



IEEE Reliability Society Newsletter

Joint Section Chapter – Boston - New Hampshire - Providence

December 2010 - March 2011

<http://www.ieee.org/bostonrel>

Our chapter continues to benefit from a very busy and successful schedule of events. The Reliability Society volunteer contributions continue with strong participation. I'm pleased to welcome Mary Jones (Analogic Corporation), Charles Recchia (MKS Instruments), and Daniel Weidman (MIT Lincoln Lab) to the Joint Section Chapter (Boston - New Hampshire - Providence) AdCom (Administrative Committee).

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December 9, 2010

- Annual Past Chairs Dinner.
- "Ga-As Flip-chip Technology and Qualification", Shivarajiv Somisetty, Richard Giacchino, M/A-COM.

February 8, 2011

- Reflow and Wetting Properties of Lead-free Nano-Solders on Reactive Substrate and Printed Circuit Board (PCB)", Dr. Zhiyong Gu and Fan Gao, Department of Chemical Engineering, University of Massachusetts Lowell.
- "New England Lead-free Electronics Consortium Phase IV Reliability Testing Results", Dr. Greg Morose and Dr. Sammy Shina, TURI and Department of Mechanical Engineering, University of Massachusetts Lowell.
- "Conversion of a High Reliability Exempt Product to Lead-Free: Lessons Learned – 4 Years into RoHS" Robert Farrell, Benchmark Electronics, Inc.
- "Evaluation of a Nanotechnology Based Component Surface Finish to Eliminate the Risk of Tin Whiskers", Deb Fragoza, EMC, presented by Robert Farrell.

February 9, 2011

- "Whisker-Impenetrable Metal Cap Process for Electronic Assemblies", Robert Landman, LDF Coatings, LLC.

March 9, 2011

- "Qualifying MEMS Products for Diverse Applications", Andrew Olney, Director Reliability and Product Assurance, Analog Devices.

Upcoming Events

May 11, 2011

- "Everything You Wanted to Know From a Headhunter (But Were Afraid to Ask)", Leslie Gabriele, Gabriele & Company.

June 8, 2011

- "Dramatic COTs Design Accomplishments Traced to Innovative DfR Practice", Darryl McKenney, Mercury Computer.

Society Participation

- <http://www.ieee.org/bostonrel>
- [Suggest a Meeting Topic](#)
- [Join Technology Development](#)
- [Join our E-Mail Distribution List](#)
- [Join IEEE](#), [Join an IEEE Society](#), [IEEE Reliability Society Membership](#)

Recent Activities

December 2010:

On December 9th we held our annual chapter past chairs and dinner meeting at Teradyne, Inc., North Reading, MA. Ramon De la Cruz presented a chapter brief highlighting chapter meetings and activities through 2010 and the results of our annual chapter officer elections.

Chapter Officers - Election Results for the 2011 term:

- Ramon De la Cruz (Teradyne) was re-elected as chapter Chair.
- Aaron DerMarderosian Jr. (Raytheon) re-elected as chapter Vice-Chair.
- Don Markuson (Sierra Atlantic) was re-elected as chapter Treasurer.
- Shivarajiv Somisetty (M/A-COM) was re-elected to chapter Secretary.

Past Chapter Chairs: For our annual dinner meeting, we had a few past chapter chairs in attendance. Amongst those recognized for their contributions were the following:

- Don Markuson, Chair, 1990 - 1991 and 1995 – 1996
- Aaron DerMarderosian Jr., Chair, 2006 – 2008
- Ramon De la Cruz, Chair, 2009



Ramon De la Cruz, Chair, Reliability Joint Section Chapter presented the 2010 Chapter Brief to attendees of the December 2010 meeting at Teradyne, North Reading, MA.

December Presentation: Our featured guest speakers, Shivarajiv Somisetty (M/A-COM) and Richard Giacchino (M/A-COM), presented “Ga-As Flip-chip Technology and Qualification”, where they described the best practices used by their reliability group to improve the reliability of some of (M/A-COM)’s most popular RF products. The presentation covered the several bump formation technologies available in the market - most notably solder bumping, copper pillar bumping and gold stud bumping as well as several substrate technologies, with different dielectrics, and their reliability implications. We had a total of 32 members and guests at this meeting.



Presenters Shivarajiv Somisetty (M/A-COM) (standing) and Richard Giacchino (M/A-COM) (seated at the left of the group photo) with more attendees of December 2010 meeting are shown above.

January 2011: Our meeting scheduled for January 12th was canceled due to winter weather.

February 2011:

February 8 Presentations: On Tuesday the 8th the IEEE Reliability Society Joint Section Chapter held a joint meeting with the SMTA which included a tour of the Product Assurance and Failure Analysis Laboratory at Benchmark Electronics, Nashua, NH, and four technical presentations from experts from the University of Massachusetts Lowell, Benchmark, and EMC Corporation. 46 members and guests attended.



Presenters Dr. Zhiyong Gu and Fan Gao, Department of Chemical Engineering, University of Massachusetts Lowell, Dr. Greg Morose TURI and Department of Mechanical Engineering, University of Massachusetts Lowell, and Robert Farrell, Benchmark Electronics, Inc., and attendees of the February 8th joint Reliability Society and SMTA meeting at Benchmark, Nashua, NH.

Dr. Zhiyong Gu and Fan Gao, Department of Chemical Engineering, University of Massachusetts Lowell, presented “Reflow and Wetting Properties of Lead-free Nano-Solders on Reactive Substrate and Printed Circuit Board (PCB)”.

Dr. Greg Morose and Dr. Sammy Shina, TURI and Department of Mechanical Engineering, University of Massachusetts Lowell, presented “New England Lead-free Electronics Consortium Phase IV Reliability Testing Results”.

Robert Farrell, Benchmark Electronics, Inc. presented “Conversion of a High Reliability Exempt Product to Lead-Free: Lessons Learned – 4 Years into RoHS” and Deb Fragoza’s (EMC) “Evaluation of a Nanotechnology Based Component Surface Finish to Eliminate the Risk of Tin Whiskers”.

February 9th Presentation: On Wednesday the 9th at Teradyne Inc., North Reading, MA, Bob Landman, LDF Coatings, LLC. presented “Whisker-Impenetrable Metal Cap Process for Electronics Assemblies” to 26 members and guests. Whisker-impenetrable metal cap process for electronic assemblies is a novel approach to mitigate and prevent the well known problem that Pb-free tin on electronic assemblies can grow whiskers that can cause circuit failure. During this meeting Bob described how the LDF Coatings solution mitigates tin-whiskers in lead-free solder circuits and its process and reliability implications.

March 2011:

Wednesday, March 9th Presentation: At Analog Devices, Wilmington, MA, Andrew Olney, Analog Devices, presented “Qualifying MEMS Products for Diverse Applications” to 43 members and guests. This talk focused on the qualification requirements for four categories of MEMS products (accelerometers, microphones, gyroscopes, and switches), and discussed likely future trends and challenges in qualifying MEMS products. This was a joint IEEE Reliability Society and IEEE Solid State Circuits Society meeting.



Presenter Andrew Olney, Analog Devices and attendees of March 2011 meeting at Analog Devices, Inc., Wilmington, MA.

Upcoming Meetings and Events

May 2011:

On Wednesday, May 11th Leslie Gabriele, Gabriele and Co. will present "Everything You Wanted to Know from a Headhunter (But Were Afraid to Ask)" at Teradyne, Inc., North Reading, MA. This will be a joint meeting with the IEEE Women In Engineering (WIE).

June 2011:

On Wednesday, June 8th Darryl McKenney, Mercury Computer, will present "Dramatic COTs Design Accomplishments Traced to Innovative DfR Practice". This event will take place at RSA, the Security Division of EMC, Bedford, MA.

Society Participation

Please check our website periodically for updates on upcoming events! <http://www.ieee.org/bostonrel>

- If you would like to present a reliability based topic at a future meeting, to make meeting topic suggestions, or to share ideas about how to improve our meetings, we want to hear from you! Please send an e-mail to any of the AdCom members, or go to our website and click on [Suggest a Meeting Topic](#).
- If you would like to participate or provide input to chapter technology development activities, you can sign up to become a TDC (Technology Development Committee) participant using our website by clicking on [Technology Development](#).
- If you would like to be added to the chapter e-notice distribution via our website you can sign up by clicking on [Subscribe to E-Notices](#), or sending a request to dermarderosiana@ieee.org (Vice-Chair, notices, and registration).

Best Regards,

Ramon De la Cruz

Chair, Reliability Joint Section Chapter, (Boston - New Hampshire - Providence)

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