May 2016 Newsletter
The IEEE Reliability Society
Joint Section Chapter: Boston - New Hampshire - Providence
Feb 2016 – May 2016
http://www.ieee.org/bostonrel

Greetings from the IEEE Reliability Joint Section Chapter (Boston - New Hampshire - Providence). We've had a very active start to 2016 with four Chapter meetings over the course of 3 months. Our new IEEE Reliability Society pull-up banner is now being displayed during all meetings (look for it in the pictures of this edition). We have been placing an emphasis on strong technical topics with very high turn-out and enthusiastic Q&A sessions. That our Chapter Chair is now a member of the IEEE Reliability Society AdCom gives us better access to Society information and opens the doors for new collaboration opportunities and guest speakers.

Also, look out for our reliability crossword puzzle at the end of this newsletter!

Best Regards

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Recent Activities:

Feb 10, 2016	"ESD Device Sensitivity Trends and their Impact on Manufacturing Technology" by Dr. Terry L. Welsher, Dangelmayer Associates, held jointly with NE-ESDA at Lincoln Laboratory, Lexington, MA.
March 9, 2016	"ReliAbility PhySics based On Dynamic causal nEtworks (RAPSODE)" by Dr. Simone Bortolami, Draper Laboratory at Lincoln Laboratory, Lexington, MA.
April 14, 2016	"Infrastructure for Rapid Assessment of Reliability: Infrastructure and process improvements in the reliability testing of a high density microelectronic packaging technology" by Hannah Varner of Draper Laboratory, held at Lincoln Laboratory, Lexington MA.
April 29, 2016	"Nuclear System Control Reliability" by Mikhail Yastrebenetsky, Gnedeko Forum, held jointly with ASA and INFORMS, Northeastern University, Boston, MA.

Upcoming Events:

Visit http://www.ieee.org/BostonRel to register

May 11, 2016	"HALT In the Product Development Process" by Adam Bahret, Apex Ridge Reliability Consulting, held at MACOM Technology, Lowell MA.
September 14, 2016	"Software Reliability: Tools and Algorithms" by Dr. Lance Fiondella, UMass Dartmouth, at MIT Lincoln Lab, Lexington, MA

Recent Chapter Activities

"ESD Device Sensitivity Trends and their Impact on Manufacturing Technology"

On February 10, 2016 Dr. Terry L. Welsher retired Lucent Technologies-Bell Laboratories Engineering Research Center presented on a new version of the ESD Technology Roadmap to be published by ESDA later this year that will make projections of ESD device-level protection levels out to the year 2020. A preview of this roadmap was presented as well as other information about device protection capability and device and system-level testing. The implications of these trends on the development of new technologies such as 3D ICs and advanced automated processes were discussed.

"ReliAbility PhySics based On Dynamic causal nEtworks (RAPSODE)"

On March 9, 2016 Dr. Simone Bortolami, Draper Laboratory presented on RAPSODE a proposed approach that uses behavioral models of the system's dynamics and embedded PoF models to evaluate the outcome of all combinations of failure and/or degradation sources, which are different for different environments and mission goals. RAPSODE uses causal networks to identify all possible failure/degradation states.

Link to Presentation

"Infrastructure for Rapid Assessment of Reliability: Infrastructure and process improvements in the reliability testing of a high density microelectronic packaging technology"

On April 14, 2016 Hannah Varner of Draper Laboratory presented on a means to efficiently characterize the environmental reliability of fabricated features of a high density microelectronic packaging technology to quickly evaluate new materials and processes. An infrastructure for accelerated life testing of features and process variations was presented that started with Failure Modes and Effects Analysis on the most critical aspects of the technology given customer environmental qualification requirements and test structures for high risk priority numbers. Test structures were described for high risk priority numbers to tailor the life testing for the relevant failure mechanisms, and ensure test results are straightforward to interpret. Described were a common test die format, common package and common test interface board to evaluate a large number of different test structures with a limited amount of resources.

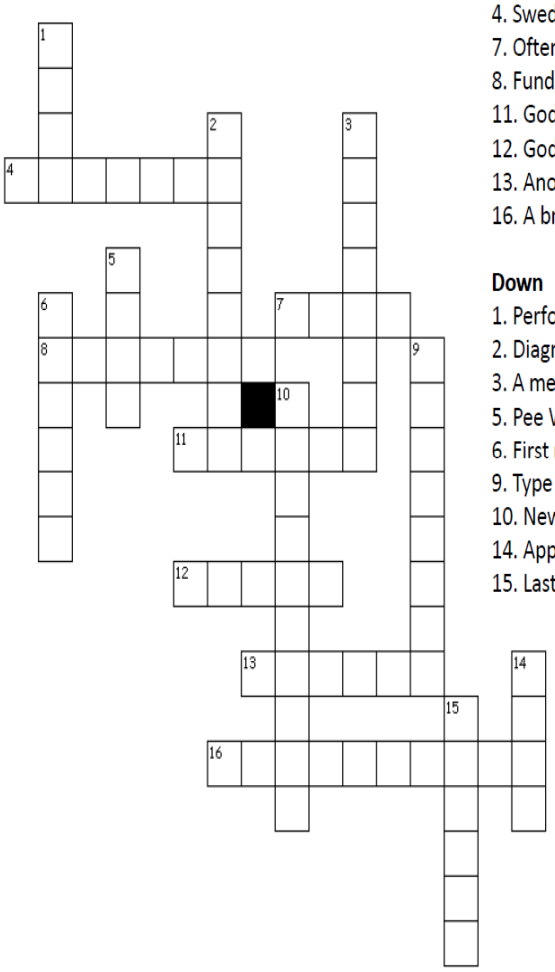
Link to Presentation

"Nuclear System Control Reliability"

On April 29, 2016 Dr. Mikhail Yastrebenetsky, vice-president of the Gnedenko Forum , presented at a joint ASA and INFORMS Forum held at Northeastern University on nuclear control system reliability and his experience at Chernobyl nuclear power plant. As this year marks 30 years since Chernobyl nuclear power plant disaster (26 April 1986) and only 5 years since the Fukushima Daiichi nuclear power disaster (11 March 2011), reliability and safety of nuclear power plants is critical today and in the future as the world continues to rely on nuclear power to feed an ever-growing demand for power.

Link to past presentations http://ewh.ieee.org/r1/boston/rl/presentations.html

Reliability Crossword Puzzle!



Across

4. Swedish distribution developer first name.
7. Often quoted in conveying the reliability of a system.
8. Fundamental particle generated in upper atmosphere which can upset SRAM cells on Earth.
11. Godfather of the American quality movement W. Edwards _____
12. Godfather of the American quality movement Joseph M. _____
13. Another term for failure rate.
16. A branch of mathematics widely used by reliability practioners.

Down

1. Performed with the objective of improving the design of a system.
2. Diagram intended to assist in root cause determination.
3. A method of altering the failure rate of a component based on stress levels relative to nominal.
5. Pee Wee Herman actor first name.
6. First name of Swedish guitar virtuoso.
9. Type of data where exact times are not known.
10. New Jersey town where headquarters of IEEE is located.
14. Applied during production stage to prevent the shipment of defective items.
15. Last name of pop musician from Canada.

Chapter Participation and Outreach Efforts

I. Chapter Seeks Volunteers

We are interested in having you help out as a volu
contributing as much or as little as you would like. We
a good team of volunteers that help us keep things goi
if you would like to join us, there is probably a
opportunity to choose how you would like to contr
Email or talk to any of us at the next monthly present
or attend one of our Advisory Committee meetings.

For updates on upcoming events: http://ewh.ieee.org/r1/boston/rl/events.html.

Readers can contact chapter newsletter editor Ken Rispoli Kenneth.rispoli@raytheon.com) with any comment/suggestion or if interested in contributing to our next issue. Thanks.

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