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

http://www.icsict.com

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Platform Design Automation, Inc.
Tektronix, Inc.
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T-1 Neural Networks: Past, Present and Future
Dr. Lin Yang, CNNPU Ltd.

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)
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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.

Poster Session 2:
Setup time: 8:30 - 17:30 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, Tower 7/8
Intel Corporation, USA

9:45 K2 Versatile Memory: A Software Configurable Memory Technology Based on Ferroelectric FETs
Oct. 26 (Keynote) T.P. Ma
Ballroom, Tower 7/8
Yale University, USA

Coffee Break

10:45 K3 Soft Electronics for the Human Body
Oct. 26 (Keynote) John A. Rogers
Ballroom, Tower 7/8
University of Illinois at Urbana-Champaign, USA

11:30 K4 The Challenges of Physical Implementation for Advanced Technology
Oct. 26 (Keynote) Chin-Chi Teng
Ballroom, Tower 7/8
Cadence Corporate, USA

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
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

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<td>An Overview of Nanoelectronics Research Initiative (NRI)</td>
<td>An Chen1,2,*</td>
<td>1 Semiconductor Research Corporation, USA; 2 IBM Research, USA</td>
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<td>Silicon GAA NW TFET Inverters With Suppressed Ambipolarity</td>
<td>K. Narimani, G. V. Luong, A. T. Tiedemann, P. Bernardy, S. Trenlenkamp, S. Mantl and Q. T. Zhao</td>
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<td>Xianle Zhang, Xiaoyan Liu*, Yijiao Wang, Longxiang Yin, Gang Du</td>
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<td>Qianqian Huang, Zongwei Wang, Yue Pan, Yangyuan Wang, Ru Huang*</td>
<td>Peking University, China</td>
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<td>Edward Yi-Chang1,2,* Quang-Ho Lu1, Huy-Binh Do1, Po-Chun Chang2, Yueh-Chin Lin1</td>
<td>1 National Chiao Tung University, Taiwan, China; 2 National Chiao Tung University, Taiwan, China</td>
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<td>D. M. Fleetwood, P. Wang, J. Chen, R. Jiang, E. X. Zhang, M. W. McCurdy, R. D. Schrmpf</td>
<td>Vanderbilt University, USA</td>
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<td>Jiann-Shiun Yuan1, Ekavut Kritchanchai2</td>
<td>University of Central Florida Orlando, U.S.A</td>
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<td>A Novel Enhance-mode AlGaN/GaN HEMT with Split Floating Gates</td>
<td>Hui Wang1,2, Ling-Li Jiang1,2, Hong-Yu Yu1,2</td>
<td>1 Southern University of Science and Technology, China; 2 Shenzhen Key Laboratory of The Third Generation Semi-conductor, China</td>
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<td>Alvin J., Ananth S.1, Shrinivas P.1, Mike Z., Vibhor J., Chaojiang L.2, James A.</td>
<td>GLOBALFOUNDRIES, USA; 1 Model Development, India; 2 Application Engineering, USA</td>
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<td>Baikui Li*, Xi Tang, Jiannong Wang, Kevin J. Chen</td>
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<td>Xiao Gong*, Sachin Yada, Kian Hui Goh, Kian Hua Tan, Annie, Kian Lu Low, Bowen Jia, Soon-Fatt Yoon, Gengchui Liang, Yee-Chia Yeo</td>
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<td>Fei Lu, Zongyu Dong, Chenkun Wang, Qi Chen, Rui Ma, Feilong Zhang, Cheng Li, Albert Wang</td>
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<td>Hysteretic Controlled Buck Converter with Switching Frequency Insensitive to Input/Output Voltage Ratio</td>
<td>Koyo Asaishi*, Nobukazu Tsukiji, Yasunori Kobori, Yoshiki Sunaga, Nobukazu Takai, Haruo Kobayashi</td>
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</tbody>
</table>
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 ΣΔ 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 Yu1, Kerou Wang1, Xiaofei Cao1, Yanchao Wang1, Ting Yi1, Bo Lu2, Yong Chen2, Zhiliang Hong1*
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

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**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  Yan Li1*, Jerry Lopez2, Donald Y.C. Lie3
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  Muting Lu1, Thangarasu Bharatha Kumar1, Xiaopeng Yu2, Kiat Seng Yeo1
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 Qiu1, Tao Su2, Zixin Wang2*
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 Shen1, Runxi Zhang1, Chunqi Shi2
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 Li1*, 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 Sige/SOI Sub 6ghz LNA Design Analysis And Comparison  
Oct. 26  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  Akira Matsuzawa  
Room 3C  Tokyo Institute of Technology, Japan

16:45  S08-3  Coupled Resonator Based Wideband Millimeter-Wave Circuits  
Oct. 26  Haikun Jia, Zheng Song, Zhihua Wang And Baoyong Chi1  
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 Li1*, Dongming Wang*  
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  Yasuhiko Arakawa  
Room 5  The University Of Tokyo

14:00  S09-2  High-density Optical Interconnection Based on Integrated Silicon Photonics Technologies  
Oct. 26  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  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  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  Weiwei Chen
16:15 S10-2  
Study Progress On FET-Based Terahertz Wave Generation And Detection
Oct. 26  
(Invited)
Room 5
Jin He1, Guoqing Hu1, Zhiping Zhou1, Guangjin Ma1, Yandong He1, Mansun Chan2, Lei Song3
1Peking University, China; 2Hong Kong University Of Science And Technology, China; 3Shenzhen Supercor Ltd, China

16:45 S10-3  
Multi-Color Modulation In Solid-State Display Based On Phase Changing Materials
Oct. 26
Room 5
Yanbiao Lyu1, Shenghong Mou1, Yu Bai2, Ying Sun1, Zhiyuan Cheng1
1Jiangsu University, China; 2Xi’an Jiaotong University, China

17:00 S10-4  
Improve Conventional HIT Solar Cell Structure By Using Nano-Pillar
Oct. 26
Room 5
Chung-Tse Lee1, Jyi-Tsong Lin1, Chien-Chia Lai2, Po-Cheng Yan3, Yu-Yan Hu1
National Sun Yat-Sen University, Taiwan, China

17:15 S10-5  
Tunable Hysteresis Behaviors In Perovskite Transistors
Oct. 26
Room 5
Yilin Sun1, Dan Xie1,*, Mengxing Sun1, Changjiu Teng1, Ruixuan Dai1, Pu Yang1, Zhixin Li1
1Tsinghua 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)
Room 7
W.Zhang, Z.Chai, J. Ma, J. F. Zhang, Z. Ji
Liverpool John Moores University, UK

14:00 S11-2  
Reliability Projecting For Reram Based On Stochastic Differential Equation
Oct. 26  
(Invited)
Room 7
Zhiquiang Wei1, Koji Eriguchi2, Shunsaku Muraoka1, Koji Katayama1, Ryotaro Yasuhara1, Kawai Ken1, Yukio Hayakawa1, Kazuhiro Shimakawa1, Takumi Mikawa1, Yonedo Shinichi1
1Panasonic Semiconductor Solutions Co., Ltd., Japan; 2Kyoto University, Japan;

14:30 S11-3  
Resistance Control Of Transition Metal Oxide Resistive Memory (TMO Reram)
Oct. 26  
(Invited)
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)
Room 7
Hantao Huang, Leibin Ni And Hao Yu
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)
Room 7
Zhongrui Wang, Saumil Joshi, Hao Jiang, Rivu Midya, Peng Lin, Qiangfei Xia, And J. Joshua Yang
University Of Massachusetts, USA

16:15 S12-2  
Design And Application Of Resistive Switching Devices For Novel Computing/Memory Architectures
Oct. 26  
(Invited)
Room 7
Jinfeng Kang*, Peng Huang, Haitong Li, Bin Gao, Yudi Zhao, Runze Han, Zheng Zhou, Zhe Chen, Chen Liu, Lifeng Liu, And Xiaoyan Liu
Peking University, China; 4Tsinghua University, China

16:45 S12-3  
High-Desity Nonvolatile Ferroelectric Resistive Memory
**S13 SOC**

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<td>13:30</td>
<td>S13-1</td>
<td>System-On-A-Chip Brain-Machine-Interface Design - A Review And Perspective</td>
<td>Jan Van Der Spiegel¹, Milin Zhang, Xilin Liu</td>
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<td>14:00</td>
<td>S13-2</td>
<td>A 125 Khz Single Chip Security Transponder For Automotive Keyless Entry</td>
<td>Bing Li, Wei Wang, Jia Liu, Wen-Jun Liu, Jian-Min Cao, Qian Yang</td>
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<td>14:15</td>
<td>S13-3</td>
<td>An Intelligent And Power-Saving Wireless DSP Design For The Wearable EEG’s Fatigue Monitoring</td>
<td>Sunjianhui¹ ², Wanggongtang, Huaqing, Wangchunxing, Wanjinfeng, Liujun ² ³, Caixinxia², Houligang³</td>
</tr>
<tr>
<td>14:30</td>
<td>S13-4</td>
<td>An Automatic Parallelizer For Coarse-Grained Reconfigurable Processor</td>
<td>Ping Mi, Zhongyang Zhao, Weiguang Sheng, Weifeng He</td>
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<td>14:45</td>
<td>S13-5</td>
<td>High-Speed, Low-Power Transmitter Based On Charge Redistribution For Noc Links</td>
<td>Changqing Xu, Yi Liu, Yintang Yang</td>
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<td>15:00</td>
<td>S13-6</td>
<td>Distributed Model Predictive Control For Dynamic Thermal Management Of Multi-Core Systems</td>
<td>Lei Xu, Hai Wang, Sheldon X.-D. Tan, Chi Zhang, Yuan Yuan, Keheng Huang, Zhenghong Zhang</td>
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<td>15:15</td>
<td>S13-7</td>
<td>Balancing Clock Skew For Near-Threshold Multi-Voltage Multipower-Mode Designs Using A Multi-Stage PMAB Approach</td>
<td>Yan He, Xiaoyan Xiang, Chen Chen, Jianyi Meng</td>
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**Coffee Break**

**S14 EDA I**

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<th>Session No.</th>
<th>Title</th>
<th>Authors</th>
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<tr>
<td>15:45</td>
<td>S14-1</td>
<td>Applications Of Monte Carlo Method To 3-D Capacitance Calculation And Large Matrix Decomposition</td>
<td>Wenjian Yu</td>
</tr>
<tr>
<td>16:15</td>
<td>S14-2</td>
<td>Methodology To Optimize Analog And RF Circuit Simulations Performance For Best</td>
<td>Tsinghua University, China</td>
</tr>
</tbody>
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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) Xiaqing Wen
Room 8  Kyushu Institute Of Technology, Japan
17:15  S14-5 Layout Decomposition Algorithms For Double Patterning Lithography
Oct. 26  Xuelian Zhang¹,², Yaping Wu¹,²,³, Lan Chen¹,², Qi Zhang¹,², Weicheng Shi¹,²
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. Tan¹, Chi Zhang*, Yuan Yuan¹, Keheng Huang¹, And Zhonghong Zhang³
Room 8  ¹University Of Electronic Science & Technology Of China, China; ²University Of California, USA;
³University Of Electronic Science & Technology Of China, China; ⁴Southwest 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 Yang²*, WANG Yu-hang¹,³, LV Jun-guang⁴
VIP Room  ¹Southwest University of Science and Technology, China; ²China Academy of Engineering Physics, China; ³Chongqing University, China; ⁴CAS, China
16:30  S16-3 Designable Regulation of Cell Filtration Through a Micropore-arrayed Filter
Oct. 26  Yaoping Liu¹,², Xiaolong Rao³, Wengang Wu¹,⁴,⁵, Yan Sun²,⁶, Wei Wang*¹,⁴,⁵
VIP Room  ¹Peking University, Beijing, CHINA; ²Chinese Academy of Sciences, CHINA; ³No. 1 Hospital of Peking University, CHINA; ⁴National Key Laboratory of Science and Technology on Micro/Nano
16:45  S16-4  A Combined Wafer Bonding Method using Spin-coated Water Glass Adhesive Layer and Spot Pressing Bonding Technique
Oct. 26
Yang Xu1,2,3, Shengkai Wang1,3,*, Yinghui Wang2, Dapeng Chen2, Honggang Liu1,3
VIP Room
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
Shengjiang Quan1, Ling Bu*, Zhongwen Zhou1, Weiyu Xu1, Bin Liang1, Lei Song2
VIP Room
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
Wangzhi Dai1, Yaoping Liu1, Fei Su*, Wei Wang*1,2,3,4
VIP Room
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
Xiumin Ji1, Jian Pan2, Jia Zhou*
VIP Room
Fudan University, China
17:45  P1-007  Improved Crystallinity Of Ultra-Thin Amorphous Film By 2D-Limited Regrowth: Process And Characterization
Oct. 26  
Yuancheng Yang, Ming Li*, Gong Chen, Hao Zhang, Xiaoyan Xu, Ru Huang
Peking University, China
Tower 7/8

17:45  P1-008  Wafer Level Chip Scale Packing For Si-Based Driver Application
Oct. 26  
Xiu-bo Liu¹, Shao-dong Wang², Yong-zhi Zhao³, Zhi-qiang Wang⁴
Hebei Semiconductor Research Institute, China
Tower 7/8

17:45  P1-009  Si-Based Horizontal InAs Nanowire Transistors
Oct. 26  
Wang Zhang, Wei-Hua Han*, Qi-Feng Lv, Hao Wang, Fu-Hua Yang
Chinese Academy of Sciences, China
Tower 7/8

17:45  P1-010  Study On Neutron Radiation Effect Of FinFET SRAM
Oct. 26  
Yi Liu¹, Zhi-JiaoWang²*, Jin-Bao Hao³
¹,²,³Xidian University, China
Tower 7/8

17:45  P1-011  Research Of Transient Radiation Effects On FinFET SRAMs Compared With Planar SRAMS
Oct. 26  
Jin-Bao Hao⁴, Yi Liu, Zhi-Jiao Wang
Xidian University, China
Tower 7/8

17:45  P1-012  Source/Drain Architecture Design Of Vertical Channel Nanowire FET For 10nm And Beyond
Oct. 26  
Gong Chen, Ming Li⁴, Jiayang Zhang, Yuancheng Yang, Ru Huang⁴
Peking University, China
Tower 7/8

17:45  P1-013  MTJ Based Data Restoration In Non-Volatile SRAM
Oct. 26  
Yifu Gong¹, Na Gong¹, LiGaNg Hou², Jinhui Wang¹∗
¹North Dakota State University, USA; ²Beijing University of Technology, China
Tower 7/8

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  
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
Tower 7/8

17:45  P1-015  Band Gap Engineering Of Graphene: From The Point View Of Polymerization Of Porphyrins
Oct. 26  
Jia Liu¹*, Zhiyong Wang²*, Ruzhang Li³¹
¹Science and Technology on Analog Integrated Circuit Laboratory, China; ²Renmin University of China
Tower 7/8

17:45  P1-016  Electrical Properties Of OrGaNic Field-Effect Transistors Based On Ribbon-Like Tips-Pentacene Crystals
Oct. 26  
Chen Wei-Bo Chen, Jian Zhang, Yu-Long Jiang*, Guo-Dong Zhu∗
Fudan University, CHINA; ⁴Fudan University, CHINA
Tower 7/8
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. Gong1,*, 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 AlGaN/GaN Schottky Barrier Diodes  
Oct. 26  
Ya-Song Zhang1, Yan-Rong Cao1,*, 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 Zhou1, 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 V7/1.1 Kv AlGaN/GaN Lateral Power Diode With MIS-Gated Hybrid Anode On Silicon Substrate  
Oct. 26  
Yi Yang, Qi Zhou1, 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 Wang1,2, Ling-Li Jiang1,2, Hong-Yu Yu1,2*  
Hall,  
1Southern University of Science and Technology, China; 2Shenzhen Key Laboratory of The Third Generation Semi-conductor, China  
Tower 7/8

17:45  P1-025  Static And Dynamic Study In High-Voltage 4H-SiC PiN Rectifiers  
Oct. 26  
Xiaochuan Deng1,2*, Xixi Chen1,2, Xuan Li1,2, Chengzhan Li1, Jia Wu3, Yourun Zhang1  
Hall,  
1University of Electronic Science and Technology of China, China; 2Institute of Electronic and Information Engineering in Dongguan UESTC, China; 3Zhuzhou CRRC Times Electric Co.,Ltd, China  
Tower 7/8

17:45  P1-026  Mechanism Of Ohmic Contact Formation In AlGaN/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*
**17:45 P1-027** Characterization Of Trap Behaviors In AlGaN/GaN MIS-HEMT Via Transient Capacitance Measurement  
Oct. 26  
Hall,  
1South University of Science and Technology of China, China; 2Enkris 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,  
1Chongqing Semi-chip Electronics Co., Ltd, China; 2Science 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/AlGaN/GaN MOS-HEMTs  
Oct. 26  
Hall,  
1Xidian University, China; 2Xidian University, China

**17:45 P1-030** The Effect Of Proton Irradiation On The Characteristics Of InP/InGaAs Heterojunction  
Oct. 26  
Hall,  
1Fudan University, China; 2Nanyang Technological University, Singapore

**17:45 P1-031** A Threshold Voltage Model For GaN-Based Heterostructure-Free Normally-Off FinFET  
Oct. 26  
Hall,  
1Tsinghua University, CHINA

**17:45 P1-032** Flexible RGO/Perovskite Hybrid Photodetector With High Performance  
Oct. 26  
Hall,  
1Beijing Smart-Chip Microelectronics Technology Company Limited, China; 2Global Energy Interconnection Research Institute, China

**17:45 P1-033** A Dynamic Carrier-Storage Trench-Gate IGBT With Low Switching Loss  
Oct. 26  
Hall,  
1Fudan 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,  
1Beijing Smart-Chip Microelectronics Technology Company Limited, China; 2Global Energy Interconnection Research Institute, China

**17:45 P1-035** Study Of RBSOA Reliability Of Nanoscale Partially Narrow Mesa IGBT (PNM-IGBT)  
Oct. 26  
Hall,  
1Chinese 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  Shengqi Shi, Xintian Zhou, Ruifeng Yue, Yan Wang  
Hall,  
Tsinghua University, China  
Tower 7/8  

17:45  P1-037  Research Of RF LDMOS Device With Partial Stepped Oxygen Layer  
Oct. 26  Xiao-Li La*, Bao-Xing Duan, Song Yuan  
Hall,  
Xidian University, China  
Tower 7/8  

17:45  P1-038  A Novel 4H-SiC MESFET With Localized High-Doped P-Buffer Layer  
Oct. 26  Hu-jun Jia*, Zhi-hui Yang, Pei-miao Ma, Qiu-yuan Wu, Ye-hui Luo  
Hall,  
Xidian University, China  
Tower 7/8  

17:45  P1-039  Trench SOI LDMOS With Trench-Field-Enhanced Structure For High Performance  
Oct. 26  Bing Wang, Zhi-GaNg Wang*, Jiang Sun  
Hall,  
Southwest Jiao Tong University, China  
Tower 7/8  

17:45  P1-040  A Low Turnoff Loss SOI LIGBT With P-Buried Layer And Double Gates  
Oct. 26  Yi-Tao He*, Ming Qiao, Zuo Wang, Bo Zhang, Zhao-Ji Li  
Hall,  
University of Electronic Science and Technology of China, China  
Tower 7/8  

17:45  P1-041  Experimental Studies On Robustness Of Super Junction VDMOS During The Body Diode Reverse Recovery  
Oct. 26  Min Ren*, Yuci Lin, Xiaofeng Cao, Chi Xie, Zehong Li, Bo Zhang  
Hall,  
University of Electronic Science and Technology of China, China  
Tower 7/8  

17:45  P1-042  Statistical Analysis On Performance Degradation Of 90 Nm Bulk Si MOS Devices Irradiated By Heavy Ions  
Oct. 26  Zhexuan Ren, Xia An*, Weikang Wu, Xing Zhang, Ru Huang*  
Hall,  
Peking University, China  
Tower 7/8  

17:45  P1-043  Improved On-Resistance And Breakdown Voltage Vertical Gan-Based Field Effect Transistors  
Oct. 26  Zhonghao Sun¹, Huolin Huang¹,²,³, Rensheng Shen¹, Zifeng Zhang¹, YC Liang², And Lizhong Hu¹  
Hall,  
¹Dalian University Of Technology, China; ²National University Of Singapore, Singapore; ³Chaohu University, China  
Tower 7/8  

17:45  P1-044  Charge Storage In Si-Nanocrystals Embedded NOS Structure Characterized By Kelvin Probe Force Microscopy  
Oct. 26  Jie Xu¹,², Zewen Lin², Dameng Tan², Wei Li¹,², Jun Xu²  
Hall,  
¹Nanjing University of Posts and Telecommunications, China; ²Nanjing University, China.  
Tower 7/8  

17:45  P1-045  Bipolar Resistive Switching Characteristics And Mechanism In The TiN/SiO₂/Pt Structure  
Oct. 26  Hai-Xia Gao*, Xi-Xi Gu, Jiang-Zhou Guo, Yin-Tang Yang  
Hall,  
Xidian University, China  
Tower 7/8  

17:45  P1-046  The W Oxidation Time Effect On Resistive Switching Speed In AlO₂/WO₂-Based RRAM  
Oct. 26  Juan Xu¹, Jiangqiu Yang¹, Yanqing Zhao¹, Yarong Fu¹, Ryan Huang², Qingtian Zhou², JIngGaNg Wu², Yinyin Lin¹''  
Hall,  
¹Fudan University, China; ²Semiconductor Manufacturing International Corp, China  
Tower 7/8
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*

Peking University, China

Simulation Method For Forming And Switching Processes Of NbOx Based Selector

Oct. 26
Junjie Hu, Yudi Zhao, Longxiang Yin, Zhiyuan Lun, Peng Huang*, Jinfeng Kang, Xiaoyan Liu

Peking University, China

High Uniformity, Low-Power HfOx-Based RRAM Enable By A Heterogeneous CeO2-Nb: SrTiO3 Interface

Oct. 26
Hong-Bin Zhao1,2, Hai-Ling Tu1,2, Feng Wei1,2, Yu-Hua Xiong1,2, Zhi-Min Yang1,2, Jun Du1,2

1General Research Institute for Nonferrous Metals, China; 2General Research Institute for Nonferrous Metals, China

Simulation On Threshold Voltage Of L-Shaped Bottom Select Transistor In 3D NAND Flash Memory

Oct. 26
Xingqi Zou1, Zhiliang Xia1,2, Lei Jin1, Yu Zhang1, Dandan Jiang1, Dong Hua Li1, Qiang Xu1, Peizhen Hong1, Ming Zeng2, Jing Gao2, Zhaoyun Tang1, Shaoning Mei2, Zongliang Huo1*

1Institute of Microelectronics of Chinese Academy of Sciences, China; 2Wuhan Xinxin Semiconductor Manufacturing Corporation (XMC), China

Experimental Validation Of A Novel Bulk Acoustic Wave Sensor Read-Out Circuit

Oct. 26
GAO Yang1,2, YIN Xi-yang2, HUANG Zhen-hua2, LV Jun-guang3

1China Academy of Engineering Physics, China; 2Southwest University of Science and Technology, China; 3Institute of High Energy Physics, China

Four-Step FBAR Filters Design Method And SOI BOX Buffered Via-Hole Etching Scheme

Oct. 26
GAO Yang1,4, CAI Xun2, HE Xuefeng3

1China Academy of Engineering Physics, China; 2Southwest University of Science and Technology, China; 3Chongqing University, China; 4CAS, China

Application Of Graphene Sheet As Intermediate Heat Spreading Layer In LED Modules

Oct. 26
Xiaoxu Kang1,2, Weijun Wang1, Qingyun Zuo1, Lanfang Shi1, Chao Yuan1, Bin Jiang1, Shoumian Chen1, Yuhang Zhao1, WeiGaNg Li2, Qiang Li2, Xining Chen2

1Shanghai IC R&D Center, China; 2Hengdian Group Tospo Lighting Co. Ltd., China

Ultrasensitive Sers Detection Of Ricin Through Controllably Synthesised Gold Nanostructures

Oct. 26
Jia Zhu12†, Jiaorong Fan2†, Yifei Mao2, WenGaNg Wu2*

1Shenzhen Graduate School of Peking University, China; 2Peking University, China

Characteristic Research Of Zinc Oxide Based Thin Film Transistor By ALD Technology

Oct. 26
Yukun Yang1,2, Dedong Han2, Guodong Cui2, Wen Yu1,2, Huijin Li2, Junchen Dong2, Xing Zhang2, Yi Wang3, Shengdong Zhang1,2

1Shenzhen Graduate School of Peking University, PRC; 2Peking University, PRC

Instability Of Flexible Low-Temperature Polycrystalline Silicon Thin-Film
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<td>17:45</td>
<td>P1-057</td>
<td><strong>Optimization Of Crystallization Energy Density For Excimer Laser Annealed Polycrystalline Silicon Thin Film Transistors</strong></td>
<td>Zhipeng Sun, Mingxiang Wang, Siwei Xu, Xialing Wang</td>
<td>Soochow University, China</td>
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<td>17:45</td>
<td>P1-058</td>
<td><strong>Complexity Of The Total Dose Radiation Response Of Fully Depleted Silicon-On-Insulator NMOSFETs</strong></td>
<td>Dongyu Qi, Dongli Zhang, Mingxiang Wang, Jianwen Li</td>
<td>Soochow University, China; Govisionox Optoelectronics Co. Ltd., China</td>
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<td>17:45</td>
<td>P1-059</td>
<td><strong>The Analysis Of ESD Degradation In P-Type Poly-Si Thin Film Transistor</strong></td>
<td>Zhong-Shan Zheng, Bin-Hong Li, Jian-Tou Gao, Jia-Jun Luo, Zheng-Sheng Han</td>
<td>Institute of Microelectronics of Chinese Academy of Sciences, China; Chinese Academy of Sciences, China</td>
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<td>17:45</td>
<td>P1-060</td>
<td><strong>Leakage Current Analysis Using High Resistivity Silicon Gated Diodes For PIN Detectors Application</strong></td>
<td>Hao Wang, Min Yu, Baohua Shi, Yuhuan Huang, Xinyang Zhao, Yufeng Jin</td>
<td>Peking University, China</td>
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<td>17:45</td>
<td>P1-061</td>
<td><strong>Calibration Strategy Based On Reference Sensor For GMR Biosensing And Biodetection System</strong></td>
<td>Cheng Zhu, Lei Zhang, Xizeng Shi, He Qian</td>
<td>Tsinghua University, China; Dongguan Bosh Biotechnologies, LTD, China</td>
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<td>17:45</td>
<td>P1-062</td>
<td><strong>Digital Closed-Loop Fiber Optic Gyroscope Design Based On The FPGA</strong></td>
<td>Dong-Sheng Yang</td>
<td>The first aeronautical college of air force, china</td>
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<td>17:45</td>
<td>P1-063</td>
<td><strong>Inkjet Printable Conducting Polymer Hydrogel And Its Applications In Biosensors</strong></td>
<td>Lijia Pan, Wen Cheng, Yi Shi</td>
<td>Nanjing University, China</td>
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<td>17:45</td>
<td>P1-064</td>
<td><strong>Efficient Flexible Planar Heterojunction Solar Cells Based On Chloride Incorporated Mixed Halide Perovskite</strong></td>
<td>Haifeng Yang, Jincheng Zhang, Jingjing Chang, Chunfu Zhang</td>
<td>Xidian University, China</td>
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<td>17:45</td>
<td>P1-065</td>
<td><strong>Evaluation Of Blue Energy Harvest By Utilizing Nanochannel Devices</strong></td>
<td>Zhuo Huang, Bo Wei Chen, Yabo Li, Shi Jie Li, Yuhui He, Xiang Shui Miao</td>
<td>Huazhong University of Science and Technology, China</td>
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<td>17:45</td>
<td>P1-066</td>
<td><strong>Short Channel Effect On The Nanochannel Energy Converting Device</strong></td>
<td>Yan Zhang, Bo Wei Chen, Ya Bo Li, Shi Jie Li, Yuhui He, Xiang Shui Miao</td>
<td>Huazhong University of Science and Technology, China</td>
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</table>
17:45 P1-067 1.1% DMF Incorporation In MAI/IPA Precursor For 50% Efficiency Enhancement Of Planar Perovskite Solar Cells
Oct. 26
Jiajie Mo, He Xi, Jingjing Chang, Chunfu Zhang*, Yue hao
1XiDian University, China
Tower 7/8

17:45 P1-068 A Comparison Of The Reliability Of $^{60}$Co, Ray Irradiation On Bulk-Si Substrate And SOI Substrate DPSA Bipolar Transistors
Oct. 26
P. J. Zhang$^{1,2}$, X. Wu$^1$, J. C. Jia$^2$, Q. N. Yi$^1$, W. S. Chen$^1$, Y. H. Yang$^3$, K. F. Zhu$^3$, W. Lu$^3$, Y. Zhong$^3$
1Science and Technology on Analog Integrated Circuit Laboratory, China; 2Chinese Academy of Science, China; 3Chongqing Semi-chip Electronics Co., Ltd, China
Tower 7/8

17:45 P1-069 Influence Of The Channel Length On Hot-Carrier Effect In NMOSFET
Oct. 26
Yan-Rong Cao$^{1,2}$, Feng Dai$^1$, Cheng Cao$^1$, Ya-Song Zhang$^1$, Peng Li$^1$, Xiao-Hua Ma$^2$, Yue Hao$^2$
1XiDian University, China; 2XiDian University, China
Tower 7/8

17:45 P1-070 On The Assessment Of End-Of-Life Variability Induced By Stochastic NBTI In Nanoscale MOSFETs Accompanying Conspicuous RTN
Oct. 26
Tao Sun, Runsheng Wang$, Pengpeng Ren, Xiaobo Jiang, Ru Huang
1Peking University, China
Tower 7/8

17:45 P1-071 Investigation Of A Layout Technique For a Single-Event Transient Mitigation
Oct. 26
Luo Sheng$^{1,2}$, He Wei$^{1,2}$, Zhang Zhun$^{1,2}$, He Lingxiang$^{1,2}$, Cao Jianmin$^2$, Wu Qingyang$^2$
1Shenzhen University, China; 2Shenzhen Key Laboratory of Micro-Nano Photonic Information Technology, China
Tower 7/8

17:45 P1-072 Proton Irradiation Effects And Annealing Behaviors Of 16Mb Magneto-Resistive Random Access Memory(MRAM)
Oct. 26
Haohao Zhang$^1$, Jinsun Bi$^1$, Yuan Duan$^{1,2}$, Yannan Xu$^{1,2}$, Ming Liu$^1$
1Chinese Academy of Sciences, China; 2Beijing Jiaotong University, China
Tower 7/8

17:45 P1-073 Sensitivity Of Proton Single Event Effect Simulation Tool To Variation Of Input Parameters
Oct. 26
Kai Xi$^{1,2}$, Jinsun Bi$^1$, Ming Liu$^1$, Jie Liu$^2$, Yan Wang$^1$, Mingdong Hou$^2$
1Chinese Academy of Sciences, CHINA; 2Chinese Academy of Sciences, CHINA
Tower 7/8

17:45 P1-074 The Impacts Of Total Ionizing Dose Irradiation On NOR Flash Memory
Oct. 26
Jinsun Bi$^*$, Jin Li$^1$, Lanlong Ji$^1$, Hongyang Hu$^1$, Ming Liu$^1$
1Chinese Academy of Sciences, CHINA
Tower 7/8

17:45 P1-075 Novel Time Redundant Flip-Flop Structure To Attenuate The Single-Event Transient
Oct. 26
Chunmei Hu$^*$, Yankang Du$^2$, Jianjun Chen$^1$, Yaqing Chi$^1$, Haiyan Chen$^1$
1National University of Defence Technology, China; 2China National Digital Switching System Engineering & Technology R&D Center, China
Tower 7/8

17:45 P1-076 A SCR-LDMOS ESD Device For 150V HV SOI BCD Process
Oct. 26
Cai Xiaowu$^*$, Wei Junxiu$^1$, Gao zhe$^1$, Liang Chao$^1$, Lv Chuan$^1$, Lv Kai$^2$
1Light Industry College of Liaoning University, China; 2Hangzhou Dianzi University, China
Tower 7/8

17:45 P1-077 Total Ionizing Dose Response Of 0.18 Um Narrow Channel I/O NMOSFETs
Oct. 26
Tiehu Li$^{1,2}$, Yintang Yang$^1$, Tao Liu$^2$
1XiDian University, CHINA; 2Science and Technology on Analog Integrated Circuit Laboratory, China
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<td>17:45</td>
<td>P1-078</td>
<td>A Simulation Model For The PN Junction Based On SOI</td>
<td>Jianhui Bu, Ying Li, Jiajun Luo, Zhengsheng Han*</td>
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<td>Institute of Microelectronics of Chinese Academy of Sciences, China; Chinese Academy of Sciences, China</td>
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<td>17:45</td>
<td>P1-079</td>
<td>Effects Of Doping Concentration On Semi-Floating Gate Image Sensor</td>
<td>Jun Wu, Peng-Fei Wang*</td>
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<td>Fudan University, China</td>
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<td>17:45</td>
<td>P1-080</td>
<td>Research On The Reliability Of Junctionless MOSFETs Based Inverter By 3D TCAD Simulation</td>
<td>Ren-hua Yang*, Lei Xie, Le Zhong, Qiu-ye Lyu, Yong Peng, Xin Liu, Guang Mao, GaNg Dai</td>
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<td>1China Academy Of Engineering Physics, China</td>
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<td>17:45</td>
<td>P1-081</td>
<td>A Novel AlGaN/GaN High Electron Mobility Transistors With The Partial Fixed Positive Charge In Buffer Layer</td>
<td>Hai-Jun Gu*, Bao-Xing Duan, Song Yuan</td>
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<td>Xidian University, China</td>
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<td>17:45</td>
<td>P1-082</td>
<td>Atomic Level Simulation Of TiO2-Based Resistive Switching Memory</td>
<td>Xixi Gu, Haixia Gao*, Mei Yang, Jiangzhou Guo</td>
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<td>1Xidian University, China; 2Xidian University, China</td>
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<td>17:45</td>
<td>P1-083</td>
<td>A SPICE Model Of Bi-Layer Resistive Random Access Memory With Stepped Reset Phenomenon</td>
<td>Yarong Fu, Juan Xu, Yanqing Zhao, Xiaoyong Xue, Yinyin Lin*</td>
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<td>Fudan University, China</td>
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<td>17:45</td>
<td>P1-084</td>
<td>Performance-Improved Normally-Off AlGaN/GaN High-Electron Mobility Transistors With A Designed P-GaN Area Under The Recessed Gate</td>
<td>Huolin Huang**, Zhonghao Sun, Zifeng Zhang, Rensheng Shen, YC Liang, Hongwei Liang</td>
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<td>1Jilin University, China; 2National University of Singapore, Singapore; 3Chaohu University of Technology, China</td>
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<td>17:45</td>
<td>P1-085</td>
<td>Theoretical Investigation On Hydrogen-Related Oxide Traps In HfO2 Gate Dielectrics: An Ab-Initio Study</td>
<td>Yawen Zhang, Peng Hao, Runsheng Wang, Jingwei Ji, Ru Huang</td>
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<td>Peking University, China; 5Stanford University, USA</td>
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<td>17:45</td>
<td>P1-086</td>
<td>A NBTI Inhibition Method With Channel Doping Concentration In PMOSFETs</td>
<td>Jian-Min Cao*, Yi Liu, Rui-Ze Sun, Wei He, Bing Li</td>
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<td>Shenzhen University, China</td>
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<td>17:45</td>
<td>P1-087</td>
<td>Role Of Ohmic Contact Resistance On Current Characteristics Of SiC Diodes</td>
<td>RuiRui Feng, XueSong Xie*, Ju Meng, Ce Tian, YiNan Zhang</td>
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<td>Beijing University of Technology, China</td>
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<td>17:45</td>
<td>P1-088</td>
<td>Stress Analysis Of N-Channel MOSFET With SiGe Channel For Different Dummy Poly Gate Number And Pitch</td>
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Tunnel MOSFET With Partial Channel Underlap Exhibiting Low Subthreshold Slope

Impact Of Critical Geometry Dimension On Channel Boosting Potential In 3D NAND Memory

A Novel Temperature Analysis Method For Compound Semiconductor Integrated Circuits Based On Iterative Algorithm

Intelligent Transformation Of Hydraulic Workshop Based On RFID And Sensing Technology

Stackable Amorphous Indium Gallium Zinc Oxide Thin-Film Transistors for High-Density 3-Dimension Memory Applications

End of the scaling theory and Moore’s law, and what after?

Current Technologies and Opportunities of Emerging Non-volatile Memories

Variability in Extremely Narrow (~2nm) Silicon Nanowire FETs Induced by Quantum Confinement Variation Due to Line Width Roughness
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 Claeys¹,², Paula Agopian³,⁴, Alirezza Alian¹, Hiroaki Arimura¹, Wen Fang⁵, Joao Martino⁶, Jerome Mitard¹, Felipe Neves⁴, Alberto Oliviera⁴, Eddy Simoen¹,⁶
Room 1 ¹Imec, Belgium; ²KU Leuven, Belgium; ³Univ Estadual Paulista, Brazil; ⁴University Of Sao Paulo, Brazil; ⁵Microsystem & Terahertz Research Center, China; ⁶Ghent 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 An¹, Yuxuan Xia, Ming Li, Meng Lin, Peilin Hao, Xing Zhang And Ru Huang²
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 Zhang¹, Yi Wang¹, Junkang Li¹, Feng Chen¹, Yi Zhao¹,²
Room 1 ¹Zhejiang University, China; ²Zhejiang 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 Simoen¹,², Geert Eneman, Alberto Vinicius De Oliveira³, Kai Ni⁴, Jerome Mitard¹, Liesbeth Witters¹, Paula Ghedini Der Agopian³,⁵, Joao Antonio Martino³, Daniel M. Fleetwood⁴, Ronald D. Schrimpf⁴, Robert A. Reed⁴, Nadine Colaert¹, Aaron Thean¹ And Cor Claeys¹,⁶
Room 1 ¹Imec, Belgium; ²also At Ghent University, Belgium; ³University Of Sao Paulo, Brazil; ⁴Vanderbilt University, USA; ⁵also At UNESP, Brazil; ⁶also At KU Leuven, Belgium

16:15 S19-2 High Performance Ge Schottky Pmosfets With Ternary-Phase Alloy
Oct. 27 (Invited) Chung-Chun Hsu¹, Wei-Chun Chi¹, Chen-Han Chou¹, Che-Wei Chen¹, Hung-Pin Chien¹ And Chao-Hsin Chien¹
### S19-3 Device design and process of SiGe based MOSFETs

Oct. 27

Room 1

Huiming Bu

IBM Semiconductor Technology Research, USA

### S19-4 Reliability Improvement Of Ge Pmosfets With Al₂O₃ Dielectric By Ozone Post Annealing

Oct. 27

Room 1

Jiabao Sun¹, Xiaoyu Dong³, Rui Zhang¹, And Yi Zhao¹,²*

¹Zhejiang University, China; ²Zhejiang University, China; ³Zhejiang Construction Supervision Co., LTD, China

### S19-5 A Systematic Study On Dry Etching Process Of Germanium For Ge 3D-Fets Applications

Oct. 27

Room 1

Yan-Yan Zhang¹, Ran Cheng¹, Shun Xu¹, Rui Zhang¹, Yi Zhao¹,²*

¹Zhejiang University, China; ²Zhejiang University, China

---

### S20 Novel Process Technologies

#### Session Chair: Hong-Liang Lu, Fudan University, China


Oct. 27

Room 3A

Seiji Samukawa

Tohoku University, Japan

**10:45 S20-2 Atomically Controlled Processing For Ge CVD Epitaxial Growth**

Oct. 27

Room 3A

Junichi Murota¹*, Yuji Yamamoto², Ioan Costina², Bernd Tillack²,³, Vinh Le Thanh⁴, Roger Loo⁵ And Matty Caymax⁶

¹Tohoku University, Japan; ²IHP, Germany; ³Technische Universität Berlin, Germany; ⁴Aix-Marseille Université, France; ⁵imec, Belgium.

**11:15 S20-3 Accurate Temperature Monitoring Scheme For Microwave Annealing With Silicon Substrate**

Oct. 27

Room 3A

Yan Wang, Chaochao Fu, Ming Xu, Peng Xu And Dongping Wu*

Fudan University, China

**11:30 S20-4 Block Copolymer Lithography And Transferred Patterns On The Substrate Used For SERS**

Oct. 27

Room 3A

Dong-Xue Li, Xin-Ping Qu*

Fudan University, China

**11:45 S20-5 The Epitaxy Of Gan In Deep And Submicron Holes Over Si Substrate**

Oct. 27

Room 3A

Anqi Wang¹, Qingbin Ji², Kejia Wang¹, Xiaodong Hu², Yahong Xie³, Binbin Tang⁴, Ying Sun¹, Zhiyuan Cheng¹*

¹Zhejiang University, China; ²Peking University, China; ³University Of California Los Angeles, USA; ⁴Nanchang University, China

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### 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

Room 3A

Kuan-Neng Chen

National Chiao Tung University

**14:00 S21-2 Modeling And Simulation Of TSV Induced Keep-Out Zone Using Silicon Data**

Oct. 27

Room 3A

C. W. Liu*, Jhih-Yang Yan, And Sun-Rong Jan

National Taiwan University, Taiwan, China

**14:30 S21-3 3D Integration Technologies For MEMS**
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<td>Oct. 27</td>
<td>(Invited)</td>
<td>Room 3A</td>
<td>New Multichip-To-Wafer 3D Integration Technology Using Self-Assembly And Cu Nano-Pillar Hybrid Bonding</td>
<td>Thomas Geßner¹,², Lutz Hofmann², Wei-Shan Wang², Mario Baum², Tobias Seifert¹,², Maik Wiemer², Stefan Schulz¹,²</td>
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<td>Oct. 27</td>
<td>(Invited)</td>
<td>Room 3A</td>
<td>Coffee Break</td>
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<td>Oct. 27</td>
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<td>Room 3A</td>
<td>S22 Ultra High Speed Transistors</td>
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<td>Session Chair: Xiao-Rong Luo, University Of Electronic Science And Technology Of China, China</td>
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<td>Y. Jin, CNRS/C2N, France</td>
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<td>15:45</td>
<td>S22-1</td>
<td>Room 3A</td>
<td>Ultra-Low Noise CryoHemts For Cryogenic High-Impedance Readout Electronics: Results And Applications</td>
<td>Y. Jin¹, Q. Dong, U. Gennser, L. Couraud, A. Cavanna, C. Ulysse</td>
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<td>Oct. 27</td>
<td>(Invited)</td>
<td>Room 3A</td>
<td>Analysis Of The Hybrid Trapping Effect In GaN Hemts Based On The Current Transient Spectroscopy</td>
<td>Xiang Zheng, Shiwei Feng², Yamin Zhang, Xin He, And Yu Wang</td>
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<td>16:30</td>
<td>S22-3</td>
<td>Room 3A</td>
<td>A Novel Design Methodology For Breakdown Voltage Enhancement In The Third-Generation SiGe HEBTs</td>
<td>Yanling Guo¹, Dongyue Jin¹, Wanrong Zhang¹, Xiao Wang¹, Xinyi Zhao¹, Qiang Fu¹</td>
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<td>Beijing University Of Technology, Chian</td>
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<td>16:45</td>
<td>S22-4</td>
<td>Room 3A</td>
<td>Study On Electron Mobility Model For Aln/Gan MIS-Hemts With Embedded Source Field-Plate Structures</td>
<td>K. Kuritahara¹,², H. Aoki³, N. Tsukiji¹, H. Sakai², K. Chikamatsu², N. Kuroda², S. Shibuya³, M. Higashino¹, R. Takahashi¹, H. Kobayashi¹, And K. Nakahara³</td>
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<td>¹Electronics And Informatics Division, Gunma University, Japan; ²ROHM Co., Ltd., Japan</td>
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<td>17:00</td>
<td>S22-5</td>
<td>Room 3A</td>
<td>Ultralow ON-Resistance High-Voltage Vertical HEMT With An Accumulation Effect Trench Gate</td>
<td>Chao Yang, Jun-Feng Wu, Fu Peng, Jie Wei, Si-Yu Deng, Xiao-Rong Luo³, Bo Zhang</td>
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<td>University Of Electronic Science And Technology Of China, China</td>
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<td>17:15</td>
<td>S22-6</td>
<td>Room 3A</td>
<td>Influence Of The BEOL Metallization Design On The Overall Performances Of SiGe HEBTs</td>
<td>R. D’Esposito¹, M. De Matos¹, S. Fregone², S. Balanethiram², A. Chakravorty², K. Aufinger³, T. Zimmer³</td>
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<td>¹Université De Bordeaux, France; ²Indian Institute Of Technology, India</td>
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<td>Oct. 27</td>
<td>(Invited)</td>
<td>Room 3B</td>
<td>UTBB FDSOI and Energy Harvesting–two key technologies for IoT Applications</td>
<td>Thomas Skotnicki</td>
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<td>STMicroelectronics, France</td>
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<td>10:45</td>
<td>S23-2</td>
<td>Room 3B</td>
<td>Smart Sensing for IoT Applications</td>
<td>Wai Lee and Ajit Sharma</td>
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<td>Oct. 27</td>
<td>(Invited)</td>
<td>Room 3B</td>
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<td>Texas Instruments Incorporated, USA</td>
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11:15 S23-3 Design and Verification Network Self-adaption Dual-core Microprocessor Architecture
Oct. 27 Li-Gang Hou1, Zhong-Chao Wang1, Xiao-Hong Peng1, Jin-Hui Wang2, Fang-Wen Fan1
Room 3B 1Beijing University of Technology, China; 2North Dakota State University, USA

11:30 S23-4 Design of Outdoor Air Quality Monitoring System Based on ZigBee Wireless Sensor Network
Oct. 27 Yun-Liang He1, Shu-Qin Geng1, Xiao-Hong Peng1, Li-Gang Hou1, Xiang-Kai Gao1, Jin-Hui Wang2
Room 3B 1Beijing University of Technology, China; 2North 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 (Invited) Thomas Ernst, Vincent Agache, Lionel Rudan, Thomas Alava, Elisa Vianello, Louis Hutin, Christian Gamrat1, Edith Beigné, Fabien Clermidy, Maud Vinet, Luca Perniola, Barbara de Salvo and Sébastien Hentz
Room 3B Université Grenoble Alpes, France

14:00 S24-3 Design of 3D TOF Camera System Based on CW Modulation Technique
Oct. 27 Xiang-Liang Jin1,2, Shao-Qing Zeng1,2
Room 3B 1Xiangtan University, China; 2Hunan 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 Yi Nan Zhang, Xiao Hong Peng1, Li Gang Hou, Jun Zhao,Guo Qing Sun, Rui Rui Feng
Room 3B 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 Sujuan Liu1, Chuyu Xia, Zhenzhen Zhao
Room 3B Beijing University of Technology, China

14:45 S24-6 A System of Fall Detection Using a Wearable Device Based on Bluetooth Communication
Oct. 27 Kewei Chen, Yun Chen1, Yixin Sun, Jie Liu
Room 3B 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 (Invited) Ming Qiao1, Liang-Liang Yu1, Hui-Hui Wang2, Feng Jin2, Zhao-Ji Li1 And Bo Zhang1
Room 3B 1University Of Electronic Science And Technology Of China, China; 2Shanghai 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 Bi-Zan Yang, Lin-Lin Wang, And Yu-Long Jiang
Room 3B Fudan University, China

16:30 S25-3 Optimization And Analysis Of High Reliability 30-50V Dual RESURF LDMOS
Room 3B Gunma University, Japan

16:45 S25-4 Thermal Analysis Of Slow-Wave Structure Of Helix TWT Based On Transient Temperature Rise Measurement Technology

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<td>S25-5</td>
<td>17:00</td>
<td>Comparison Of The Three Dimensional Effect Of Multi-Finger Layout In VLD/VLT/RESURF LDMOS</td>
<td>Fang Yang¹, Shiwei Feng¹*, Dong Shi¹, Haizhen Zhou²</td>
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<td>Beijing University Of Technology, China; ²State Grid Beijing Huairou Electric Power Supply Company</td>
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<td>Room 3B</td>
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<td>S25-6</td>
<td>17:15</td>
<td>Low On-State Losses Trench IGBT With High-K Dielectric Layer</td>
<td>Ke-Meng Yang, Yu-Feng Guo*, Jun Zhang, Man Li, Ling Du, Zhi-Kuang Cai, Zi-Xuan Wang</td>
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<td>National &amp; Local Joint Engineering Laboratory For RF Integration And Micro-Packaging Technologies, China; ²Nanjing University Of Posts And Telecommunications, China</td>
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<td>S25-7</td>
<td>17:30</td>
<td>Fabrication And Optimization Of A High Speed Deep-Trench Super-Junction MOSFET With Improved EMI Performance</td>
<td>Fei Wang¹, Min-Zhi Lin², Yuan-Lin Yuan³, Lei Liu³, Yuhua Cheng¹, Peng-Fei Wang²*</td>
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<td>Peking University, China; ²Fudan University, China; ³Suzhou Oriental Semiconductor, China</td>
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**S26 RF Circuits and Systems III**

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<td>10:15</td>
<td>Reduced Complexity Look-up Table Based π-Rotation LDPC Decoder</td>
<td>Hao Wang¹, Hongda Wang¹, Gerald E. Sobelman²*, Chiu-Sing Choy¹</td>
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<td>The Chinese University of Hong Kong, China; ²University of Minnesota, USA</td>
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<td>10:45</td>
<td>Terahertz Wireless Communication Using 300ghz CMOS Transmitter</td>
<td>Minoru Fujishima</td>
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<td>Hiroshima University, Japan</td>
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<td>11:15</td>
<td>A 2.4GHz CMOS Doherty Power Amplifier with Capacitance Compensation Technique</td>
<td>Fa-Ke Xiong, Ting-TingMo*</td>
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<td>Shanghai Jiao Tong University, China</td>
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<td>11:30</td>
<td>A Wide Locking Range and Low Phase Noise Quadrature Frequency Synthesizer Suitable for Next Generation Wireless Communication Systems</td>
<td>Y. J. He¹, R. X. Zhang¹, C. Q. Shi²</td>
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<td>East China Normal University, China; ²East China Normal University, China</td>
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<td>11:45</td>
<td>A Heterodyne Low IF Receiver Front End for Short Range Communication</td>
<td>Lei Wang, Ying Luo, Zhangwen Tang*</td>
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<td>Fudan University, China</td>
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<td>12:00</td>
<td>A Modulation Depth and Output Power Tunable 5.8-GHz CMOS Direct-Conversion Transmitter</td>
<td>Ying Luo, Lei Wang, Zhangwen Tang*</td>
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**S27 CMOS Reliability I**

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<td></td>
<td>13:30</td>
<td>The Understanding Of Breakdown Path In Both High-K Metal-Gate CMOS And Resistance RAM By The RTN Measurement</td>
<td>Steve S. Chung</td>
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<td>National Chiao Tung University, Taiwan, China</td>
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<td>14:00</td>
<td>Hot Carrier Aging Of Nano-Meter Devices</td>
<td>Jian F. Zhang*, Meng Duan, Zhigang Ji And Weidong Zhang</td>
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<td>Liverpool John Moores University, UK</td>
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</table>
14:30  S27-3  There Is Plenty Of Noise At The Bottom? 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 Cheng³, Tianshen Tang³ And Albert Wang¹
Room 3C ¹University Of California, USA; ³Peking University, China; ²Semiconductor 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 Yang¹,², Xiang-Liang Jin¹,²*
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 He²*, Sheng Luo¹, Lingxiang He¹, Jia Wang¹, Qingyang Wu² and Jianmin Cao²
Room 3C ¹²Shenzhen 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 Wang¹*, Xingsheng Wang², Binjie Cheng³, Asen Asenov²,⁴, 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 Zhou¹,², Xiang-Liang Jin¹,²*, Yang Wang¹,²
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 Li¹,², Jian Cao¹,²*, Lizhong Zhang³ and Yuan Wang²*
Room 3C ¹²Peking University, China;

S29 2D Devices & Technologies I

Session Chair: Jeffry 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

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<td>13:30</td>
<td>S30-1 MOSFET Scaling: Impact Of Two-Dimensional Channel Materials</td>
<td>Ralf Granzner, Zhansong Geng, Wilhelm Kinberger, And Frank Schwierz</td>
<td>Room 5</td>
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| 14:00    | S30-2 Direct Growth Of Graphene On Dielectric Substrates: Epitaxy At Incommensurate And Reactive Interfaces | Jeffry Kelber, Jessica Jones, Brock Beauchain, Opeyemi Olanipekun, Sherard Lightbourne, Mofei Zhang, And Brittany Pollock, John Beatty, M. Sky Driver, Tao Cheng, Yuanyue Liu, And William A. Goddard III | 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 | Hiroshi Mizuta, Ahmed Hammam, Jothiramalingam Kulothungan, Shunei Suzuki, Marek E. Schmidt, Jian Sun And Manoharan Muruganathan | 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 | Mengxing Sun, Dan Xie, Yilin Sun, Zhixin Li, Jianlong Xu, Ruixuan Dai, Xian Li, Cheng Zhang, Changjiu Teng, And Pu Yang | 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 | Hui-Wen Yuan, Hui Shen, Jun-Jie Li, Jinhai Shao, Daming Huang, Yi-Fang Chen, P. F. Wang, S. J. Ding, Albert Chin, And Ming-Fu Li | Room 5  
|          |                                                                      | 1Fudan University, China; 2National Chi Nan University, Taiwan, China |                                             |

**Coffee Break**

### S31 2D Devices & Technologies III

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| 15:45    | S31-1 Contact Engineering For Emerging TMD Materials                 | Chenhsin Lien, Hao-Ling Tang, Ming-Hui Chiu, Chien-Chih Tseng, Ang-Yu Lu, Tzu-Yang Tsai, Chia-Chin Cheng, Kung-Hua Wei, Tao Wu, Lain-Jong Li, And Chun-Hsing Shih | 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                         | Litalo Sun                                                            | Room 5                                      |
| 16:45    | S31-3 Ab Initio Simulation On Mono-Layer Mos2 Tunnel FET: Impact Of Metal Contact Configuration And Defect Assisted Tunneling | | Room 5                                      |
17:00 S31-4 Monolayer MoS$_2$ For Nonvolatile Memory Applications
Oct. 27 Kai-Ping Chang$^1$, Jer-Chyi Wang$^{1,2,3}$, Chang-Hsiao Chen$^3$, Lain-Jong Li$^4$, And Chao-Sung Lai$^{1,3,4}$
Room 5 $^1$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 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$^{1*}$
Room 5 $^1$Fudan University, China; $^2$Samsung Electronics Co., Ltd.

S32 Advanced Process Technology I

Session Chair: Cherming 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 (Invited) John Robertson, Y Guo
Room 7 Cambridge University, UK

10:45 S32-2 Reduction Of Interface States In Ge/High-K Gate Stacks And Its Reliability Implications
Oct. 27 (Invited) D. Misra, Y.M. Ding, S. Mukhopadhyay, K.L. Ganapathi, And N. Bhat
Room 7 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 (Invited) F.A. Geenen$^1$, C. Mocuta$^2$, C. Detavernier$^{1*}$
Room 7 $^1$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 (Invited) Yung-Hsien Wu$^1$, Chuan-Pu Chou, Yung-Chin Fang, Chang-Chia Su, Ching-Wei Lee
Room 7 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 (Invited) Changjian Zhou$^1$, Anshul Vyas$^2$, And Cary Y. Yang$^3$
Room 7 $^1$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 (Invited) Cher Ming Tan$^{1,2,3,4,5,*}$, Dipesh Kapoor$^2$ And Vivek Sagawan$^{1,2}$
Room 7 $^1$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 (Invited) Tektronix$^1$
Room 7 $^1$14150 SW Karl Braun Drive, United States

15:00 S33-4 Evolutionary Process Of Nanoscale Finfet Channel In Hydrogen Thermal Treatment Technology
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<td>15:15</td>
<td>S33-5</td>
<td>Observation Of Contact Resistivity Independence From Schottky Barrier Height On Heavily Doped P-Type Sige</td>
<td>Gang Wang, Yi Shi*, Tianhong Chen, Yu Wang, Junzhuan Wang, Lijia Pan, Linwei Yu</td>
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<td>15:45</td>
<td>S34-1</td>
<td>Applications Of Carbon-Nanotubes In CMOS Interconnect Technology Enhancement</td>
<td>Salahuddin Raju, Changjian Zhou, Suwen Li And Mansun Chan*</td>
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<td>S34-2</td>
<td>Low-K Dielectrics For Sub 10 Nm Technology Node</td>
<td>Mikhail R. Baklanov And Jing Zhang</td>
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<td>S34-3</td>
<td>CMOS Compatible Silicon Photonic Devices For Optical Interconnections</td>
<td>Tao Chu*</td>
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<td>S34-4</td>
<td>Modeling And Optimization Of High Speed Transmission Structure On Silicon Interposer</td>
<td>Shao-Jie Xue¹, Xin Chen¹*, Jian-Fei Jiang²</td>
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<td>S35-1</td>
<td>A V-Band 40 Nm CMOS Phase Locked Loop With Mutual Injection Locking Technique</td>
<td>Qian Zhou¹, Yan Han¹, Shifeng Zhang¹*, Xiaoxia Han¹, Lu Jie¹, Ray C. C. Cheung², Guangtao Feng³</td>
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<td>S35-2</td>
<td>An Open Loop Compensation Technique For Reducing Supply Sensitivity Of Ring Oscillator</td>
<td>Ziqian Wang, Hengzhi Su, Fujiang Lin</td>
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<td>S35-3</td>
<td>A Portable Wide-Range All-Digital Phase-Locked Loop With Fast Settling Time In 180 Nm CMOS</td>
<td>Lin-Lin Xie¹², Shu-Shan Qiao¹*, Yang Wang¹²</td>
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<td>11:00</td>
<td>S35-4</td>
<td>Ultra-Low Power Frequency Synthesizer Based On A Dual-Locking Ring Oscillator</td>
<td>Yann Deval¹*, Yoan Veyrac¹, HervÉ Lapuyade And François Rivet</td>
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<td>11:15</td>
<td>S35-5</td>
<td>A Compatible Low-Noise Multi-Phase Voltage-Controlled-Oscillator</td>
<td>Heng-Zhou Yuan, Yang Guo, Jia-Wei Tan, Qian-Cheng Guo</td>
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<td>11:30</td>
<td>S35-6</td>
<td>A 10Gbps Half-Rate Digital Clock and Data Recovery Circuit for 60GHz Receiver in 65nm CMOS</td>
<td>Zhi-Ran Liu, Zheng-Song, Ying-Hang Wu, Yu-Tian Li, Bao-Yong Chi</td>
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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  Koji Nii1,3*, Yuichiro Ishii1,3, Makoto Yabuuchi1,3, Toshiaki Sano2, Masao Morimoto1, Yohei Sawada1, Yasumasa Tsukamoto1, Miki Tanaka2 and Shinji Tanaka1  
Room 8  1Renesas Electronics Corporation, Japan; 2Renesas System Design Co. Ltd., Japan; 3Kanazawa 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 Wang1, Lavanya Gopalakrishnan2, Haibo Wang* and Ronald Eaton2  
Room 8  1University of Electronic Science and Technology of China, China; 2Southern Illinois University, USA.  
14:45  S36-5  STT MTJ data-aware write boost design in 28nm process  
Oct. 27  Ziou Wang, Yiping Zhang, Canyan 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  

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<td>S37-4</td>
<td>A Heuristic Method For The Variable Ordering Of Binary Decision Diagrams</td>
<td>Chunyu Mao and Chunhong Chen*</td>
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<td>Oct. 27</td>
<td>S37-5</td>
<td>K-Nearest Neighbor Algorithm Implementation On FPGA Using High Level Synthesis</td>
<td>Zhe-Hao Li¹, Ji-Fang Jin¹, Xue-Gong Zhou¹, Zhi-Hua Feng²*</td>
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<td>Oct. 27</td>
<td>S14-3</td>
<td>Lightweight Network-On-Chip Router On Research And Design</td>
<td>Yi-Ran Du¹, Wei Li²*, Zi-Bin Dai¹</td>
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<td>S14-4</td>
<td>An Improved Automatic Parallelizing Algorithm Based On Polyhedral Model</td>
<td>Minge Jing²*, Fei Kong, Jin Xing, Xiaoyang Zeng*</td>
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<td>Oct. 27</td>
<td>S38-1</td>
<td>New computing machines for next 30 years</td>
<td>Cheol Seong Hwang*</td>
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<td>Oct. 27</td>
<td>S38-2</td>
<td>Technological and architectural approaches to neuro-inspired circuit implementations</td>
<td>Carlo Reita</td>
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<td>Oct. 27</td>
<td>S38-3</td>
<td>Parallel-Elementary-Stream Architecture for Nearest-Neighbor-Search-based Self-Organizing Map</td>
<td>Fengwei An, Xiangyu Zhang, Lei Chen, Hans Jürgen Mattausch</td>
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<td>A Spike Neuron Network Prototype based on RRAM Array</td>
<td>Yue Tang¹, XiaoLei Cui¹*, Chunliang Liu¹, Xiaoyan Xu¹, Jipeng Liu¹, Shengming Zhou², Jinfeng Kang¹</td>
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<td>Oct. 27</td>
<td>S38-5</td>
<td>A Flexible Low-Power Machine Learning Accelerator for Healthcare Applications</td>
<td>Shan Huang², Zhicheng Xie, Jun Han and Xiaoyang Zeng</td>
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<td>Oct. 27</td>
<td>S38-6</td>
<td>Development of Three-Dimensional Synaptic Device and Neuromorphic Computing Hardware</td>
<td>I-Ting Wang, Teyuh Chou, Li-Wen Chiu, Chih-Cheng Chang and Tuo-Hung Hou*</td>
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<td>Oct. 27</td>
<td>S39-1</td>
<td>Smart Memory: A Neuromorphic Semiconductor Memory</td>
<td>Chung H. Lam</td>
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<td>S39-2</td>
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<td>Oct. 27</td>
<td>S39-3</td>
<td>Development of Three-Dimensional Synaptic Device and Neuromorphic Computing Hardware</td>
<td>I-Ting Wang, Teyuh Chou, Li-Wen Chiu, Chih-Cheng Chang and Tuo-Hung Hou*</td>
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15:00  S39-4  Energy-Efficient and High-Throughput FPGA-based Accelerator for Convolutional Neural Networks
Oct. 27
VIP Room
National Chiao Tung University, Taiwan, China

15:15  S39-5  VLSI Design of Modified Sequential Minimal Optimization Algorithm for Fast SVM Training
Oct. 27
VIP Room
University of Science and Technology of China, 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)
VIP Room
1The Hong Kong University Of Science And Technology, Hong Kong, China; 2The Hong Kong University Of Science And Technology, Hong Kong, China

16:15  S40-2  Application Of TiO3 Thin Film’S Hydrophilicity On The Scalpel
Oct. 27  (Invited)
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
VIP Room
Soochow University, China

17:00  S40-4  Degradation Of Low Temperature Poly-Si Tfts Under Bipolar Gate Pulses With DC Drain Bias
Oct. 27
VIP Room
Soochow University, China

17:15  S40-5  A New Surface-Potential-Based Compact Model For Polysilicon Thin-Film Transistors
Oct. 27
VIP Room
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
VIP Room
Jinan University, China; 2South China University Of Technology, China

17:45  P2-001  An Adaptive Power Supply Regulator Based On PSM With Fast Transient Response
Oct. 27
Hall,
Tower 7/8
Center for Microsystems Technology Southwest China Institute of Electronic Technology, China

17:45  P2-002  The Research Of Multistage Interconnection Structure Based On Crossbar
Oct. 27
Hall,
1Institute of Information Science and Technology, China; 2Fudan University, China
17:45 P2-003 Reconfigurable GF ($2^8$) Multipliers For Symmetric Cryptograms Based On Different Design Principals
Oct. 27
Wang Zhou-Chuang¹, Li Wei², Dai Zi-Bin¹, Nan Long-Mei², Chuan Xin¹
Hall, ¹Institute of Information Science and Technology, China; ²Fudan 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 Yang¹, Wei Li¹², Jin-Fu Xu¹, Lu Liu¹
Hall, ¹Institute of Information Science and Technology, China; ²Fudan University, China
Tower 7/8

17:45 P2-005 Design And Implementation Of Configurable NBF Instructions Targeted At Stream Cipher Processing
Oct. 27
Longmei Nan¹², Xiaoyang Zeng¹, Wei Li¹²
Hall, ¹Fudan University, China; ²Zhengzhou 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 Yi¹, Wei Li¹², Zi-Bin Dai¹, Jun-Wei Liu¹
Hall, ¹Zhengzhou Institute of Information Science and Technology, China; ²Fudan 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 Li¹², Xiaoyang Zeng¹, Longmei Nan¹², Tao Chen², Zibin Dai²
Hall, ¹Fudan University, China; ²Institute 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 Qiao¹, Yan Han¹², Jian Lei¹, R. C. C. Cheung², Will X. Y. Li³, Hiao-Xia Han¹
Hall, ¹Zhejiang University, Hangzhou 310027, China; ²City University of Hong Kong, Hong Kong, China; ³Nanjing 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 Xiaowu¹², Wei Junxiu¹, Liang Chao¹, Gao Zhe¹, Lv Chuan¹, Yan Ming¹, Lv Kai²
Hall, ¹Liaoning University, China; ²Hangzhou 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 Cao¹², Xiangxiang Xue¹, Yuan Wang², Guangyi Lu³, Xing Zhang¹²
Hall, ¹Peking University, China; ²Peking University, China
Tower 7/8

17:45 P2-011 Low Power VCO-Controlled PFM DC-DC Buck Converter
Oct. 27
Junho Yu¹, Inwoo Hwang¹, Jusang Park², Namsoo Kim²
Hall, ¹Chungbuk National University, Korea; ²Chungbuk 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 Lv¹², Lei Xie³, Yong Peng¹, Ren-Hua Yang¹, Le Zhong¹, Guang Mao¹, Xin Liu¹, GaNg Dai¹
Hall, ¹Chinese 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
17:45   P2-014  **A Low-Power High-Speed Level Shifter Suitable For Synchronous Switching Power Converters**
Oct. 27  Yue Shi\(^1\), Guang Wu\(^2\), Xia Wang\(^2\), Zekun Zhou\(^2\), Songpeng Rui\(^2\)
Hall,    \(^1\)Chengdu University of Information Technology, China; \(^2\)University of Electronic Science and Technology of China
Tower 7/8

17:45   P2-015  **Design Of Slope Compensation For A High-Efficiency High-Current DC-DC Converter**
Oct. 27  Yonggui Hu\(^1,2\), Yafeng Wei\(^2\), Jianan Wang\(^2\), Maomao Sun\(^2\)
Hall,    \(^1\)National Laboratory of Analog Integrated Circuits, China; \(^2\)CETC, China
Tower 7/8

17:45   P2-016  **Constant-Gm Bias Circuit Without Off-Chip Components**
Oct. 27  Yongjian Shen\(^1\)*, Ran Zhang\(^1\)
Hall,    \(^1\)Southwest China Institute of Electronic Technology, China
Tower 7/8

17:45   P2-017  **On-Chip Type III Compensator By Using Constant-Gm OTAs And Capacitor-Multipliers For Fully Integrated Buck Converters**
Oct. 27  Shiquan Fan, Zhongming Xue, Zhuoqi Guo, Hao Lu, Li Geng
Hall,    Xi’an Jiaotong University, China
Tower 7/8

17:45   P2-018  **A Pre-Modulated Step-Up DC-DC Converter With High-Conductance Switches**
Oct. 27  Ye Tian, Zunkai Huang, Qi Zhang, Li Tian, Hui Wang\(^*\), Songlin Feng
Hall,    \(^1\)Chinese Academy of Sciences, China; \(^2\)University of Chinese Academy of Sciences, China
Tower 7/8

17:45   P2-019  **PulseSkipping Width Modulation Mode In Buck Converter Application**
Oct. 27  Dongjun Wang, Ping Luo\(^*\), Shaowei Zhen, Yajuan He
Hall,    University of Electronic Science and Technology of China, China
Tower 7/8

17:45   P2-020  **Linear CMOS Image Sensor For Bio-Microfluidic Imaging System**
Oct. 27  Hejiu Zhang, Ningmei Yu, Nan Lyu, Fengjuan Wang
Hall,    Xi’an University of Technology, China
Tower 7/8

17:45   P2-021  **A 120V/us High Slew Rate Operational Transconductance Amplifier With Improved Dynamic-Output Control Technique (DOCT)**
Oct. 27  Yuming Wang\(^1\), Jing Zhu\(^1\), Yunwu Zhang\(^1\), Yangyang Lu\(^1\), Weifeng Sun\(^1\)*
Hall,    \(^1\)Southeast University, China
Tower 7/8

17:45   P2-022  **Design Of High Precision Bandgap Voltage Reference With Second-Order Curvature Correction In Bi-CMOS Process**
Oct. 27  Qingping Li, Menglian Zhao\(^*\), Xiaobo Wu
Hall,    Institute of VLSI Design, China
Tower 7/8

17:45   P2-023  **A Reconfigurable 1/2/3-Order Butterworth LP/CBP Filter With Noise Canceller For Sub-GHz Applications**
Oct. 27  Dongyang Yan, Lei Zhang, Li Zhang, Yan Wang
Hall,    Tsinghua University, China.
Tower 7/8
A 0.3V-1.2V Ultra-Low Input Voltage, Reconfigurable Switched-Capacitor DC-DC Converter For Energy Harvesting System
Yuanfei Wang, Ping Luo*, Xinyi Zheng, Bo Zhang
University of Electronic Science and Technology of China, China

Area-Saved And Low-Leakage Design Of Power-Rail Clamp Circuit
Mohan Ji¹, Yuan Wang²*, Guangyi Lu², Xinan Wang¹
¹Peking University, China; ²Peking University, China

A New Static Power Clamp Co-Designed With Input ESD Protection Circuit
Jian Wang¹, Jian Cao¹*, Guangyi Lu², Xing Zhang¹, Yuan Wang²
¹Peking University, China; ²Peking University, China

A 1.67-ppm/°C 64-ppm/V Curvature-Compensated Bandgap Reference Based On A Transcendental Equation
Ruocheng Wang¹,², Wengao Lu¹,², Yajun Zhu¹,², Yuze Niu¹,², Yacong Zhang¹,², Zhongjian Chen¹,²
¹Peking University, China; ²Peking University Information Technology Institute, China

A 6th-Order Chebyshev Active-RC Complex Filter Employing Feedforward Compensation Operational Transconductance Amplifiers Achieving +39.1dBm IIP3
Jia-Wei Chen¹, Zhi-Jian Lu¹, Ting-Ting Mo¹*
¹Shanghai Jiao Tong University, China

Multi-Mode Control Strategy For Primary-Side Regulation System
Kan Liu¹, Kexu Sun², Jianxiong Xi¹, Lenian He¹*
¹Zhejiang University, CHINA; ²Southern Methodist University, USA

An Ultra-Low-Power Hysteresis Power Converter With Sample And Hold Voltage Reference
Junxiao Chen, Lenian He*
Zhejiang University, China

A Global Process Variability Monitor Using Sensitivity-Enhanced Ring Oscillators And Modified Iterative Method
Han-Jie Ding¹, Zhi-Jian Lu¹, Ting-Ting Mo¹*
¹Shanghai Jiao Tong University, China

Intelligent Charging Management System For Single Or Multi Li-Ion Battery With High Charging Current Accuracy
Dejun.Yu, Mingyuan.Sun, Q. Yu, Ning Ning, Y. Liu

An Accuracy Voltage Regulator With Very Low Shut-Down Current Under High Supply Voltage Condition
Dejun.Yu, Mingyuan.Sun, Q. Yu, Ning Ning, Y. Liu

A 0.662ppm/°C High PSRR CMOS Bandgap Voltage Reference
Yang Qu, Xiao-Hong Peng*, Li-GaNg Hou, Tian-Hui Dai, Yu-Chen Wang
A 0.6V Full Wave Rectifier With The Current Mode Periodic Nested Feedback Loop Technique
Oct. 27
Fanyang Li, Jiwei Wang
1Fuzhou University, China

A High Dynamic Range CMOS Image Sensor With Dual Charge Transfer Phase
Oct. 27
Ren-guang Wang, Yue-xin Yin, Liang-Li, Xinyang Wang, Yu-chun Chang
1College of Electronic Science and Engineering Jilin University Chang Chun, China; 2Gpixel Inc, China

A Low Voltage CMOS Over-Temperature Protection Circuit With MOSFETs Working In The Sub-Threshold Region
Oct. 27
Wang Bangji, Feng Quanyuan, Zhuang Shengxian
Southwest Jiaotong University, China

A High Linearity Active-RC BPF With 70MHz Center Frequency And 22MHz Bandwidth In 65nm CMOS
Oct. 27
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

Optimization For Phase Noise In Cross-Coupled Integrated Quartz Crystal Oscillator
Oct. 27
Hai-Qing Xie, Cheng-Wei Zeng, Xin-Liang Jia, Yong-Da Peng, Chao Wang, Jun-Long Tang
Changsha University of Science & Technology, China

High Precision Bandgap Reference with Chopping Offset Reducing Technique
Oct. 27
Yu-Han Gao, Dong-Bing Fu, Guang-Bing Chen, Rong-ke Ye, Lei Zhang, Can Zhu
1 The NO.24th Institute of CETC, China; 2 National Key Laboratory of Science and Technology on Military Analog Integrated Circuits, China

An Area-Efficient Low-Noise Bio-Sensing Amplifier with Continuous-Tunable Gain
Oct. 27
Tao Yin, Guocheng Huang, Xiao Dong Xu, Yachao Zhang, Xin Xia Cai, Haigang Yang
1 Chinese Academy of Sciences, China; 2 University of the Chinese Academy of Sciences, China

A High-Voltage High-PSRR Power Management Circuit for BMS Chip of New Energy Vehicle
Oct. 27
Xuhui He, Liji Wu, Xuecheng Man, Xiangmin Zhang, Xingjun Wu, Wen Jia
1 Tsinghua University, China; 2 Research Institute of Tsinghua University in Shenzhen, China

A Low-Power CMOS Smart Temperature Sensor from 60K to 200K
Oct. 27
Chang-Feng Zhang, Nan Chen, and Li-Bin Yao
1 Kunming Institute of Physics, China

Session-Less Test Scheduling for Multi-Tower 3D-SICs
Oct. 27
Wenming Wang, Xiaole Cui, Mengying Luo, Yang Hu, Shengming Zhou
1 Peking University Shenzhen Graduate School, China; 2 National Integrated Circuit Design Shenzhen Industrial Center, China

The Design of a Reconfigurable Computing Unit Based on Heterogeneous System
Oct. 27
Yu-Kun Song, Hao-Yang Li, Duo-li Zhang
Hefei University of Technology, China
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-Hui Wang1, 2
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  Sunjianhui1, 2*, Wanggongtang1, Huaqing1, Wangchunxing1, Liujuntao2, 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
17:45   P2-057  A Wideband LC VCO with Small Gain Variation for 24GHz FMCW Frequency Synthesizer  
Oct. 27  
Yuanyuan Xu¹, Wei Wang¹, Wei Li¹, Dan Wu¹, Lai He¹  
¹ Fudan University, China  
Tower 7/8

17:45   P2-058  A Self-Calibrated 32-phase Delay-Locked Loop  
Oct. 27  
Jing Li, Daizhou Cheng, Zhihua Liu, Ning Ning*  
University of Electronic Science and Technology of China, P. R. China  
Tower 7/8

17:45   P2-059  A 10.3mW 13.6GHz Phase-Locked Loop with Boosted Gm Two-Stage Ring VCO  
Oct. 27  
Han Liu, Woogeun Rhee, Zhihua Wang  
Tsinghua University, China  
Tower 7/8

17:45   P2-060  200MS/s 10bit SAR ADC with 1.5bit Redundant Acceleration  
Oct. 27  
Wang Jingjing, Li Qianqian, Chen Chixiao, Ye Fan, Xu Jun*, Ren Junyan  
Fudan University, China  
Tower 7/8

17:45   P2-061  Design a Delay Amplified Digital Aging Sensor Circuit in 65nm CMOS  
Oct. 27  
Dailu Ding, Yuejun Zhang*, Pengjun Wang, Haoyu Qian, and Gang Li  
Ningbo University, China  
Tower 7/8

17:45   P2-062  A New Structure of Primitive Gates Used in Standard Cell Library  
Oct. 27  
Peng Yong, Xie Lei, Lv Qiuye, Dai Gang  
CAEP, China  
Tower 7/8

17:45   P2-063  A Low-power Low-cost Built-in Jitter Measurement Circuit for DDR4-2133  
Oct. 27  
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  
Tower 7/8

17:45   P2-064  Design of a Parametric-Drift-Resistant Inverter  
Oct. 27  
Qiu-Ye Lv¹*, Lei Xie¹, Yong Peng¹, Ren-Hua Yang¹, Gang Dai¹  
¹ Chinese Academy of Engineering Physics, China  
Tower 7/8

17:45   P2-065  SAPTL–based Robust Sub-threshold Adder Circuit Design  
Oct. 27  
Qi Zhang¹,², Yuping Wu¹,²,³, Lan Chen¹,², Xuelian Zhang¹,², Weicheng Shi¹,²  
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  
Tower 7/8

17:45   P2-066  A 12-bit 250MSPS Pipeline ADC with 4Gbps Serial Output Interface  
Oct. 27  
Wu Hai-jun¹,²,³,⁴,⁵, Chen Zhen-hai²,³,⁴,⁵, Yu Zong-guang²,³,⁴,⁵, Wang Wei-xing¹,²,³,⁴,⁵  
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  
Tower 7/8

17:45   P2-067  A Wide-Band Input Buffer for 3GS/S 12bit Time-Interleaved ADC  
Oct. 27  
Yongzhen Chen¹*, Hang Hu¹, Fan Ye¹, Junyan Ren¹*  
¹ Fudan University, China  
Tower 7/8
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, ⁱ 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 Nho², Xiaofang Zhou¹³
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 Graduate 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 Feng¹*, Yuan Yue¹, Yanbin Qiao², Jin Shao²
Hall, ¹ Beijing University of Technology, China; ² Beijing Smart-Chip Microelectronics Technology Company Limited, China
Tower 7/8

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 Graduate 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
Tower 7/8
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 Technology, China
Tower 7/8

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, Jiajun Luo*, Fang Yu, Zhengsheng Han
Hall,  Institute of Miroelectronics of Chinese Academy of Sciences, China; Chinese Academy of Sciences, China
Tower 7/8

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 Cui1*, Xiaoyan Xu1, Chunliang Liu1, Shengming Zhou2
Hall,  1 Peking University Shenzhen Graduate School, China; 2 National Integrated Circuit Design Shenzhen Industrial Center, China
Tower 7/8

17:45  P2-083  A Die Selection and Matching Method for Yield Enhancement of 3D-Stacked Memories
Oct. 27  Zhengjian Sun1, Xiaole Cui1*, Chunliang Liu1, Mengying Luo1, Shengming Zhou2
Hall,  1 Peking University Shenzhen Graduate School, China; 2 National Integrated Circuit Design Shenzhen Industrial Center, China
Tower 7/8

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 Jiang1*, 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 Cui1*, Yalin Ran1, Mengying Luo1, Jiantong Jiang1, Shengming Zhou2
Hall,  1 Peking University Shenzhen Graduate School, China; National Integrated Circuit Design Shenzhen Industrial Center, China
Tower 7/8

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 Ding1*, 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
Tower 7/8
17:45  P2-090  A 6-18GHz Vector-Sum 6-bit Active Phase Shifter  
Oct. 27  
Jiexiong Liang¹, Wei Li¹*, Jintao Hu¹, Lai He¹  
Hall,  
Fudan University, China

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

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 Zhang¹*, Yong Zhu¹  
¹ Southwest China Institute of Electronic Technology, China

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 Jian¹*, Hong-Mei Chen¹  
¹ Hefei University of Technology, China

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

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

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  
¹ East China Normal University, China; ² East China Normal University, China

17:45  P2-097  A Three Stage, Fully Differential D-band CMOS Power Amplifier  
Oct. 27  
Xianghong Gao, Lingling Sun*, Jincai Wen*, Guodong Su, Meng Jin and Jiawu Zhou  
Hall,  
Hangzhou Dianzi University, China

17:45  P2-098  A Common Source LNTA of High Linearity Robust to Temperature and Process  
Oct. 27  
Zikuan Wang¹, Zhijian Lu¹, Tingting Mo¹*  
¹ Shanghai Jiao Tong University, China

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

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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<tr>
<td>17:45</td>
<td>P2-101</td>
<td>A 0.1-to-5 GHz Wideband ΔΣ Fractional-N Frequency Synthesizer for</td>
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<td>Software-Defined Radio Application</td>
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<td>Oct. 27</td>
<td>Hall,</td>
<td>Zhao Zhang, Jincheng Yang, Liyuan Liu*, Peng Feng, Jian Liu, Nanjian Wu*</td>
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</table>
| Tower 7/8 | Institute of Semiconductors Chinese Academy of Sciences, China
| 17:45 | P2-102  | Design of Wideband and High Efficiency THz Yagi Antenna by Using Air Bridge Technology |
| Oct. 27 | Hall,   | Yang Li*, Shao-bo Wang, Lin-an Yang, Sheng-rui Xu, Yue Hao            |
| Tower 7/8 | Xidian University, China
| 17:45 | P2-103  | A 150GHz Amplifier Based on Coupled Transmission Line Neutralization with 22dB Gain in 65nm CMOS |
| Oct. 27 | Hall,   | Lin Lin, Lei Zhang, Yan Wang, Zhiping Yu                             |
| Tower 7/8 | Tsinghua University, China
| 17:45 | P2-104  | A Low-Power 10-Gb/s Receiver with Merged CTLE and DFE Summer         |
| Oct. 27 | Hall,   | Dengbao Liu¹,², Lin He¹,², Yu-Kai Chou², Fujiang Lin¹,²               |
| Tower 7/8 | ¹ University of Science and Technology of China (USTC), China; ² USTC-MTK Joint Laboratory of High-Speed Integrated Circuits & Systems, China
| 17:45 | P2-105  | Hardware Architecture of Lifting-based Discrete Wavelet Transform and Entropy for Epileptic Seizure Detection |
| Oct. 27 | Hall,   | Yuanfa Wang¹, Zunchao Li¹,², Lichen Feng¹, Chuang Zheng¹, Yunhe Guan¹, Yefeizhang¹ |
| Tower 7/8 | ¹ Xi’an Jiaotong University, China; ² Guangdong Xi’an Jiaotong University Academy, China
| 17:45 | P2-106  | The FPGA Implementation of Spectrum Peak Search in MUSIC Algorithm   |
| Oct. 27 | Hall,   | Duo-Li Zhang, Bin Zhang*, Yu-Kun Song                               |
| Tower 7/8 | Fudan University, China
| 17:45 | P2-107  | Fast Motion Estimation Friendly Hardware Architecture for Hevc Encoders Based On 2-D Data Reuse and Low-Power Sad Tree |
| Oct. 27 | Hall,   | Leilei Huang¹, Bei Hao¹, Xiaoyang Zeng¹, and Yibo Fan¹*             |
| Tower 7/8 | Fudan University, China
| 17:45 | P2-108  | A Hardware Friendly Stereo Match Refinement Algorithm Using Disparity Gradient Based Region Growth Method |
| Oct. 27 | Hall,   | Hanrui Wang¹, Yize Jin¹, Liming Wang¹, Xiaoyang Zeng¹, Yibo Fan¹*    |
| Tower 7/8 | Fudan University, China
| 17:45 | P2-109  | An Asynchronous GOP Structure Based on Tile Partition                |
| Oct. 27 | Hall,   | Yize Jin, Qinwei Jiang, Xiaoyang Zeng, Yibo Fan*                    |
| Tower 7/8 | Fudan University, China
| 17:45 | P2-110  | VLSI Implementation for R-wave Detection and Heartbeat Classification of ECG Adaptive Sampling Signals |
| Oct. 27 | Hall,   | Qian Long, Yi Ren, Jun Han, Xiaoyang Zeng                           |
| Tower 7/8 | Fudan University, China
| 17:45 | P2-111  | A Novel RLE & LZW for Bit-Stream Compression                        |
|
Oct. 27 Tianjiao Li¹, Tiandong Zhao¹, Minwoo Nho²*, Xiaofang Zhou³*
Hall, ¹ Fudan University, China; ² Samsung Electronics Co., Ltd., Korea; ³ Fudan University, China
Tower 7/8
17:45 P2-112 A Small-area and Low-power Circuit Implementation of Color Space Conversion from RGB to YCbCr
Oct. 27 Kai-Jie Shi, Hu Cao, Li Tian, Qi Zhang, Hui Wang*, Song-Lin Feng
Hall, Chinese Academy of Sciences, China
Tower 7/8
17:45 P2-113 An Improved Ziggurat-Based Hardware Gaussian Random Number Generator
Oct. 27 Jianing Su¹*, Jun Han²
Hall, ¹ Chinese Academy of Sciences, China; ² Fudan University, China
Tower 7/8
17:45 P2-114 Analysis on the Low-Power Integrated Circuit Technology
Oct. 27 Wei Wang, Bin Wang
Hall, Hangzhou Dianzi University, China; Xiasha Higher Education Zone, China
Tower 7/8
17:45 P2-115 An SVA Hardware Monitor with Off-line Replay
Oct. 27 Minwoo Nho¹*, Xiaofang Zhou², Gerald E. Sobelman³
Hall, ¹ Samsung Electronics Co., Ltd., Korea; ² Fudan University, China; ³ University of Minnesota, USA
Tower 7/8
17:45 P2-116 RFRA: Reconfigurable and Fault-tolerant Routing Algorithm without Virtual Channels for 2D Network-on-Chip
Oct. 27 Ruilian Xie¹, Jueping Cai¹*, Peng Wang¹²
Hall, ¹ Xidian University, China; ² China Electronics Technology Group Corporation No. 47 Research Institute, China
Tower 7/8
17:45 P2-117 Behavioral Model of Track-and-Hold Amplifier Based on GaAs HBT by Using MATLAB- SIMULINK
Oct. 27 Wei-Fan Ge¹, Hong-Liang Lu¹*, Yu-Ming Zhang¹, Yi-Men Zhang¹, Jing-Xuan Wang¹
Hall, ¹ Xidian University, China
Tower 7/8
17:45 P2-118 Configurable Links for 3D Network On-Chip Based on Mapping Algorithm
Oct. 27 Yi Liu¹, Yu-Ting Niu²*, Chang-Qing Xu³
Hall, ¹, ², ³ Xidian University, China
Tower 7/8
17:45 P2-119 Platform Design for Compatible Semi-custom Design Flow
Oct. 27 Yifu Gong¹, Na Gong¹, Ligang Hou², Jinhui Wang¹*
Hall, ¹ North Dakota State University, USA; ² Beijing University of Technology, China
Tower 7/8
17:45 P2-120 LVS Solution for Electric Test Keys Verification
Oct. 27 Susan Wu¹, Linda Zhuang¹, Mengfeng Tasi¹, Lei Fu²
Hall, ¹ Semiconductor Manufacturing International Corporation, China; ² Cadence Design Systems, Inc., USA
Tower 7/8

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**  
Oct. 28  
Ballroom, Tower 7/8  
*(Keynote)*  
**FD-SOI technology as enabler of Internet of Things applications**  
Giorgio CESANA, Carlos MAZURE  
SOI Industry Consortium

**9:15 K8**  
Oct. 28  
Ballroom, Tower 7/8  
*(Keynote)*  
**Artificial Intelligence Applications in Semiconductor - From Modeling to Design**  
Yanfeng Li  
Platform Design Automation, Inc. (PDA)

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**Coffee Break**

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### S41 Nano CMOS and Emerging Devices III

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

**10:15 S41-1**  
Oct. 28  
Room 1  
*(Invited)*  
**NanoCMOS and Steep Switch Technologies for Ultimate Nanoelectronics Devices**  
Francis Balestra  
Grenoble-Alpes University, France

**10:45 S41-2**  
Oct. 28  
Room 1  
*(Invited)*  
**A Novel Interface-Trapped-Charge-Induced Threshold Voltage Model for Double-Fin Multi-Channel FETs (DFMcFETs)**  
Hong-Wun Gao, Yeong-Her Wang and Te-Kuang Chiang

**11:15 S41-3**  
Oct. 28  
Room 1  
*(Invited)*  
**Early Assessment of Tunnel-FET for Energy-Efficient Logic Circuits**  
Felice Crupi¹, Sebastiano Strangio¹,², Pierpaolo Palestri², Marco Lanuzzza¹, David Esseni²  
¹University of Calabria, Italy; ²University of Udine, Italy

**11:45 S41-4**  
Oct. 28  
Room 1  
**A Novel Deep-Impurity-Level Assisted Tunneling Technology for Enhanced Interband Tunneling Probability**  
RunDong Jia, QianQian Huang, ChunLei Wu, Yang Zhao, JiaXin Wang, Ru Huang*  
¹Peking University, China; ²Peking University Information Technology Institute, China

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### S42 Sensors I

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

**13:30 S42-1**  
Oct. 28  
Room 1  
*(Invited)*  
**The Possibility of Integrating Plasmonic Platforms with Si VLSI for Bio-sensing**  
Ya-Hong Xie  
University of California Los Angeles, USA

**14:00 S42-2**  
Oct. 28  
Room 1  
**A Low-Power Low-Noise 160×120 17μm Pixel Pitch TEC-Less Uncooled Infrared Image Sensor**  
Dahe Liu¹,², Zheng Fang¹, Wengao Lu¹,²*, Zhongjian Chen¹ and Yacong Zhang¹  
¹Peking University, China; ²Peking University Information Technology Institute, China

**14:15 S42-3**  
Oct. 28  
Room 1  
**A Phrase Modulation Linearity Test Method about Y Waveguide of Optical Fiber Gyro**  
Dong-Sheng Yang  
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 Fang¹, Yiping Zhu²*, Dajun Wu¹, Chi Zhang¹, Shaohui Xu¹, Dayuan Xiong¹, Pingxiang Yang¹, Lianwei Wang¹ and Paul K. Chu³
Room 1
¹East China Normal University, China; ²City University of Hong Kong, China

14:45 S42-5 Electrochemical dopamine biosensor using over-oxidized polypyrrole with assistance of graphene
Oct. 28
Jian Zhang¹, Jia Zhou¹*, Yuhua Yu¹, Jianfeng Chen¹ and Weijiang Xu²
Room 1
¹Fudan University, China; ²University 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 Xu¹, Yue Xu¹²*
Room 1
¹Nanjing University of Posts and Telecommunications, China; ²Jiangsu 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 Chen¹, Hai-Bao Chen¹, Weinan Ma¹, Xin Li² and Sheldon X.-D. Tan³
Room 1
¹Shanghai Jiao Tong University, China; ²Smart Devices Inc, China; ³Carnegie Mellon University, USA

16:15 S43-2 A hybrid graphene-metal oxide sensor for formaldehyde detection at room temperature
Oct. 28 (Invited)
Xiaohui Tang¹, Marc Debliquy², Driss Lahem³, Denis Flandre¹, Nicolas André¹, Thomas Walewys¹, Laurent Francis¹ and Jean-Pierre Raskin¹
Room 1
¹Université catholique de Louvain, Belgium; ²University of Mons, Belgium; ³Materia 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 Wang¹, Wei-Jiang Xu²*, Jia Zhou¹, Wen-Juan Liu¹, Zheng Xu¹, Jun-Yan Ren¹*
Room 1
¹Fudan University, China; ²Université de Valenciennes, France; ³Tongji University, China

17:00 S43-4 Improved photon detection efficiency of single photon avalanche diodes with buried layer structure
Oct. 28
Ping Xiang¹, Yue Xu¹²*
Room 1
¹Nanjing University of Posts and Telecommunications, China; ²Jiangsu 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
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<th>Authors</th>
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<tr>
<td>11:00</td>
<td>S44-3</td>
<td>Zynq-based Solid-State Drive Prototyping Platform for Emerging Non-Volatile Memories</td>
<td>Zhi-Qian Zhang, Jin-Mei Lai*</td>
<td>Fudan University, China</td>
</tr>
<tr>
<td>11:15</td>
<td>S44-4</td>
<td>Design and Implementation of Hardware-Based Low Latency TCP Offload Engine for 10 Gbps Ethernet</td>
<td>Longfei Wang¹, Xiaqing Zhao¹, Mengnan Wu¹, Pu Bai¹, Hongbin Sun¹*, Xiaowei Han², Bing Yu², Qiwei Ren² and Nanning Zheng¹</td>
<td>Xi’an Jiaotong University, China; Xi’an UniC Semiconductors Co., China</td>
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<tr>
<td>11:30</td>
<td>S44-5</td>
<td>Fast FPGA Compilation Based on Relocatable P&amp;R Constraints</td>
<td>Li Ding¹, Ping Kang¹, Wenbo Yin¹, Zhi-Hua Feng²*</td>
<td>Fudan University, China; Beijing Institute of Computer Technology and Application, China</td>
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<tr>
<td>11:45</td>
<td>S44-6</td>
<td>Design of FPGA’s High-speed and Low-power Programmable Interconnect</td>
<td>Chong Wang¹, Xue-Gong Zhou¹, Ling-Li Wang¹, Zhi-Hua Feng²*</td>
<td>Fudan University, China; Beijing Institute of Computer Technology and Application, China</td>
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<tr>
<td>12:00</td>
<td>S44-7</td>
<td>Performance Evaluation of Input Sharing LUT Architectures in FPGA</td>
<td>Weitong Chen, Lei Li, Peng Lu, Jinmei Lai</td>
<td>Fudan University, China</td>
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**S45 Low-Power Nyquist ADCs**

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<td>13:30</td>
<td>S45-1</td>
<td>A 300 mV, 6-bit Ultra-Low Power SAR ADC</td>
<td>Jie Lin and Jiann-Shiun Yuan</td>
<td>University of Central Florida, USA</td>
</tr>
<tr>
<td>13:45</td>
<td>S45-2</td>
<td>A 14-bit 8-column shared SAR ADC for 640×512 IRFPA</td>
<td>Zhaokai Liu¹,², Wengao Lu¹,², Yuze Niu¹,², Dahe Liu¹,², Yacong Zhang¹,², Zhongjian Chen¹,²</td>
<td>Peking University, China; Peking University information technology institute, China</td>
</tr>
<tr>
<td>14:00</td>
<td>S45-3</td>
<td>A 5KS/s 112nW SAR ADC for Portable Bio-potential Acquisition System</td>
<td>Kerou Wang, Wenhui Qin, Yanchao Wang, Ting Yi¹ and Zhiliang Hong</td>
<td>Fudan University, China</td>
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<td>14:15</td>
<td>S45-4</td>
<td>A 10-bit 100-MS/s Power-Efficient Asynchronous SAR ADC</td>
<td>Beichen Zhang, Bingbing Yao, Liyuan Liu¹ and Nanjian Wu</td>
<td>Institute of Semiconductors Chinese Academy of Sciences, China</td>
</tr>
<tr>
<td>14:30</td>
<td>S45-5</td>
<td>A 10-Bit 100-MS/s Hybrid ADC Based on Flash-SAR Architecture</td>
<td>Zhang Zhang¹,², Wen-cheng Yu, Guang-jun Xie</td>
<td>Hefei University of Technology, China</td>
</tr>
<tr>
<td>14:45</td>
<td>S45-6</td>
<td>A 12-Bit Cyclic ADC for Image Sensor</td>
<td>Can Peng¹, Shuang Cui¹, Chao Wang², Xiao-Tian Yang², Yu-Chun Chang¹*</td>
<td>Jilin University Chang Chun, China; Jilin Jianzhu University, China</td>
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<td>15:00</td>
<td>S45-7</td>
<td>A Correlation-Based Background Calibration Technology for the Pipeline A/D Converter</td>
<td>Hongmei Chen¹,², Honghui Deng¹, Yongsheng Yin¹</td>
<td>Hefei University of Technology, China; University of Science and Technology of China, China</td>
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<tr>
<td>15:15</td>
<td>S45-8</td>
<td>A 7.9 fJ/conversion-step 10-bit 125 MS/s SAR ADC with Simplified Power-efficient Digital Control Logic</td>
<td>Mingxiao He, Fan Yang, Xiucheng Hao, Le Ye¹, Huailin Liao</td>
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</table>
### 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. Sobelman¹* 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 Shi², 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 Liu¹*, 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

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### S48 System-Level Modeling & Simulation/Verification

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

**13:30 S48-1**

**The Systematic Design for High Speed Interpolated/Averaging ADC**

Oct. 28 (Invited)

He Tang¹*, 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 Wang¹,²,³, Yu-Hong Zhao¹, Bo Li²,³, Bin-Hong Li²,³, Jia-Jun Luo²,³

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 Wang²*, 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**
**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  
Room 3B  
Daeyeong Kim  
Korea Advanced Institute of Science and Technology (KAIST), Korea

**16:15**  
**S49-2** High Energy Efficient Wireless Tranceiver for IoT Connecting  
Oct. 28  
Room 3B  
Hao Min  
Fudan University, China

**16:45**  
**S49-3** Fog Computing Platform for Sensor-to-Cloud Interconnection and Internet-of-Things  
Oct. 28  
Room 3B  
Hanu Tenhunen  
KTH - Royal Institute of Technology, Sweden

**17:15**  
**S49-4** Narrowband Internet of Things (NB-IoT): Design Challenges and Considerations  
Oct. 28  
Room 3B  
Jiangfeng Wu  
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  
Room 3C  
T. K. Maiti¹, H. Zenitani, L. Chen, H. Miyamoto, M. Miura-Mattausch and H. J. Mattausch  
Hiroshima University, Japan

**10:45**  
**S50-2** Zero Temperature Coefficient Behavior for Advanced MOSFETs  
Oct. 28  
Room 3C  
Joao Martino¹*, Vinicius Mesquita¹, Christian Macambira¹, Vitor Itocazu¹, Luciano Almeida¹, Paula Agopian¹², Eddy Simoen³, Cor Claeyś¹³⁴  
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  
Room 3C  
Guofu Niu  
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  
Room 3C  
Eddy Simoen¹ and Cor Claeyś¹²  
¹Imec, Belgium; ²Kasteelpark Arenberg, Belgium

**12:00**  
**S50-5** Effect of Single Oxide Trap on Electrostatic Properties in Tunneling Field Effect Transistor  
Oct. 28  
Room 3C  
Si-Tong Bu, Ming-Yue He, Daming Huang, Ming-Fu Li  
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  
Room 3C  
Zhiping Yu, Zeyu Deng and Jinyu Zhang  
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-Armando1*, Chang Liu2, Yi Zhao3, Ray Duffy1  
Room 3C  
1University College Cork, Ireland; 2Nanjing University, China; 3Zhejiang 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, Xiaoqin 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 Wang1, Wei-Liang He1*, Run-Dong Wang1, Ming-Hui Zhang1  
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 Xu1*, Ting Yu2, Feng Wang1, Lingling Ma1, Jianyi Yang1, Xiaodong Pi1,2 and Deren Yang2  
Room 5  
1,2Zhejiang University, China

11:15 S53-3 Enhancement of Photocurrent in Suspended Monolayer Graphene  
Oct. 28  
Jianhong Song1,2, Xin Gong1,2, Pei Peng1, Zidong Wang1, Zhongzheng Tian1, Yuehui Jia1,2, Liming Ren1, Yunyi Fu1*  
Room 5  
1,2Peking University, China; 3Peking 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 Peng1, Zidong Wang1, Zhongzheng Tian1, Yuehui Jia1,2, Xin Gong1,2, Jianhong Song1,2, Liming Ren1, Yunyi Fu1*  
Room 5  
1,2Peking University, China; 3Peking University Shenzhen Graduate School, China

11:45 S53-5 Improved Contact Properties of Metal/Graphene Interface by Inserting MoOx 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 Lin1,2, Bei Yu2 and David Z. Pan1
**S54 Memory III**

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

**10:15 S54-1 Utilizing 3D Ics In Architectures For Neural Networks**
Oct. 28 (Invited) Qiaosha Zou*, Yuan Xie*
Room 7 1Zhejiang University Of Science And Technology, China; 2University Of California, USA

**10:45 S54-2 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 S54-3 A Vertical And Junctionless Channel With T-Shaped Gate 1T-DRAM Using New Operate Mechanism**
Room 7 1National Sun Yat Sen University, Taiwan, China; 2Indian Institute Of Technology Indore, India

**11:30 S54-4 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*
Room 7 1National Sun Yat-Sen University, Taiwan, China; 2Indian Institute Of Technology Indore, India

**11:45 S54-5 Vertical Channel Capacitor-Less One-Transistor Drams With A Pass-Way Trench For Improving Retention Time**
Room 7 1National Sun Yat-Sen University, Taiwan, China; 2Indian Institute Of Technology Indore, India

**12:00 S54-6 String Select Transistor Leakage Suppression By Threshold Voltage Modulation In 3D NAND Flash Memory**
### S57 Memory IV

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

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<td>13:30</td>
<td>S57-1</td>
<td>Plasma technology on gadolinium oxide-based resistive random access memory</td>
<td>Jer-Chyi Wang(^1), Yu-Ren Ye(^1), De-Yuan Jiao(^1), Ying-Hui Wu(^1) and Chih-Hsien Hsu(^1)</td>
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<td>Oct. 28</td>
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<td>1Chang Gung University, Taiwan, China; 2Chang Gung Memorial Hospital, Taiwan, China; 3Ming Chi University of Technology, Taiwan, China</td>
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<td>14:00</td>
<td>S57-2</td>
<td>Analysis of Nano-Filament Evolution in Ni-based RRAM Devices using In-situ TEM</td>
<td>Chaolun Wang, Xing Wu</td>
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<td>14:30</td>
<td>S57-3</td>
<td>Resistive Switching Dynamics and Beyond</td>
<td>Yuchao Yang</td>
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### S59 High-Performance Data Converters I

**Session Chair:** Fan Ye, Fudan University, China

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<td>10:15</td>
<td>S59-1</td>
<td>Design Considerations of SAR ADCs in CMOS Technology for High Speed Circuit Applications with a Time-interleaved Architecture</td>
<td>Long Zhao and Yuhua Cheng</td>
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<td>(Invited)</td>
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<td>10:45</td>
<td>S59-2</td>
<td>A Low Noise 12-bit D/A Converter Integrated with Chopper Output Buffer for MEMS Accelerometer</td>
<td>Xiang-Liang Jin(^1), Ling-Jie Peng(^1)</td>
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<td>Oct. 28</td>
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<td></td>
<td>1Xiangtan University, China; 2Hunan Engineering Laboratory for Microelectronics, China</td>
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<td>11:00</td>
<td>S59-3</td>
<td>Limit Cycle Suppression Technique Using Digital Dither in Delta Sigma DA Modulator</td>
<td>Jun-ya Kojima, Yukiko Arai, Haruo Kobayashi</td>
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<td>Oct. 28</td>
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<tr>
<td>11:15</td>
<td>S59-4</td>
<td>A 200 KHz bandwidth (\Sigma\Delta) DAC with a spur free modulator</td>
<td>Chen Yaya(^1), Zhang Shifeng(^2,3), Cao Tianlin(^1), Han Xiaoxia(^1), Ray C. C. Cheung(^2), Han Yan(^1)</td>
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<td>Oct. 28</td>
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<td>1Zhejiang University, China; 2City University of Hong Kong, China</td>
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<tr>
<td>11:30</td>
<td>S59-5</td>
<td>A 0.18 μm high resolution bandpass delta-sigma modulator for acceleration transducer applications</td>
<td>Cao Tianlin, Han Yan(^1), Zhang Shifeng, Han Xiaoxia, Chen Yaya</td>
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<td>Oct. 28</td>
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<td>Zhejiang University, China</td>
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<tr>
<td>11:45</td>
<td>S59-6</td>
<td>A Calibration Technology for 6 Bit 30 Gsps ADC</td>
<td>Wen-Shuai Bai(^1), Meng-Long Wu(^1), Jin Wu(^2), Dan-Yu Wu(^2), Lei Zhou(^2)</td>
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<td>Oct. 28</td>
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<td>1North China University of Technology, China; 2Institute of Microelectronics of Chinese Academy of Sciences, China</td>
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<tr>
<td>12:00</td>
<td>S59-7</td>
<td>Dynamic Mismatch Compensation (DMC) Algorithm for Amplitude and Timing Errors in Current-Steering DACs</td>
<td>Dan Fang, Ting Yi(^1), Zhiliang Hong</td>
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### S60 High-Performance Data Converters II

**Session Chair:** Yuhua Cheng, Peking University, China

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<td>13:30</td>
<td>S60-1</td>
<td>A 16GS/s 6-bit Current-Steering DAC with TI topology in 40nm CMOS</td>
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<tr>
<td>13:45</td>
<td>S60-2</td>
<td><strong>Digital Encoding Module Used in a 6-bit 1.33-GS/s Folding and Interpolating ADC</strong></td>
<td>Bao Li*, Long Zhao, Chenxi Deng and Yuhua Cheng</td>
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<td>14:00</td>
<td>S60-3</td>
<td><strong>Adirectly triggered asynchronous SAR Logic with variable delay unit</strong></td>
<td>Rong-Tao Liao, Rui Guan, Ting-Ting Mo*</td>
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<td>14:15</td>
<td>S60-4</td>
<td><strong>A Capacitor Self-Calibration Technique for High Resolution ADCs</strong></td>
<td>YongSheng Wang1,2, YaQin Hu1, Yang Liu1, XiaoXiao Zhou1, ShanShan Li1, Bei Cao2, XiaoWei Liu1</td>
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<td>14:45</td>
<td>S60-6</td>
<td><strong>Design of a High-Resolution Time-to-Digital Converter Chip</strong></td>
<td>Anping Jiang*, Yanbo Niu, Xiao Guo, Guicai Hu, Xiaoqing Wu</td>
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<td>15:00</td>
<td>S60-7</td>
<td><strong>A Background Calibration Technology for Capacitance Mismatch in Pipelined ADCs with 2.5-bit/stage MDAC</strong></td>
<td>Hai-bin Li, Rui Li, Bing-Yan Hu, Tao Jiang and Yu-Chun Chang*</td>
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<td>15:15</td>
<td>S60-8</td>
<td><strong>A Fast Convergence Speed and High Accuracy Calibration Method for Pipelined ADCs based on the Conjugate Gradient Algorithm</strong></td>
<td>Sujuan Liu*, Zhenzhen Zhao, Chuyu Xia</td>
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### S62 Analog Circuits III

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

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<td>10:15</td>
<td>S62-1</td>
<td><strong>Analog / Mixed-Signal Circuit Design Based On Mathematics</strong></td>
<td>Haruo Kobayashi, Haijun Lin†</td>
<td>VIP Room</td>
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<td>10:45</td>
<td>S62-2</td>
<td><strong>A Buck Converter With Float Gate Width And Float Gate Voltage Driver</strong></td>
<td>Ping Luo*, Wu-Jie Kou, Cai-Qiang Zhou, Liao Zhang, Shao-Wei Zhen</td>
<td>VIP Room</td>
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<td>11:00</td>
<td>S62-3</td>
<td><strong>An Analog Integrated MPPT Controller Designed For DMPPT Solar Array</strong></td>
<td>Ru-Cheng Jiang1, Yan Han1*, Lu Jie1†</td>
<td>VIP Room</td>
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<td>11:15</td>
<td>S62-4</td>
<td><strong>An On-Chip CMOS Relaxation Oscillator With 29.69ppm/°C Temperature Coefficient</strong></td>
<td>Yi Cao, Ruijie Yan, Hongguang Zhang, Zhiliang Hong†</td>
<td>VIP Room</td>
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<td>11:30</td>
<td>S62-5</td>
<td><strong>Low Noise Voltage Reference For MEMS Acceleration Sensor Readout Circuit</strong></td>
<td>Wen-Jie Zhang1,2, Meng-Liang Liu1,2, Xiang-Liang Jin1,2*</td>
<td>VIP Room</td>
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<td>11:45</td>
<td>S62-6</td>
<td><strong>A Low-Power PGA With DC-Offset Cancellation In 65 Nm CMOS Process</strong></td>
<td>Qianqian Li, Shunli Ma, Fan Ye, Junyan Ren†</td>
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</table>
12:00  S62-7  Design Of High-Gain, Low-Power Amplifier For MEMS Acceleration Sensor Readout Circuit
Oct. 28
VIP Room
Xiang-Liang Jin$^{1,2,*}$, Hang Zhang$^{1,2}$, Wen-Jie Zhang$^{1,2}$
$^1$Xiangtan University, China; $^2$Hunan Engineering Laboratory For Microelectronics, Optoelectronics And System On A Chip, China

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**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
(Virtual)
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$^3$, 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
Kazuto 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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