CALL FOR PAPERS

Track 6: Microsystems Integration

2011 ASME International Mechanical Engineering Congress and Exposition
Denver, Colorado, United States
November 11-17, 2011

6-1. Symposium on Quality and Reliability of Electronic/Photonic Packaging

Quality and reliability are critical performance characteristics of electronic, photonic and MEMS packaging. Characterizing the fundamental failure mechanisms and developing models to predict product life is critical to the long term reliability of these devices. This symposium focuses on the development of new and innovative engineering sciences and practices for quality control and reliability analysis and testing. Topics include, but are not limited to, reliability issues and failure analysis under thermal and power cycling, vibration, shock/drop, moisture, harsh chemical contaminants and combined loading, in

- Lead-Free Electronic Assemblies
- MCM/SiP/SoP Technologies
- 3-D Interconnects and Packaging
- Underfill, Dielectric, and other polymer Applications in Advanced Packages
- Embedded Actives/Passives
- MEMS Devices
- Nano/Micro Composite Coatings

Papers are also invited on such quality and reliability activities as:

- Reliability Assessment and Accelerated Product Qualification Testing
- Material Characterization and Characterization Techniques
- Predictive Modeling for Product Performance and Design
- Advanced Modeling Techniques for Product Reliability

Prospective authors should submit a 400-word abstract via the web tool at the Congress 2009 website.
Final papers will be available on CD-ROM at the meeting.
See Conference website for detailed Publication Schedule.

Sponsoring Division: EPPD
Technical Committees:

Suresh Sitaraman: suresh.sitaraman@me.gatech.edu
Hua Ye: huaye@microsoft.com
I. Charles Ume: charles.ume@me.gatech.edu
Jeff Suhling: jsuhling@eng.auburn.edu
Ahsan Mian: amian@me.montana.edu
Jianmin Qu: jq@gatech.edu

Topic Chair:	Suresh Sitaraman: suresh.sitaraman@me.gatech.edu
Topic Co-Chair(s):	Hua Ye: huaye@microsoft.com

CALL FOR PAPERS

Track 6: Microsystems Integration

2011 ASME International Mechanical Engineering Congress and Exposition
Denver, Colorado, United States
November 11-17, 2011

6-2. Symposium on Modeling and Simulation in Electronic/Photonic Packaging

Modeling and simulation are critical activities in the design and development of complex electronic and photonic systems. Modeling aids in key activities such design for performance, manufacturability, quality, reliability, testability, maintainability, and affordability. Modeling in electronic/photonic systems requires multi-physics, multi-scale techniques. This symposium focuses on the development of new and innovative engineering sciences and practices for modeling and simulation in electronic systems. Topics include, but are not limited to:

- Modeling of complex properties of materials used in electronic/photonic assemblies
- Modeling of mechanical behavior and heat transfer in atomic scale
- Modeling of complex life cycle loading encountered in electromagnetic compatibility, thermal and power cycling, vibration, shock/drop, moisture, harsh chemical contaminants, and combined loading
- Modeling of complex architectures encountered in advanced packaging technologies
- Modeling of complex failure mechanisms encountered in advanced packaging
- Modeling tools commercially available in the electronics/photonics industry
- Modeling challenges at the microscale and nanoscale for electronic/photonic systems

Prospective authors should submit a 400-word abstract via the web tool at the Congress 2009 website.
Final papers will be available on CD-ROM at the meeting.
See Conference website for detailed Publication Schedule.

Sponsoring Division: EPPD
Technical Committees:

Ganesh Subbarayan: ganeshs@purdue.edu
Mahesh Shah: Mahesh.Shah@freescale.com
Greg Kowalski: gkowal@coe.neu.edu
Cemal Basaran: cjb@buffalo.edu
Bicheng Chen: bchen4@buffalo.edu

Topic Chair:	Satish Chaparala: SatishSC@corning.com
Topic Co-Chair(s):	Mahesh Shah: Mahesh.Shah@freescale.com

CALL FOR PAPERS

Track 6: Microsystems Integration

2011 ASME International Mechanical Engineering Congress and Exposition
Denver, Colorado, United States
November 11-17, 2011

6-3. Symposium on Manufacturing, Materials & Processes

Packaging technology continues to increase in its complexity and integration while requiring lower cost, lighter weight, and importantly increased reliability. As application conditions become harsher, such as for portables, military, sensing, automotive and biomedical applications, packaging needs to be improved to a great extent from current stage. Advance in packaging manufacturing, materials & processes would offer innovative and disruptive solutions to the challenges in such needs. Further, without better understanding of materials and their microstructural developments, it is difficult to keep up with the most advanced concepts in electronics, MEMS, photonics and organic electronics. This symposium focuses on manufacturing and materials issues encountered in the assembly and packaging. Additionally, materials issues in low-k dielectrics will be included in this symposium due to its interface and interaction with the flip-chip and wire-bond packaging. Topics of special interests in this symposium include, but are not limited to manufacturing and materials issues in:

- low-k dielectrics
- electronic, MEMS, and photonic packaging
- OLED
- flexible substrates.
- Thin films, coatings and adhesives
- Interfacial phenomena
- microstructure-property relationships of packaging materials
- Integration of passive components and smart materials into packaging
- Nanoscale phenomena and its relation to packaging reliability
- Combined approaches through modeling and experimental work

Prospective authors should submit a 400-word abstract via the web tool at the Congress 2009 website.
Final papers will be available on CD-ROM at the meeting.
See Conference website for detailed Publication Schedule.

Sponsoring Division: EPPD
Technical Committees:
Jun Wei: jwei@SIMTech.a-star.edu.sg
Ruijun Chen: RChen@kaydon.com
Amip Shah: amip.shah@hp.com

Topic Chair:	Jun Wei, jwei@SIMTech.a-star.edu.sg
Topic Co-Chair(s):	Ruijun Chen: RChen@kaydon.com

CALL FOR PAPERS

Track 6: Microsystems Integration

2011 ASME International Mechanical Engineering Congress and Exposition
Denver, Colorado, United States
November 11-17, 2011

6-4. Symposium on Reliability/Durability of Defense, Aerospace, and Military Electronics

Compared to consumer products, electronics for defense, aerospace, and military applications require longer years of service. During service, they may subject to very extreme thermal cycling and harsh vibration/shock environment. Coupling with COTS parts with lead-free solder, their reliability/durability become an important issue. This symposium dedicates to simulations and experiments of electronics for defense, aerospace, and military applications. Topic of interests may include, but not limited to,

- Durability/reliability of electronic products in electronic packaging for defense, aerospace, and military applications;
- Mitigation of lead free solder impact including mixed assembly;
- Correlation of solder joint durability and reliability;
- Low temperature fatigue;
- Failure mechanism and modeling and testing of solder interconnects under vibration/shock environment;
- Combination of vibration and temperature cycling.

Prospective authors should submit a 400-word abstract **by March 1** via the web tool at the Congress '10 website.
http://www.asmeconferences.org/congress2010
Final papers will be available on CD-ROM at the meeting.
See Conference website for detailed Publication Schedule.

Sponsoring Division: EPPD
Technical Committees:
Tse Eric Wong: tse_e_wong@raytheon.com
Gregory J Kowalski: gkowal@coe.neu.edu
Robert "Scott" Downing: scott.downing@hs.utc.com
Anthony J. Rafanelli: Anthony_J_Rafanelli@raytheon.com
Charles R Lide : charles.r.lide@lmco.com
Michael Y Feng, mfeng@draper.com
Xiaoling He: xiaoling.he@mse.gatech.edu
Jason J-C Lee: jungchuan.lee@boeing.com
Karl J.L. Geisler: karl.geisler@gd-ais.com

Topic Chair:	Tse Eric Wong: tse_e_wong@raytheon.com
Topic Co-Chair(s):	Gregory J Kowalski: gkowal@coe.neu.edu

CALL FOR PAPERS

Track 6: Microsystems Integration

2011 ASME International Mechanical Engineering Congress and Exposition
Denver, Colorado, United States
November 11-17, 2011

6-5. Symposium on Advanced Packaging, Power Electronics & Photonics

The fabrication, assembly and testing of advanced electronic and photonic device or packaging can involve complex interactions between physical phenomena such as temperature, moisture, fluid flow, electromagnetics, optics and stress. Characterizing these multiphysics phenomena can have significant impact on the business profitability of electronics and photonics industries. This symposium is dedicated to multiphysics simulations and experiments in microelectronics, photonics, microsystems and power electronics. Topics of interest include:

- Coupled Electro-thermal-mechanical issues
- Coupled Thermo-Fluid-Structure Issues
- Coupled Thermo-Hygro-Mechanical Issues

This topic area will also host a *Mini-symposium on Power Electronics*, relevant in alternative energy sources and energy conservation, eg. in efficient conversion of the raw output of renewable sources like wind, solar, geothermal, into a form useful to the grid, as well as to conserve energy in hybrid or plug-in electric vehicles, HVAC, and commercial appliances. Operating reliably in such applications requires the latest materials & design solutions to manage electrical, thermal, mechanical & chemical stresses for better reliability. Areas of interest include:

- Packaging of SiC and GaN power devices
- Planar interconnection technologies for power electronic modules
- Advanced cooling technologies for high power devices and modules
- High temperature, lead-free attach technologies for power electronics
- Failure mechanisms in power electronic devices and packaging.

Prospective authors should submit a 400-word abstract via the web tool at the Congress 2009 website.
Final papers will be available on CD-ROM at the meeting.
See Conference website for detailed Publication Schedule.

Sponsoring Division: EPPD
Technical Committees:
Luu Nguyen: Luu.Nguyen@nsc.com
Patrick McCluskey: mcclupa@umd.edu
Tieyu Zheng: Tieyu.zheng@intel.com
Rich Beaupre: beaupre@ge.com
Avram Bar-Cohen: abc@umd.edu
Ricky Lee: rickylee@ust.hk

Topic Chair:	Luu Nguyen: Luu.Nguyen@nsc.com

Topic Co-Chair(s):	Patrick McCluskey: mcclupa@umd.edu

CALL FOR PAPERS

Track 6: Microsystems Integration

2011 ASME International Mechanical Engineering Congress and Exposition
Denver, Colorado, United States
November 11-17, 2011

6-6. Symposium on Emerging Technologies

This topic will span the design, process, and reliability issues in the research on developing eco-friendly electronics. Topics on emerging technologies that result in reduced impact on the environment will be covered. This may include but will not be limited to materials/processes/challenges in electronics used in energy harvesting, photovoltaic or other renewable energy applications, printable electronic approaches, 3 dimensional Integrated Circuits, stretchable and flexible electronics, RF switches, Micro/Nano-electro-mechanical systems (M/NEMS), GaN and GaAs based devices and energy efficient electronics. This symposium consists of the following topics:

- Novel Materials and Processes for Eco-electronics
- Minisymposium on “Quality and Reliability of Electronic Packages, Devices and Materials for Emerging Technologies” (co-sponsored with Materials and MEMS Divisions)
- Minisymposium on “Flexible and Stretchable Electronics” (co-sponsored with Applied Mechanics Div)

Prospective authors should submit a 400-word abstract via the web tool at the Congress 2009 website.
Final papers will be available on CD-ROM at the meeting.
See Conference website for detailed Publication Schedule.

Sponsoring Divisions:
Electronics & Photonics / Materials / Applied Mechanics
Technical Committees:
George Nnanna: nnanna@calumet.purdue.edu
Leila Ladani: ladani@engineering.usu.edu (liaison with Materials Div)
Ying Sun: ysun@binghamton.edu
Teng Li: LiT@umd.edu (liaison with Applied Mech Div)

Topic Chair:	George Nnanna: nnanna@calumet.purdue.edu
Topic Co-Chair(s):	Leila Ladani: ladani@engineering.usu.edu

CALL FOR PAPERS

Track 6: Microsystems Integration

2011 ASME International Mechanical Engineering Congress and Exposition
Denver, Colorado, United States
November 11-17, 2011

6-7. General

Authors and presenters are invited to participate in this event to expand international cooperation, understanding and promotion of efforts and disciplines in the area of Electronics and Photonics focus. Dissemination of knowledge by presenting research results of a broad range of investigations related to the application of methods and engineering approaches to the analysis, design, manufacturing, and testing of microelectronics and photonics components, devices, equipment and systems will serve as the foundation upon which the conference program of this area will be developed.

Prospective authors should submit a 400-word abstract via the web tool at the Congress 2009 website.
Final papers will be available on CD-ROM at the meeting.
See Conference website for detailed Publication Schedule.

Sponsoring Division: EPPD
Technical Committees:
Abhijit Dasgupta, dasgupta@umd.edu
Tieyu Zheng, tieyu.zheng@intel.com
Kaustubh Nagarkar, nagarkar@ge.com
Cemal Besaran, cjb@buffalo.edu

Topic Chair:	Abhijit Dasgupta: dasgupta@umd.edu
Topic Co-Chair(s):	Kaustubh Nagarkar: nagarkar@ge.com Tieyu Zheng: tieyu.zheng@intel.com

CALL FOR PAPERS

Track 6: Microsystems Integration

2011 ASME International Mechanical Engineering Congress and Exposition
Denver, Colorado, United States
November 11-17, 2011

6-8. Workshop on Careers in Industry and Academia

The session will provide new and upcoming graduates with an insight to the careers in the Industry and Academia. Early career and established researchers will be invited to share their experience.

Prospective authors should submit a 400-word abstract via the web tool at the Congress 2009 website.
Final papers will be available on CD-ROM at the meeting.
See Conference website for detailed Publication Schedule.

Sponsoring Division: EPPD
Technical Committees:

Kaustubh R. Nagarkar: nagarkar@ge.com
Dereje Agonafer: agonafer@mit.edu
Sandeep Tonapi: sandeep.tonapi@anveshak.com

Topic Chair:	Kaustubh R. Nagarkar: nagarkar@ge.com
Topic Co-Chair(s):	Dereje Agonafer: agonafer@mit.edu

CALL FOR PAPERS

Track 6: Microsystems Integration

2011 ASME International Mechanical Engineering Congress and Exposition
Denver, Colorado, United States
November 11-17, 2011

6-9. Workshop on Lead Free Electronics Impact on DoD Programs

The implementation of lead-free electronics in industry has resulted in a number of challenges focused at addressing concerns with performance of new materials under harsh operating and other environmental conditions. DoD (and Aerospace/High Performance) systems have unique requirements which include: 1) High reliability and critical systems, 2) VERY long service life, 3) Extended temperature ranges, and 4) Repairable systems. DoD acquisition programs are increasingly dependent on ***commercial*** electronic parts and assemblies (COTS) and therefore, the influx of lead-free assemblies is imminent and real. Primary lead-free impacts include

- Lead-free solder issues
- Tin whisker failures
- Availability of leaded solder and components
- Configuration control
- Repair/Rework

This workshop, will provide insight and training on specific issues, typical failures, risk mitigation strategies, available resources, and a summary of the present state of readiness. Specific topics for discussion include: typical failures, mitigation strategies, resources needed to manage the transition to Pb-free electronics, summary of the defense/aerospace industry readiness to adapt to lead-free technology.

Sponsoring Division: EPPD
Technical Committees:
Anthony J. Rafanelli: Anthony_J_Rafanelli@raytheon.com
Abhijit Dasgupta: dasgupta@umd.edu
Tse Eric Wong: tse_e_wong@raytheon.com

Topic Chair:	Anthony J. Rafanelli: Anthony_J_Rafanelli@raytheon.com
Topic Co-Chair(s):	Abhijit Dasgupta: dasgupta@umd.edu

CALL FOR PAPERS

Track 6: Microsystems Integration

2011 ASME International Mechanical Engineering Congress and Exposition
Denver, Colorado, United States
November 11-17, 2011

6-10. Student Posters

Papers with students as the lead authors are invited to be presented at the Electronic and Photonic Packaging Davison Student Poster session. Papers in all areas of electronic and photonic packaging are welcome. A committee of three experts will be formed to judge the posters. Three winners will be selected to receive the EPPD Best Students Poster Award at the EPPD Wine and Cheese Reception

Prospective authors should submit a 400-word abstract via the web tool at the Congress 2009 website.
Final papers will be available on CD-ROM at the meeting.
See Conference website for detailed Publication Schedule.

Sponsoring Division: EPPD
Technical Committees:

Sandeep Tonapi: sandeep.tonapi@anveshak.com
Abhijit Dasgupta: dasgupta@umd.edu
Kaustubh R. Nagarkar: nagarkar@ge.com
Pradeep Lall: lallpra@eng.auburn.edu

Topic Chair:	Sandeep Tonapi: sandeep.tonapi@anveshak.com
Topic Co-Chair(s):	Abhijit Dasgupta, dasgupta@umd.edu