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For Immediate Release

The 2020 IEEE International Reliability Physics Symposium to Highlight Latest Research in Reliability for Semiconductor Devices, Microelectronic Systems, and Advanced Technologies

- *Wide bandgap semiconductors – reliability topics on SiC, GaN, & gallium oxide devices*
- *Neuromorphic computing reliability – memory & design architectures*
- *Circuit reliability & aging – EDA tools, compact modeling, & aging-aware designs*
- *Reliability of RF/mmW/5G devices – CMOS, SiGe, BiCMOS, SOI, & GaAs*
- *Five keynote speakers from Intel, Infineon, Silicon Labs, Mentor, & Rice University*
- *Two full days of 90-minute tutorial sessions, designed to provide a comprehensive overview of reliability topics*
- *Interactive evening workshops covering 10 different reliability focus areas*
- *More than 70 posters will be presented during the evening reception*
- *A supplier exhibition will be held in conjunction with the technical program*

DALLAS, TX (February 11, 2020) – The upcoming [2020 IEEE International Reliability Physics Symposium \(IRPS\)](#), the industry’s premier technical conference for engineers and scientists to present the latest original research in microelectronics reliability, will be held in Dallas, TX from March 29 – April 2, 2020 at the Hilton DFW Lakes Executive Conference Center. The Symposium will feature a number of special focus sessions highlighting novel and emerging areas of electronic reliability, as well as topics relating to conventional semiconductor, integrated circuit, and microelectronic assembly reliability.

The 58th annual IRPS will feature a technical program of more than 100 invited and accepted papers delivered by leading reliability scientists and engineers from around the world. It will be preceded by 24 90-minute tutorial sessions on Sunday & Monday, March 29 & 30, and by interactive evening workshops covering 10 different reliability topics on Tuesday, March 31.

“The Symposium program is expanding beyond the traditional areas of CMOS device, circuit, and systems reliability to include emerging microelectronics reliability topics, including circuit reliability & aging, wide bandgap semiconductors, neuromorphic computing reliability, and RF/mmW/5G device reliability, reflecting major trends in the industry,” said Charles Slayman, IRPS 2020 technical program chair & Cisco Systems technology leader. “In addition, this year IRPS is privileged to have five outstanding keynote speakers for the plenary sessions from both industry and academia.”

“Drawing participants from the United States, Europe, Asia, and other parts of the world, IRPS is the only comprehensive reliability conference that covers the entire scope of device, circuit, and systems

reliability. No other conference presents as much leading work in so many different areas, encompassing both silicon and non-silicon devices, process technology, packaging, circuits, and systems reliability,” said Guadenzio Meneghesso, IRPS general chair. “From the semiconductor reliability newcomer to experienced senior researchers and university professors, IRPS offers an unprecedented level of training and exposure to the most advanced reliability research. IRPS is also becoming a premiere forum to discuss reliability issues for SiC and GaN devices, strategic technologies which are delivering a critical contribution to future global energy savings.”

Here are details of the 2020 IRPS program:

Special Focus Sessions

Four focus sessions at IRPS will combine both invited and accepted papers, tutorial sessions, workshops and poster presentations in these emerging microelectronics reliability topics:

- **Silicon Carbide Device Reliability** – SiC is gaining maturity in high power/high voltage semiconductor applications, surpassing GaN in some cases. This focus session includes three invited talks addressing defects in SiC, ruggedness under extreme conditions, and development of new SiC standards
- **Neuromorphic Computing Reliability** – As CMOS scaling slows down, improvements in von Neumann computing become more difficult. This focus session features three invited talks on the reliability aspects of various memory devices used for neuromorphic computing.
- **IC Reliability & Aging** – Performance requirements of highly-scaled IC designs are colliding with design margins needed to account for device degradation due to TDDDB, BTI, HCI, and EM. Four invited talks in this session highlight the modeling of aging, in-field aging data collection/analysis, and design for aging.
- **Reliability in RF/mmW/5G** – Mobile communications for 5G networks and autonomous vehicles will require devices operating in the RF and millimeter-wave regime. This focus session includes three invited talks encompassing GaN, Si, and III-V device technology for high speed applications.

90-Minute Tutorials – March 29 & 30

IRPS has a long history of dedicating two full days to a comprehensive series of 90-minute tutorial sessions preceding the Symposium. Presented by reliability experts from industry, academia, and government, these sessions provide an overview of semiconductor, circuit, and system reliability that can only be found at IRPS. Tutorial topics for 2020 include:

- *Sunday – Basics of semiconductor reliability I: 4 sessions*
- *Sunday – Basics of semiconductor reliability II: 4 sessions*
- *Sunday – Latch-up & electrical overstress: 2 sessions*
- *Monday – GaN, SiC, & Si Power devices: 3 sessions*
- *Monday – Memory & Si Analog devices: 3 sessions*
- *Monday – 5G/IoT, System Reliability & Failure analysis: 3 sessions*
- *Monday – Automotive, EDA for circuit reliability & Neuromorphic: 3 sessions*
- *Monday – ESD & EMC: 2 sessions*

Workshops – Tuesday, March 31

On the evening of the first day of the technical program, IRPS has traditionally held a series of workshops, divided into two 50-minute sessions. Each workshop session features industry experts as moderators to introduce a specific reliability topic, and guide attendees in their dialog/discussions, as well as produce a summary of the session to be shared with the IRPS community. Workshop sessions include:

- **Workshop Session A**
 - *Hot Carrier Injection / Bias Temperature Instability (HCI/BTI)*
 - *Back-end-of-Line (BEOL)*

- *Solid State Drives*
- *Wide Bandgap Semiconductors*
- *Neuromorphic Computing Reliability*
- **Workshop Session B**
 - *Circuit Reliability*
 - *Automotive Reliability*
 - *Emerging Memory*
 - *Wide Bandgap Semiconductors*
 - *RF/mmW/5G*

Keynote Presentations

- *The Future of Compute: Reliability & Resiliency in the Era of Data Transformation*, by Dr. Mike Mayberry, CTO, Intel
- *Power Semiconductor Reliability – An Industry Perspective on Status & Challenges*, by Dr. Oliver Häberlen, senior principal for power transistor technology, Infineon Technologies
- *IoT End-Node Device: Built to Last*, by Dr. Alessandro Plovaccari, CTO, Silicon Labs
- *Reliability Drives Semiconductor Industry Evolution*, by Dr. Walden Rhines, CEO emeritus, Mentor
- *Culture & Communication: An Evolutionary Perspective*, by Dr. Vasu Duvuury, Anthropologist, Rice University

IRPS Reliability Year in Review – Monday, March 30

The annual “IRPS Year in Review” session is dedicated to providing attendees with a comprehensive review of developments and advances in reliability technology over the past year, including circuit reliability, with coverage of EDA aspects. In addition, there will be three presentations: RF/mmW/5G reliability, CMOS/SiGe and compound semiconductor reliability, and memory reliability.

Vendor Exhibition

- The 2020 IRPS will include [vendor exhibit](#), showcasing the latest products and services provided by participating companies. The exhibition is open to all IRPS attendees.

Poster Session & Reception

- A poster session featuring more than 70 posters will be presented during the evening reception on April 1st, 6 p.m. – 9 p.m.

About IRPS

[The IEEE International Reliability Physics Symposium \(IRPS\)](#) is the premiere conference for engineers and scientists to present new and original work in the area of microelectronics reliability. Drawing participants from the United States, Europe, Asia, and all parts of the world, IRPS seeks to understand the reliability of semiconductor devices, integrated circuits, and microelectronic assemblies through an improved understanding of both the physics of failure as well as the application environment. IRPS provides numerous opportunities for attendees to increase their knowledge and understanding of all aspects of microelectronics reliability, and to meet and network with reliability colleagues from around the world.

The 2020 IRPS will be held at the [Hilton DFW Lakes Executive Conference Center](#). For [conference registration](#) and other information, visit <https://irps.org/>.

About IEEE, Electron Devices Society, & IEEE Reliability Society

IEEE is the world’s largest technical professional organization dedicated to advancing technology for the benefit of humanity. Through its highly cited publications, conferences, technology standards, and professional and educational activities, IEEE is the trusted voice in a wide variety of areas ranging from aerospace systems, computers, and telecommunications to biomedical engineering, electric power, and consumer electronics. Learn more at <http://www.ieee.org>.

The IEEE Electron Devices Society is dedicated to promoting excellence in the field of electron devices, and sponsors the IEDM. Learn more at <https://eds.ieee.org/>.

The **IEEE Reliability Society** is a professional society engaged in assuring reliability in the engineering disciplines of hardware, software, and human factors, spanning all design engineering fields to provide knowledge and expertise to incorporate reliability-specific attributes into the design of systems / products / devices / processes. Learn more at <https://rs.ieee.org/>

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