2017 IEEE 12th International Conference on ASIC

ASICON
2017

◆IEEE   CIE Φ

IET

ASICON 2017

Final PROGRAM

Oct. 25-28, 2017

Pullman Hotel, Guiyang, China

◆IEEE Beijing Section   复旦大学 FUDAN UNIVERSITY

◆IEEE   CAS   SSCS   IET Collective inspiration

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2017 IEEE 12th International Conference on ASIC

ASICON 2017

Oct. 25-28, 2017
Pullman Hotel, Guiyang, China

Sponsored by
  IEEE Beijing Section
   Fudan University
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Supportted by

  IEEE SSCS Shanghai Chapter
  IET Shanghai Network
  Chinese Institute of Electronics (CIE)

Organized by
  Fudan University

Contents

Welcome to ASICON 2017

On behalf of the Conference, it is my great pleasure and honor to express our warm welcome to all ASICON 2017 attendees. Thank you very much for your participation.

ASICON 2017 is the 12th event of this conference series that began in 1994. The Conferencewill be held from Oct. 25 to 28, 2017 at Pullman Hotel, Guiyang, China. Guiyang is a beautiful historical city. We sincerely hope that you will have a rewarding and good time in Guiyang.

While "ASIC" has had a narrow meaning, the Conference has adopted **A**dvanced **S**emiconductor **I**ntegrated **C**ircuits as the meaning of ASIC in ASICON. This normally recognizes the fact that ASICON covers all the technical fields of integrated circuits. The conference provides an international forum for VLSI circuit designers, ASIC users, System Integrators, IC manufacturers and CAD/CAE tool developers to present their new progresses, developments and research results in their respective fields. The Conference also affords a platform for academic and industry attendees to network and exchange information.

ASICON 2017 has invitedinternational experts to give tutorials on the first day of the conference. In addition, we have invited 7 world renowned academic and industry leaders to give keynote speeches on the plenary sessions from Oct. 26-28.

ASICON has a strong positive impact on industry and academia. We look forward to continuing this tradition with you this year.

General Co-Chairs of ASICON 2017

2017.10

Conference Committee

Gerneral Co-Chairs

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Wu, Nanjian	Institute of Semiconductor, CAS	China
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Yu, Xiaopeng	Zhejiang University	China
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Gong, Na	North Dakota State University	USA
Liu, Liang	Lund University	Sweden
Makoto Ikeda	University of Tokyo	Japan
Wang, Jinhui	Beijing University of Technology	China
Wu, An-Yeu	National Taiwan University	Taiwan
Yu, Zhiyi	SYSU-CMU Joint Institute of Engineering	China
Zhou, Dajiang	Waseda University	Japan
Zhang, Tong	Rensselaer Polytechnic Institute	USA
Hao San	Tokyo City University	Japan
Wang, Guoxing	Shanghai Jiao Tong University	China
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Shi, Youhua	Waseda University	Japan
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Lin, Yinyin	Fudan University	China
Gao, Jianjun	East China Normal University	China
Geng, Li	Xi'an jiaotong University	China

General Information

● Conference Language

The official language is English. No simultaneous translation is available.

● Conference Schedule

Date	Time	Event
Oct. 25	AM & PM	Tutorial Session & Registration
Oct. 26	AM	Opening & Keynote Session
		Keynote Session (K1-1,K1-2, K1-3)
	PM	Parallel Sessions
		Parallel Sessions
		Poster Session (1)
	Evening	Reception
Oct. 27	AM	Keynote Session (K2-1,K2-2)
		Parallel Sessions
	PM	Parallel Sessions
		Parallel Sessions
		Poster Session (2)
OCt. 28	AM	Keynote Session (K3-1,K3-2)
		Parallel Sessions
	PM	Parallel Sessions
		Parallel Sessions
	Evening	Banquet

● Conference Site

The conference will be held in **Hotel Pullman Guiyang**

Tel: (+86)851/8866668   Fax: (+86)851/8866669

Add: No.100 Jie Fang Road, Nanming District, Guiyang, China

Website: http://www.pullmanhotels.com/gb/hotel-8275-pullman-guiyang/index.shtml

● Conference Registration

Payment by Credit Card, Bank Transfer, or Check

1. Participant: **Accepted Paper ID Number(if available): _____**

☐ Mr. ☐Ms.   First Name: Last Name:

Affiliation (Univ./Company):

Address:

Phone: Mobile: Email:

2. Registration Fee

Classification	Before Sep.15, 2017	After Sep.15, 2017	Amount
IEEE or IET member★	☐ 3500 CNY	☐ 3800 CNY	
Non-member	☐ 3800 CNY	☐ 4100 CNY	
Student	☐ 2400 CNY	☐ 2700 CNY	
Extra banquet ticket	☐ 300 CNY		
Extra pages	☐ 400 CNY / page		
Tutorial	☐T-1&T-2&T-3&T-4 RMB 200		
☐Vegetarian	☐Need hardcopy Proceedings 500 CNY ☐Don't need hardcopy Proceedings		
Total Amount	CNY		

(★**IEEE or IETMember**)★ **Member Number: _____**
The registration fee covers:
● Admission to all the sessions;
● Three days' meals (Oct.25-28,2017) including the reception (Evening of Oct.26) and the banquet (Evening of Oct.28); Coffee Breaks;
● A conference kit (with a conference bag, a program brochure, and a USB with E-Proceedings).
  (The tutorial fee covers the lunch on Oct.25 and tutorial materials. Please visit the conference website for details of the tutorials.)

3. Payment Methods

1) ☐ **Credit Card** Date of Payment _____	**Please Click Here for Credit Card Payment**	_____ **CNY**
2) ☐ **Bank Transfer** Remit date_____ **Note: If it is not possible for you to transfer CNY, please transfer USD based on the USD/CNY exchange rate of the day of transfer.**	**Sender's Name**_____ **Account Name: GUILIN COMFORT INTERNATIONAL TRAVEL SERVICE CO.,LTD.** **Account Number: 6000420109025988** **Bank Name**: **GUILIN BANK CO., LTD** **Bank address: NO.76 ZHONGSHAN SOUTH ROAD, GUILIN,CHINA** **Swift Code: GLBKCNBG** Attn:**ASICON 2017**	_____ **CNY**

3) ☐ **Bank Draft/Check** Remit date_____	I have enclosed herewith a bank draft/check made payable to **Fudan University** and sent to **Jieting Sheng**	_____ CNY

Please send the Registration Form and Payment Receipt to Jiting Sheng by Email or Fax

Email: jtsheng @fudan.edu.cn

Fax: +86-21-65648267

Mailing address: School of Microelectronics, Fudan University,

               220 Handan Road, Shanghai, 200433, China

● Registration Desk

The conference registration desk will be located at Guiyang Pullman Hotel. The conference registration will be open on Oct. 25 (8: 00~20: 00), Oct. 26~Oct. 28 (8: 00~17: 45). And the registration desk will keep available at the same site throughout the whole conference.

● Transportation

How to get to Guiyang:
- By Air:

  (1) From Hong Kong to Guiyang (2 hours): There are about 1 flights daily, supplied by Hong Kong Air Lines.

  (2) From Beijing to Guiyang (3 hours): There are dozens of flights daily, supplied by China Airline, China Eastern Airline, China Southern Airline and so on .

  (3)From Shanghai to Guiyang (3 hours): There are more than 10 flights daily, supplied by China Eastern Airline, China Southern Airline, Shanghai Airline and so on.

  (4)From Guangzhou to Guiyang(1.5 hours): There are more than 10 flights daily, supplied by China Eastern Airline, China Southern Airline.

- By Train:

  (1)From Guangzhou South Railway Station to Guiyang North Railway Station (5-6 hours by bullet train): There are more than 20 bullet trains daily and so on.

  (2)From Kunming South Railway Station to Guiyang North Railway Station (2-2.5 hours by bullet train): There are dozens of trains daily and so on.

How to get to the Pullman Guiyang:
- From Airport:

  It takes about 15 minutes from Guiyang Longdongbao International Airport to Hotel by car. Taxi is recommended.

- From Railway Station:

  (1) Guiyang Railway Station: Taxi takes about 5 minutes to hotel;

  (2) Guiyang North Railway Station: Taxi takes about 40 minutes to hotel

● Weather

The average temperature during conference time in Guiyang is around 11℃~19℃.

● Visa

All the foreign travelers to China must have a valid visa. Visas may be obtained from the Chinese Embassy or Consulate in most major cities around the world. A conference attendee will be mailed an official invitation letter for visa application after he or she fills and returns the Visa Application Form (http: //www.asicon.org) to asicon_org@fudan.edu.cn timely.

● Awards

Excellent Student Paper Awards will be announced at the banquet on Oct. 28. To be qualified for the Excellent Student Paper Award, the paper must be presented by the student himself or herself (1st author). The Technical Program Committee and Organizing Committee will choose through public appraisal some excellent student papers from the candidates.

Paper Presentation Information

The ASICON 2017 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 sessions.

● Oral Presentation

Presentation time:

Invited paper (20~30 minutes):   15~25 min talk + 5 min Q/A

Regular paper (12~15 minutes):   10~12 min talk + 2~3 min Q/A

Computer and digital projector will be provided in each meeting room.

● Poster Presentation

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

Poster Session 1:

Setup time: 8: 30-17: 30 on Oct. 26

Presentation time: 17: 45-18: 45 on Oct. 26 (on the spot)

Display time: 8: 30-21: 00 on Oct. 26

Poster Session 2:

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

Presentation time: 17: 45-18: 45 on Oct. 27 (on the spot)

Display time: 8: 30-21: 00 on Oct. 27

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.

● Coffee Break

Complementary coffee/tea will be served in each morning/afternoon session. The break will take place in general at 10: 00-10: 15 during morning sessions and 15: 30-15: 45 during afternoon sessions. Due to time schedule of different sessions, the actual break time may have slight variation. Coffee/tea will be served in about half-hour duration.

● Meeting Room Location

Meeting Room	Location
Grand Ball Room	3rd Floor, Pullman Hotel
Sapphire Room	3rd Floor, Pullman Hotel
Jade Room 1	3rd Floor, Pullman Hotel
Jade Room 2	3rd Floor, Pullman Hotel
Jade Room 3	3rd Floor, Pullman Hotel

ASICON 2017 Technical Program Overview

Date	Time	Sapphire Room	Jade Room 1	Jade Room 2	Jade Room 3	
Oct.25	AM 9:00	Tutorial Session T-1 & T-2				
	PM 2:00	Tutorial Session T-3 & T-4				
Oct.26	8:30-10:30	**Opening & Keynote Speech K1-1 & K1-2 (Grand Ball Room）**				
	11:00-11:45	**Keynote Speech K1-3 (Ballroom）**				
	13:30-15:30	**Session A1** Memory (1)	**Session B1** High Resolution Data Converter	**Session C1** Low Power Digital Techniques (1)	**Session D1** CAD (1)	
	15:45-17:45	**Session A2:** RF Design Techniques (1)	**Session B2** Analog Techniques (1)	**Session C2** Energy-Efficient Information Processing	**Session D2** New Device & Advanced Techniques (1)	
	17:45-18:45	**Poster Session 1**				
	19:00-21:00	**Reception**				
Oct.27..	8:30-10:00	**Keynote Speech K2-1 & K2-2 (Grand Ball Room)**				
	10:15-12:15	**Session A3** Memory (2)	**Session B3** Efficient Circuits for Biomedical Systems	**Session C3** Low Power Digital Techniques (2)	**Session D3** CAD (2)	
	13:30-15:30	**Session A4** Special Session: Biomedical Circuits and System	**Session B4** Analog Techniques (2)	**Session C4** Low Power Digital Techniques (3)	**Session D4** New Device & Advanced Techniques (2)	
	15:45-17:45	**Session A5** Special Session: Sensory Circuits and Systems	**Session B5** High Speed Data Converter	**Session C5** VLSI for Emerging Applications	**Session D5** Reliability in New Devices	
	17:45-18:45	**Poster Session 2**				
Oct.28	8:30-10:00	**Keynote Speech K3-1 & K3-2 (Grand Ball Room)**				
	10:15-12:15	**Session A6** Special Session: Low Power Digital Techniques	**Session B6** Power Conversion and Management	**Session C6** Low Power SoCs	**Session D6** CAD (3)	
	13:30-15:30	**Session A7** Sensors and Display	**Session B7** RF Design Techniques (2)	**Session C7** Special Session Neural Network: Efficient Implementations and Applications	**Session D7** New Device & Advanced Techniques (3)	
	15:45-17:45	**Session A8** Low Power VLSI for Communication	**Session B8** RF Design Techniques (3)	**Session C8** Circuits and Systems for IoT	**Session D8** New Device & Advanced Techniques (4)	
	19:00-21:00	**Closing & Banquet**				

Tutorial Session
Wednesday, October 25, 9:00 – 17:15
3rd Floor Hotel Pullman, Guiyang

Tutorial Session T-1 & T-2

9:00-10:30 **T-1** **Electrostatic discharge protection of consumer electronics: challenges and solutions**
Oct. 25 **(Tutorial)** Prof. J.J.Liou
Sapphire Room University of Central Florida, USA

10:45-12:15 **T-2** **Circuit Simulation Technique: From Device Data to Circuit Performance**
Oct. 25 **(Tutorial)** Prof. Mansun Chan
Sapphire Room Hong Kong University of Science & Technology, HK

Tutorial Session T-3 & T-4

14:00-15:30 **T-3** **Protecting cryptographic integrated circuits with side-channel information**
Oct. 25 **(Tutorial)** Prof. Makoto Nagata
Sapphire Room Kobe University, Japan

15:45-17:15 **T-4** **Smart Image Sensors and applications to 3D range-finding**
Oct. 25 **(Tutorial)** Prof. Makoto Ikeda
Sapphire Room University of Tokyo, Japan

Technical Session
Thursday, Oct. 26

Opening & Keynote Speech K1-1 & K1-2

8:30-9:00

Oct. 26 **Opening Ceremony**

GrandBall Room

9:00-9:45 **K1-1** **Data Converters for mobile and autonomous applications**

Oct. 26 **(Keynote)** Prof. Franco Maloberti, President of IEEE CASS

GrandBall Room University of Pavia, Italy

9:45-10:30 **K1-2** **Evolution and Revolution in Devices and Systems**

Oct. 26 **(Keynote)** Dr. MeiKeiIeong, CTO of ASTRI

GrandBall Room ASTRI, HK

Coffee Break

Keynote Speech K1-3

11:00-11:45 **K1-3** **Systems to Silicon: Faster and Smarter**

Oct. 26 **(Keynote)** Dr. Miao Liu, President of digital IC automatic design group

GrandBall Room Cadence,USA

Coffee Break

SA1 Memory (1)

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

13:30 **SA1-1** **High Speed Negative Capacitance Ferroelectric Memory**

Oct. 26 **(Invited)** Chun-Yen Chang, Chia-Chi Fan, Chien Liu, Yu-Chien Chiu, Chun-Hu Cheng

Sapphire Room National Chiao Tung University, Taiwan

14:00 **SA1-2** **Development Trends of Embedded NVM Technology**

Oct. 26 **(Invited)** TianShen Tang, Hao Ni, Zijian Zhao, Yao Zhou

Sapphire Room Semiconductor Manufacturing International Corporation, China

14:30 **SA1-3** **1T2R: A Novel Memory Cell Design to Resolve Single-Event Upset in RRAM Arrays**

Oct. 26 **(Invited)** Amr M.S.Tosson, Shimeng Yu, Mohab H. Anis, Lan Wei

Sapphire Room University of Waterloo, Canada

15:00 **SA1-4** **ReRAM Write Circuit with Dynamic Uniform and Small Overshoot Compliance Current under PVT Variations**

Oct. 26 Yun Yin, Junlin Gou, Junyi Wang, Yarong Fu, Xiaoyong Xue, Yinyin Lin

Sapphire Room Fudan University, China

15:15 **SA1-5** **An efficient parity rearrangement coding scheme for RRAM thermal crosstalk effects**

Oct. 26 Yun Li, Haihua Shen, Ce Li, Feng Zhang

Sapphire Room Institute of Microelectronics of Chinese Academy of Sciences, China

SB1 High Resolution Data Converter

	Session Chair:	Weitao Li, Research Institute of Tsinghua University in Shenzhen, China
13:30	**SB1-1**	**SAR+DS ADC with Open-Loop Integrator using Dynamic Amplifier**
Oct. 26	**(Invited)**	Akira Matsuzawa, Masaya Miyahara
Jade Room 1		Tokyo Institute of Technology, Japan
14:00	**SB1-2**	**A 0.87 mW 7MHz-BW 76dB-SNDR Passive Noise-Shaping Modulator Based On A SAR ADC**
Oct. 26		Zhiyuan Dai, Hang Hu, Manxin Li, Fan Ye, Junyan Ren
Jade Room 1		Fudan University, China
14:15	**SB1-3**	**A 13-bit Non-binary Weighted SAR ADC with Bridge Structure Using Digital Calibration for Capacitor Weight Error**
Oct. 26		Xiaoqing Chen, Fan Ye, Junyan Ren
Jade Room 1		Fudan University, China
14:30	**SB1-4**	**Auxiliary Testability Design Schemes for CMOS DACs with Ultrahigh Sampling Rates**
Oct. 26		Bao Li, Long Zhao, Yuhua Cheng
Jade Room 1		Peking University, China
14:45	**SB1-5**	**A 101 dB SNDR 3.7mW Switched-Capacitor ΣΔ ADC using tri-level quantization**
Oct. 26		Yumei Ma, Mengfei Ji, Yuping Guo, Yuchun Chang
Jade Room 1		Jilin University, China
15:00	**SB1-6**	**A highly linear voltage-to-time converter with variable conversion gain for time-based ADCs**
Oct. 26		Yan Ye, Weili Han, Haiyue Yan, Fujiang Lin
Jade Room 1		Uniuniversity of science and technology of China, China
15:15	**SB1-7**	**An On-Chip Signal Conditioning Delta-Sigma ADC for Micro-Mechanical Gyroscope Applications**
Oct. 26		Yongsheng Wang, Yang Liu, Xunzhi Zhou, Anyi Wang, Bei Cao, Fengchang Lai
Jade Room 1		Harbin Institute of Technology, China

SC1 Low-Power Digital Techniques (1)

	Session Chair:	Jun Han, Fudan University, China
13:30	**SC1-1**	**Soft Error Tolerant Latch Designs with Low Power Consumption**
Oct. 26	**(Invited)**	Saki Tajima, Nozomu Togawa, Masao Yanagisawa, Youhua Shi
Jade Room 2		Waseda University, Japan
14:00	**SC1-2**	**How Close to the CMOS Voltage Scaling Limit for FinFET Technology? -- Near-Threshold Computing and Stochastic Computing**
Oct. 26	**(Invited)**	Runsheng Wang, Xiaobo Jiang, Shaofeng Guo, Ru Huang
Jade Room 2		Peking University, China
14:30	**SC1-3**	**A Highly Reliable Lightweight PUF Circuit with Temperature and Voltage Compensated for Secure Chip Identification**
Oct. 26		Li Gang, Wang Pengjun, Zhang Yuejun
Jade Room 2		Ningbo University, China
14:45	**SC1-4**	**Floorplan-Driven High-Level Synthesis using Volatile/Non-volatile Registers for Hybrid Energy-Harvesting Systems**
Oct. 26		Daiki Asai, Masao Yanagisawa, Nozomu Togawa
Jade Room 2		Waseda University, Japan
15:00	**SC1-5**	**An All-N-Type Dynamic Adder for Ultra-Low-Leakage IoT Devices**
Oct. 26		Ya-Bei Fang, Pei-Yuan Chou, Bo-Hao Chen, Tay-Jyi Lin, Jinn-Shyan Wang
Jade Room 2		National Chung-Cheng University, Taiwan
15:15	**SC1-6**	**A New Error Masking Flip-flop With One Cycle Correction Penalty**

Oct. 26		Zhenqiang Yong, Xiaoyan Xiang, Chen Chen, Jianyi Meng
Jade Room 2		Fudan University, China

SD1 CAD (1)

Session Chair:		Mansun Chan, HKUST, HK
13:30	**SD1-1**	**Fast Two-Dimensional Finite Element Analysis for Power Network DC Integrity Checks of PCBs**
Oct. 26	**(Invited)**	Wei He, Hengyang Zhao, Zhongdong Qi, Hai-Bao Chen, Sheldon X.D. Tan
Jade Room 3		Shanghai Jiao Tong University, China
14:00	**SD1-2**	**Overview of High-Efficiency Ant Colony Optimization (ACO)-based Adaptive Routings for Traffic Balancing in Network-on-Chip Systems**
Oct. 26	**(Invited)**	En-Jui Chang, An-Yeu (Andy) Wu
Jade Room 3		National Taiwan University, Taiwan
14:30	**SD1-3**	**Cut Redistribution and DSA Templates Assignment for Unidirectional Design**
Oct. 26		Ye Huang, Xingquan Li, Wenxing Zhu, Jianli Chen
Jade Room 3		Fuzhou University, China
14:45	**SD1-4**	**A Novel Layout Automation Flow to Facilitate Test Chip Design for Standard Cell Characterization**
Oct. 26		Ludan Yang, Weiwei Pan, Zheng Shi, Yongjun Zheng
Jade Room 3		Zhejiang University, China
15:00	**SD1-5**	**Dynamic Temperature-Aware Reliability Modeling for Multi-Branch Interconnect Trees**
Oct. 26		Jiangtao Peng, Hai-Bao Chen, Hengyang Zhaoy, Zeyu Suny, Sheldon X.-D. Tany
Jade Room 3		Shanghai Jiao Tong University, China
15:15	**SD1-6**	**ILP-based Fault-Tolerant Topology Synthesis for Application-Specific Network-on-Chip**
Oct. 26		Zhigang Li, Jinglei Huang, Qi Xu, Song Chen
Jade Room 3		University of Science and Technology of China, China

Coffee Break

SA2 RF Design Techniques (1)

Session Chair:		Francois RIVET, University of Bordeaux, France
15:45	**SA2-1**	**Wideband Power Amplifier Predistortion : Trends, Challenges and Solutions**
Oct. 26	**(Invited)**	Patricia Desgresys, Venkata Narasimha Manyam, Kelly Tchambake, Dang-Kien Germain Pham, Chadi Jabbour
Sapphire Room		LTCI, Telecom ParisTech, Universite Paris-Saclay, France
16:15	**SA2-2**	**An Wide Locking Range Injection-Locked Frequency Divider by Dual Resonance Tank**
Oct. 26		Wen-Cheng Lai, Sheng-Lyang Jang, and Shih-Jie Jian
Sapphire Room		National Taiwan University of Science and Technology, Taiwan
16:30	**SA2-3**	**Design of 258GHz Second Order Harmonic Injection Locked VCO**
Oct. 26		Yong Xu, Fei Zhao, Yuanliang Wu
Sapphire Room		University of Army Engineering, China
16:45	**SA2-4**	**A LTE Digital Mixer with 25% Duty Quadrature 4-phase clocks**
Oct. 26		Haijun Shao, Dan Fang, Pan Xue, Hongguang Zhang, Yilei Shen, Yumei Huang, Gan Guo, Zhiliang Hong
Sapphire Room		Fudan University, China
17:00	**SA2-5**	**A CMOS Transceiver RFIC for China Geo-Radio Standard**
Oct. 26		Zhao Wang, Dihu Chen, Jianping Guo
Sapphire Room		Sun Yat-sen University, China

SB2 Analog Techniques (1)

Session Chair:		Yuhua Cheng, Peking University, China
15:45	**SB2-1**	**Design Trends in Smart Gate Driver ICs for Power MOSFETs and IGBTs**
Oct. 26	**(Invited)**	J. Chen, W. T. Ng
Jade Room 1		University of Toronto, Canada
16:15	**SB2-2**	**Characterization of Impacts of Parasitics on the Performance of High-Speed Analog Circuits**
Oct. 26	**(Invited)**	Long Zhao, Josh Yang, Tianshen Tang, Yuhua Cheng
Jade Room 1		Peking University, China
16:45	**SB2-3**	**A 0.18μm High-voltage Area Efficient Integrated Gate Driver for Piston Engine Fuel Injection Control SoC**
Oct. 26		Qinmiao Kang, Ming Zhou
Jade Room 1		Tsinghua University, China
17:00	**SB2-4**	**An Output-capacitor-less Low-dropout Regulator with Transient-improved Technique**
Oct. 26		Xin Liu, Yu Liu, Yanbin Xiao, Xiaohua Fan, Haiying Zhang
Jade Room 1		Institute of Microelectronics of Chinese Academy of Sciences, China
17:15	**SB2-5**	**A High-Efficiency Class E Power Amplifier with Integrated Finite DC Feed Inductance**
Oct. 26		Haobo Ruan, Tingyuan Yan, Yumei Huang
Jade Room 1		Fudan University, China
17:30	**SB2-6**	**A Low-Offset Dynamic Comparator with Input Offset-Cancellation**
Oct. 26		Ruihan Pei, Jia Liu, Xian Tang, Fule Li, Zhihua Wang
Jade Room 1		Tsinghua University, China

SC2 Energy-Efficient Information Processing

Session Chair:		David Pan, University of Texas at Austin, USA
15:45	**SC2-1**	**Cooptimization of Emerging Devices and Architectures for Energy-Efficient Computing**
Oct. 26	**(Invited)**	An Chen
Jade Room 2		SRC / IBM, USA
16:15	**SC2-2**	**Challenges of Emerging Memory and Memristor Based Circuits: Nonvolatile Logics, IoT Security, Deep Learning and Neuromorphic Computing**
Oct. 26	**(Invited)**	Chunmeng Dou, Wei-Hao Chen, Yi-Ju Chen, Huan-Ting Lin, Wei-Yu Lin, Mon-Shu Ho, Meng-Fan Chang
Jade Room 2		National Tsinghua University, Taiwan
16:45	**SC2-3**	**Memristors for Emerging Memory and Computing Applications**
Oct. 26	**(Invited)**	Qingxi Duan, Teng Zhang, Minghui Yin, Caidie Cheng, Liying Xu, Yuchao Yang, Ru Huang
Jade Room 2		Peking University, China
17:15	**SC2-4**	**A Low Bit-width Parameters Representation Method for Hardware-oriented Convolution Neural Networks**
Oct. 26		Qiang Chen, Chen Xin, Chenglong Zou, Xinan Wang, Bo Wang
Jade Room 2		Peking University, China
17:30	**SC2-5**	**High-Speed FPGA Implementation of Orthogonal Matching Pursuit for Analog to Information Converter**
Oct. 26		SuJuan Liu, Ning Lv, Zisheng Wang
Jade Room 2		Beijing University of Technology, China

SD2 New Devices and Advanced Tehnologies (1)

Session Chair:		Rui Zhang, Zhejiang University, China
15:45	**SD2-1**	**Looking back and forward: the execution dilemma and the importance of innovation in the semiconductor industry**
Oct. 26	**(Invited)**	Domenico Rossi
Jade Room 3		ST Microelectronics, Italy
16:15	**SD2-2**	**Research Advances and Applications of 3D Integration**
Oct. 26	**(Invited)**	Kuan-Neng Chen
Jade Room 3		NCTU, Taiwan
16:45	**SD2-3**	**Nonvolatile Memory with 2D Materials for Floating Storage**
Oct. 26	**(Invited)**	ChaoSung Lai
Jade Room 3		Chang Guang University, Taiwan
17:15	**SD2-4**	**Development and Characterization of TaN Thin Film Resistor with CMOS Compatible Fabrication Process**
Oct. 26		Xiaoxu Kang, Limin Zhu, Xingwang Zhu, Qingyun Zuo, Xiaolan Zhong, Shoumian Chen, Yuhang Zhao, Shanshan Liu, Hanwei Lu, Jianmin Wang, Wei Wang, Bo Zhang
Jade Room 3		Shanghai ICR&D Center, China
17:30	**SD2-5**	**Vertical Power Diodes based on Bulk GaN Substrates**
Oct. 26		Liang Zheng, Lin-Jie Yu, Lin Chen, Qing-Qing Sun, Wei Huang, Hao Zhu, David Wei Zhang
Jade Room 3		Fudan University, China
17:45	**SD2-6**	**Advanced Interconnection Technology, High K/Metal gate technology and other VLSL New Processing, New Technologies**
Oct. 26	**(Invited)**	Tao Chu
Jade Room 3		Zhejiang University, China

Oct. 26 17:45-18:45　　　Poster Session I

	P1-01	**High Speed Vedic Multiplier Used Vedic Mathematics**
Oct. 26		Dravik Kishor, Bhai Kahar
		Parul University, India
	P1-02	**A Harmonic-Free Cell-Based All-Digital Delay-Locked Loop for Die-to-Die Clock Synchronization of 3-D IC**
Oct. 26		Tailong Xu, Feng Xue, Zhikuang Cai, Xinning Liu,Shuo Meng
		Hefei University, China
	P1-03	**76μW, 58-dB SNDR Analog Front-End Chip For Implantable Intraocular Pressure Detection**
Oct. 26		Chengying Chen, Liming Chen, Xinghua Wang, Feng Zhang
		Xiamen University of Technology, China
	P1-04	**A VCO with Dynamic Body Injection and Class-C Technique**
Oct. 26		Wen-Cheng Lai, Sheng-Lyang Jang, Bi-Shen Shih
		National Taiwan University of Science and Technology, Taiwan
	P1-05	**Design of a voltage-tunable pre-emphasis circuit utilizing a pseudo-differential cascode architecture**
Oct. 26		Wenhui Li, Yawei Zhang, Weiwei Chen

Ningbo University, China

Oct. 26   Jun Qiao, Xiao Wang, Yaohong Zhao

Chinese Academy of Sciences, China

P1-20   **Residual stress study of thin films deposited by atomic layer deposition**

Oct. 26   Zhen Zhu, Emma Salmi, Sauli Virtanen

Beneq Oy, Finland

P1-21   **A Fully Pipelined Hardware Architecture for Convolutional Neural Network with Low Memory Usage and DRAM Bandwidth**

Oct. 26   Zhiwei Li, Yan Li, Song Chen, Feng Wu

University of Science and Technology of China, China

P1-22   **A Radiation Hardened Low-Noise Voltage-Controlled-Oscillator using Negative Feedback based Multipath- Current-Releasing Technology**

Oct. 26   Hengzhou Yuan, Jianjun Chen, Bin Liang, Yang Guo

National University of Defense Technology, China

P1-23   **A Stacked-packaged 16-channel ADC for Ultrasound Application**

Oct. 26   Yimin Wu, Junyan Ren, Fan Ye, Yongzhen Chen

Fudan University, China

P1-24   **Analytical Models for Channel Potential and Drain Current in AlGaN/GaN HEMT Devices**

Oct. 26   Haisheng Qian, GUANGXI HU, Laigui Hu, Xing Zhou, Ran Liu, and Lirong Zheng

Fudan University, China

P1-25   **An efficient HMAC processor based on the SHA-3 HASH function**

Oct. 26   Junhui Li, Liji Wu, Xiangmin Zhang

Tsinghua University, China

P1-26   **An improved Equivalent Circuit Model for Antenna: Modeling and Parameter Extraction**

Oct. 26   Hansheng Wang, Minghui Zhang, Weiliang He, Lu Tang, Bin Jiang

Southeast University, China

P1-27   **Parallel Sparse LU Decomposition Using FPGA with an Efficient Cache Architecture**

Oct. 26   Xiang Ge, Hengliang Zhu, Fan Yang, Lingli Wang, Xuan Zeng

Fudan University, China

P1-28   **Study of 64-bit Booth Asynchronous Multiplier based on FPGA**

Oct. 26   Xiaoqing Liu, Anping He, Caihong Li, Guangbo Feng, Zhang Jilin

Lanzhou University, China

P1-29   **A 20MHz CTIA ROIC for InGaAs Focal Plane Array**

Oct. 26   Liang Li, Ruizhi Sun, Ruoxi Wang, Fanjun Zang, Tao Jiang, Yang Li, Xinyang Wang, Yuchun Chang

Jilin University, China

P1-30   **Memristor-Based IMPLY Logic Design for Full Adders**

Oct. 26   Mengting Li, Wenhao Sun, Song Chen, Feng Wu

University of Science and Technology of China, China

P1-31   **A Synchronous Charge Extraction piezoelectric energy harvesting Circuit Based on precision active control peak detection with supplement energy**

Oct. 26   Xiudeng Wang, Yinshui Xia, Xiaojing Zha, Yonggeng Tu, Ge Shi, Yidie Ye

Ningbo University, China

P1-32   **Implementation and optimization of A5-1 algorithm on Coarse-Grained Reconfigurable Cryptographic Logic Array**

Oct. 26   Liu Min, Li Wei, Yan YingJian

Zhengzhou Institute of Information Science and Technology, China

P1-33   **Improving DFA on AES using all-fault ciphertexts**

		Interpolation Clock and Data Recovery Circuit
Oct. 26		Jiawei Tan, Yang Guo, Jianjun Chen, Hengzhou Yuan, Xi Chen
		National University of Defense Technology, China

P1-50 **Graphite Planar Resistive Switching Memory and its application in pattern recognition**

Oct. 26

Lin-Jie Yu, Tian-Yu Wang, Lin Chen,Hao Zhu, Qing-Qing Sun,Shi-Jin Ding, Peng Zhou, David Wei Zhang

Fudan University, China

P1-51 **A method to speed up VLSI hierarchical physical design in floorplanning**

Oct. 26

Yanling Zhou, Yunyao Yan, Wei Yan

Peking University, China

P1-52 **Power Optimization Based On Dual-Logic Using And-Xor-Inverter Graph**

Oct. 26

Xuejiao Ma, Yinshui Xia

Ningbo University, China

P1-53 **PSR-Enhanced Low-Dropout Regulator Using Feedforward Supply Noise Rejection Technique**

Oct. 26

Xin Ming, Xuan Zhang, Di Gao, Jia-hao Zhang, Bo Zhang

University of Electronic Science and Technology of China, China

P1-54 **A Fast and Accurate Fault Injection Platform for SRAM-Based FPGAs**

Oct. 26

Rongsheng Zhang, Liyi Xiao, Jie Li

Harbin Institute of Technology, China

P1-55 **A Method to Estimate Cross-section of Circuits at RTL Levels**

Oct. 26

Liyi Xiao, Anlong Li, Xuebing Cao, Hongchen Li,Rongsheng Zhang, Jie Li, Tianqi Wang

Harbin Institute of Technology, China

P1-56 **A Low Gain Error Two-Stage dB-Linear Variable Gain Amplifier in 0.35μm CMOS Process**

Oct. 26

Wang Yongsheng, Li Xinzhi, Zhang Zhixin, Lai Fengchang

Harbin Institute of Technology, China

P1-57 **Low Frequency Noise Characteristics in p-Type MOSFET with Multilayer WSe2 Channel and Al2O3 Back Gate Dielectric**

Oct. 26

Hui Shen, Huiwen Yuan, Sitong Bu, Mingyue He, Daming Huang

Fudan University, China

P1-58 **Design of Ternary Pulsed Reversible Counter based on CNFET**

Oct. 26

Kang Yaopeng, Wang Pengjun, Zhang Yuejun, Li Gang

Ningbo University, China

P1-59 **Delay and Area Optimization for FPRM Circuits Based on MSPSO Algorithm**

Oct. 26

Mingbo Wang, Pengjun Wang, Qiang Fu, Huihong Zhang

Ningbo University, China

P1-60 **The Write Deduplication Mechanism Based on A Novel Low-Power Data Latched Sense Amplifier for A Magnetic Tunnel Junction Based Non-Volatile Memory**

Oct. 26

Baofa Huang, Ningyuan Yin, Zhiyi Yu

Sun Yat-sen University, China

P1-61 **Implementation of an Energy-efficient Digital Baseband Controller Compatible with EPC Class-1 Gen-2 Standard**

Oct. 26

Dongsheng Liu, Xiangcheng Sun, Jiao Wang, Fan Kang

Huazhong University of Science & Technology, China

P1-62 **LMS-FIR Based Digital Background Calibration for the Four-channel Time-Interleaved ADC**

Oct. 26

Yongsheng Wang, Shanshan Li, Ruoyang Wang, Xiaowei Liu

Harbin Institute of Technology, China

P1-63   **Optimization of the Amplifier's Input-Referred Noise for High Resolution Comparators**

Oct. 26   Qichao He, Xiong Zhou, Qiang Li

University of Electronic Science and Technology of China, China

P1-64   **A Self-Powered Supply Circuit for Switching Mode Power Supply**

Oct. 26   Yue Shi, Hongming Yu, Zekun Zhou

Chengdu University of Information Technology, China

P1-65   **Remote Embedded Simulation System for SW/HW Co-design Based On Dynamic Partial Reconfiguration**

Oct. 26   Jiaqi Gu, Ruoyao Wang, Jian Wang, Jinmei Lai, Qinghua Duan

Fudan University, China

P1-66   **A 0.07-ppm/Step Differential Digitally Controlled Crystal Oscillator With Guaranteed Monotonicity**

Oct. 26   Xiaodong Liu, Chenyang Kong, Yifan Gao, Zhangwen Tang

Fudan University, China

P1-67   **The configurable current flattening circuit for DPA countermeasures**

Oct. 26   Yong Gu, Xu-guang Guan, Tong Zhou

Beijing Academy of Information Science & Technology

Oct. 26 19:00-21:00   Reception

Technical Session
Friday, Oct. 27

Keynote Speech K2-1 & K2-2

8:30-9:15	K2-1	**Nanocarbon Interconnects - from 1D to 3D**
Oct. 27	**(Keynote)**	Prof. Cary Yang, Director, TENT Laboratory
GrandBall Room		Santa Clara University, USA
9:15-10:00	K2-2	**3D Heterogeneous Integration Enabling Next-Generation ICs**
Oct. 27	**(Keynote)**	Prof. Albert Wang
GrandBall Room		University of California, Riverside, USA

SA3 Memory (2)

	Session Chair:	Xiaoyong Xue, Fudan University, China
10:15	SA3-1	**Parallel Nonvolatile Programming of Power-up States of SRAM Cells**
Oct. 27	**(Invited)**	Toshiro Hiramoto, Tomoko Mizutani, Kiyoshi Takeuchi, Masaharu Kobayashi
Sapphire Room		The University of Tokyo, Japan
10:45	SA3-2	**Phase-Change Materials and Memory Devices for IoT Application**
Oct. 27	**(Invited)**	You Yin
Sapphire Room		Gunma University, Japan
11:15	SA3-3	**A Two-Port SRAM Using a Single-Port Cell Array with a Self-Timed Write-after-Read Control Scheme to Save 47% Area & 63% Standby Power**
Oct. 27		Fujun Bai, Baoyu Xiong, Xiaofei Xue, Weizhe Song, Wu Baofeng, Ni Fu, Bing Yu, Huifu Duan, Xiaowei Han, Alessandro Minzoni, Qiwei Ren
Sapphire Room		Xi'an Uniic Semiconductors Co. Ltd, China
11:30	SA3-4	**A 55nm Logic Process Compatible p-Flash Memory Array Fully Demonstrated with High Reliability**
Oct. 27		Jinghui Han, Yao Zhou, Hao Ni, Xiao Zheng, Yi Zhao
Sapphire Room		Zhejiang University, China
11:45	SA3-5	**Graphene Nanodots with High-K Dielectrics for Flash Memory Applications**
Oct. 27		Kai-Ping Chang, Han-Hsiang Tai, Jer-Chyi Wang, Chao-Sung Lai
Sapphire Room		Chang Gung University, Taiwan

SB3 Efficient Circuits for Biomedical Systems

	Session Chair:	Te-Kuang Chiang, National University of Kaohsiung, Taiwan
10:15	SB3-1	**The Next-Generation Brain Machine Interface System For Neuroscience Research and Neuroprosthetics Development**
Oct. 27	**(Invited)**	Jan Van der Spiegel, Milin Zhang, Xilin Liu
Jade Room 1		University of Pennsylvania, USA
10:45	SB3-2	**System Architecture of a Smart Binaural Hearing Aid Using a Mobile Computing Platform**
Oct. 27	**(Invited)**	Yingdan Li, Fei Chen, Zhuoyi Sun, Zhaoyang Weng, Xian Tang, Hanjun Jiang, Zhihua Wang
Jade Room 1		Tsinghua University, China
11:15	SB3-3	**An area efficient and low power EcoG front-end chip for digitalized subdural grid**

Oct. 27		Chenjie Dong, Han Jin, IkHwan Kim, Chenyu Wang, Yajie Qin, Lirong Zheng
Jade Room 1		Fudan University, China
11:30	**SB3-4**	**A 20Mbps 5.8mw QPSK Transmitter Based on Injection Locking and Class-E PA for Wireless Biomedical Applications**
Oct. 27		Yaxiong Lei, Xinpeng Xing, Haigang Feng, Zhihua Wang
Jade Room 1		Tsinghua University, China
11:45	**SB3-5**	**A 0.5 V 60 nW Fully-Differential Log-Domain Band-Pass Filter with Tunable Cutoff Frequency for Biosensor Applications**
Oct. 27		Jinyong Zhang, Shing-Chow Chan, Hui Li, Lei Wang
Jade Room 1		Shenzhen Institutes of Advanced Technology Chinese Academy of Science, China
12:00	**SB3-6**	**A 110-dBΩ, 113-MHz Variable-Gain Transimpedance Amplifier for Flash 3D Imaging Systems**
Oct. 27		Lei Yang, Shaowei Zhen, Jiongwei Zheng, Shuiqing Xi, Xinjiang Gao, Zengxin Liu, He Tang, Ping Luo, Bo Zhang
Jade Room 1		University of Electronic Science and Technology of China, China

SC3 Low-power Digital Techniqes (2)

Session Chair:		Xinggang Wang, Skyworks Solution, USA
10:15	**SC3-1**	**An Outlier Detection Method and its Application to Multicore-Chip Power Estimation**
Oct. 27	**(Invited)**	Yaguang Li, Pingqiang Zhou
Jade Room 2		ShanghaiTech University, China
10:45	**SC3-2**	**Energy-efficient Standby-current Suppression with Bootstrapped Power-gating Technique**
Oct. 27	**(Invited)**	Yingchieh Ho, Chen Hsu
Jade Room 2		National Dong Hwa University, Taiwan
11:15	**SC3-3**	**Ultralow Power Loss Integratable High-voltage MOSFETs**
Oct. 27	**(Invited)**	Xiaorong Luo, Weiwei Ge, Bo Zhang
Jade Room 2		University of Electronic Science and Technology of China, China
11:45	**SC3-4**	**Optical Computing on Silicon-on-Insulator-Based Photonic Integrated Circuits**
Oct. 27	**(Invited)**	Zheng Zhao, Zheng Wang, Zhoufeng Ying, Shounak Dhar, Ray T. Chen, and David Z. Pan
Jade Room 3		University of Texas at Austin, USA

SD3 CAD (2)

Session Chair:		**Jun Tao, Fudan University, China**
10:15	**SD3-1**	**A Universal Approach for Signal Dependent Circuit Reliability Simulation**
Oct. 27	**(Invited)**	Lining Zhang, Chenyue Ma, Mansun Chan
Jade Room 3		HKUST, HK
10:45	**SD3-2**	**Analysis of Sub-threshold Electron Transport Properties of Ultra-scaled Amorphous Phase Change Material Germanium Telluride**
Oct. 27	**(Invited)**	Jie Liu, M.P.Anantram, Xu Xu, Jiwu Lu
Jade Room 3		University of Washington, USA
11:15	**SD3-3**	**An On-line Debug Method for FPGAs**
Oct. 27		Yipeng Yuan, Zhihua Feng, Xuegong Zhou
Jade Room 3		Fudan University, China
11:30	**SD3-4**	**DTCO through Design Space Exploration by the Virtual FAB Range Pattern Matching Flow**

Oct. 27		Liang Zhu, Yida Xie, Zhibo Ai
Jade Room 3		Synopsys, China
11:45	**SD3-5**	**Design and Automatic Generation of Area-efficient Ring Oscillator Based Addressable Test Chips**
Oct. 27		Xiaoxin Dou, Weiwei Pan, Zheng Shi, Yongjun Zheng
Jade Room 3		Zhejiang University, China
12:00	**SD3-6**	**Synthesis and Optimization of Asynchronous Dual-rail Encoded Circuits based on Partial Acknowledgement**
Oct. 27		Yu Zhou, Chun Shi, Zhengjie Deng, Alex Yakovlev
Jade Room 3		Hainan Normal University, China

Coffee Break

SA4 Special Session: Biomedical Circuits and Systems

Session Chair:		Guoxing Wang, Shangai Jiao Tong University, China
13:30	**SA4-1**	**Design of a Closed-loop, Bi-directional Brain-Machine-Interface Integrated On-chip Spike Sorting**
Oct. 27	**(Invited)**	Ting Ou, Deng Luo, Yuwei Zhang, Yiqiao Liao, Chang Cheng, Milin Zhang, Chun Zhang, Zhihua Wang, Xiang Xie
Sapphire Room		Tsinghua University, China
14:00	**SA4-2**	**A Fully Differential High Efficient ASK Demodulator for Biomedical Implantable Application**
Oct. 27	**(Invited)**	Jie Zhou, Xi Chen, Tianzhun Wu, Guoxing Wang
Sapphire Room		Shanghai Jiao Tong University, China
14:30	**SA4-3**	**Refractory Epilepsy: Localization, Detection, and Prediction**
Oct. 27	**(Invited)**	E. Bou Assi, D. K. Nguyen, S. Rihana, M. Sawan
Sapphire Room		Polytechnique Montreal, Canada
15:00	**SA4-4**	**Low Power FIR Filter Design for Wearable Devices Using Frequency Response Masking Technique**
Oct. 27	**(Invited)**	Zhongxia Shang, Yang Zhao, Yong Lian
Sapphire Room		York University, Canada

SB4 Analog Techniques (2)

Session Chair:		Akira Matsuzawa, Tokyo Institute of Technology, Japan
13:30	**SB4-1**	**A New Short-Channel-Effect-Degraded Subthreshold Behavior Model for Elliptical Gate-All-Around MOSFET**
Oct. 27	**(Invited)**	Te-Kuang Chiang, Ying-Wen Ko, Hong-Wun Gao, Yeong-Her Wang
Jade Room 1		EE of National University of Kaohsiung, Taiwan
14:00	**SB4-2**	**High-Order Curvature-Compensated CMOS Bandgap Voltage Reference**
Oct. 27		Qianneng Zhou, Feihong Cheng, Hongjuan Li, Kai Yan, Wei Luo
Jade Room 1		Chongqing University of Posts and Telecommunications
14:15	**SB4-3**	**A 3.7ppm/℃ Piece-Wise Compensated Bandgap Reference**
Oct. 27		Quanwang Liu, Bo Zhang, Shaowei Zhen, Weidong Xue
Jade Room 1		UESTC, China
14:30	**SB4-4**	**Low-Power and High-Frequency Ring Oscillator Design in 65nm CMOS Technology**
Oct. 27		Chi-Hsien Yen, Mehdi Nasrollahpour, Sotoudeh Hamedi-Hagh
Jade Room 1		San Jose State University, USA
14:45	**SB4-5**	**Design of 56 Gb/s PAM4 Wire-line Receiver With Ring VCO Based CDR in a**

		65 nm CMOS Technology
Oct. 27		Fangxu Lv, Jianye Wang, Dengjie Wang, Yongcong Liu, Ziqiang Wang
Jade Room 1		Air Force Engineering University, China
15:00	SB4-6	**A New All-in-One Bandgap Reference and Robust Zero Temperature Coefficient (TC) point Current Reference Circuit**
Oct. 27		Yan Chen, Xiaoling Tan, Bolin Yu, Chunxia Li, Yan Guo
Jade Room 1		Shenzhen Institute of Information Technology, China
15:15	SB4-7	**A 2.4GHz T/R Switch with ESD Protection for WLAN 802.11 b/g/n Applications**
Oct. 27		Jijian Shi, Tingting Mo
Jade Room 1		Shanghai Jiao Tong University, China

SC4 Low-power Digital Techniques (3)

	Session Chair:	Gerald E. Sobelman, University of Minnesota, USA
13:30	SC4-1	**Fundamental Design Tradeoff and Performance Limitation of Electronic Circuits Based on Uncertainty Relationships**
Oct. 27	**(Invited)**	Haruo Kobayashi, Isao Shimizu, Nobukazu Tsukiji, Miho Arai, Kazuyoshi Kubo, Hitoshi Aoki
Jade Room 2		Gunma University, Japan
14:00	SC4-2	**Stochastic Computing Implementation of Trigonometric and Hyperbolic Functions**
Oct. 27	**(Invited)**	Lian Huai, Peng Li, Gerald E. Sobelman, David J. Lilja
Jade Room 2		University of Minnesota, USA
14:30	SC4-3	**A novel adaptive general current drive circuit**
Oct. 27		Yujie Chen, Ningmei Yu, Hejiu Zhang, Keren Li, Nan Lyu
Jade Room 2		Xi'an University of Technology, China
14:45	SC4-4	**Fp2 Arithmetic Acceleration Based on Modified Barrett Modular Multiplication Algorithm**
Oct. 27		Yalong Pang, Ying Zhang, Jun Han, Xiaoyang Zeng
Jade Room 2		Fudan University, China
15:00	SC4-5	**IZIP: In-Place Zero Overhead Interconnect Protection via PIP Redundancy**
Oct. 27		Yi Luo, Adrian Evans, Shi-Jie Wen, Rick Wong, Gengsheng Chen
Jade Room 2		Fudan University, China
15:15	SC4-6	**An On-Chip Circuit for Timing Measurement of SRAM IP**
Oct. 27		Xianjie Long, Qin Wang, Jianfei Jiang, Nin Guan
Jade Room 2		Shanghai Jiao Tong University, China

SD4 New Devices and Advanced Tehnologies (2)

	Session Chair:	Jifa Hao, ON Semiconductor, USA
13:30	SD4-1	**Interface Engineering of Si1-xGex Gate Stacks for High Performance Dual Channel CMOS**
Oct. 27	**(Invited)**	ChoongHyun Lee, Richard G. Southwick III, Shogo Mochizuki, Paul Jamison, Ruqiang Bao, *Rajan Pandey, *Aniruddha Konar, Takashi Ando, Vijay Narayanan, Bala Haran, Hemanth Jagannathan
Jade Room 3		IBM Research, USA; *GLOBALFOUNDRIES Inc.
14:00	SD4-2	**Performance Improvement of InGaAs FinFET Using NH3 Treatment**
Oct. 27	**(Invited)**	Edward Yi Chang, Quang-Ho Luc, Huy-Binh Do, Yueh-Chin Lin
Jade Room 3		National Chiao Tung University, Taiwan

14:30	SD4-3	**Layer thinning of MoS2 flakes by thermal annealing in air**
Oct. 27		Qiyuan Wang, Youwei Zhang, Chunxiao Cong, Laigui Hu, Pengfei Tian, Ran Liu, Zhi-jun Qiu
Jade Room 3		Fudan University, China
14:45	SD4-4	**Dynamic Characteristics and Related Trapping Effects of GaN-based Fin-MISHEMTs**
Oct. 27		Xingye Zhou, Xin Tan, Yuanjie Lv, Yuangang Wang, Xubo Song, Guodong Gu, Peng Xu, Hongyu Guo, Zhihong Feng, and Shujun Cai
Jade Room 3		Hebei Semiconductor Research Institute, China
15:00	SD4-5	**Analytical Model of Internal Heat Transfer of a Power Chip with Through Silicon Via**
Oct. 27		Jingyu Liu, Yongyong Wang, Xunyong Yang, Fashun Yang, Kui Ma
Jade Room 3		Guizhou University, China
15:15	SD4-6	**Surface Effect on the Current-Voltage Characteristics of Back-Gated MoS2 Channel MOSFET**
Oct. 27		Mingyue He, Sitong Bu, Daming Huang
Jade Room 3		Fudan University, China

Coffee Break

SA5 Special Session: Sensory Circuits and Systems

	Session Chair:	Guoxing Wang, Shanghai Jiaotong University, China
15:45	SA5-1	**Low Complexity and Low Power Multiplierless FIR Filter Implementation**
Oct. 27	(Invited)	Xin Lou, Wenbin Ye
Sapphire Room		ShanghaiTech University, China
16:15	SA5-2	**Dual-pulse Nonlinear Photoacoustic Imaging: Physics, Sensing and Imaging System Design**
Oct. 27	(Invited)	Fei Gao, Xiaohua Feng, Ruochong Zhang, Siyu Liu, Ran Ding, Yuanjin Zheng
Sapphire Room		ShanghaiTech University, China
16:45	SA5-3	**Ultrathin Flexible Coils for Wireless Power and Data Link in Biomedical Sensors**
Oct. 27	(Invited)	Wei Xu, Tianyuan Cheng, Chundong Wu, Nanshu Lu, Zeyu Yang, Yong Lian, Guoxing Wang
Sapphire Room		Shanghai Jiao Tong University, China
17:15	SA5-4	**An APWM Controlled LLC Resonant Converter for a Wide Input Range and Different Load Conditions**
Oct. 27	(Invited)	Zhongxia Shang, Yang Zhao, Yong Lian
Sapphire Room		York University, Canada

SB5 Hign speed Data Converter

	Session Chair:	Fan Ye, Fudan University, China
15:45	SB5-1	**A Low-Power On-Chip Calibration Technique for Pipelined ADCs**
Oct. 27	(Invited)	Xizhu Peng, Zuowei Mao, Ang Gao, Laishen Che, He Tang
Jade Room 1		University of Electronic Science and Technology of China, China
16:15	SB5-2	**A 6-bit 700-MS/s single-channel SAR ADC with low kickback noise comparator in 40-nm CMOS**
Oct. 27		Long Zhao, Bao Li, Yuhua Cheng
Jade Room 1		Peking University, China
16:30	SB5-3	**A Power-Efficient Reconfigurable Two-Step VCO-Based ADC for**

Software-Defined Radio

Oct. 27		Xinpeng Xing, Peng Zhu, Hui Liu, Wei Wang, Georges Gielen
Jade Room 1		Tsinghua University, China
16:45	**SB5-4**	**A High-Resolution Pipeline Time-to-Digital Converter in 0.18μm CMOS Technology**
Oct. 27		Wang Yongsheng, Ye Qiao, Zhao Han, Liu Xiaowei
Jade Room 1		Harbin Institute of Technology, China
17:00	**SB5-5**	**A 14bit 320MS/s pipelined-SAR ADC based on multiplexing of dynamic amplifier**
Oct. 27		Honghao Chu, Fule Li
Jade Room 1		Tsinghua University, China
17:15	**SB5-6**	**All-Digital background calibration technique of the channel-time-mismatch in a two-channel TIADC**
Oct. 27		Sujuan Liu, Ze Li, Zhenzhen Zhao, Yihui Fan
Jade Room 1		Beijing University of Technology, China
17:30	**SB5-7**	**A Reference Signal Phase Independent High Precision Timing Skew Mismatch Estimation Scheme for Time Interleaved ADC**
Oct. 27		Ruwu Xiao, Qiying Lei, Xuan Guo, Yuping Zhao
Jade Room 1		Peking University, China

SC5 VLSI for Emerging Applications

Session Chair:		Zou Zhuo, Fudan University, China
15:45	**SC5-1**	**A Pseudo MMSE Linear Equalizer for 60GHz Single Carrier Baseband Receiver**
Oct. 27 **(Invited)**		Hsun-Wei Chan, Chang-Ting Wu, Chih-Wei Jen, Chun-Yi Liu, Wei-Che Lee, Shyh-Jye Jou
Jade Room 2		National Chiao-Tung University, Taiwan
16:15	**SC5-2**	**Highly-reliable Integrated Circuits for Ground and Space Applications**
Oct. 27 **(Invited)**		Kazutoshi Kobayashi
Jade Room 2		Kyoto Institute of Technology, Japan
16:45	**SC5-3**	**Object-recognition VLSI for pedestrian detection in automotive applications**
Oct. 27 **(Invited)**		Fengwei An, Xiangyu Zhang, Lei Chen, Idaku Ishii
Jade Room 2		Hiroshima University, Japan
17:15	**SC5-4**	**A Cluster-Scalable VLIW Cryptography Processor with High Performance and Energy Efficiency**
Oct. 27		Wei Huang, Zhonghe Guo, Xiaohua Song, Fei Sun
Jade Room 2		State Key Lab of Cryptology, China
17:30	**SC5-5**	**A Novel Low-cost FPGA-based Real-time Object Tracking System**
Oct. 27		Peng Gao, Ruyue Yuan, Zhicong Lin, Linsheng Zhang, Yan Zhang
Jade Room 2		Harbin Institute of Technology, China

SD5 Reliability in New Devices

Session Chair:		Xiaoxu Kang, Shanghai IC R&D Center, China
15:45	**SD5-1**	**Hot carrier reliability in LDMOS devices**
Oct. 27 **(Invited)**		Jifa Hao
Jade Room 3		ON Semiconductor, USA
16:15	**SD5-2**	**The enhancement mode AlGaN/GaN high electron mobility transistor based on charge storage**
Oct. 27 **(Invited)**		Hui Wang, Lingli Jiang, Ning Wang, Xinpeng Lin, Hongyu Yu

Jade Room 3		Southern University of Science and Technology, China
16:45	**SD5-3**	**Hot Carrier Reliability in Ultra-Scaled SiGe Channel p-FinFETs**
Oct. 27	**(Invited)**	Miaomiao Wang, Xin Miao, James H Stathis, Richard Southwick
Jade Room 3		IBM, USA
17:15	**SD5-4**	**Hot carrier aging of nano-scale devices: characterization method, statistical variation, and their impact on use voltage**
Oct. 27	**(Invited)**	Jian F. Zhang, Meng Duan, Zhigang Ji, Weidong Zhang
Jade Room 3		Liverpool John Moores University, UK
17:45	**SD5-5**	**Independent Band Modulation in Two-Dimensional van der Waals Heterostructure Based on a New Device Architecture**
Oct. 27	**(Invited)**	Zhongxun Guo, Wu Zan, Hu Xu, Fuyou Liao, Lin Chen, Hao Zhu, Qingqing Sun, Shijin Ding, Peng Zhou, Wenzhong Bao, David Wei Zhang
Jade Room 3		Fudan University, China

Oct. 27 17:45-18:45   Poster Session 2

	P2-01	**TSV modelling in 3D IC thermoelectric simulation**
Oct. 27		Tongyang Ye, Ligang Hou, Shier Zhang, Jinhui Wang, Xiaohong Peng
		Beijing University of Technology, China
	P2-02	**Low Power Mapping Optimization of Loops for Dual-Vdd CGRAs**
Oct. 27		Kaijian Yuan, Xingming Zhang
		National Digital Switching System Engineering & Technological Research Center, China
	P2-03	**A 15MHz BW Continuous-Time $\Delta\Sigma$ Modulator with High Speed Digital ELD Compensation**
Oct. 27		Hang Hu, Manxin Li, Zhiyuan Dai, Fan Ye, Junyan Ren
		Fudan University, China
	P2-04	**An Inductorless Noise-Cancelling CMOS LNA Using Wideband Linearization Technique**
Oct. 27		Benqing Guo, Jun Chen, Hongpeng Chen, Xuebing Wang, Chang Liu
		University of Electronic Science and Technology of China, China
	P2-05	**Design and Realization of a X-band Graphene Amplifier MMIC**
Oct. 27		Xubo Song, Cui Yu, Zezhao He, Qingbin Liu, Tingting Han, Shaobo Dun, Yuanjie Lv, Shujun Cai, Zhihong Feng
		Hebei Semiconductor Research Institute, China
	P2-06	**Ultra Low Loss and High Linearity RF Switch using 130nm SOI CMOS Process**
Oct. 27		Hongwei Zhu, Qiuliang Li, Hao Sun, Zhipeng Wang, Ran Liu, Yi Liu
		Fudan University, China
	P2-07	**A Novel Positive-feedback Read Scheme with tail current source of STT-MRAM**
Oct. 27		Jin Yan, Dongsheng Liu, Xuecheng Zou, Bangdi Xu
		Huazhong University of Science and Technology, China
	P2-08	**A Single-Inductor MIMO Buck-Boost Converter with Inductor-Peak-Current PFM Control for Multiple Energy Harvesting**
Oct. 27		Chen Jiao, Zunchao Li, Chuang Wang, Lvchen Zhou, Hailong Bai
		Xi'an Jiaotong University, China
	P2-09	**An Area-Efficient Interconnection Network for Coarse-Grain Reconfigurable**

Jin Lin University, China

| | P2-24 | **A Clock Interpolation Structure Using DLL for Clock Distribution in ADC** |
Oct. 27 | | Shijia Zhu, Yu Wang, Fan Ye, Jun Xu |
| | | Fudan University, China |

| | P2-25 | **A Radiation-hard Waffle Layout for BCD Power MOSFET** |
Oct. 27 | | Xiao Zhou, Ping Luo, Linyan He, Tiancheng Xiao |
| | | University of Electronic Science and Technology of China, China |

| | P2-26 | **A 18 mW 12 bit 50 MS/s SHA-less Pipelined ADC** |
Oct. 27 | | Weigang Xu, Yifan Gao, Xiaodong Liu, Zhangwen Tang |
| | | Fudan University, China |

| | P2-27 | **A 16-bit two-step pixel-level ADC for 384*288 Infrared Focal Plane Array** |
Oct. 27 | | Sijia Yang, Lingzi Luo, Wengao Lu, Guangyi Shi, Binbin Lyu, Yuze Niu, Yacong Zhang, Zhongjian Chen |
| | | Peking University, China |

| | P2-28 | **A Hybrid Fault Model for Differential Fault Attack on AES** |
Oct. 27 | | Yixia Liu, Xiaoxin Cui, Jian Cao, Xing Zhang |
| | | Peking University, China |

| | P2-29 | **Design and Implementation of Homogeneous Multi-core System** |
Oct. 27 | | Xiaolei Wang, Dongming Qu, Yukun Song, Duoli Zhang |
| | | Hefei University of Technology, China |

| | P2-30 | **A Chain-Multiplier for Large Scale Matrix Multiplication** |
Oct. 27 | | Can Wei, Yukun Song, Duoli Zhang |
| | | Hefei University of Technology, China |

| | P2-31 | **Joint Detection and Decoding for Polar-Coded OFDM-IDMA Systems** |
Oct. 27 | | Xiangyun Deng, Jin Sha, Xiaotian Zhou, Xiaohu You, Chuan Zhang |
| | | Southeast University, China |

| | P2-32 | **A High-Speed Low-Power Charge Pump with Dynamic Current Matching** |
Oct. 27 | | Licheng Xu, Xinchi Gao, Jing Jin |
| | | Shanghai Jiao Tong University, China |

| | P2-33 | **A Passive Mixer-First Receiver with Negative Feedback for Impedance Matching** |
Oct. 27 | | Shaoqin Yao, Litong Liu, Jing Jin |
| | | Shanghai Jiao Tong University, China |

| | P2-34 | **A Novel Equivalent Circuit Model of the Surge Wave Generator** |
Oct. 27 | | Yukuai Chen, Jian Cao, Yuan Wang, Xing Zhang, Guangyi Lu |
| | | Peking University, China |

| | P2-35 | **Designing Hardware Trojans and Their Detection based on a SVM-based Approach** |
Oct. 27 | | Tomotaka Inoue, Kento Hasegawa, Masao Yanagisawa, Nozomu Togawa |
| | | Waseda University, Japan |

| | P2-36 | **A Light-Weight Energy-Efficient Resilient Circuit for Variation Tolerance** |
Oct. 27 | | Xiaopei Chen, Xiaoyan Xiang, Chen Chen, Jianyi Meng, Sheng Wang |
| | | Fudan University, China |

| | P2-37 | **Design of Ka band bandpass filter using Silicon Micromachined technology** |
Oct. 27 | | Qiulong Hong, Xiubo Liu, Shaodong Wang |
| | | Hebei Semiconductor Research Institute, China |

| | P2-38 | **Physics based Compact Model of GaN HEMT with an Efficient Parameter Extraction Flow** |
Oct. 27 | | Hao Zhang, Ahmed Raslan, Slim Boumaiza, Lan Wei |
| | | University of Waterloo, Canada |

Technical Session
Saturday, Oct. 28

Keynote Speech K3-1 & K3-2

8:30-9:15	**K3-1**	**NanoBridge FPGA for IoT era**
Oct. 28	**(Keynote)**	Dr. Yukihide Tsuji
GrandBall Room		System Platform Research labs. NEC corp., Japan
9:15-10:00	**K3-2**	**Energy-Quality Scalable Integrated Circuits and Systems – Continuing the Energy Scaling in spite of Moore's Law**
Oct. 28	**(Keynote)**	Prof. Massimo Alioto,ECE
GrandBall Room		National University of Singapore, Singapore

SA6 Special Session: Low Power Digital Circuits

Session Chair:		Yajun Ha, ShanghaiTech University, China
10:15	**SA6-1**	**Metallic-Carbon-Nanotube-Removal Tolerant SRAM Cell with 9 Transistors**
Oct. 28	**(Invited)**	Yanan Sun, Weifeng He, Zhigang Mao, Hailong Jiao, Volkan Kursun
Sapphire Room		Shanghai Jiao Tong University, China
10:45	**SA6-2**	**Analysis and Design of Energy-Efficient Data-Dependent SRAM**
Oct. 28	**(Invited)**	Wenfeng Zhao, Ang Li, Yi Wang, Yajun Ha
Sapphire Room		University of Minnesota, USA
11:15	**SA6-3**	**Low-Power Single-Phase Clocked Redundant-Transition-Free Flip-Flop Design with Conditional Charging Scheme**
Oct. 28	**(Invited)**	Ling Chen, Yanan Sun, Weifeng He
Sapphire Room		Shanghai Jiao Tong University, China
11:45	**SA6-4**	**Near-Threshold Processor Design Techniques for Power-Constrained Computing Devices**
Oct. 28	**(Invited)**	Jun Zhou, Tony Tae-Hyoung Kim, Yong Lian
Sapphire Room		University of Electronic Science and Technology of China, China

SB6 Power Conversion and Management

Session Chair:		Lin Cheng, University of Science and Technology, Hong Kong
10:15	**SB6-1**	**Optimization compensation for Primary-Side-Regulated Flyback Converters in Continuous-Conduction-Mode and Discontinuous Conduction Mode**
Oct. 28	**(Invited)**	Gong Xiaowu
Jade Room 1		Infineon Technologies Asia Pacific Pte Ltd, Singapore
10:45	**SB6-2**	**Recent Progress in GaN Devices for Power and Integrated Circuit**
Oct. 28	**(Invited)**	Nobuyuki Otsuka, Yasufumi Kawai, Shuichi Nagai
Jade Room 1		Panasonic, Japan
11:15	**SB6-3**	**A high-precision voltage regulator with dynamic load technique and overcurrent protection**
Oct. 28		Zekun Zhou, Yue Shi
Jade Room 1		University of Electronic Science and Technology of China, China

11:30	SB6-4	**Backscattering in Multicycle Q-modulation for Bio-Implants Wireless Power Transfer**
Oct. 28		Yang Liu, Bin Li, Mo Huang, Zhaoquan Chen
Jade Room 1		South China University of Technology, China
11:45	SB6-5	**A Single Inductor Tri-Input Dual-Output Buck-Boost DC-DC Converter with MPPT for Multi-Source Energy Harvesting**
Oct. 28		Xiao Ge, Xiaofei Hu, Yajie Qin, Zhiliang Hong
Jade Room 1		Fudan University, China

SC6 Low-power SoCs

Session Chair: Na Yan, Fudan University, China

10:15	SC6-1	**A High Utilization FPGA-Based Accelerator for Variable-Scale Convolutional Neural Network**
Oct. 28		Xin Li, Yujie Cai, Jun Han, Xiaoyang Zeng
Jade Room 2		Fudan University, China
10:30	SC6-2	**A Novel Mixed Reconfigurable System on Chip Based on Field Programmable Analog Array**
Oct. 28		Lintao Liu, Yuhan Gao, Haoming Du
Jade Room 2		CETC, China
10:45	SC6-3	**Parallel Implementations of SHA-3 on a 24-core Processor with Software and Hardware Co-Design**
Oct. 28		Jianwei Yang, Weizhen Wang, Zhicheng Xie, Jun Han, Zhiyi Yu, Xiaoyang Zeng
Jade Room 2		Fudan University, China
11:00	SC6-4	**A 3600 x 3600 Large-scale ISFET Sensor Array for High-throughput pH Sensing**
Oct. 28		Yongxin Cong, Dongping Wu
Jade Room 2		Fudan University, China
11:15	SC6-5	**Uniform Belief Propagation Processor for Massive MIMO Detection and $GF(2^n)$ LDPC Decoding**
Oct. 28		Shusen Jing, Anlan Yu, Xiao Liang, Xiaohu You, Chuan Zhang
Jade Room 2		Southeast University, China
11:30	SC6-6	**Design of Router for Spiking Neural Networks**
Oct. 28		Yewen Ni, Xiaoxin Cui, Yuanning Fan, Qiankun Han, Xiaole Cui
Jade Room 2		Peking University, China
11:45	SC6-7	**A Fuel Injection Control SoC for Diesel Engine Management System**
Oct. 28		Qinmiao Kang, Ming Zhou
Jade Room 2		Tsinghua University, China

SD6 CAD (3)

Session Chair: Ngai Wong, University of Hong Kong, HK

10:15	SD6-1	**Efficient Algorithms for Resistance and Capacitance Calculation Problems in the Design of Flat Panel Display**
Oct. 28	(Invited)	Wenjian Yu, Taotao Lu
Jade Room 3		Tsinghua University, China
10:45	SD6-2	**Characterization of Single-Crystalline Graphene ESD Interconnects**
Oct. 28	(Invited)	Qi Chen, Cheng Li[1], Fei Lu[1], Chenkun Wang[1], Feilong Zhang[1], Tianru Wu[2], Xiaoming Xie[2], Kun Zhang[2], Xinxin Li[2], Jimmy Ng[3], Ya-Hong Xie[3], Yuhua Cheng[4] and Albert Wang[1]*
Jade Room 3		University of California-Riverside, USA

11:15	SD6-3	**Compact Modeling Approach for Electro-Mechanical System Simulation**
Oct. 28	(Invited)	T.K. Maiti, D. Navarro, M. Miura-Mattausch, H. J. Mattausch
Jade Room 3		Hiroshima University, Japan
11:45	SD6-4	**Short Path Padding with Multiple-Vt cells for Wide-Pulsed-Latch Based Circuits at Ultra-Low Voltage**
Oct. 28		Yongming Ding, Wei Jin, Guanghui He, Weifeng He
Jade Room 3		Shanghai Jiao Tong University, China
12:00	SD6-5	**A Fast HDL Model for Full-Custom FPGA Verification**
Oct. 28		Kaixuan Zhang, Zhihua Feng, Hao Zhou
Jade Room 3		Fudan University, China

Coffee Break

SA7 Sensors and Display

	Session Chair:	Yuan Gao, University of Science and Technology, Hong Kong
13:30	SA7-1	**Effects of Device Structures on Piezoresistive Behaviors of PEDOT: PSS Pressure Sensors**
Oct. 28	(Invited)	Jer-Chyi Wang
Sapphire Room		Chang Gung University, Taiwan
14:00	SA7-2	**Micro-LED arrays for display and communication: device structure and driver architecture**
Oct. 28	(Invited)	Kiat Seng Yeo, Wen Xian Ng, Mei Yu Soh, T. Hui Teo
Sapphire Room		Singapore University of Technology and Design, Singapore
14:30	SA7-3	**A biomedical microfluidic mixer in MEMS application Using Inkjet**
Oct. 28		Robert K.F. Teng, Qian Hou, Jun chen, Zhanjiang Guo, Zeng Peng, Yuheng Nie
Sapphire Room		California State University, USA
14:45	SA7-4	**A Bulk-driven Pixel Circuit with Wide Data Voltage Range for OLEDoS Microdisplays**
Oct. 28		Huiyuan Lu, Hongge Li
Sapphire Room		BeiHang University, China
15:00	SA7-5	**A Low-Power Self-Calibration Digital-Output CMOS Temperature Sensor with ±0.1℃ Inaccuracy from -40℃ to 85℃**
Oct. 28		Yuze Niu, Wengao Lu, Yacong Zhang, Shanzhe Yu, Zhongjian Chen
Sapphire Room		Peking University, China
15:15	SA7-6	**A 58-dB SNDR 1.32-mW Chopper-Stabilized Analog Front-End for Graphene Hall Element Detecting Application**
Oct. 28		Chengying Chen, Liming Chen, Zhenli Lai
Sapphire Room		Xiamen University of Technology, China

SB7 RF Design Techniques (2)

	Session Chair:	Yumei Huang, Fudan University, China
13:30	SB7-1	**RF Mixer Design Techniques Using GaAs Process**
Oct. 28	(Invited)	Jinna Yan, Bharatha Kumar Thangarasu, Kiat Seng Yeo
Jade Room		Singapore University of Technology and Design, Singapore
14:00	SB7-2	**5G FEM Design with Advanced SOI Process**
Oct. 28	(Invited)	Chaojiang Li, Min Wang, Taiyun Chi, Arvind Kumar, Myra Boenke, Dawn Wang, Ned Cahoon, Anirban Bandyopadhyay, Alvin Joseph, Hua Wang
Jade Room		Globalfoundries, USA
14:30	SB7-3	**Ultrafast Spintronic Integrated Circuits**

Oct. 28	**(Invited)**	Jiaqi Wei, Liang Chang, Zhaohao Wang, Xiaoyang Lin, Kaihua Cao, Hushan Cui, Wang Kang, Haoxuan Chen, Lang Zeng, Youguang Zhang, Chao Zhao, Weisheng Zhao
Jade Room		Beihang University, China

15:00 SB7-4 Ultra-High-Data-Rate 60-GHz CMOS Transceiver for Future Radio Access Network

Oct. 28	**(Invited)**	Rui Wu, Ryo Minami, Yuuki Tsukui, Seitaro Kawai, Yuuki Seo, Shinji Sato, Kento Kimura, Satoshi Kondo, Tomohiro Ueno, Nurul Fajri, Shoutarou Maki, Noriaki Nagashima, Yasuaki Takeuchi, Tatsuya Yamaguchi, Ahmed Musa, Korkut Kaan Tokgoz, Teerachot Siriburanon, Bangan Liu, Yun Wang, Jian Pang, Ning Li, Masaya Miyahara, Kenichi Okada, and Akira Matsuzawa
Jade Room		Tokyo Institute of Technology, Japan

SC7 (Special Session) Neural Network: Efficient Implementations and Applications

	Session Chair:	Chuan Zhang, Southeast University, China

13:30 SC7-1 Neural Networks: Efficient Implementations and Applications

Oct. 28	**(Invited)**	Chuan Zhang, Weihong Xu
Jade Room 2		Southeast University, China

13:40 SC7-2 Using Fermat Number Transform to Accelerate Convonlutional Nerual Network

Oct. 28	**(Invited)**	Weihong Xu, Xiaohu You, and Chuan Zhang
Jade Room 2		Southeast University, China

14:05 SC7-3 A Layer-based Structured Design of CNN on FPGA

Oct. 28		Chao Huang, Siyu Ni, Gengsheng Chen
Jade Room 2		Fudan University, China

14:30 SC7-4 Automatic Classification of Leukocytes Using Deep Neural Network

Oct. 28	**(Invited)**	Wei Yu, Jing Chang, Cheng Yang, Limin Zhang, Han Shen, Yongquan Xia, Jin Sha
Jade Room 2		Nanjing University, China

14:55 SC7-5 Energy Efficient SVM Classifier Using Approximate Computing

Oct. 28	**(Invited)**	Yangcan Zhou, Jun Lin, Zhongfeng Wang
Jade Room 2		Nanjing University, China

SD7 New Devices and Advanced Tehnologies (4)

	Session Chair:	Chunxiao Cong, Fudan University, China

13:30 SD7-1 Ultra low power and high performance nanoelectronic devices

Oct. 28	**(Invited)**	Francis Balestra
Jade Room 3		Grenoble INP/CNRS, France

14:00 SD7-2 High performance transistors based on two dimensional materials

Oct. 28	**(Invited)**	Mingqiang Huang, Xiong Xiong, Tiaoyang Li, Yanqing Wu
Jade Room 3		Huazhong Univ. of Science and Technology, China

14:30 SD7-3 NiGe Metal Source/Drain Ge pMOSFETs for Future High Performance VLSI Circuits Applications

Oct. 28	**(Invited)**	Rui Zhang, Jinghui Han, Junkang Li, Xiaoyu Tang, Yi Zhao
Jade Room 3		Zhejiang University, China

15:00 SD7-4 Deeply Scaled VLSI Analog Transistor Design and Optimization

Oct. 28	**(Invited)**	Jason C.S. Woo, Peng Lu, Po-Yen Chien, Xicheng Duan
Jade Room 3		University of California, Los Angeles, USA

Coffee Break

SA8 Low Power VLSI for Communication

Session Chair:		Yun Chen, Fudan University, China

15:45 **SA8-1** **Toward Real-time 3D Modeling System with Cubic-Millimeters Wireless Sensor Nodes**

Oct. 28 **(Invited)** Masanori Hashimoto, Ryo Shirai, Yuichi Itoh, Tetsuya Hirose

Sapphire Room Osaka University, Japan

16:15 **SA8-2** **Joint Detection and Decoding for Non-Binary LDPC Coded MIMO Systems**

Oct. 28 Yiqian Cai, Jin Sha, Shusen Jing, Xiaohu You, Chuan Zhang

Sapphire Room Nanjing University, China

16:30 **SA8-3** **The VLSI Architecture for Channel Estimation Based on ADMA**

Oct. 28 Xiaozhen Liu, Hongxiang Xie, Jin Sha, Feifei Gao, Shi Jin, Xiaohu You, Chuan Zhang

Sapphire Room Nanjing University, China

16:45 **SA8-4** **An Efficient Successive Cancellation Polar Decoder Based on New Folding Approaches**

Oct. 28 Xiao Liang, Yechao She, Harish Vangala, Xiaohu You, Chuan Zhang, Emanuele Viterbo

Sapphire Room Southeast University, China

17:00 **SA8-5** **RC6 Architecture-Adaptive Implementation for Coarse-Grained Reconfiguration Array**

Oct. 28 Anqi Yin, Zibin Dai, Longmei Nan, Wei Li

Sapphire Room PLA Information Engineer University, China

17:15 **SA8-6** **DRFNet: A Lightweight and High Accuracy Network for Resource-limited Implementation**

Oct. 28 Hengliang Xiang, Liang Chen, Wei Xu

Sapphire Room Fudan University, China

17:30 **SA8-7** **Design of Digital Control Unit for Implantable Stimulator Chip**

Oct. 28 Guoqing Sun, Xiaohong Peng, Jun Zhao, Rui Wang, Xiaodan Li

Sapphire Room Beijing University of technology, China

SB8 RF Design Techniques (3)

Session Chair:		Yann Deval, University of Bordeaux, France

15:45 **SB8-1** **Digital RF transmitter architectures exploiting FIRDACs in various configurations**

Oct. 28 **(Invited)** Andreas Kaiser, Antoine Frappe

Jade Room 1 Univ. Lille, France

16:15 **SB8-2** **Terahertz CMOS Transceiver for Tera-bps Wireless Link**

Oct. 28 **(Invited)** Minoru Fujishima

Jade Room 1 Hiroshima University, Japan

16:45 **SB8-3** **125KHz Wake-up Receiver and 433MHz Data Transmitter for Battery-less TPMS**

Oct. 28 Qinmiao Kang, Ming Zhou

Jade Room 1 Tsinghua University, China

17:00 **SB8-4** **A Low Power High Integrated BLE Transceiver**

Oct. 28 Zhang Cuncai, Zhao Hui, Liang Jie

Jade Room 1 Nationz Technologies Inc, China

17:15 **SB8-5** **A Low-Power Digital GFSK Receiver with Mid-value Filtering Frequency Offset**

Estimator and Soft Anti-Overlap Slicer

Oct. 28

Yu Li, Ziqian Wang, Song Chen, Fujiang Lin

Jade Room 1

University of Science and Technology of China (USTC), China

17:30   **SB8-6**   **A 1.0-3.0GHz LTE Transmitter with CIM Enhancement**

Oct. 28

Yun Yin, Tong Li, Xiaoyong Xue

Jade Room 1

Fudan University, China

SC8 Circuit and Systems for IoT

Session Chair: Lan Wei, University of Waterloo, Canada

15:45   **SC8-1**   **Tensor-Network-Based Predistorter Design for Multiple-Input Multiple-Output Nonlinear Systems**

Oct. 28   **(Invited)**   Cong Chen, Kim Batselier, Mihai Telescu, Stephane Azou, Noel Tanguy, Ngai Wong

Jade Room 2

University of Hong Kong, HK

16:15   **SC8-2**   **Towards An LC Passive Wireless Sensor Platform**

Oct. 28   **(Invited)**   Qing-An Huang, Lei Dong, Li-Feng Wang

Jade Room 2

Southeast University, China

16:45   **SC8-3**   **Design and Development of a Self-contained and Non-Invasive Integrated System for Electricity Monitoring Applications**

Oct. 28

Sid Zarabi, Egon Fernandes, Armaghan Salehian, David Nairn, Lan Wei

Jade Room 2

University of Waterloo, Canada

17:00   **SC8-4**   **Integrating Operation Scheduling and Binding for Functional Unit Power-Gating in High-Level Synthesis**

Oct. 28

Nan Wang, Hengxiao Wang, Yue Jin, Jiongyao Ye

Jade Room 2

School of Information Science and Engineering, ECUST, China

17:15   **SC8-5**   **New 2-D Quadrantal- and Diagonal-Symmetry Filter Architectures Using Delta Operator**

Oct. 28

Pei-Yu Chen, Lan-Da Van, I. H. Khoo, Hari C. Reddy

Jade Room 2

National Chiao Tung University, Taiwan

SD8 New Devices and Advance Technologies (4)

Session Chair: Francis Balestra, Grenoble INP/CNRS, France

15:45   **SD8-1**   **3D Scaling for Insulated Gate Bipolar Transistors (IGBTs) with Low Vce(sat)**

Oct. 28   **(Invited)**   Kazuo Tsutsui, K. Kakushima, T. Hoshii, A. Nakajima, S. Nishizawa, H. Wakabayashi, I. Muneta, K. Sato, T. Matsudai, W. Saito, T. Saraya, K. Itou, M. Fukui, S. Suzuki, M. Kobayashi, T. Takakura, T. Hiramoto, A. Ogura, Y. Numasawa, I. Omura, H. Ohashi, and H. Iwai

Jade Room 3

Tokyo Institute of Technology, Japan

16:15   **SD8-2**   **World Changing Innovation from Semiconductor Technology**

Oct. 28   **(Invited)**   Ellen Shen

Jade Room 3

Tektronix

16:45   **SD8-3**   **Advanced FinFET Technologies for Boosting SRAM Performance**

Oct. 28   **(Invited)**   Kazuhiko Endo

Jade Room 3

National Institute of Advanced Industrial Science and Technology, Japan

17:15   **SD8-4**   **High-Voltage Bidirectional Current Sensor**

Oct. 28   **(Invited)**   Zong-You Hou, Hsiu-Chun Tsai, Chua-Chin Wang

Jade Room 3

National Sun Yat-Sen University, Taiwan

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