

## Advance Program -- REPP

# Symposium on Reliability for Electronics and Photonics Packaging

**Reliability, Failure Modes and Testing for Integration of Electronics and Photonics (SiPh)**

12-13 November 2020 Silicon Valley, CA USA

### General Chair

Gnyan Ramakrishna, Cisco

### Technical Program Chair

Richard Rao, Inphi

### Keynote Speakers

Ephraim Suhir

### Asia Liaisons

Xueren Zhang, Xilinx

Dr Pei-Haw Tsao, TSMC

### Europe Liaison

Gromala Jakub, Bosch

### Administrative Chair

Paul Wesling, HP (retired)

This symposium will focus on quantified reliability, accelerated testing and probabilistic assessments of the useful lifetime of electronic, photonic, MEMS and MOEMS materials, assemblies, packages and systems in electronics and photonics packaging. This includes failure modes, mechanisms, testing schemes, accelerated testing, stress levels, and environmental stresses.

The intent is to bring together electrical, reliability, materials, mechanical, and computer engineers and applied scientists to address the state-of-the-art in all the interconnected fields of electronic and photonic packaging, with an emphasis on various reliability-related aspects: design-for-reliability, manufacturing, reliability modeling and accelerated testing.

Join us for the Keynote Talks and sessions below.

Access/print the **final program**. Symposium will be virtual via WebEx.

### KEYNOTE PRESENTATIONS

**Reliability Challenges for the Aerospace Sector and the Use of Commercial Off-The-Shelf Components (COTS)**, Chris Bailey, University of Greenwich

**Emerging Reliability Challenges: Solutions from Architecture to Layout for Large SoCs and 3DICs**, Norman Chang, ANSYS

**Reliability Challenges in Advanced Packaging**, Subramanian S. Iyer, School of Engineering, UCLA

**Reliability Challenges for Electronics and Photonics Packaging for Deep Space**, Reza Ghaffarian, John Evans, JPL/NASA

**Highly Reliable Silicon Photonics DWDM modules**, Ranjani Muthiah, Associate VP for Quality & Reliability, Inphi Corp.

**Evolution of Data Center Optics Packaging Technology and Reliability Challenges**, Dr. Omer Khayam, Google

**Electronics Quality and Reliability for Critical Applications that Adopt New Technologies and Designs**, Ravi Mahajan, Alan Lucero, Joe Walczyk, Intel Corp.

**Silicon Photonics: State-Of-The-Art, Challenges, and Future Requirements**, Vipul Patel, Senior Technologist, Cisco

### Sessions & Presentations

**Session 1** (Richard Rao, Inphi)

**Reliability Requirements of Advanced Packaging in the Era of Electrified, Automated and Connected Driving**, Przemyslaw Gromala, Bosch

**Improving the QFN Board-level Reliability using Low Melting LMPA-Q Solder**, Bart Vandeveld, IMEC

**An Alternative Lead-Free Low-Temperature Solder with Excellent Drop-Shock Resistance**, Hongwen Zhang et al, Indium Corp.

**Session 2** (Xueren Zhang, Xilinx)

**Fan-Out Wafer Level and Panel Level Package Reliability**

**Overview**, Darvin Edwards, Edwards' Consulting

**New Results on Electromigration Modeling: A Departure from Blech's Theory**, Xuejun Fan, Lamar University

**Multi-physics Simulation of Cu Interconnect Wlectromigration for High-density Integrated Circuits**, Tianyu Bao and Shuye Zhang, Harbin Institute of Technology

**Session 3** (Gromala Jakub, Bosch)

**Materials Data and Data Management for Electrical Device Design**, Andrew Miller et al, Ansys Granta

**Load based in-situ Calculation of Remaining Useful Life of Packages at Board Level**, Daniel Riegel, Bosch

**Failure modes in LED-based systems**, Willem van Driel, Signify

**Session 4** (Pei-Haw Tsao, TSMC)

**Reliability Challenges in Advanced Packaging**, Craig Hillman, Ansys

**Influence of 0.05 wt.% Pr Addition on Thermal Shocking Reliability of Sn-0.3Ag-0.7Cu/Cu Solder Joint**, Peng Zhang et al, Nanjing University of Aeronautics and Astronautics

**Thermal Mechanical Reliability of IGBT Power Electronics Packaging**, Prof Tong An, Beijing University of Technology

**Reliability Modeling of Board-Level Dropping of Ultra-Thin Packages**, Shu-Shen Yeh, TSMC

For exact schedule and times, see **Final Program**.

Please add your name and email address to our **IEEE ListServ Dlist**.

Registration (\$15 to \$25) is now open: <https://attend.ieee.org/repp>