi [#] , Lin-Lin Wang ¹ And Yu-Long Jiang ^{1*} ¹ Fudan University, China; [#] Imec, Belgium

Coffee Break

S34 Interconnect Technology

Session Chair: Xin-Ping Qu, Fudan University, China

15:45	S34-1	Applications Of Carbon-Nanotubes In CMOS Interconnect Technology Enhancement
Oct. 27 Room 7	(Invited)	Salahuddin Raju, Changjian Zhou, Suwen Li And Mansun Chan* Hong Kong University Of Science & Technology, Hong Kong, China
16:15	S34-2	Low-K Dielectrics For Sub 10 Nm Technology Node
Oct. 27 Room 7	(Invited)	Mikhail R. Baklanov And Jing Zhang ¹ North China University Of Technology, China
16:45	S34-3	CMOS Compatible Silicon Photonic Devices For Optical Interconnections
Oct. 27 Room 7	(Invited)	Tao Chu* ¹ Chinese Academy Of Sciences, China
17:15	S34-4	Modeling And Optimization Of High Speed Transmission Structure On Silicon Interposer
Oct. 27 Room 7		Shao-Jie Xue ¹ , Xin Chen ^{1*} , Jian-Fei Jiang ² ¹ Tongji University, China; ² Shanghai Jiao Tong University, China

S35 PLL and CDR

Session Chair: Yumei Huang, Fudan University, China

10:15	S35-1	A V-Band 40 Nm CMOS Phase Locked Loop With Mutual Injection Locking Technique
Oct. 27 Room 8		Qian Zhou ¹ , Yan Han ¹ , Shifeng Zhang ^{1*} , Xiaoxia Han ¹ , Lu Jie ¹ , Ray C. C. Cheung ² , Guangtao Feng ³ ¹ Zhejiang University, China; ² City University Of Hong Kong, Hong Kong, China; ³ Semiconductor Manufacturing International Corporation, China.
10:30	S35-2	An Open Loop Compensation Technique For Reducing Supply Sensitivity Of Ring Oscillator
Oct. 27 Room 8		Ziqian Wang, Hengzhi Su, Fujiang Lin University Of Science And Technology Of China, China
10:45	S35-3	A Portable Wide-Range All-Digital Phase-Locked Loop With Fast Settling Time In 180 Nm CMOS
Oct. 27 Room 8		Lin-Lin Xie ^{1,2} , Shu-Shan Qiao ^{1*} , Yang Wang ^{1,2} ¹ Chinese Academy Of Sciences, China; ² University Of Chinese Academy Of Sciences, China
11:00	S35-4	Ultra-Low Power Frequency Synthesizer Based On A Dual-Locking Ring Oscillator
Oct. 27 Room 8		Yann Deval ^{1*} , Yoan Veyrac ¹ , HervÉ Lapuyade And François Rivet ¹ Université De Bordeaux, France
11:15	S35-5	A Compatible Low-Noise Multi-Phase Voltage-Controlled-Oscillator
Oct. 27 Room 8		Heng-Zhou Yuan, Yang Guo, Jia-Wei Tan, Qian-Cheng Guo National University Of Defense Technology, China
11:30	S35-6	A 10Gbps Half-Rate Digital Clock and Data Recovery Circuit for 60GHz Receiver in 65nm CMOS
Oct. 27		Zhi-Ran Liu, Zheng-Song, Ying-Hang Wu, Yu-Tian Li, Bao-Yong Chi

Room 8		Tsinghua University, China
11:45	S35-7	An Ultra-Low Power Dual-Ring Factorial Delay Locked Loop in 28nm FD-SOI technology
Oct. 27		Khoa Hoang*, Yann Deval, François Rivet
Room 8		University of Bordeaux, France
12:00	S35-8	A Low-Power and Small Chip-Area Fractional-N Digital PLL with Combination of DPI and TDC
Oct. 27		Hangyan Guo, Fan Yang, Zherui Zhang, Runhua Wang, Junhua Liu* and Huailin Liao
Room 8		Peking University, China

S36 Memory Circuits

	Session Chair:	Xiao-Yong Xue, Fudan University, China
13:30	S36-1	Performance, Power and Area (PPA) Enhancement Design Techniques for 16nm FinFET Embedded SRAMs
Oct. 27	(Invited)	Koji Nii ^{1,3*} , Yuichiro Ishii ^{1,3} , Makoto Yabuuchi ^{1,3} , Toshiaki Sano ² , Masao Morimoto ¹ , Yohei Sawada ¹ , Yasumasa Tsukamoto ¹ , Miki Tanaka ² and Shinji Tanaka ¹
Room 8		¹ Renesas Electronics Corporation, Japan; ² Renesas System Design Co. Ltd., Japan; ³ Kanazawa University, Japan
14:00	S36-2	A 8×8 compact SRAM in 65nm standard CMOS technology
Oct. 27		Qian Di, Jincheng Yang, Peng Feng* and Nanjian Wu*
Room 8		Institute of Semiconductors Chinese Academy of Sciences, China
14:15	S36-3	Design of Memory Cells Using Negative-Differential-Conductance Devices with Single-Electron Technology
Oct. 27		Lin Li and Chunhong Chen*
Room 8		University of Windsor, Canada
14:30	S36-4	Design of Prioritized LRU Circuit for Shared Cache in Real-Time Computer Systems
Oct. 27		Yao Wang ^{1*} , Lavanya Gopalakrishnan ² , Haibo Wang ² and Ronald Eaton ²
Room 8		¹ University of Electronic Science and Technology of China, China; ² Southern Illinois University, USA.
14:45	S36-5	STT MTJ data-aware write boost design in 28nm process
Oct. 27		Ziou Wang, Yiping Zhang, Canyon Zhu, Lijun Zhang, Aiming Ji, Lingfeng Mao
Room 8		Soochow University, China;
15:00	S36-6	A Low Power Self-Turnoff Program Method for One-Time Programmable Memory
Oct. 27		Ling Shen, Yongan Zheng, Fan Yang, Huailin Liao* and Yangyuan Wang
Room 8		Peking University, China
15:15	S36-7	High Noise Margin 12T Subthreshold SRAM cell with Enhanced Read Speed and Eliminated Half-selected Problem
Oct. 27		Jiangzheng Cai*, Jia Yuan, Liming Chen, Yong Hei
Room 8		Institute of Microelectronics of Chinese Academy of Sciences, China

Coffee Break

S37 EDA II

	Session Chair:	Xingang Wang, Skyworks Solutions, United State
15:45	S37-2	Unified HEMT/CMOS Compact Models For Future Heterogeneous III-V/Si Co-Integrated Technology
Oct. 27	(Invited)	Xing Zhou*, Siau Ben Chiah, Arjun Ajaykumar, Binit Syamal, Hongtao Zhou, And Xu Liu
Room 8		Nanyang Technological University, Singapore
16:15	S37-3	Design And CAD Of Noise Sensors For On-Die Supply Voltage Emergency Detection

Oct. 27	(Invited)	Pingqiang Zhou
Room 8		Shanghaitech University, China
16:45	S37-4	A Heuristic Method For The Variable Ordering Of Binary Decision Diagrams
Oct. 27		Chunyu Mao And Chunhong Chen *
Room 8		University Of Windsor, Canada
17:00	S37-5	K-Nearest Neighbor Algorithm Implementation On FPGA Using High Level Synthesis
Oct. 27		Zhe-Hao Li ¹ , Ji-Fang Jin ¹ , Xue-Gong Zhou ¹ , Zhi-Hua Feng ^{2*}
Room 8		¹ Fudan University, China; ² Beijing Institute Of Computer Technology And Application, China
17:15	S14-3	Lightweight Network-On-Chip Router On Research And Design
Oct. 27		Yi-Ran Du ¹ , Wei Li ^{2*} , Zi-Bin Dai ¹
Room 8		¹ Zhengzhou Institute Of Information Science And Technology, China; ² Fudan University, China
17:30	S14-4	An Improved Automatic Parallelizing Algorithm Based On Polyhedral Model
Oct. 27		Minge Jing *, Fei Kong, Xing Jin, Xiaoyang Zeng *
Room 8		Fudan University, China

S38 New Computing Architectures and Technology I

Session Chair: Chung H. Lam, IBM Research, USA

10:15	S38-1	New computing machines for next 30 years
Oct. 27	(Invited)	Cheol Seong Hwang *
VIP Room		Seoul National University, Republic of Korea
10:45	S38-2	Technological and architectural approaches to neuro-inspired circuit implementations
Oct. 27	(Invited)	Carlo Reita
VIP Room		CEA-LETI, France
11:15	S38-3	Parallel-Elementary-Stream Architecture for Nearest-Neighbor-Search-based Self-Organizing Map
Oct. 27	(Invited)	Fengwei An, Xiangyu Zhang, Lei Chen, Hans Jürgen Mattauch
VIP Room		Hiroshima University, Japan
11:45	S38-4	A Spike Neuron Network Prototype based on RRAM Array
Oct. 27		Yue Tang ¹ , Xiaole Cui ^{1*} , Chunliang Liu ¹ , Xiaoyan Xu ¹ , Jipeng Liu ¹ , Shengming Zhou ² , Jinfeng Kang ³
VIP Room		¹ Peking University, China; ² National Integrated Circuit Design Shenzhen Industrial Center, China; ³ Peking University, China
12:00	S38-5	A Flexible Low-Power Machine Learning Accelerator for Healthcare Applications
Oct. 27		Shan Huang *, Zhicheng Xie, Jun Han and Xiaoyang Zeng
VIP Room		Fudan University, China

S39 New Computing Architectures and Technology II

Session Chair: Carlo Reita, CEA-LETI, France

13:30	S39-1	Smart Memory: A Neuromorphic Semiconductor Memory
Oct. 27	(Invited)	Chung H. Lam
VIP Room		IBM Research, USA
14:00	S39-2	Brain-Inspired Computing
Oct. 27	(Invited)	H.-S. Philip Wong
VIP Room		Stanford University, USA
14:30	S39-3	Development of Three-Dimensional Synaptic Device and Neuromorphic Computing Hardware
Oct. 27	(Invited)	I-Ting Wang, Teyuh Chou, Li-Wen Chiu, Chih-Cheng Chang and Tuo-Hung Hou *

VIP Room		National Chiao Tung University, Taiwan, China
15:00	S39-4	Energy-Efficient and High-Throughput FPGA-based Accelerator for Convolutional Neural Networks
Oct. 27		Gan Feng, Zuyi Hu, Song Chen*, Feng Wu
VIP Room		University of Science and Technology of China, China
15:15	S39-5	VLSI Design of Modified Sequential Minimal Optimization Algorithm for Fast SVM Training
Oct. 27		Lichen Feng ¹ , Zunchao Li ^{1,2*} , Yuanfa Wang ¹ , Chuang Zheng ¹ and Yunhe Guan ¹
VIP Room		¹ Xi'an Jiaotong University, China; ² Guangdong Xi'an Jiaotong University Academy, China

Coffee Break

S40 Thin Film Transistors

	Session Chair:	Man Wong, The Hong Kong University Of Science And Technology, Hong Kong, China Mingxiang Wang, Soochow University, China
15:45	S40-1	Elevated Metal Metal-Oxide Thin-Film Transistor – A New Bottom-Gate Transistor Architecture For Flat-Panel Displays
Oct. 27	(Invited)	Lei Lu ^{1,2} , Jiapeng Li ¹ , Hoi Sing Kwok ^{1,2} , And Man Wong ^{1*}
VIP Room		¹ The Hong Kong University Of Science And Technology, Hong Kong, China; ² The Hong Kong University Of Science And Technology, Hong Kong, China
16:15	S40-2	Application Of Tio₂ Thin Film`S Hydrophilicity On The Scalpel
Oct. 27	(Invited)	Yang Wang*, Le Jiang
VIP Room		Zhejiang Sci-Tech University, China
16:45	S40-3	High Reliability Of IGZO Tfts Using Low-Temperature Fabricated Organic Passivation Layers
Oct. 27		Huiling Lu ¹ , Ting Liang ¹ , Shengdong Zhang ^{1,2*}
VIP Room		¹ Peking University, China; ² Peking University, China
17:00	S40-4	Degradation Of Low Temperature Poly-Si Tfts Under Bipolar Gate Pulses With DC Drain Bias
Oct. 27		Yanwen Wu, Mingxiang Wang*, Huaisheng Wang
VIP Room		Soochow University, China
17:15	S40-5	A New Surface-Potential-Based Compact Model For Polysilicon Thin-Film Transistors
Oct. 27		Fei Yu ¹ , Wanling Deng ¹ , Xiaoyu Ma ¹ , Junkai Huang ^{1*}
VIP Room		¹ Jinan University, China
17:30	S40-6	A Closed-Form DC Model For Amorphous Oxide Semiconductor Tfts Considering Both Non-Degenerate And Degenerate Conduction
Oct. 27		Jielin Fang ¹ , Wanling Deng ^{1*} , Xiaoyu Ma ¹ , Weijing Wu ² , Junkai Huang ¹
VIP Room		¹ Jinan University, China; ² South China University Of Technology, China

Poster Session II

	Session Chair:	Hui-Hua Yu, Fudan University, China
17:45	P2-001	An Adaptive Power Supply Regulator Based On PSM With Fast Transient Response
Oct. 27		Hang-Biao Li*, Yong Zhu, Qiang Deng, Xian-Rong Zhang, Ming Yao, Bo Xu
Hall,		Center for Microsystems Technology Southwest China Institute of Electronic Technology, China
Tower 7/8		
17:45	P2-002	The Research Of Multistage Interconnection Structure Based On Crossbar
Oct. 27		Haiyuan Ni ¹ , Wei Li ^{1,2*} , Yingjian Yan ¹
Hall,		¹ Institute of Information Science and Technology, China; ² Fudan University, China

Tower 7/8		
17:45	P2-003	Reconfigurable GF (2⁸) Multipliers For Symmetric Cryptograms Based On Different Design Principals
Oct. 27		Wang Zhou-Chuang ¹ , Li Wei ^{2*} , Dai Zi-Bin ¹ , Nan Long-Mei ² , Chuan Xin ¹
Hall,		¹ Institute of Information Science and Technology, China; ² Fudan University, China
Tower 7/8		
17:45	P2-004	The Research Of Loop Unrolling For Coarse-Grained Reconfigurable Block Encryption Array
Oct. 27		Yu-Hang Yang ¹ , Wei Li ^{12*} , Jin-Fu Xu ¹ , Lu Liu ¹
Hall,		¹ Institute of Information Science and Technology, China; ² Fudan University, China
Tower 7/8		
17:45	P2-005	Design And Implementation Of Configurable NBF Instructions Targeted At Stream Cipher Processing
Oct. 27		Longmei Nan ^{1,2*} , Xiaoyang Zeng ¹ , Wei Li ^{1,2}
Hall,		¹ Fudan University, China; ² Zhengzhou Institute of Information Technology, China
Tower 7/8		
17:45	P2-006	A Compact And Efficient Architecture For Elliptic Curve Cryptographic Processor
Oct. 27		Su-Wen Yi ¹ , Wei Li ^{2*} , Zi-Bin Dai ¹ , Jun-Wei Liu ¹
Hall,		¹ Zhengzhou Institute of Information Science and Technology, China; ² Fudan University, China
Tower 7/8		
17:45	P2-007	A High-Flexibility And Energy-Efficient Application-Specific Cryptography VLIW Processor For Symmetric Cipher Algorithms
Oct. 27		Wei Li ^{1,2*} , Xiaoyang Zeng ¹ , Longmei Nan ^{1,2} , Tao Chen ² , Zibin Dai ²
Hall,		¹ Fudan University, China; ² Institute of Information Science and Technology, China
Tower 7/8		
17:45	P2-008	ASIC-Based Gauss Error Function Module Design For Neural Network Application
Oct. 27		Zhi-Tong Qiao ¹ , Yan Han ^{1*} , Jian Lei ¹ , R. C. C. Cheung ² , Will X. Y. Li ³ , Hiao-Xia Han ¹
Hall,		¹ Zhejiang University, Hangzhou 310027, China; ² City University of Hong Kong, Hong Kong, China; ³ Nanjing University of Science and Technology, China
Tower 7/8		
17:45	P2-009	Analysis Of The Area Efficient Transmission Gate Power Clamp In 65nm CMOS Process
Oct. 27		Cai Xiaowu ^{1*} , Wei Junxiu ¹ , Liang Chao ¹ , Gao Zhe ¹ , Lv Chuan ¹ , Yan Ming ¹ , Lv Kai ²
Hall,		¹ Liaoning University, China; ² Hangzhou Dianzi University, China
Tower 7/8		
17:45	P2-010	A Prolonged Discharge Time ESD Power-Rail Clamp Circuit Structure With Strong Ability To Prevent False Triggering
Oct. 27		Jian Cao ^{1,2} , Xiangxiang Xue ¹ , Yuan Wang ^{2*} , Guangyi Lu ² , Xing Zhang ^{1,2}
Hall,		¹ Peking University, China; ² Peking University, China
Tower 7/8		
17:45	P2-011	Low Power VCO-Controlled PFM DC-DC Buck Converter
Oct. 27		Junho Yu ¹ , Inwoo Hwang ¹ , Jusang Park ² , Namsoo Kim ^{2*}
Hall,		¹ Chungbuk National University, Korea; ² Chungbuk National University, Korea
Tower 7/8		
17:45	P2-012	Analysis And Simulation Of The Effects Of Parametric Drift On Amplifiers
Oct. 27		Qiu-Ye Lv ^{1*} , Lei Xie ¹ , Yong Peng ¹ , Ren-Hua Yang ¹ , Le Zhong ¹ , Guang Mao ¹ , Xin Liu ¹ , GaNg Dai ¹
Hall,		¹ Chinese Academy of Engineering Physics, China
Tower 7/8		
17:45	P2-013	A Low-Noise Low-Voltage Low-Power Bulk-Driven Amplifier With Chopper Stabilization Technique

- Oct. 27
Hall,
Tower 7/8
17:45 **P2-014** **A Low-Power High-Speed Level Shifter Suitable For Synchronous Switching Power Converters**
Zhipeng Xiang¹, Huajun Fang^{1*}, Tong Ling¹, Xiao Zhao², Jun Xu¹
¹Tsinghua University, China; ²China University of Geosciences, China
- Oct. 27
Hall,
Tower 7/8
17:45 **P2-015** **Design Of Slope Compensation For A High-Efficiency High-Current DC-DC Converter**
Yue Shi^{1*}, GaNg Wu², Xia Wang², Zekun Zhou², Songpeng Rui²
¹Chengdu University of Information Technology, China; ²University of Electronic Science and Technology of China, China
- Oct. 27
Hall,
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17:45 **P2-016** **Constant-Gm Bias Circuit Without Off-Chip Components**
Yonggui Hu^{1,2}, Yafeng Wei², Jianan Wang², Maomao Sun²
¹National Laboratory of Analog Integrated Circuits, China; ²CETC, China
- Oct. 27
Hall,
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17:45 **P2-017** **On-Chip Type III Compensator By Using Constant-Gm OTAs And Capacitor-Multipliers For Fully Integrated Buck Converters**
Yongjian Shen^{1*}, Ran Zhang¹
¹Southwest China Institute of Electronic Technology, China
- Oct. 27
Hall,
Tower 7/8
17:45 **P2-018** **A Pre-Modulated Step-Up DC-DC Converter With High-Conductance Switches**
Shiquan Fan, Zhongming Xue, Zhuoqi Guo, Hao Lu, Li Geng
Xi'an Jiaotong University, China
- Oct. 27
Hall,
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17:45 **P2-019** **Pulse Skipping Width Modulation Mode In Buck Converter Application**
Ye Tian, Zunkai Huang, Qi Zhang, Li Tian, Hui Wang^{*}, Songlin Feng
¹Chinese Academy of Sciences, China; ²University of Chinese Academy of Sciences, China
- Oct. 27
Hall,
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17:45 **P2-020** **Linear CMOS Image Sensor For Bio-Microfluidic Imaging System**
Dongjun Wang, Ping Luo^{*}, Shaowei Zhen, Yajuan He
University of Electronic Science and Technology of China, China
- Oct. 27
Hall,
Tower 7/8
17:45 **P2-021** **A 120V/us High Slew Rate Operational Transconductance Amplifier With Improved Dynamic-Output Control Technique (DOCT)**
Hejiu Zhang, Ningmei Yu, Nan Lyu, Fengjuan Wang
Xi'an University of Technology, China
- Oct. 27
Hall,
Tower 7/8
17:45 **P2-022** **Design Of High Precision Bandgap Voltage Reference With Second-Order Curvature Correction In Bi-CMOS Process**
Yuming Wang¹, Jing Zhu¹, Yunwu Zhang¹, Yangyang Lu¹, Weifeng Sun^{1*}
¹Southeast University, China
- Oct. 27
Hall,
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17:45 **P2-023** **A Reconfigurable 1/2/3-Order Butterworth LP/CBP Filter With Noise Canceller For Sub-GHz Applications**
Qingping Li, Menglian Zhao^{*}, Xiaobo Wu
Institute of VLSI Design, China
- Oct. 27
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17:45 **P2-023** **A Reconfigurable 1/2/3-Order Butterworth LP/CBP Filter With Noise Canceller For Sub-GHz Applications**
Dongyang Yan, Lei Zhang, Li Zhang, Yan Wang
Tsinghua University, China.

- 17:45 P2-024 A 0.3V-1.2V Ultra-Low Input Voltage, Reconfigurable Switched-Capacitor DC-DC Converter For Energy Harvesting System**
 Oct. 27 Yuanfei Wang, Ping Luo*, Xinyi Zheng, Bo Zhang
 Hall, University of Electronic Science and Technology of China, China
 Tower 7/8
- 17:45 P2-025 Area-Saved And Low-Leakage Design Of Power-Rail Clamp Circuit**
 Oct. 27 Mohan Ji¹, Yuan Wang^{2*}, Guangyi Lu², Xinan Wang¹
 Hall, ¹Peking University, China; ²Peking University, China
 Tower 7/8
- 17:45 P2-026 A New Static Power Clamp Co-Designed With Input ESD Protection Circuit**
 Oct. 27 Jian Wang¹, Jian Cao^{1*}, Guangyi Lu², Xing Zhang¹, Yuan Wang²
 Hall, ¹Peking University, China; ²Peking University, China
 Tower 7/8
- 17:45 P2-027 A 1.67-ppm/°C 64-ppm/V Curvature-Compensated Bandgap Reference Based On A Transcendental Equation**
 Oct. 27 Ruocheng Wang^{1,2}, Wengao Lu^{*1,2}, Yajun Zhu^{1,2}, Yuze Niu^{1,2}, Yacong Zhang^{1,2}, Zhongjian Chen^{1,2}
 Hall, ¹Peking University, China; ²Peking University Information Technology Institute, China
 Tower 7/8
- 17:45 P2-028 A 6th-Order Chebyshev Active-RC Complex Filter Employing Feedforward Compensation Operational Transconductance Amplifiers Achieving +39.1dBm IIP3**
 Oct. 27 Jia-Wei Chen¹, Zhi-Jian Lu¹, Ting-Ting Mo^{1*}
 Hall, ¹Shanghai Jiao Tong University, China
 Tower 7/8
- 17:45 P2-029 Multi-Mode Control Strategy For Primary-Side Regulation System**
 Oct. 27 Kan Liu¹, Kexu Sun², Jianxiong Xi¹, Lenian He^{1*}
 Hall, ¹Zhejiang University, CHINA; ²Southern Methodist University, USA
 Tower 7/8
- 17:45 P2-030 An Ultra-Low-Power Hysteresis Power Converter With Sample And Hold Voltage Reference**
 Oct. 27 Junxiao Chen, Lenian He*
 Hall, Zhejiang University, China
 Tower 7/8
- 17:45 P2-031 A Global Process Variability Monitor Using Sensitivity-Enhanced Ring Oscillators And Modified Iterative Method**
 Oct. 27 Han-Jie Ding¹, Zhi-Jian Lu¹, Ting-Ting Mo^{1*}
 Hall, ¹Shanghai Jiao Tong University, China
 Tower 7/8
- 17:45 P2-032 Intelligent Charging Management System For Single Or Multi Li-Ion Battery With High Charging Current Accuracy**
 Oct. 27 Dejun.Yu, Mingyuan.Sun, Q. Yu, Ning Ning, Y. Liu
 Hall,
 Tower 7/8
- 17:45 P2-033 An Accuracy Voltage Regulator With Very Low Shut- Down Current Under High Supply Voltage Condition**
 Oct. 27 Dejun.Yu, Mingyuan.Sun, Q. Yu, Ning Ning, Y. Liu
 Hall,
 Tower 7/8
- 17:45 P2-034 A 0.662ppm/°C High PSRR CMOS Bandgap Voltage Reference**
 Oct. 27 Yang Qu, Xiao-Hong Peng*, Li-GaNg Hou, Tian-Hui Dai, Yu-Chen Wang

- Hall,
Tower 7/8
- 17:45 P2-035 **A 0.6V Full Wave Rectifier With The Current Mode Periodic Nested Feedback Loop Technique**
Fanyang Li^{1*}, Jiwei Wang¹
¹Fuzhou University, China
- Oct. 27
Hall,
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- 17:45 P2-036 **A High Dynamic Range CMOS Image Sensor With Dual Charge Transfer Phase**
Ren-guang Wang¹, Yue-xin Yin¹, Liang-Li¹, Xinyang Wang², Yu-chun Chang^{1*}
¹College of Electronic Science and Engineering Jilin University Chang Chun, China; ²Gpixel Inc, China
- Oct. 27
Hall,
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- 17:45 P2-037 **A Low Voltage CMOS Over-Temperature Protection Circuit With MOSFETs Working In The Sub-Threshold Region**
Wang Bangji, Feng Quanyuan^{*}, Zhuang Shengxian
Southwest Jiaotong University, China
- Oct. 27
Hall,
Tower 7/8
- 17:45 P2-038 **A High Linearity Active-RC BPF With 70MHz Center Frequency And 22MHz Bandwidth In 65nm CMOS**
Ying-Hang Wu, Zheng-Song, Yu-Tian Li, Zhi-Ran Liu, Bao-Yong Chi
Tsinghua National Laboratory for Information Science and Technology, China; Tsinghua University, China
- Oct. 27
Hall,
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- 17:45 P2-039 **Optimization For Phase Noise In Cross-Coupled Integrated Quartz Crystal Oscillator**
Hai-Qing Xie, Cheng-Wei Zeng, Xin-Liang Jia, Yong-Da Peng, Chao Wang, Jun-Long Tang^{*}
Changsha University of Science & Technology, China
- Oct. 27
Hall,
Tower 7/8
- 17:45 P2-040 **High Precision Bandgap Reference with Chopping Offset Reducing Technique**
Yu-Han Gao^{1*}, Dong-Bing Fu¹, Guang-Bing Chen², Rong-ke Ye¹, Lei Zhang¹, Can Zhu²
¹ The NO.24th Institute of CETC, China; ² National Key Laboratory of Science and Technology on Military Analog Integrated Circuits, China
- Oct. 27
Hall,
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- 17:45 P2-041 **An Area-Efficient Low-Noise Bio-Sensing Amplifier with Continuous-Tunable Gain**
Tao Yin¹, Guocheng Huang^{1,2}, Xiaodong Xu¹, Yachao Zhang^{1,2}, Xinxia Cai¹, Haigang Yang^{1*}
¹ Chinese Academy of Sciences, China; ² University of the Chinese Academy of Sciences, China
- Oct. 27
Hall,
Tower 7/8
- 17:45 P2-042 **A High-Voltage High-PSRR Power Management Circuit for BMS Chip of New Energy Vehicle**
Xuhui He¹, Liji Wu^{*1}, Xuecheng Man¹, Xiangmin Zhang¹, Xingjun Wu¹, Wen Jia²
¹ Tsinghua University, China; ² Research Institute of Tsinghua University in Shenzhen, China
- Oct. 27
Hall,
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- 17:45 P2-043 **A Low-Power CMOS Smart Temperature Sensor from 60K to 200K**
Chang-Feng Zhang^{1*}, Nan Chen¹ and Li-Bin Yao¹
¹ Kunming Institute of Physics, China
- Oct. 27
Hall,
Tower 7/8
- 17:45 P2-044 **Session-Less Test Scheduling for Multi-Tower 3D-SICs**
Wenming Wang¹, Xiaole Cui^{1*}, Mengying Luo¹, Yang Hu¹, Shengming Zhou²
¹ Peking University Shenzhen Graduate School, China; ² National Integrated Circuit Design Shenzhen Industrial Center, China
- Oct. 27
Hall,
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- 17:45 P2-045 **The Design of a Reconfigurable Computing Unit Based on Heterogeneous System**
Yu-Kun Song, Hao-Yang Li^{*}, Duo-li Zhang
Hefei University of Technology, China

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17:45 P2-046 **Design and Implementation of Dual-Port Network on Chip Based on Multi-core System**
 Oct. 27 Yu-Kun Song, Qing-Song Qian*, Duo-Li Zhang
 Hall, Hefei University of Technology, China
 Tower 7/8
- 17:45 P2-047** **A MBIST Controller Based on JTAG Interface Applied in Power Line Chip**
 Oct. 27 Yao Lu*, Yanxu Zhu, Ming Li
 Hall, Beijing University of Technology, China
 Tower 7/8
- 17:45 P2-048** **Design and Verification of High-Bandwidth Digital Content Protection Transmitter Authentication**
 Oct. 27 Jing-Song Zhi, Li-Gang Hou*, Chun-Hui Yang, Lin Zhu, Jin-HuiWang²
 Hall, ¹ Beijing University of Technology, China; ² North Dakota State University, USA
 Tower 7/8
- 17:45 P2-049** **A Robust and Flexible Clock Realization Used for the Complex Set-top-box HDSOC**
 Oct. 27 Sunjianhui^{1,2*}, Wanggongtang¹, Huaqing¹, Wangchunxing¹, Liu Juntao², Caixinxia², Yangshanjing³
 Hall, ¹ Shandong Normal University; ² Chinese Academy of Sciences University; ³ Chinese Academy of Sciences
 Tower 7/8
- 17:45 P2-050** **High-Throughput Binary Arithmetic Encoder Architecture for CABAC in H.265/HEVC**
 Oct. 27 Cheng Chen, Kaili Liu, Song Chen*
 Hall, University of Science and Technology of China, China
 Tower 7/8
- 17:45 P2-051** **An Unified Online Fault-tolerant Mechanism for FIFO Faults in Network-on-Chip Router**
 Oct. 27 Jinfu Xu, Yanxi Hang, Pengfei Guo, Qiang Dai
 Hall, Institute of Information Science and Technology, China
 Tower 7/8
- 17:45 P2-052** **Role-based Access Control for Memory Security on Network-on-Chips**
 Oct. 27 Song-Tao Chen, Jin-Fu Xu, Yan-Xi Hang, Jun-wei Li
 Hall, Zhengzhou Information Technology College, China
 Tower 7/8
- 17:45 P2-053** **Design of Fractional-N Frequency Synthesizer for FSK Transceiver**
 Oct. 27 Ming Li, Peiyuan Wan*
 Hall, Beijing University of Technology, China
 Tower 7/8
- 17:45 P2-054** **A Quasi-closed-loop Auto Frequency Calibration Circuit for PLL**
 Oct. 27 Ya-Nan Tang, Jin-Guang Jiang*
 Hall, Wuhan University, Wuhan 430079, China
 Tower 7/8
- 17:45 P2-055** **A 12.5Gbps Dual Loop Quarter Rate CDR using Lock Detecting Technique in 55nm CMOS Process**
 Oct. 27 Yongsheng Wang, Huaixin Xian, Xinzhi Li, Fengchang Lai, Weijia Han, Xiaowei Liu
 Hall, ¹ Harbin Institute of Technology, China
 Tower 7/8
- 17:45 P2-056** **A Low-Jitter PLL with New Cross-Coupled VCO Delay Cell for SerDes CDR in 55-nm CMOS Technology**
 Oct. 27 Yongsheng Wang, Lixin Zhang, Weijia Han, Xinzhi Li, Fengchang Lai, Xiaowei Liu

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- 17:45 P2-057** **A Wideband LC VCO with Small Gain Variation for 24GHz FMCW Frequency Synthesizer**
Yuan Yuan Xu¹, Wei Wang¹, Wei Li^{1*}, Dan Wu¹, Lai He¹
¹ Fudan University, China
- Oct. 27
Hall,
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- 17:45 P2-058** **A Self-Calibrated 32-phase Delay-Locked Loop**
Jing Li, Daizhou Cheng, Zhihua Liu, Ning Ning*
University of Electronic Science and Technology of China, P. R. China
- Oct. 27
Hall,
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- 17:45 P2-059** **A 10.3mW 13.6GHz Phase-Locked Loop with Boosted Gm Two-Stage Ring VCO**
Han Liu, Woogeun Rhee, Zhihua Wang
Tsinghua University, China
- Oct. 27
Hall,
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- 17:45 P2-060** **200MS/s 10bit SAR ADC with 1.5bit Redundant Acceleration**
Wang Jingjing, Li Qianqian, Chen Chixiao, Ye Fan, Xu Jun*, Ren Junyan
Fudan University, China
- Oct. 27
Hall,
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- 17:45 P2-061** **Design a Delay Amplified Digital Aging Sensor Circuit in 65nm CMOS**
Dailu Ding, Yuejun Zhang*, Pengjun Wang, Haoyu Qian, and Gang Li
Ningbo University, China
- Oct. 27
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- 17:45 P2-062** **A New Structure of Primitive Gates Used in Standard Cell Library**
Peng Yong, Xie Lei, Lv Qiuye, Dai Gang
CAEP, China
- Oct. 27
Hall,
Tower 7/8
- 17:45 P2-063** **A Low-power Low-cost Built-in Jitter Measurement Circuit for DDR4-2133**
Pei-Yuan Chou¹, Wei-Ling Lin¹, Tay-Jyi Lin², Jyh-Herng Wang³, Jinn-Shyan Wang¹
¹ National Chung Cheng University, Taiwan, China; ² National Chung Cheng University, Taiwan, China; ³ Faraday Technology Corporation, Taiwan, China
- Oct. 27
Hall,
Tower 7/8
- 17:45 P2-064** **Design of a Parametric-Drift-Resistant Inverter**
Qiu-Ye Lv^{1*}, Lei Xie¹, Yong Peng¹, Ren-Hua Yang¹, Gang Dai¹
¹ Chinese Academy of Engineering Physics, China
- Oct. 27
Hall,
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- 17:45 P2-065** **SAPTL –based Robust Sub-threshold Adder Circuit Design**
Qi Zhang^{1,2}, Yuping Wu^{1,2,3*}, Lan Chen^{1,2}, Xuelian Zhang^{1,2}, Weicheng Shi^{1,2}
¹ Institute of Microelectronics of Chinese Academy of Sciences, China; ² Beijing Key Laboratory of 3D & Nano IC Design Automation Technology, China; ³ CAS, China
- Oct. 27
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- 17:45 P2-066** **A 12-bit 250MSPS Pipeline ADC with 4Gbps Serial Output Interface**
Wu Hai-jun^{1,4,5}, Chen Zhen-hai^{2,3}, Yu Zong-guang², Wang Wei-xing^{1,4,5}
¹ South China Agricultural University, China; ² China Electronic Technology Group Corporation, China; ³ Huangshan University, China; ⁴ Guangdong Engineering Research Center for Monitoring Agricultural Information, China; ⁵ Guangzhou Key Laboratory of Information Acquisition and Application in Agriculture, China
- Oct. 27
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- 17:45 P2-067** **A Wide-Band Input Buffer for 3GS/S 12bit Time-Interleaved ADC**
Yongzhen Chen^{1*}, Hang Hu¹, Fan Ye¹, Junyan Ren^{1*}
¹ Fudan University, China
- Oct. 27
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- 17:45 P2-068 A 10-Bit 800ms/S Low Power Time-Interleaved SAR ADC with Background Calibration**
 Oct. 27 Jie Pu¹, Daiguo Xu¹, Yuxin Wang¹, Ruitao Zhang¹
 Hall, ¹ Science and Technology on Analog Integrated Circuit Laboratory, China
 Tower 7/8
- 17:45 P2-069 Calibration of Timing Mismatch in a Two-Channels Time-Interleaved ADC Based on Testing Signal and Its Verification on FPGA**
 Oct. 27 Sujuan Liu*, Shishen Yang, Ning Lv
 Hall, Beijing University of Technology, China
 Tower 7/8
- 17:45 P2-070 Design and Implementation of a HBC Digital Baseband System for Two-hop Extension Star Network**
 Oct. 27 Hao Chen, Bo Wang*, Zhong-Min Lin, Ying Zhang, Xin-An Wang
 Hall, Peking University Shenzhen Graduate School, China
 Tower 7/8
- 17:45 P2-071 Bit Stream Compression Using Self-Adaptive EFDR Coding**
 Oct. 27 Tiandong Zhao¹, Tianjiao Li¹, Minwoo Nho^{*2}, Xiaofang Zhou^{*3}
 Hall, ¹ Fudan University, China; ² Samsung Electronics Co., Ltd., Korea; ³ Fudan University, China
 Tower 7/8
- 17:45 P2-072 The Implementation of CRC-16 Based on a Novel FPGA: a Collection of Reconfiguration Operations(ReOps)**
 Oct. 27 Zhiqiang Yang, Jipan Huang, Xin'an Wang*, Yuqian Huang, Haifang Lu, Mohan Ji
 Hall, Peking University Shenzhen Graduated School, China
 Tower 7/8
- 17:45 P2-073 Design of Chip Verification Platform Based on Network**
 Oct. 27 Pei Yang, Weitong Chen, Jinmei Lai*
 Hall, Fudan University, China
 Tower 7/8
- 17:45 P2-074 Thermal Distribution Measurement on FPGA Using Optimized Ring Oscillator (RO)-Based Thermal Sensor Network**
 Oct. 27 Jingwei Li¹, Shiwei Feng^{1*}, Yuan Yue¹, Yanbin Qiao², Jin Shao²
 Hall, ¹ Beijing University of Technology, China; ² Beijing Smart-Chip Microelectronics Technology
 Tower 7/8 Company Limited, China
- 17:45 P2-075 The Implementation of a KNN Classifier on FPGA with a Parallel and Pipelined Architecture based on Predetermined Range Search**
 Oct. 27 Miren Tian, Xin'an Wang*, Xing Zhang, Zhiqiang Yang, Jipan Huang, Hao Chen
 Hall, Peking University Shenzhen Graduated School, China
 Tower 7/8
- 17:45 P2-076 Implementation of a High Throughput LDPC Codec in FPGA for QKD System**
 Oct. 27 Cong Hui*, Yonggang Wang, Xiaoming Lu
 Hall, University of Science and Technology of China, China
 Tower 7/8
- 17:45 P2-077 A High-speed and Area-efficiency DSP Block Embedded in FPGAs**
 Oct. 27 Bang Zhang*, Peng Lu, Jian Wang, Jinmei Lai
 Hall, Fudan University, China
 Tower 7/8
- 17:45 P2-078 Test Methods for FPGA Switching Characteristics on GPETE Test Platform**
 Oct. 27 Yuanpei Gao, Chao Shi, Bang Zhang, Xinyu Ma, Jian Wang, Jinmei Lai*
 Hall, Fudan University, China

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17:45 P2-079 **A Double-References and Dynamic-Tracking Scheme for Writing Bit-yield Improvement of ReRAM**
 Oct. 27 Chengying Chen¹, Lan Dai^{2*}
 Hall, ¹ Institute of Microelectronics of Chinese Academy of Sciences, China; ² North China University of
 Tower 7/8 Technology, China
- 17:45 P2-080** **Experimental Study of Single Event Upset and Single Event Latch-up in SOI SRAM**
 Oct. 27 Linfei Wang, Hainan Liu, Likun Chen, Yuelin Zhou, Hongyuan Zhang, Jiantou Gao, Fazhan Zhao,
 Hall, Jiajun Luo*, Fang Yu, Zhengsheng Han
 Tower 7/8 Institute of Microelectronics of Chinese Academy of Sciences, China; Chinese Academy of Sciences,
 China
- 17:45 P2-081** **Design of Novel Current-Mode Sense Amplifier in Large Scale SRAMs**
 Oct. 27 Song Jia, Zizhao Liu, Yuan Wang
 Hall, Peking University, China
 Tower 7/8
- 17:45 P2-082** **An Improved BCH Code for Crossbar-Based Resistive RAM**
 Oct. 27 Jiantong Jiang¹, Xiaole Cui^{1*}, Xiaoyan Xu¹, Chunliang Liu¹, Shengming Zhou²
 Hall, ¹ Peking University Shenzhen Graduate School, China; ² National Integrated Circuit Design
 Tower 7/8 Shenzhen Industrial Center, China
- 17:45 P2-083** **A Die Selection and Matching Method for Yield Enhancement of 3D-Stacked Memories**
 Oct. 27 Zhengjian Sun¹, Xiaole Cui^{1*}, Chunliang Liu¹, Mengying Luo¹, Shengming Zhou²
 Hall, ¹ Peking University Shenzhen Graduate School, China; ² National Integrated Circuit Design
 Tower 7/8 Shenzhen Industrial Center, China
- 17:45 P2-084** **A Physically-secure Write Scheme of Multi-time Programmable RRAM for Critical Information Storage**
 Oct. 27 Yi Xiao, Yufeng Xie*, Shilin Yan, Lecheng Zhou, Baihui Zhou, Siyuan Zhou, Yinyin Lin
 Hall, Fudan University, Shanghai, China
 Tower 7/8
- 17:45 P2-085** **Design Optimization for AC Coupled On-chip Global Interconnect**
 Oct. 27 Jianfei Jiang^{1*}, Qin Wang¹, Weifeng He¹, Xiaoyang Zeng²
 Hall, ¹ Shanghai Jiao Tong University, China; ² Fudan University, China
 Tower 7/8
- 17:45 P2-086** **Bus Partitioning Technique with Crosstalk Avoidance Code**
 Oct. 27 Yang Hu¹, Xiaole Cui^{1*}, Yalin Ran¹, Mengying Luo¹, Jiantong Jiang¹, Shengming Zhou²
 Hall, ¹ Peking University Shenzhen Graduate School, China; ² National Integrated Circuit Design
 Tower 7/8 Shenzhen Industrial Center, China
- 17:45 P2-087** **A Peak Power Optimization Scheduling Algorithm for Multi-cycle Operation**
 Oct. 27 Sun Qiang
 Hall, Computer and Information College Mudanjiang Normal University, China
 Tower 7/8
- 17:45 P2-088** **A Filter Enhanced Capacitively Phase-Coupled Low Noise 0.6-to-3 GHz Ring VCO**
 Oct. 27 Boyi Zheng¹, Li Ding^{1*}, Jing Jin¹
 Hall, ¹ Shanghai Jiao Tong University, China
 Tower 7/8
- 17:45 P2-089** **A Security-Enhanced Express Delivery System Based on NFC**
 Oct. 27 Sha Liu, Junyu Wang*
 Hall, Fudan University, China
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- 17:45 P2-090 A 6-18GHz Vector-Sum 6-bit Active Phase Shifter**
 Oct. 27 Jiexiong Liang¹, Wei Li^{1*}, Jintao Hu¹, Lai He¹
 Hall, Fudan University, China
 Tower 7/8
- 17:45 P2-091 A Wideband Common-gate LNA with Enhanced Linearity by Using Complementary MGTR Technique**
 Oct. 27 Benqing Guo *, Jun Chen, Yueyue Li, Haiyan Jin, Yongjun Yang, Weijian Chen
 Hall, UESTC, China
 Tower 7/8
- 17:45 P2-092 An X-band CMOS Push-Pull Power Amplifier with Capacitive Neutralization for High Linearity and High Efficiency Applications**
 Oct. 27 Ran Zhang^{1*}, Yong Zhu¹
 Hall, ¹ Southwest China Institute of Electronic Technology, China
 Tower 7/8
- 17:45 P2-093 A Digital Calibration Technique for Timing Mismatch in a Four-Channel Time-Interleaved ADCs**
 Oct. 27 Yong-Sheng Yin¹, Mao-Chen Jian^{1*}, Hong-Mei Chen¹
 Hall, ¹ Hefei University of Technology, China
 Tower 7/8
- 17:45 P2-094 A Wideband and High Linearity Programmable Gain Amplifier for 60GHz Receiver in 65nm CMOS**
 Oct. 27 Yu-Tian Li, Zheng-Song, Zhi-Ran Liu, Ying-Hang Wu, Bao-Yong Chi
 Hall, Tsinghua National Laboratory for Information Science and Technology, China
 Tower 7/8
- 17:45 P2-095 A 80.4-to-86.5 GHz E-band QVCO with Inductor tuning method and Amplifier Feedback in 65-nm CMOS Technology**
 Oct. 27 Xinxin zhu, Lei Zhang*, Yan Wang
 Hall, Tsinghua University, China
 Tower 7/8
- 17:45 P2-096 An Improved RFID Anti-collision Algorithm Based on the Standard EPCglobal Class-1 Generation-2**
 Oct. 27 Meng-Lei Lv¹, Ying-Hong Tian¹, Chun-Shen Jiang¹, Run-xi Zhang¹, Chun-Qi Shi²
 Hall, ¹ East China Normal University, China; ² East China Normal University, China
 Tower 7/8
- 17:45 P2-097 A Three Stage, Fully Differential D-band CMOS Power Amplifier**
 Oct. 27 Xianghong Gao, Lingling Sun*, Jincui Wen*, Guodong Su, Meng Jin and Jiawu Zhou
 Hall, Hangzhou Dianzi University, China
 Tower 7/8
- 17:45 P2-098 A Common Source LNTA of High Linearity Robust to Temperature and Process**
 Oct. 27 Zikuan Wang¹, Zhijian Lu¹, Tingting Mo^{1*}
 Hall, ¹ Shanghai Jiao Tong University, China
 Tower 7/8
- 17:45 P2-099 A New DC Cancellation Technique for a Mixer-First Receiver in UHF RFID Reader**
 Oct. 27 Fanfan Zheng, Qiang Guo, Jing Liu, Xi Tan*, Hao Min
 Hall, Fudan University, China
 Tower 7/8
- 17:45 P2-100 Design of a Low Power Current-Driven Passive Mixer**
 Oct. 27 Yun-Yong Yu, Si-Zheng Chen, Tong Li, Hao Min*
 Hall, Fudan University, China

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17:45 P2-101 **A 0.1-to-5 GHz Wideband $\Delta\Sigma$ Fractional-N Frequency Synthesizer for Software-Defined Radio Application**
Oct. 27 Zhao Zhang, Jincheng Yang, Liyuan Liu*, Peng Feng, Jian Liu, Nanjian Wu*
Hall, Institute of Semiconductors Chinese Academy of Sciences, China
Tower 7/8
- 17:45 P2-102 **Design of Wideband and High Efficiency THz Yagi Antenna by Using Air Bridge Technology**
Oct. 27 Yang Li*, Shao-bo Wang, Lin-an Yang, Sheng-rui Xu, Yue Hao
Hall, Xidian University, China
Tower 7/8
- 17:45 P2-103 **A 150GHz Amplifier Based on Coupled Transmission Line Neutralization with 22dB Gain in 65nm CMOS**
Oct. 27 Lin Lin, Lei Zhang, Yan Wang, Zhiping Yu
Hall, Tsinghua University, China
Tower 7/8
- 17:45 P2-104 **A Low-Power 10-Gb/s Receiver with Merged CTLE and DFE Summer**
Oct. 27 Dengbao Liu^{1,2}, Lin He^{1,2}, Yu-Kai Chou², Fujiang Lin^{1,2}
Hall, ¹ University of Science and Technology of China (USTC), China; ² USTC-MTK Joint Laboratory of High-Speed Integrated Circuits & Systems, China
Tower 7/8
- 17:45 P2-105 **Hardware Architecture of Lifting-based Discrete Wavelet Transform and Sample Entropy for Epileptic Seizure Detection**
Oct. 27 Yuanfa Wang¹, Zunchao Li^{1,2*}, Lichen Feng¹, Chuang Zheng¹, Yunhe Guan¹, Yefei Zhang¹
Hall, ¹ Xi'an Jiaotong University, China; ² Guangdong Xi'an Jiaotong University Academy, China
Tower 7/8
- 17:45 P2-106 **The FPGA Implementation of Spectrum Peak Search in MUSIC Algorithm**
Oct. 27 Duo-Li Zhang, Bin Zhang*, Yu-Kun Song
Hall, Hefei University of Technology, China
Tower 7/8
- 17:45 P2-107 **Fast Motion Estimation Friendly Hardware Architecture for Hvc Encoders Based On 2-D Data Reuse and Low-Power Sad Tree**
Oct. 27 Leilei Huang¹, Bei Hao¹, Xiaoyang Zeng¹, and Yibo Fan^{1*}
Hall, Fudan University, China
Tower 7/8
- 17:45 P2-108 **A Hardware Friendly Stereo Match Refinement Algorithm Using Disparity Gradient Based Region Growth Method**
Oct. 27 Hanrui Wang¹, Yize Jin¹, Liming Wang¹, Xiaoyang Zeng¹, Yibo Fan^{1*}
Hall, Fudan University, China
Tower 7/8
- 17:45 P2-109 **An Asynchronous GOP Structure Based on Tile Partition**
Oct. 27 Yize Jin, Qinwei Jiang, Xiaoyang Zeng, Yibo Fan*
Hall, Fudan University, China
Tower 7/8
- 17:45 P2-110 **VLSI Implementation for R-wave Detection and Heartbeat Classification of ECG Adaptive Sampling Signals**
Oct. 27 Qian Long, Yi Ren, Jun Han, Xiaoyang Zeng
Hall, Fudan University, China
Tower 7/8
- 17:45 P2-111 **A Novel RLE & LZW for Bit-Stream Compression**

	Oct. 27 Hall, Tower 7/8	Tianjiao Li ¹ , Tiandong Zhao ¹ , Minwoo Nho ^{2*} , Xiaofang Zhou ^{3*} ¹ Fudan University, China; ² Samsung Electronics Co., Ltd., Korea; ³ Fudan University, China
17:45	P2-112	A Small-area and Low-power Circuit Implementation of Color Space Conversion from RGB to YCbCr
	Oct. 27 Hall, Tower 7/8	Kai-Jie Shi, Hu Cao, Li Tian, Qi Zhang, Hui Wang*, Song-Lin Feng Chinese Academy of Sciences, China
17:45	P2-113	An Improved Ziggurat-Based Hardware Gaussian Random Number Generator
	Oct. 27 Hall, Tower 7/8	Jianing Su ^{1*} , Jun Han ² ¹ Chinese Academy of Sciences, China; ² Fudan University, China
17:45	P2-114	Analysis on the Low-Power Integrated Circuit Technology
	Oct. 27 Hall, Tower 7/8	Wei Wang, Bin Wang Hangzhou Dianzi University, China; Xiasha Higher Education Zone, China
17:45	P2-115	An SVA Hardware Monitor with Off-line Replay
	Oct. 27 Hall, Tower 7/8	Minwoo Nho ^{1*} , Xiaofang Zhou ² , Gerald E. Sobelman ³ ¹ Samsung Electronics Co.,Ltd., Korea; ² Fudan University, China; ³ University of Minnesota, USA
17:45	P2-116	RFRA: Reconfigurable and Fault-tolerant Routing Algorithm without Virtual Channels for 2D Network-on-Chip
	Oct. 27 Hall, Tower 7/8	Ruilian Xie ¹ , Jueping Cai ^{1*} , Peng Wang ^{1,2} ¹ Xidian University, China; ² China Electronics Technology Group Corporation No. 47 Research Institute, China
17:45	P2-117	Behavioral Model of Track-and-Hold Amplifier Based on GaAs HBT by Using MATLAB- SIMULINK
	Oct. 27 Hall, Tower 7/8	Wei-Fan Ge ¹ , Hong-Liang Lu ^{1*} , Yu-Ming Zhang ¹ , Yi-Men Zhang ¹ , Jing-Xuan Wang ¹ ¹ Xidian University, China
17:45	P2-118	Configurable Links for 3D Network On-Chip Based on Mapping Algorithm
	Oct. 27 Hall, Tower 7/8	Yi Liu ¹ , Yu-Ting Niu ^{2*} , Chang-Qing Xu ³ ^{1,2,3} Xidian University, China
17:45	P2-119	Platform Design for Compatible Semi-custom Design Flow
	Oct. 27 Hall, Tower 7/8	Yifu Gong ¹ , Na Gong ¹ , Ligang Hou ² , Jinhui Wang ^{1*} ¹ North Dakota State University, USA; ² Beijing University of Technology, China
17:45	P2-120	LVS Solution for Electric Test Keys Verification
	Oct. 27 Hall, Tower 7/8	Susan Wu ¹ , Linda Zhuang ¹ , Mengfeng Tasi ¹ , Lei Fu ² ¹ Semiconductor Manufacturing International Corporation, China; ² Cadence Design Systems, Inc., USA

Panel Discussion

20:00	Meeting	Topic: What will drive semiconductor technology after the end of CMOS scaling?
Oct. 27	Room 1. Tower 7/8	Organizer: Prof. Jason Woo, UCLA, USA Panelists: Dr. Kevin Zhang, VP Intel (SoC)

Keynote Session III

Session Chair: Cor Claeys, IMEC, Belgium

- 8:30** **K7** **FD-SOI technology as enabler of Internet of Things applications**
Oct. 28 **(Keynote)** Giorgio CESANA, Carlos MAZURE
Ballroom,
Tower 7/8 SOI Industry Consortium
- 9:15** **K8** **Artificial Intelligence Applications in Semiconductor - From Modeling to Design**
Oct. 28 **(Keynote)** Yanfeng Li
Ballroom,
Tower 7/8 Platform Design Automation, Inc. (PDA)

Coffee Break

S41 Nano CMOS and Emerging Devices III

Session Chair: Hans-Joachim L. Gossmann, Varian Semiconductor Equipment, USA

- 10:15** **S41-1** **NanoCMOS and Steep Switch Technologies for Ultimate Nanoelectronics Devices**
Oct. 28 **(Invited)** Francis Balestra
Room 1 Grenoble-Alpes University, France
- 10:45** **S41-2** **A Novel Interface-Trapped-Charge-Induced Threshold Voltage Model for Double-Fin Multi-Channel FETs (DFMcFETs)**
Oct. 28 **(Invited)** Hong-Wun Gao, Yeong-Her Wang and Te-Kuang Chiang
Room 1
- 11:15** **S02-2** **Early Assessment of Tunnel-FET for Energy-Efficient Logic Circuits**
Oct. 28 **(Invited)** Felice Crupi^{1*}, Sebastiano Strangio^{1,2}, Pierpaolo Palestri², Marco Lanuzza¹, David Esseni²
Room 1 ¹University of Calabria, Italy; ²University of Udine, Italy
- 11:45** **S41-3** **Novel top-down fabrication of Si-based nanostructures with sub-20nm scale**
Oct. 28 Lingkuan Meng^{*}, Jiang Yan
Room 1 Institute of Microelectronics of Chinese Academy of Sciences, China
- 12:00** **S41-4** **A Novel Deep-Impurity-Level Assisted Tunneling Technology for Enhanced Interband Tunneling Probability**
Oct. 28 RunDong Jia, QianQian Huang, ChunLei Wu, Yang Zhao, JiaXin Wang, Ru Huang^{*}
Room 1 Peking University, China

S42 Sensors I

Session Chair: Hai-Bao Chen, Shanghai Jiao Tong University, China

- 13:30** **S42-1** **The Possibility of Integrating Plasmonic Platforms with Si VLSI for Bio-sensing**
Oct. 28 **(Invited)** Ya-Hong Xie
Room 1 University of California Los Angeles, USA
- 14:00** **S42-2** **A Low-Power Low-Noise 160×120 17µm Pixel Pitch TEC-Less Uncooled Infrared Image Sensor**
Oct. 28 Dahe Liu^{1,2}, Zheng Fang¹, Wengao Lu^{1,2*}, Zhongjian Chen¹ and Yacong Zhang¹
Room 1 ¹Peking University, China; ²Peking University Information Technology Institute, China
- 14:15** **S42-3** **A Phrase Modulation Linearity Test Method about Y Waveguide of Optical Fiber Gyro**
Oct. 28 Dong-Sheng Yang
Room 1 The first aeronautical college of air force, China

14:30	S42-4	Enhanced Ethanol Sensing Performance of Tin Oxide Nanoparticles Doped with Palladium and Graphene
Oct. 28		Jiabin Fang ¹ , Yiping Zhu ^{1*} , Dajun Wu ¹ , Chi Zhang ¹ , Shaohui Xu ¹ , Dayuan Xiong ¹ , Pingxiong Yang ¹ , Lianwei Wang ¹ and Paul K. Chu ²
Room 1		¹ East China Normal University, China; ² City University of Hong Kong, China
14:45	S42-5	Electrochemical dopamine biosensor using over-oxidized polypyrrole with assistance of graphene
Oct. 28		Jian Zhang ¹ , Jia Zhou ^{1*} , Yuhua Yu ¹ , Jianfeng Chen ¹ and Weijiang Xu ²
Room 1		¹ Fudan University, China; ² University de Valenciennes, France
15:00	S42-6	A Single Photon Avalanche Diode in Standard CMOS Technology For Range Finding
Oct. 28		Jing Cao, Lebo Wang, Chao Shen, Liyuan Liu* and Nanjian Wu*
Room 1		Institute of Semiconductors Chinese Academy of Sciences, China
15:15	S42-7	A Low-offset Vertical Hall Device With A Couple of Three-contact Vertical Hall Elements
Oct. 28		Jun Xu ¹ , Yue Xu ^{1,2*}
Room 1		¹ Nanjing University of Posts and Telecommunications, China; ² Jiangsu Provincial Engineering Laboratory of RF Integration & Micro-packaging, China

Coffee Break

S43 Sensors II

Session Chair: Ya-Hong Xie, University of California Los Angeles, USA

15:45	S43-1	Energy-Efficient Wireless Temperature Sensing for Smart Building Applications
Oct. 28	(Invited)	Xin Chen*, Hai-Bao Chen*, Weinan Ma ¹ , Xin Li ² and Sheldon X.-D. Tan ³
Room 1		*Shanghai Jiao Tong University, China; ¹ Smart Devices Inc, China; ² Carnegie Mellon University, USA; ³ University of California, USA
16:15	S43-2	A hybrid graphene-metal oxide sensor for formaldehyde detection at room temperature
Oct. 28	(Invited)	Xiaohui Tang ¹ , Marc Debliquy ² , Driss Lahem ³ , Denis Flandre ¹ , Nicolas André ¹ , Thomas Walewyns ¹ , Laurent Francis ¹ and Jean-Pierre Raskin ¹
Room 1		¹ Université catholique de Louvain, Belgium; ² University of Mons, Belgium; ³ Materia Nova, Belgium
16:45	S43-3	Electrical Impedance and Radiation Modes Determination for LiNbO₃ MEMS Ultrasonic Array Transducer using KLM and FEM Modelling
Oct. 28		Wei-Zhen Wang ¹ , Wei-Jiang Xu ^{2*} , Jia Zhou ¹ , Wen-Juan Liu ¹ , Zheng Xu ³ , Jun-Yan Ren ^{1*}
Room 1		¹ Fudan University, China; ² Université de Valenciennes, France; ³ Tongji University, China
17:00	S43-4	Improved photon detection efficiency of single photon avalanche diodes with buried layer structure
Oct. 28		Ping Xiang ¹ , Yue Xu ^{1,2*}
Room 1		¹ Nanjing University of Posts and Telecommunications, China; ² Jiangsu Provincial Engineering Laboratory of RF Integration & Micro-packaging, China

S44 FPGA

Session Chair: Jun Tao, Fudan University, China

10:15	S44-1	Energy-Efficient Reconfigurable Architecture with Overlay Crossbar Interconnect using Via-switch
Oct. 28	(Invited)	Masanori Hashimoto
Room 3A		Osaka University, Japan
10:45	S44-2	An Efficient Method for Testing Multipliers of embedded DSPs in FPGA

Oct. 28		Zhi-Qian Zhang, Jin-Mei Lai*
Room 3A		Fudan University, China
11:00	S44-3	Zynq-based Solid-State Drive Prototyping Platform for Emerging Non-Volatile Memories
Oct. 28		Longfei Wang ¹ , Xiaoqing Zhao ¹ , Mengnan Wu ¹ , Pu Bai ¹ , Hongbin Sun ^{1*} , Xiaowei Han ² , Bing Yu ² , Qiwei Ren ² and Nanning Zheng ¹
Room 3A		¹ Xi'an Jiaotong University, China; ² Xi'an UnilC Semiconductors Co., China
11:15	S44-4	Design and Implementation of Hardware-Based Low Latency TCP Offload Engine for 10 Gbps Ethernet
Oct. 28		Li Ding ¹ , Ping Kang ¹ , Wenbo Yin ¹ , Zhi-Hua Feng ^{2*}
Room 3A		¹ Fudan University, China; ² Beijing Institute of Computer Technology and Application, China
11:30	S44-5	Fast FPGA Compilation based on Relocatable P&R Constraints
Oct. 28		Chong Wang ¹ , Xue-Gong Zhou ¹ , Ling-Li Wang ¹ , Zhi-Hua Feng ^{2*}
Room 3A		¹ Fudan University, China; ² Beijing Institute of Computer Technology and Application, China
11:45	S44-6	Design of FPGA's High-speed and Low-power Programmable Interconnect
Oct. 28		Weitong Chen, Lei Li, Peng Lu, Jinmei Lai*
Room 3A		Fudan University, China
12:00	S44-7	Performance Evaluation of Input Sharing LUT Architectures in FPGA
Oct. 28		Chen-Chang Zhu ^{1,2} , Xue-Gong Zhou [*] , Hao Zhou ¹ , Yue-Er Shan ² , Yan-Feng Xu ² , Kai Hu ²
Room 3A		¹ Fudan University, China; ² China Electronics Technology Group Corporation No.58 Research Institute, China

S45 Low-Power Nyquist ADCs

Session Chair: Jun-Yan Ren, Fudan University, China

13:30	S45-1	A 300 mV, 6-bit Ultra-Low Power SAR ADC
Oct. 28		Jie Lin and Jiann-Shiun Yuan
Room 3A		University of Central Florida, USA
13:45	S45-2	A 14-bit 8-column shared SAR ADC for 640×512 IRFPA
Oct. 28		Zhaokai Liu ^{1,2} , Wengao Lu ^{*1,2} , Yuze Niu ^{1,2} , Dahe Liu ^{1,2} , Yacong Zhang ^{1,2} , Zhongjian Chen ^{1,2}
Room 3A		¹ Peking University, China; ² Peking University information technology institute, China
14:00	S45-3	A 5KS/s 112nW SAR ADC for Portable Bio-potential Acquisition System
Oct. 28		Kerou Wang, Wenhui Qin, Yanchao Wang, Ting Yi* and Zhiliang Hong
Room 3A		Fudan University, China
14:15	S45-4	A 10-bit 100-MS/s Power-Efficient Asynchronous SAR ADC
Oct. 28		Beichen Zhang, Bingbing Yao, Liyuan Liu* and Nanjian Wu
Room 3A		Institute of Semiconductors Chinese Academy of Sciences, China
14:30	S45-5	A 10-Bit 100-MS/s Hybrid ADC Based on Flash-SAR Architecture
Oct. 28		Zhang Zhang*, Wen-cheng Yu, Guang-jun Xie
Room 3A		Hefei University of Technology, China
14:45	S45-6	A 12-Bit Cyclic ADC for Image Sensor
Oct. 28		Can Peng ¹ , Shuang Cui ¹ , Chao Wang ² , Xiao-Tian Yang ² , Yu-Chun Chang ^{1*}
Room 3A		¹ Jilin University Chang Chun, China; ² Jilin Jianzhu University, China
15:00	S45-7	A Correlation-Based Background Calibration Technology for the Pipeline A/D Converter
Oct. 28		Hongmei Chen ^{1*,2} , Honghui Deng ¹ , Yongsheng Yin ¹
Room 3A		¹ Hefei University of Technology, China; ² University of Science and Technology of China, China
15:15	S45-8	A 7.9 fJ/conversion-step 10-bit 125 MS/s SAR ADC with Simplified Power-efficient Digital Control Logic
Oct. 28		Mingxiao He, Fan Yang, Xiucheng Hao, Le Ye*, Huailin Liao

S47 Signal Processing

Session Chair: Yun Chen, Fudan University, China

- 10:15 S47-1 A Low-complexity FFT Processor using Two-Dimensional Algebraic Integer Encoding**
 Oct. 28 **(Invited)** Sangho Yun¹, Fan Wu¹, Gerald E. Sobelman^{1*} and Xiaofang Zhou²
 Room 3B ¹University of Minnesota, USA; ²Fudan University Shanghai, China
- 10:45 S47-2 High-Frequency Low-Distortion One-Tone and Two-Tone Signal Generation Using Arbitrary Waveform Generator**
 Oct. 28 Tomonori Yanagida, Shohei Shibuya, Haruo Kobayashi, Kazumi Hatayama
 Room 3B Gunma University, Japan
- 11:00 S47-3 Sine Signal Generation with Specified Multiple Harmonics Suppression**
 Oct. 28 Masayuki Kawabata, Koji Asami, Shohei Shibuya, Tomonori Yanagida, Haruo Kobayashi*
 Room 3B Gunma University, Japan
- 11:15 S47-4 A CFAR processing method based on DB4 wavelet in multi-clutter background**
 Oct. 28 Jiang-Yi Shi*, Chun-Yan Zhang, Pei-Jun Ma
 Room 3B Xidian University, China
- 11:30 S47-5 Time-of-Flight Estimation for Single-Photon LIDARS**
 Oct. 28 Tzu-Hsien Sang* and Chia-Ming Tsai
 Room 3B National Chiao-Tung University, Taiwan, China
- 11:45 S47-6 An Efficient Architecture of the Sign-Error LMS Adaptive Filter**
 Oct. 28 Ming Liu^{1*}, Ming-Jiang Wang², Bo-Yang Song³
 Room 3B ¹Harbin Institute of Technology Shenzhen Gradual School, China; ²Key Laboratory of IOT Terminal Pivotal Technology, China
- 12:00 S47-7 Hardware Friendly Algorithm of HR Real Time Stereo Matching for Automatic Drive**
 Oct. 28 Liming Wang, Hanrui Wang, Yize Jin, Xiaoyang Zeng, Yibo Fan*
 Room 3B Fudan University, China

S48 System-Level Modeling & Simulation/Verification

Session Chair: Fritz Mayer-Lindenberg, Technical University of Hamburg-Harburg, Germany

- He Tang, University of Electronic Science and Technology of China, China**
- 13:30 S48-1 The Systematic Design for High Speed Interpolated/Averaging ADC**
 Oct. 28 **(Invited)** He Tang^{1,*}, Yong Peng² and Xizhu Peng¹
 Room 3B ¹School of Microelectronics and Solid-State Electronics, China; ²China Academy of Engineering Physics, China
- 14:00 S48-2 A Programming Language for Embedded Processor Networks**
 Oct. 28 **(Invited)** Fritz Mayer-Lindenberg
 Room 3B Technical University of Hamburg-Harburg, Germany
- 14:30 S48-3 The Current Observer Design for Buck Converter**
 Oct. 28 Dian Wang^{1,2,3}, Yu-Hong Zhao¹, *Bo Li^{2,3}, Bin-Hong Li^{2,3}, Jia-Jun Luo^{2,3}
 Room 3B ¹North China University of Technology, China; ²Institute of Microelectronics of the Chinese Academy of Sciences, China; ³Key Laboratory of Silicon Device and Technology, China
- 14:45 S48-4 A Full-featured Verification Intellectual Property and Its Application in GJB RFID Protocol**
 Oct. 28 Zheng Xie¹, Ming-Jiang Wang^{1*}, Shan-Shan Yong², Xin-An Wang²
 Room 3B ¹Shenzhen Graduate School, China; ²Peking University Shenzhen Graduate School, China
- 15:00 S48-5 Complex Chaotic Measurement: New Concept and Basic Case**

Oct. 28 Wen-Shi Li*, Ye-Jia Feng, Min Jiang
Room 3B Soochow University, China

Coffee Break

S49 Special Session on Internet of Things

Session Chair: Junyu Wang, Fudan University, China

Qiang Li, University of Electronic Science and Technology of China, China

- 15:45 S49-1 Open Source IoT System and Smart Healthcare Applications**
Oct. 28 **(Invited)** Daeyoung Kim
Room 3B Korea Advanced Institute of Science and Technology (KAIST), Korea
- 16:15 S49-2 High Energy Efficient Wireless Transceiver for IoT Connecting**
Oct. 28 **(Invited)** Hao Min
Room 3B Fudan University, China
- 16:45 S49-3 Fog Computing Platform for Sensor-to-Cloud Interconnection and Internet-of-Things**
Oct. 28 **(Invited)** Hanu Tenhunen
Room 3B KTH - Royal Institute of Technology, Sweden
- 17:15 S49-4 Narrowband Internet of Things (NB-IoT): Design Challenges and Considerations**
Oct. 28 **(Invited)** Jiangfeng Wu
Room 3B Tongji University, China

S50 Device Simulation & Modeling I

Session Chair: Zhiping Yu, Tsinghua University, China

- 10:15 S50-1 Compact Modeling for System Level Simulation Based on Multi-Physics**
Oct. 28 **(Invited)** T. K. Maiti*, H. Zenitani, L. Chen, H. Miyamoto, M. Miura-Mattausch and H. J. Mattausch
Room 3C Hiroshima University, Japan
- 10:45 S50-2 Zero Temperature Coefficient Behavior for Advanced MOSFETs**
Oct. 28 **(Invited)** Joao Martino^{1*}, Vinicius Mesquita¹, Christian Macambira¹, Vitor Itocazu¹, Luciano Almeida¹, Paula Agopian^{1,2}, Eddy Simoen³, Cor Claeys^{3,4}
Room 3C ¹University of Sao Paulo, Brazil; ²Univ Estadual Paulista, Brazil; ³imec, Belgium; ⁴E.E. Dept., Belgium
- 11:15 S50-3 Extending Mextram for Wide Temperature Range Compact Modeling of SiGe HBTs**
Oct. 28 **(Invited)** Guofu Niu
Room 3C Auburn University, USA
- 11:45 S50-4 Can We Tell Something About The Barrier For Capture From Random Telegraph Signal Time Constants Without Changing The Temperature?**
Oct. 28 Eddy Simoen¹ and Cor Claeys^{1,2}
Room 3C ¹imec, Belgium; ²Kasteelpark Arenberg, Belgium
- 12:00 S50-5 Effect of Single Oxide Trap on Electrostatic Properties in Tunneling Field Effect Transistor**
Oct. 28 Si-Tong Bu, Ming-Yue He, Daming Huang, Ming-Fu Li
Room 3C Fudan University, China

S51 Device Simulation & Modeling II

Session Chair: T. K. Maiti, Hiroshima University, Japan

- 13:30 S51-1 Modeling of Carrier Transport with Spin Degree-of-Freedom and Its Application to Analysis of Topological Insulator (TI) FET Operation**
Oct. 28 **(Invited)** Zhiping Yu, Zeyu Deng and Jinyu Zhang
Room 3C Tsinghua University, China

14:00	S51-2	Mind the drain from strain: effects of strain on the leakage current of Si diodes
Oct. 28	(Invited)	Felipe Murphy-Armando ^{1*} , Chang Liu ² , Yi Zhao ³ , Ray Duffy ¹
Room 3C		¹ University College Cork, Ireland; ² Nanjing University, China; ³ Zhejiang University, China
14:30	S51-3	Investigation on the Static Noise Margin of 6T SRAM composed of 2D Semiconductor MOSFETs
Oct. 28		Chen Chen, Qian Xie [*]
Room 3C		University of Electronic and Technology of China, China
14:45	S51-4	Gate-to-source/drain Fringing Capacitance Model with Process Variation of MOSFET in 40nm Generation
Oct. 28		Jiaqi Ren, Lijie Sun, Fanglin Zheng, Yabin Sun, Xiaojin Li, Yanling Shi
Room 3C		East China Normal University, China
15:00	S51-5	A double-π equivalent circuit model for GaN on-chip inductors
Oct. 28		Han-Sheng Wang ¹ , Wei-Liang He ^{1*} , Run-Dong Wang ¹ , Ming-Hui Zhang ¹
Room 3C		Southeast University, China
15:15	S51-6	Analysis and optimization of Tunneling-FET based on SOI
Oct. 28		Li Ying, Bu Jianhui, Luo Jiajun, Han Zhengsheng [*]
Room 3C		Institute of Microelectronics of Chinese Academy of Sciences, China

S53 2D Devices & Technologies IV

Session Chair: Chenhsin Lien, National Tsing Hua University, Taiwan, China

10:15	S53-1	Future Devices Enabled by Two-Dimensional Nanomaterials
Oct. 28	(Invited)	Prof. Bin Yu
Room 5		State University of New York, USA
10:45	S53-2	Graphene Coupled with Silicon Quantum Dots for High-Performance Silicon Schottky Photodetectors
Oct. 28	(Invited)	Yang Xu ^{1*} , Ting Yu ² , Feng Wang ¹ , Lingling Ma ¹ , Jianyi Yang ¹ , Xiaodong Pi ^{1,2} and Deren Yang ²
Room 5		^{1,2} Zhejiang University, China
11:15	S53-3	Enhancement of Photocurrent in Suspended Monolayer Graphene
Oct. 28		Jianhong Song ^{1,2} , Xin Gong ^{1,3} , Pei Peng ¹ , Zidong Wang ¹ , Zhongzheng Tian ¹ , Yuehui Jia ^{1,2} , Liming Ren ¹ , Yunyi Fu ^{1*}
Room 5		^{1,2} Peking University, China; ³ Peking University Shenzhen Graduate School, China
11:30	S53-4	Synthesis of Highly Uniform Monolayer Graphene by Etching the Multilayer Spots for Electronic Devices
Oct. 28		Pei Peng ¹ , Zidong Wang ¹ , Zhongzheng Tian ¹ , Yuehui Jia ^{1,2} , Xin Gong ^{1,3} , Jianhong Song ^{1,2} , Liming Ren ¹ , Yunyi Fu ^{1*}
Room 5		^{1,2} Peking University, China; ³ Peking University Shenzhen Graduate School, China
11:45	S53-5	Improved Contact Properties of Metal/Graphene Interface by Inserting MoO_x Dielectric Layer
Oct. 28		Wei He, Xin-Ping Qu [*]
Room 5		Fudan University, China
12:00	S53-6	Strain Effect on Electronic Structure of La-doped Monolayer Graphene
Oct. 28		Xiaomi Zhang, Dedong Han [*] , Yingying Cong, Junchen Dong, Guodong Cui, Shengdong Zhang, Xing Zhang and Yi Wang [*]
Room 5		Peking University, China

S54 Physical Design

Session Chair: Jun Tao, Fudan University, China

13:30	S54-1	Detailed Placement In Advanced Technology Nodes: A Survey
Oct. 28	(Invited)	Yibo Lin ^{1,2} , Bei Yu ² and David Z. Pan ¹

Room 5		¹ University of Texas at Austin, USA; ² The Chinese University of Hong, Hong Kong, China
14:00	S54-2	Improve Clock Tree Efficiency for Low Power Clock Tree Design
Oct. 28		Zhe Ge*, Juan Fu, Peidong Wang, Lei Wang
Room 5		Microcontroller NXP, China
14:15	S54-3	A SRNoC-based Adaptive Routing scheme for Network-on-Chip
Oct. 28		Jiang-Yi Shi*, Zhao Li, Hao Shu
Room 5		Xidian University, China
14:30	S54-4	Clock Tree Synthesis and Optimization in BES1300 IC Smart Card
Oct. 28		Fei Xie, Peiyuan Wan*
Room 5		Beijing University of Technology, China
14:45	S54-5	Comparison and Analysis between POCV and AOCV Methodology for 14 nm Technology
Oct. 28		Lina Wang ¹ , Dianchao Wang ² , Jinhui Wang ³
Room 5		¹ Beijing University of Technology, China; ² Advanced Micro Device (China) Co. Ltd, China; ³ North Dakota State University, USA
15:00	S54-6	A Novel Methodology of Process Weak-Point Identification to Accelerate Process Development and Yield Ramp-Up
Oct. 28		Linda Zhuang ¹ , Jessy Xu ¹ , Mengfeng Tsai ¹ , Qing Wei Liu ¹ , Ellyn Yang ¹ , Yifan Zhang ² , Jason Sweis ² , Chieh Lai ² , Hua Ding ²
Room 5		¹ Semiconductor Manufacturing International Corporation, China; ² Cadence Design Systems, USA

S56 Memory III

Session Chair: Xing Wu, East China Normal University, China

10:15	S56-1	Utilizing 3D Ics In Architectures For Neural Networks
Oct. 28	(Invited)	Qiaosha Zou ^{1*} , Yuan Xie ²
Room 7		¹ Zhejiang University Of Science And Technology, China; ² University Of California, USA
10:45	S56-2	A Novel Double-Density Single-Gate Vertical-Channel (SGVC) 3D NAND Flash Utilizing A Flat-Channel Thin-Body Device
Oct. 28	(Invited)	Chia-Jung Chiu, Hang-Ting Lue, Kuang-Yeu Hsieh, And Chih-Yuan Lu
Room 7		Macronix International Co., Ltd, Taiwan, China
11:15	S56-3	A Vertical And Junctionless Channel With T-Shaped Gate 1T-DRAM Using New Operate Mechanism
Oct. 28		Cyuan-You Yu ¹ , Jyi Tsong Lin ^{*1} , Ting-Chung Chang ¹ , Chih-Chia Lin ¹ , Chih-Kai Huang ¹ And Abhinav Kranti ²
Room 7		¹ National Sun Yat Sen University, Taiwan, China; ² ndian Institute Of Technology Indore, India
11:30	S56-4	Punch-Through Reading Mechanism And Body Raised Up Structure For A Novel Punch-Through DRAM
Oct. 28		Chih-Chia Lin*, Jyi-Tsong Lin, Wei-Han Lee, Chih-Kai Huang, Ting-Chung Chang And Abhinav Kranti ²
Room 7		¹ National Sun Yat-Sen University, Taiwan, China; ² Indian Institute Of Technology Indore, India
11:45	S56-5	Vertical Channel Capacitor-Less One-Transistor Drams With A Pass-Way Trench For Improving Retention Time
Oct. 28		Ting-Pi Hsu ^{*1} , Jyi-Tsong Lin ¹ , Chih-Kai Huang ¹ , Chih-Chia Lin ¹ , Abhinav Kranti ² , Cyuan-You Yu ¹ , Ting-Chung Chang ¹ , And Po-Hsieh Lin ¹
Room 7		¹ National Sun Yat-Sen University, Taiwan, China; ² Indian Institute Of Technology Indore, India
12:00	S56-6	String Select Transistor Leakage Suppression By Threshold Voltage Modulation In 3D NAND Flash Memory
Oct. 28		Yu Zhang ¹ , Lei Jin ^{1*} , Zhiliang Xia ¹ , Dandan Jiang ¹ , Xingqi Zou ¹ , Qiang Xu ¹ , Peizhen Hong ¹ , Zhaoyun Tang ¹ , Ming Zeng ² , Jing Gao ² , Shaoning Mei ² , Zongliang Huo ^{1,2*}

S57 Memory IV

Session Chair: Ken Hsieh, Macronix International Co., Ltd, Taiwan, China

- 13:30 S57-1 Plasma technology on gadolinium oxide-based resistive random access memory**
 Oct. 28 **(Invited)** Jer-Chyi Wang^{1,2,3*}, Yu-Ren Ye¹, De-Yuan Jian¹, Ying-Huei Wu¹ and Chih-Hsien Hsu¹
 Room 7 ¹Chang Gung University, Taiwan, China; ²Chang Gung Memorial Hospital, Taiwan, China; ³Ming Chi University of Technology, Taiwan, China
- 14:00 S57-2 Analysis of Nano-Filament Evolution in Ni-based RRAM Devices using In-situ TEM**
 Oct. 28 **(Invited)** Chaolun Wang, Xing Wu*
 Room 7 East China Normal University, China
- 14:30 S57-3 Resistive Switching Dynamics and Beyond**
 Oct. 28 **(Invited)** Yuchao Yang
 Room 7 Peking University, China

S59 High-Performance Data Converters I

Session Chair: Fan Ye, Fudan University, China

- 10:15 S59-1 Design Considerations of SAR ADCs in CMOS Technology for High Speed Circuit Applications with a Time-interleaved Architecture**
 Oct. 28 **(Invited)** Long Zhao and Yuhua Cheng*
 Room 8 Peking University, China
- 10:45 S59-2 A Low Noise 12-bit D/A Converter Integrated with Chopper Output Buffer for MEMS Accelerometer**
 Oct. 28 Xiang-Liang Jin^{1,2*}, Ling-Jie Peng^{1,2}
 Room 8 ¹Xiangtan University, China; ²Hunan Engineering Laboratory for Microelectronics, China
- 11:00 S59-3 Limit Cycle Suppression Technique Using Digital Dither in Delta Sigma DA Modulator**
 Oct. 28 Jun-ya Kojima, Yukiko Arai, Haruo Kobayashi
 Room 8 Gunma University, Japan
- 11:15 S59-4 A 200 KHz bandwidth $\Sigma\Delta$ DAC with a spur free modulator**
 Oct. 28 Chen Yaya¹, Zhang Shifeng^{1*}, Cao Tianlin¹, Han Xiaoxia¹, Ray C. C. Cheung², Han Yan¹
 Room 8 ¹Zhejiang University, China; ²City University of Hong Kong, China
- 11:30 S59-5 A 0.18 μm high resolution bandpass delta-sigma modulator for acceleration transducer applications**
 Oct. 28 Cao Tianlin, Han Yan*, Zhang Shifeng, Han Xiaoxia, Chen Yaya
 Room 8 Zhejiang University, China
- 11:45 S59-6 A Calibration Technology for 6 Bit 30 Gbps ADC**
 Oct. 28 Wen-Shuai Bai^{1,2}, Meng-Long Wu¹, *Jin Wu², Dan-Yu Wu², Lei Zhou²
 Room 8 ¹North China University of Technology, China; ²Institute of Microelectronics of Chinese Academy of Sciences, China
- 12:00 S59-7 Dynamic Mismatch Compensation (DMC) Algorithm for Amplitude and Timing Errors in Current-Steering DACs**
 Oct. 28 Dan Fang, Ting Yi*, Zhiliang Hong
 Room 8 Fudan University, China

S60 High-Performance Data Converters II

Session Chair: Yuhua Cheng, Peking University, China

- 13:30 S60-1 A 16GS/s 6-bit Current-Steering DAC with TI topology in 40nm CMOS**

	Oct. 28		Bao Li*, Long Zhao, Chenxi Deng and Yuhua Cheng
	Room 8		Peking University, China
13:45	S60-2		Digital Encoding Module Used in a 6-bit 1.33-GS/s Folding and Interpolating ADC
	Oct. 28		Zhiyuan Dai, Fubiao Cao, Fan Ye*, Junyan Ren
	Room 8		Fudan University, China
14:00	S60-3		Adirectly triggered asynchronous SAR Logic with variable delay unit
	Oct. 28		Rong-Tao Liao, Rui Guan, Ting-Ting Mo*
	Room 8		Shanghai Jiaotong University, China
14:15	S60-4		A Capacitor Self-Calibration Technique for High Resolution ADCs
	Oct. 28		Yitong Cao ^{1,2} , Wengao Lu ^{1,2*} , Kezhi Li ¹ , Zhaokai Liu ¹ , Zhongjian Chen ^{1,2} , Yacong Zhang ^{1,2}
	Room 8		¹ Peking University, China; ² Peking University Information Technology Institute, China
14:30	S60-5		An Area-Efficient Multi-Bit Sigma-Delta Modulator
	Oct. 28		YongSheng Wang ^{1*} , YaQin Hu ¹ , Yang Liu ¹ , XiaoXiao Zhou ¹ , ShanShan Li ¹ , Bei Cao ² , XiaoWei Liu ¹
	Room 8		¹ Harbin Institute of Technology, China; ² Heilongjiang University, China
14:45	S60-6		Design of a High-Resolution Time-to-Digital Converter Chip
	Oct. 28		Anping Jiang*, Yanbo Niu, Xiao Guo, Guicai Hu, Xiaojing Wu
	Room 8		Beijing Microelectronics Technology Institute, China
15:00	S60-7		A Background Calibration Technology for Capacitance Mismatch in Pipelined ADCs with 2.5-bit/stage MDAC
	Oct. 28		Hai-bin Li, Rui Li, Bing-Yan Hu, Tao Jiang and Yu-Chun Chang*
	Room 8		Jilin University, China
15:15	S60-8		A Fast Convergence Speed and HighAccuracy Calibration Method for PipelinedADCs based on the Conjugate GradientAlgorithm
	Oct. 28		Sujuan Liu*, Zhenzhen Zhao, Chuyu Xia
	Room 8		Beijing University of Technology, China

S62 Analog Circuits III

Session Chair: Xiaowu Gong, Infineon Technologies Asia Pacific Pte Ltd, Singapore

10:15	S62-1		Analog / Mixed-Signal Circuit Design Based On Mathematics
	Oct. 28	(Invited)	Haruo Kobayashi, Haijun Lin [†]
	VIP Room		Gunma University, Japan; [†] Xiamen University Of Technology, China
10:45	S62-2		A Buck Converter With Float Gate Width And Float Gate Voltage Driver
	Oct. 28		Ping Luo*, Wu-Jie Kou, Cai-Qiang Zhou, Liao Zhang, Shao-Wei Zhen
	VIP Room		University Of Electronic Science & Technology Of China, China
11:00	S62-3		An Analog Integrated MPPT Controller Designed For DMPPT Solar Array
	Oct. 28		Ru-Cheng Jiang ¹ , Yan Han ^{1*} , Lu Jie ¹
	VIP Room		¹ Zhejiang University, China
11:15	S62-4		An On-Chip CMOS Relaxation Oscillator With 29.69ppm/°C Temperature Coefficient
	Oct. 28		Yi Cao, Ruijie Yan, Hongguang Zhang, Zhiliang Hong*
	VIP Room		Fudan University, China
11:30	S62-5		Low Noise Voltage Reference For MEMS Acceleration Sensor Readout Circuit
	Oct. 28		Wen-Jie Zhang ^{1,2} , Meng-Liang Liu ^{1,2} , Liang Xie ^{1,2} , Ling-Jie Peng ^{1,2} , Xiang-Liang Jin ^{1,2*}
	VIP Room		¹ Xiangtan University, China; ² Hunan Engineering Laboratory For Microelectronics, Optoelectronics And System On A Chip, China
11:45	S62-6		A Low-Power PGA With DC-Offset Cancellation In 65 Nm CMOS Process
	Oct. 28		Qianqian Li, Shunli Ma, Fan Ye, Junyan Ren*
	VIP Room		Fudan University, China

12:00	S62-7	Design Of High-Gain, Low-Power Amplifier For MEMS Acceleration Sensor Readout Circuit
Oct. 28		Xiang-Liang Jin ^{1,2*} , Hang Zhang ^{1,2} , Wen-Jie Zhang ^{1,2}
VIP Room		¹ Xiangtan University, China; ² Hunan Engineering Laboratory For Microelectronics, Optoelectronics And System On A Chip, China

S63 Analog Circuits IV

Session Chair: Haruo Kobayashi, Gunma University, Japan

13:30	S63-1	Temperature And Process Independent Voltage Controlled Oscillator Circuit
Oct. 28	(Invited)	Gong Xiaowu
VIP Room		Infineon Technologies Asia Pacific Pte Ltd, Singapore
14:00	S63-2	RC Polyphase Filter As Complex Analog Hilbert Filter
Oct. 28		Yoshiro Tamura ^{1*} , Ryo Sekiyama ¹ , Koji Asami ² , Haruo Kobayashi ¹
VIP Room		¹ Gunma University, Japan
14:15	S63-3	Effects Of Non-Ideal Switches On Speed Of SC Integrator
Oct. 28		Zelin Shi, Baoshu Xu, Yaohong Zhao, Xiao Wang [*]
VIP Room		Chinese Academy Of Sciences, China
14:30	S63-4	A Digital Multiplexing And Real-Time Refresh Dimming Control Circuit Used In LED Driver For Multiple LED Strings
Oct. 28		Kezhi Li ^{1,2,3} , Wengao Lu ^{1,2,3,*} , Yuze Niu ² , Guangyi Chen ² , Yacong Zhang ^{2,3} , Zhongjian Chen ^{2,3}
VIP Room		¹ Peking University, China; ² Peking University, China; ³ Peking University, China
14:45	S63-5	Automatic Design Of Operational Amplifier By Combination Method Of Function Block
Oct. 28		Kaztuo Okochi, Nobukazu Takai, Yoshiki Sugawara, Kento Suzuki, Satoshi Yoshizawa, Haruo Kobayashi
VIP Room		Gunma University, Japan
15:00	S63-6	A Hysteretic Buck DC-DC Converter Achieving 90% Peak Efficiency With Light-Load Current Of 0.1-10 Ma
Oct. 28		Jiameng Qu, Xiucheng Hao, Fan Yang, Junhua Liu [*] , And Huailin Liao
VIP Room		Peking University, China
15:15	S63-7	The Design Of Digital Demodulator Based On Dynamic Threshold
Oct. 28		ZHANG Xingxing ^{1,2,3} , LU Jicheng ³ , LI Xiayu ³ , YU Jun ^{1,2,3}
VIP Room		¹ Fudan University, China; ² Fudan University, China; ³ Shanghai Fudan Microelectronics Group Co., Ltd., China

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