



# 2001 *INTERNATIONAL RELIABILITY PHYSICS SYMPOSIUM*

April 30 – May 3, 2001 • Wyndham Palace Resort at Disneyworld • Orlando, Florida

## CALL FOR PAPERS

The IRPS promotes the reliability and performance of integrated circuits and microelectronic assemblies through an improved understanding of failure mechanisms operative in the user's environment.

### YOUR PAPER OF ORIGINAL WORK IS SOLICITED (by Sept. 15, 2000) THAT:

- A. identifies new, or improves our understanding of known, microelectronic failure or degradation mechanisms;
- B. improves our understanding of how reliability is impacted by circuit design, material, and process selection and control in an environment of aggressive scaling;
- C. presents new, innovative, or improved modeling, simulation, or analytical techniques and results; and
- D. demonstrates techniques to build-in or extend reliability.

### IN THE FOLLOWING SPECIFIC AREAS:

#### **IC Failure Mechanisms**

##### **Device and Process**

- Reliability Driven Process Interactions
- Reliability of Multiple Dielectric Processes
- SER Upset Mechanisms
- New SOI Reliability Issues, Flash and NVM's

##### **Device Dielectrics**

- Oxide and Ultra-thin Oxide Breakdown Mechanisms
- Processing Interactions
- New or Novel Dielectric Systems
- Tunnel Oxides in Non-Volatile Memories

##### **Assembly and Packaging**

- BGA, TAB, MCM, KGD
- Stress Modeling, Cu and Low-K Issues
- Bonding, MCM, PCB and Connector Related

##### **Channel Hot Carriers**

- New Hot Carrier Phenomena
- Oxide Degradation Mechanisms
- Novel Low Power Interaction
- Susceptibility of Alternative Dielectric Materials and SOI

##### **Interconnects**

- EM Phenomena in Cu and Al Systems
- Low-k and Other Oxide Inter/Intra Level Reliability Issues
- Mechanical Stress Related Reliability Issues
- Reliability of New or Novel Metal/Dielectric Systems
- Thermal & Mechanical Issues

##### **ESD and Latch-Up**

- Novel Structures Including SOI
- Damage Interpretation

##### **Process Induced Damage**

- Physical and Electrical Damage Characterization
- Reliability Degradation Associated with Damage
- Early Detection and Reliability Analysis
- Plasma Induced Damage Mechanisms

##### **Failure Analysis**

- New Failure Mechanisms; Applications to New Materials
- Novel Analysis Techniques
- Case Histories of General Interest
- Backside and Flip-chip Analysis Techniques
- System-on-a-chip Analysis
- Analyses Resulting in Reliability/Yield Improvement

#### **Product Reliability**

##### **Burn-in**

- New or Novel Failure Modes in Logic and Memory ICs
- Burn-in Elimination Strategies
- Methodologies and Issues for New Materials (e.g. Cu/low-k, thin oxides)
- Wafer Level Burn-in

##### **Yield Enhancement Effects on Reliability**

- Correlation Between Yield, Infant Mortality, Burn-In
- Reliability Effects of Particulate Control

##### **Reliability Testing Methodologies**

- Case Histories of Product Reliability Issues
- Defect Identification at Wafer Test
- Iddq Techniques and Reliability Implications
- Low Voltage Testing and Reliability Implications
- Fault Coverage Issues, Testing for Resistive Failures

##### **Qualification Strategies**

- New Techniques for Technology or Process Qualification
- Case Histories or Best Practices to Reduce Time-to-Market

#### **High Speed Devices and MEMS Reliability**

##### **Optoelectronic Emitters and Detectors**

- LED, VCSEL and Planar Laser and Photodetector Reliability, Degradation, Failure Analysis Techniques and Results

##### **Optical Communication Systems**

- Reliability Testing of VCSEL & Planar Laser Based Modules
- System Reliability Testing; Methods, Case Histories, Issues
- Photonic ICs: Degradation of Active and Passive Systems
- Fiber Optic Coupled Systems: Packaging and Assembly, Measurement and Characterization

##### **GaAs MMICs, HEMT, and HBT Devices**

- Reliability Testing, Aging Phenomena, Characterization Methods
- Failure Analysis Techniques

##### **Micro-Electro Mechanical Systems (MEMS)**

- Reliability of New Structures, Sensors, Actuators
- Testing, Analysis, Packaging, and Reliability of MEMS Systems (including MEMS-based Optical Systems)
- Design and Processing for Reliability

**Submission Deadline (Abstracts Must Be Received By): September 15, 2000**

**Abstract Preparation:** Paper acceptance is based entirely on abstract submission. Your work must be **original** and **unpublished**. Your abstract shall be a **maximum of two pages long**, and shall clearly and concisely state the specific results of your work, why it is important, and how it relates to prior work. The abstract should include graphs, drawings, photographs, and key references as necessary within the two-page limit. Separate from the two page abstract, we also require a cover page with a 50-word summary of your work, the category of submission from the above listing, as well as the authors' affiliation, addresses, phone & FAX numbers and e-mail addresses. **Submission:** Abstracts will be accepted in either electronic (*preferred*) or paper format. Please follow electronic instructions on the IRPS Web page <http://www.irps.org/tpc>. **Send electronic submissions to [Eric\\_Snyder@irps.org](mailto:Eric_Snyder@irps.org)**. Please limit abstract file size to a maximum of 2MB. All submissions will be acknowledged within three weeks. If you do not receive acknowledgment of your submission, please contact the Technical Program Chair. If you choose paper format, we require 1 copy of your one-page, 50-word summary and 1 paper copy of your 2-page abstract to be sent via express mail.

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**Late Papers:** A limited number of excellent late papers reflecting important breakthrough developments can be considered on a space-available basis. Abstract and summary must be received **no later than December 1, 2000** to be considered. Late papers must still meet the publication deadline stated below.

**Proceedings Manuscript:** Final, camera-ready manuscripts (which is different from the abstract) must be received by **February 9, 2001** so that the proceedings can be available at the Symposium.

**Sponsors:** The Electron Devices Society and the Reliability Society of The Institute of Electrical & Electronic Engineers, Inc. are the sponsors of the 2001 IRPS.



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**April 30 - May 3, 2001 IRPS**

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