2019 IEEE INTERNATIONAL RELIABILITY PHYSICS SYMPOSIUM

March 31st – April 4th 2019, Hyatt Regency, Monterey, CA USA

IEEE

IRPS is the preeminent conference for timely research on Reliability Physics of devices, materials, circuits, and products used in the electronics industry, where important reliability challenges and solutions are first discussed.

IRPS 2019 is Soliciting Increased Participation in Reliability for the Following Areas: Electrostatic Discharge, Circuit and Electronic Systems, Advanced CMOS Nodes and Beyond CMOS Devices, Emerging Memory Technologies, Wide-Bandgap Semiconductor Devices

The IRPS technical program includes: • Paper Presentations • Keynote and Invited Talks • Poster Session • Tutorials • Year-in-Review Seminar • Workshops • Equipment Demonstrations
IRPS bestows awards for Best Paper, Best Student Paper, Best Presentation, and Best Poster

Circuits, Products, and Systems

Circuit Reliability – Includes digital, mixed-signal, power and RF applications; design for reliability; variability-aware design
Circuit Aging Simulation – Includes compact modeling; statistical methods
Product IC Reliability – Includes burn-in; defect detection; on-chip sensors; modeling
Consumer Electronics Reliability – Includes smart phones; wearable devices; tablets; healthcare devices
Electronic Systems Reliability – Includes automotive, space, communications, medical, energy, and photovoltaic applications; screening techniques; reliability-aware circuit design and optimization; system monitoring; failure root cause determination; modeling methodologies; product qualification vs reliability
Soft Errors – Includes neutron and alpha particle SER; multi-bit SER/SEU; mitigation techniques; simulation
ESD and Latchup – Includes component and system-level ESD design; modeling and simulation
3D Assembly – Includes multichip modules; 3D-integration with TSV; thermomechanical stress; wafer thinning effects
Packaging – Includes chip-package interaction; fatigue; power dissipation issues, Reliability of 2.5D and 3D IC packaging and interconnects
Reliability Testing – Includes reliability equipment, tools, and test methods

Materials, Processing, and Devices

Transistors – Includes hot carrier phenomena; BTI; RTN; advanced node scaling; variability; Ge and III-V channels
Gate Dielectrics – Includes TDDB modeling; reliability of novel gate dielectrics; modeling of progressive breakdown; gate dielectric reliability for III-V FETs
Beyond CMOS Devices – Includes reliability of tunnel FETs, transistors with 2D semiconductors (graphene, MoS_2); Ferroelectric FETs; spintronics
Wide-Bandgap Semiconductors – Includes reliability of WBG-based power devices (GaN, SiC, Ga_2O_3)
Compound and Optoelectronic Devices – Includes reliability of III-V-based devices; optoelectronic devices; silicon photonics; far infrared detectors
Back-End Reliability – Includes Electromigration; Joule heating; stress migration; low-k dielectric breakdown; middle-of-the-line reliability; MIM/MOM capacitors
Process Integration – Includes new process-related reliability issues; foundry reliability challenges
Failure Analysis – Includes evidence of new failure mechanisms; advances in failure analysis techniques
Memory Reliability – Includes DRAM and NVM; novel memory devices such as 3D Flash and ReRAM
Photovoltaics – Includes reliability of solar cells in silicon, CdTe, CIGS, organics, multi-junctions, etc.
MEMS – Includes reliability of sensors and actuators; reliability testing; analysis & modeling; BioMEMS

Abstract (Paper/Poster) Submission due October 26, 2018: Your two-page original abstract submission should clearly and concisely present specific results, and explain the importance of your work in the context of prior work. Use the IRPS document template available at www.irps.org. Notification of acceptance will be made by **January 4, 2019**. Full manuscripts of accepted papers will be due before the conference. Registration for the conference is required for the author presenting the paper. *This year's symposium will be held jointly with the International Electrostatic Discharge Workshop (IEW).*

Late Paper Submission: Camera-ready, full-length manuscripts with late breaking news may be considered for inclusion in the conference/proceedings. **Due January 25, 2019.**

Technical Program
Chair: **Robert Kaplar** (Sandia Natl. Labs, 1-505-844-8285, rjkapla@sandia.gov)
Vice-Chair: **Charlie Slayman** (Cisco Systems, 1-408-525-0930, cslayman@cisco.com)

General Chair
Mark Porter (Medtronic, 1-480-929-5661, mark.porter@medtronic.com)

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