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:

Modeling of Circuit Reliability and Aging; Beyond CMOS – Reliability Issues in Neuromorphic Computing; Reliability Challenges in Automotive Electronics; and Advanced Packaging (2.5/3D)

Circuits, Products, and Systems

Circuit Reliability and Aging – Includes digital, mixed-signal, power and RF applications; design for reliability; variability-aware design, EDA tools and compact modeling

Product IC Reliability – Includes burn-in; defect detection; on-chip sensors; modeling

Consumer, System and Automotive Electronics Reliability – Includes smart phones; wearable devices; tablets; healthcare devices, automotive, space, communications, energy and computing/ networking; screening techniques; 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

Packaging and 2.5D/3D Assembly – Includes chip-package interaction; fatigue; power dissipation issues; reliability of 2.5D and 3D IC packaging and TSV integration, interconnects, multichip modules

Reliability Testing – Includes reliability equipment, tools, and test methods

Neuromorphic Computing – Includes devices, circuits and systems for neuromorphic computing; degradation and instability of devices under neuromorphic design-imposed operation conditions

Materials, Processing, and Devices

Transistors – Includes hot carrier phenomena; BTI; RTN; advanced node scaling; variability; Ge and III-V channels

Gate and MOL Dielectrics – Includes TDDB modeling and reliability of novel gate and MOL 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 and negative capacitance 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, ILD/IMD TDDB; 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, STT MRAM 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 November 2, 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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