

Reliability

NEWSLETTER

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HT117

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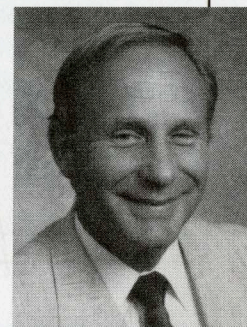
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Editor:
Bruce Bream

Message from the President

I just returned from RAMS in Las Vegas. Despite the economic troubles, the attendance was pretty good. The program was excellent, and I am sure those attending felt good about the program. It was fun for me to meet some more of the membership. Our next meeting will be held on Tuesday morning, March 31st in conjunction with the International Reliability Physics Symposium (IRPS).



The Adcom is reviewing a new IEEE book on Probabilistic Risk Assessment. One benefit of our reviewing the book is that we can then offer it at a discount to our members when it is released.

I have a strong desire to see the content and relevance of our newsletter grow. In this regard, I welcome any contributions that you would wish to make. We would like to see the newsletter become a magazine with timely application articles, book reviews, special interest features, etc. Then it would be an organ to disseminate practical and timely information to practitioners in the field. There are also some economic advantages in publishing a magazine. The IEEE would include this in their all transaction distribution for which we gain a significant return.

I have mentioned the development of a series of monographs on reliability. These would cover such subjects as FMEA, software reliability, failure analysis, ESS to mention several. I have heard from a couple of you regarding your interest in this area. We have a boost now. Sandia Corporation is developing some similar material which they eventually plan to go public with. There is mutual interest in our working together. The reliability society leader on this effort is Mr. Ken LaSala.

Please contact Ken directly if you have questions or interest to participate. His address is:

Ken LaSala
DMA AQLM
8613 Lee Hwy.
Fairfax, VA 22031-9153

Dr. Samuel Keene
President, Reliability Society

Editor's Column

I'm quite pleased with the response we are getting for input to the newsletter. I received a couple of letters to the editor regarding the January issue letter on the exponential law from Kam Wong. Both of these support Kam's position. I'd like to hear from some of you that still support the exponential law but so far I only have responses from those refuting it. For exponentialists out there, I included the latest status of the MIL-HDBK-217 revisions. Our Swiss chapter has been very active and I'm glad to be able to pass on this information for our international members. Total Quality Management (TQM) affects R&M and you will note that Rome Labs has just released a series of documents on this subject. You'll find the first release of our R&M speakers list. Tom Fagan has been working on this new development to support the need for qualified speakers in the R&M area. Along these same lines, Joe Gruessing, our VP of Technical Operations, is developing a database of technical expertise for our R&M membership. I'm sure all of us have had problems in some areas of R&M where it would be great to have someone for a little guidance. A survey can put the varied background in our society to use for the betterment of our members and the R&M profession. I hope you will look over the questionnaire in this issue and take the time to mail it in.

Bruce Bream
Editor, RSNL

Reliability Society Newsletter Inputs

All RS newsletter inputs should be sent to:

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Cleveland, OH 44135
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The schedule for submittals is:

Newsletter	Due Date
January	November 19
April	February 20
July	May 21
October	August 20

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Bylaws Amendment

The Reliability Society Administrative Committee has voted to amend the Society Bylaws (current issue 5/1/86). Article 5.1 is amended to read as follows:

"5.1. The terms of elected officers shall be one year, commencing on January 1. The president may be re-elected to a second term of one year. If the second term year exceeds his/her elected AdCom membership second term, the re-elected president shall become an ex-officio member of AdCom, with vote, for the term year. A president, having served his/her elected terms, shall not again be eligible for election to the presidency until a lapse of three years. An AdCom member may be elected to vice presidential office for any or all of his/her elected years on AdCom, but shall not remain in any one vice presidential office for more than three consecutive years. Eligibility is restored after a lapse of one year."

These changes were made to resolve questions of intent of the prior Article 5.1, and to allow more flexibility in the selection of officers. The major effect is to allow a first term president of the society to serve a second term as president even though he/she is serving a last term as an AdCom member.

Reliability Forum

The Exponential Law - Responses

I had long despaired of finding a kindred soul who shared my disgust with the formalism practices by the reliability community. The article on the Exponential Law rekindled my enthusiasm. The only justification for "exponentialism" is its mathematical convenience; it does not describe the real world. My disgust let me to write a book, published in 1981, "Extending the Limits of Reliability Theory", John Wiley and Sons. Analyses show that even in a theoretical world, except for the exponential distribution, the achievement of equilibrium requires a long time. Most equipment will have reached the end of its economic life well before the time interval needed to reach this equilibrium; in that transitory period, failure rates can substantially exceed equilibrium rates. Indeed in the real world the failure rate is never a constant.

Harold Goldberg
311 S. Hollybrook Dr. #303
Pembroke Pines, FL 33025
Tel: (305)431-2796

I could not agree more with the Newsletter article on the Exponential Law that appeared. I have written an article relating to the subject. It is entitled: "Making Reliability Estimates When Zero Failures Are Seen In Laboratory Aging". It was published in the Materials Research Society Symposium Proceedings, vol. 184, "Degradation Mechanisms In III-V Compound Semiconductor Devices And Structures", page 3, 1990. I am also writing a book on making credible reliability estimates and in it will be a pro-and-con examination of the Exponential Law. This book will serve as a way to deal with the mindlessly widespread use of the Exponential Law.

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RS MEMBER SELECTED AS BALDRIGE EXAMINER

Mark Snyder, Senior Member of the IEEE and former co-editor of this RS Newsletter, has been selected as a member of the 1992 Board of Examiners for the Malcolm Baldrige National Quality Award. He is currently a Staff Quality Consultant in TQM for the Digital Services organization of Digital Equipment Corporation. Mark now serves as Reliability Society liaison to the IEEE Press and is a former Chairman of the Boston Chapter.

This section provides a means for members to express their views on R&M topics of interest to the entire R&M community. Contributions are welcomed by the editor. Authors may send their letters either by mail or Email. A daytime phone and complete mailing address must be provided. RSNL reserves the right to edit the content of letters received.

Chapter Activities

Boston

The Boston Section reliability chapter is continuing our successful season.

Our monthly meetings continue though the turnouts are not quite to the level that we would like to see them. The November monthly meeting was on "connector reliability" by Bob Malucci from Molex Incorporated. The December monthly meeting was on Estimating Warranty and Service Costs from MTBFs by Jim Fahey of Data General. The January meeting was on ISO 9002 Implementation in a Computer Firm by Brenda Sabagh also of Data General. The February monthly meeting was on the Armand V. Feigenbaum Massachusetts Quality Award by Paul Kales, University of MA at Lowell and the MA Council for Quality. The March Monthly meeting is Improving Your Company Using the Malcom Baldrige Framework by Gene Carrubba of Motorola Codex Corp. Our 30th Annual All Day Seminar will be held this month in Framingham, MA. The title of the seminar is "Reliability Engineering: Alternative Techniques for Today's Business Environment". The Keynote speaker will be Nassar Fard, associate professor from Northeastern University. There will be eight papers presented on a wide variety of topics.

We are also holding a spring lecture series on ESS: Theory and Application authored by Gene Bridgers. This lecture will consist of 2 days of lectures and two days of laboratories.

Regards

Gary Kushner
Boston Chapter Chairperson

Cleveland

The Cleveland Chapter tried something different for our Thanksgiving Special meeting. Bob and Ruth English, a very talented retired NASA couple, shared a "Photo Essay of Iceland" with us. As usual this was very well done. All in attendance enjoyed the trip.

Our 4th meeting was on Optical Digital Computing. This meeting was from the IEEE Learning Channel Videoconfer-

ence Seminars via satellite. Two experts: Dr. Alan Huang and Dr. David A. Miller talked about uses of optics, current devices and optical systems. As usual every seat was filled.

The annual mid-year social was held at NASA LeRC Guerin house on December 17th. Old friends and new members got together for an evening of relaxation and a cold buffet. No speakers were used. Pool, ping-pong and dancing were enjoyed by many.

We are happy to report that RAMS '92 was a huge success. Our session on "Design Practices for Reliability" and "The Future Role of R&M Assurance in Space Flight Exploration" were interesting and well attended. Many thanks to the people who participated in the sessions. Our chapter will help RAMS '93 on the Registration Committee.

Vince Lalli, Chairman
Cleveland Chapter

Dallas

The Dallas Chapter has a wide range of topics for technical meetings in 1992. In January, we had a humorous and enlightening talk by Marvin Wilkin (Texas Instruments) regarding "lessons learned" in systems engineering. His main focus was on methods to make concurrent engineering successful based on his vast experience. In February, the topic shifts to software reliability. Robin Leogrande (Texas Instruments) addressed the needs of so many disciplines that use software code, especially in models and systems. March's technical meeting will deal with the "Emergence of Simulation Based on Concurrent Engineering of Mechanical Systems". The speaker is Dr. Edward J. Haug (Carver Distinguished Professor of Mechanical Engineering at the University of Iowa). The rest of the year will round out with a meeting on Integrated Diagnostics and another on Physics of Failure.

Another aspect of our chapter that we focus on is membership and participation. How can we each strive to increase IEEE Reliability Society membership

and participation? Get the word out! There are many ways to communicate IEEE activities to others to increase participation. IEEE has some great activities, but how can we make engineers aware of these events? Look around your company or business. Is there an electronic bulletin board service? Get in touch with the bulletin board editor and request a free slot. In my company's bulletin news service, professional society meeting announcements are run for three days with readership coverage on the order of thousands. Another communication tool is electronic mail (e-mail). If e-mail is available in your company, try to get a list of reliability engineers. This may be possible through human resources, personnel or your engineering council. You can e-mail the IEEE activity announcements to fellow engineers with a higher likelihood of reaching your target audience.

Many companies also publish newsletters. You can use this outlet to make others aware of IEEE. Volunteer to write an article for your division's or group's newsletter. You'll be giving IEEE and yourself some positive press.

Another possible target audience is Engineering Alumni Associations. If you have a special event of broad interest, you may be surprised at the level of interest from University Alumni members.

Professional societies like IEEE have a lot to offer. Different people may seek different benefits from participating. Some of the benefits include a) a forum by which to network with other professionals, b) a vehicle by which to stay current on your profession, or c) a channel through which to perform organized community service.

Professional societies sometimes struggle with their membership growth. We have also, but we are utilizing many avenues in the Dallas area to encourage participation.

Spread the word on IEEE activities in your company soon. You'll feel good about helping others get in touch with IEEE. The high level of interest from others will surprise you!

Julie England

Los Angeles

Two technical meetings were held. A very interesting presentation on Wafer Scale Technology was given by Bruce Christopher of Anamartic. At another meeting, Dave Franklin of Hughes Aircraft spoke on Failure Analysis and Risk Assessment. Dave is currently the vice chair of the Los Angeles Chapter. In February, Irv Doshay will present software he developed on Combined Hardware-Software Reliability Simulation via a PC. Other meetings, include Multimedia and Special Effects, Electric Vehicle Status, Digital Cellular Technology, and a seminar on Preparation of Compound Documents. During Engineers week in February a staff member, Winnfort Myles, will put a Discover E display at the local Los Angeles county library with literature ordered and paid for by the Los Angeles Chapter. Winnfort is also coordinating his efforts with Hughes Aircraft and plans on having Hughes build hardware for the display as well.

Our Videotape Exchange program continues to be popular. Currently we have over 100 videotapes available. The latest listings can be viewed and downloaded through our bulletin board.

Loretta Arellano
Los Angeles Chapter Chair

Philadelphia

Our meeting schedule for the last year has been:

9/24/91 - *Engineering Management - Career Path or Dead End*, Mr. H.C. Irion III, G.E.

10/15/91 - *Wavelets - A New Frontier*, Dr. S. Zietz, Drexel University

11/19/91 - *Doppler Radar Detection of Aircraft Vortices*, Mr. J.D. Nespor, G.E.

1/21/92 - *The Role of Space Robotics in U.S. Competition*, Mr. Robert Lesser, Temple University

Fulvio F. Oliveto
Chairman, Reliability Chapter
Philadelphia Section

Swiss

The Swiss Reliability Chapter held a number of meetings, conferences, and courses this last year.

1991 Courses and Seminars:

2-4 Sept - Course on Reliability and Maintainability of Equipment and Systems (Prof. A. Birolini)

18-19 - Sept Failure Mechanisms and Failure Analysis of VLSI-ICs (M. Ciappa)

26 Sept - International Seminar on Reliability Aspects in Surface Mount Technology (ETH Zurich)

1991 Meetings:

Importance of Electronics in Failures of Nuclear Power Plants (Dr. L. Miteff, ETH, Zurich), Emission Microscopy: Theory and Applications (Dr. J. Koelzer, Siemens AG, Munich), Reliability of Binary Systems (Dr. B. Gerlach, Humboldt University, Berlin)

Software Package for Reliability and Availability Computation of Very Complex Systems (R. Bernet, ETH, Zurich), Data Retention in Large EPROMs (R. Leemann, ETH, Zurich)

All meetings, conferences, and courses were a of high technical level and prompted extensive discussions.

Planned Activities in 1992:

Workshops:

7-8 May - International Workshop on SMT Reliability and Manufacturing Issues (Lugano).

(Editors Note: See Conference Calendar for registration and more information)

Courses:

31 Aug-1 Sep - Failure Mechanisms and Failure Analysis of VLSI-ICs (M. Ciappa)

2-4 Sep - Reliability and Maintainability of Equipment and Systems (Professor A. Birolini)

Meetings:

22 Jun - Optimal Reservation of Spare Parts in Complex System (B. Willmann, EWZ, Zurich)

6 Jul - Parametric Estimation for Incomplete Reliability Data (Dr. B. Gerlach, Humboldt University, Berlin)

3 Sep - Reliability Aspects in Electrical Contacts (Professor J.G. Zhang, Beijing)

2 Nov - Reliability Growth (R. Brinkmann, G+F, Schaffhausen)

The Reliability Laboratory of the ETH Zurich invites all members of the IEEE Reliability Society to the 5th anniversary of its cooperation with industry which will be held on May 19 at the ETH Zurich.

Alessandro Birolini
Chairman

Tokyo

An R&M symposium will be held 8-10 June 92 with 50 papers to be presented.

Yoshihisa Suzuki
Chairman of Reliability
Tokyo Chapter

Electronic Bulletin Boards

Los Angeles Chapter
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Statistics Bulletin Board System
(316) 265-3036
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Free Membership

Statistics, Reliability

IEEE Educational Activities Offers New Videotape for Chapter Meetings

"Meeting the Future", a humorous videotape that addresses a serious issue - the need for engineers to stay current in their fields by taking advantage of continuing education - is now available for use by Sections, free of charge, from the IEEE Educational Activities Department.

Narrated by Robert Lucky, executive director, research communications sciences division, AT&T Bell Labs, the 12-minute video presents a lively, comprehensive look at such Educational Activities offerings as video tutorials, videoconferences and self-study courses.

"Engineering is forever changing and forever making us obsolete, so you have to turn yourself into a new engineer every few years" Luck observes. "You have to keep running, because there's something back there that's chasing you and that something is technology" he adds.

"Meeting the Future" will inform members and non-members alike about the wealth of continuing education products from IEEE. The videotape is available on a loan basis for Sections from Peter Wiesner, IEEE Educational Activities, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08855-1331, (908) 981-5500.

Reprinted from the Industry Applications Society Newsletter Nov/Dec 1991

Reliability AdCom Minutes

Software Reliability Technical Committee

Committee activities this past few months have concentrated on the preparation of a new educational program intended to widen the understanding of Software Reliability. A full semester course has been prepared to be presented as part of the advanced engineering curricula offered by local colleges and universities.

This credit course will use the text "Software Reliability - Measurement, Prediction, Application", by Musa, Ianino and Okumoto. This book is gaining acceptance and was described in reports over the past two years.

It may be also noted that AT&T, Mr. Musa's employer, is now offering a "hands-on" short course themselves for \$1200. The course that Mr. Lipow, who has been the most active member of our committee, has newly organized material that will deal with considerably more significant issues that were addressed in the Musa et al text. Of particular concern are practical methods of evaluating conceptual software- hardware designs in order to optimize the tradeoff of reliability and cost. Initial offerings of this course has begun at the Naval Warfare Assessment Center, Norco, California.

Irving Doshay
Technical Committee Chairman
Tel: (310)454-1667
A.M. Work: (310)334-0658

Human Performance Reliability Committee

An EIA-sponsored revision to MIL-STD-785 was drafted to include both the impacts of software and the human on system reliability. The EIA G-41 committee approved the expanded concept of MIL-STD- 785. A review of the proposed drafts was requested in June 1991, but as of this date, no comments have been received. It is noted that progress on revising MIL-STD-785 is being delayed by a clear identification by the Air Force of who is the preparing activity (PA). Currently, Aeronautical Systems Division is the PA, but they have expressed a desire to have the responsibility transferred elsewhere. No final decision has been expressed by the Air Force.

An HPR tutorial has been completed for RAMS 92. This form of the tutorial is the "short form". An expanded, more procedural version is available for other uses.

Kenneth LaSalla
Chairman, Human Performance Reliability Committee

Maintainability Committee

Reliability Engineering has benefitted from the Computer-aided Acquisition and Logistics Support (CALS) initiative with design impact at all phases of design. This is most evident in the electronic design automation (EDA) industry where the production of computer-aided design

MIL-HDBK-217 STATUS

The official released version of revision F of MIL-HDBK-217, dated 2 December 91, was released by Rome Labs in February. The Naval Publications Center should have copies available around March 1992. Copies are not available from Rome Labs. Orders should be directed to:

Naval Publications and Forms Center
 Standardization Document Order Desk
 700 Robbins Avenue
 Bldg 4, Section D
 Philadelphia, PA 19111-5094
 Tel: (215)697-2667

Two studies are currently in process for surface mount technology and passive component models for Notice 1 of Revision F. Tentatively, a draft will be prepared in the Fall of 1992 for review and coordination. If you are interested in reviewing and contributing to this update, request a draft copy from:

RL/ERSR
 Seymour Morris
 Griffiss AFB, NY 13441-5700

frameworks have included the integration of third party tools for thermal analysis, reliability prediction, etc. These frameworks basically create a design environment in which a designer develops an optimum design by invoking grading tools to permit achievement of an integrated product design. It is interesting to note, however, that while this can be viewed as progress, there is concern about the data and equations employed to perform the prediction of reliability. What we have is two distinct camps that have the same objective but different approaches for achievement. If we look at the present day environment with emphasis on total quality and design application being defined as satisfying six sigma quality levels we are confronted with a focus on process driven design. Supporters of this philosophy insist that data such as found in MIL-HDBK-217 is not sufficient to achieve these levels but instead require a physics of failure approach to design process optimization. On the other hand, framework vendors are integrating tool sets that rely on prediction data and equations primarily taken from MIL-HDBK-217 to establish a quantitative level of reliability. There has been much controversy about MIL-HDBK-217 and its application to design. Since prediction techniques as well as failure analysis play a role in engineering design, a solution to these concerns can be found in the collective continuation of reliability engineering research and development. Ironically, some administrators view reliability engineering as manufacturing technology in strict research and development judgments and thereby limit expenditure for IRAD in this area.

Joe Guessing
VP Technical Operations
Tel: (410)765-7070

RS MEMBERSHIP STATISTICS

Regular	3735
Student	159
Other	164
Total	4058

As of 10/31/91

Reliability Society Membership Survey

Your support is requested to help in the development of a technical expertise database. This database is required to enable the administrative committee to better serve the needs of the society membership and to facilitate requests for technical direction and expertise. We are looking for expertise in reliability, maintainability, testability, and safety engineering. The data you provide should be broken down into specific areas of the field of expertise, i.e. prediction, environmental stress screening, FMECA, parts, computer models, etc. Please take a few minutes to complete the following questionnaire.

Name: _____

Company: _____

Phone: _____

Fax: _____

Address: _____

City: _____

State: _____

Zip: _____

Country: _____

Area(s) of Specialization: _____

Specific Expertise (List): _____

CAD/CAM/CAE Tools Development: _____

Software Design/Evaluation Experience: _____

Language(s) spoken/read (optional): _____

Please return via mail or fax to:

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 Fax: (410)993-8126

IEEE Reliability Society Speakers List

The following three individuals are the first to be certified for our Speakers List. If you are seeking a qualified speaker please contact them. If you would like to be considered for inclusion on this list, please contact me.

Thomas L. Fagan
ITT Defense
1000 Wilson Blvd.
Arlington, VA 22209
Tel: (703)247-2988
Fax: (703)276-9706

1) Harold Ascher
Operations Research Analyst
Naval Research Laboratory
4555 Overlook Avenue
Code 5326
Washington, DC 20375-5000
Office: (202) 767-4873
Home: (202) 762-4779
Fax: (202) 767-3658

Author of the text "Repairable Systems Reliability" published by Decker, 3rd printing, 240 pgs. illustrated and 13 reliability presentations since 1989.
Geographical limitations: None
Transportation Requirements: Negotiable
Topics:

- Basic Probabilistic and Statistical Concepts For Maintenance of Parts and Systems
- Exploiting Heterogeneity to Improve Reliability
- Good Data In, Garbage Out

IEEE Transactions on Reliability

The IEEE Transactions on Reliability is having the best year ever and with this success, we have been busier than ever. I have estimated that we are receiving about 275 manuscripts per year. We now have 16 associate editors to help address the load. Presently, the time it takes for an article to be published is a little more than a year, which includes the fact that we are at least 3 issues (approximately 7 months) ahead at all times. For example, at this time, we are filling up the 1992 August issue. The articles which we are receiving are more diverse.

Michael Pecht

2) Mohammad Hashim
Brown & Root, Ltd.
Kingston Bridge House
Church Grove, Kingston
Surrey KT1 4AG Great Britain
Office: 081 943 8488
Home: 081 871 0476
Fax: 081 877 1173
Over 25 recent presentations and publications.

Geographical limitations: None, requires minimum two weeks notice for presentations outside UK

Transportation Requirements: Negotiable
Topics:

- Reliability Management (Program Plan Implementation)
- Basics of Reliability Assessment
- Software Reliability

3) Joseph H. Wujek, P.E.
440 Laguna Court
Livermore, CA 94550-5234
Tel: (510) 447-6338
Consulting engineer with 30 recent presentations
Geographical Limitations: None
Transportation Requirements: Negotiable
Topics:

- Engineering Ethics and Social Implications
- Reliability Engineering (All Aspects)
- Careers in Reliability Engineering, Electrical Engineering, and Computer Science



TQM DOCUMENTS

In the course of implementing Total Quality Management, the Rome Laboratory of the U.S. Air Force Systems Command has prepared three technical reports which are available to the general public. These are:

RL-TR-91-29

"A Rome Laboratory Guide to Basic Training in TQM Analysis Techniques", AD-A233855

This report describes the basic TQM analytical tools; Process Flow Charts, Ishikawa Diagrams, Statistical Process Control, Histograms, Pareto Diagrams, Scattergrams, and the Shewhart Cycle. A mythical scenario is used in which the tools are introduced to a willing, but untrained, manager (and to the reader) by a TQM Specialist.

RL-TR-91-48

"Measuring the Quality of Knowledge Work", AD-A235354

This report discusses a variety of ways in which the quality of knowledge work can be measured, depending on the definition of quality and the intended use of the measure.

RL-TR-91-305

"Total Quality Management (TQM), an Overview", AD-A242594

This report provides a comprehensive overview of TQM. It discusses the reasons why TQM is of importance, what it is and how one implements it. It describes the basic analytical tools, statistical process control, some advanced analytical tools, tools used to enhance the efficiency of process action teams, and action plans for making improvements. Methods used to assess quality efforts and ways to measure the quality of knowledge work complete the coverage.

All of the above were authored by the Rome Laboratory Special Assistant for TQM, Mr. Anthony Coppola, RL/ERSS, Griffiss AFB, NY 13441-5700, (315)330-4758, DSN 587-4758. Please do not request copies from Rome Laboratory; the laboratory does not maintain a supply. Interested parties should order copies through their technical libraries or directly from: National Technical Information Service, Department of Commerce, 5285 Port Royal Road, Springfield, VA 22161-2171, Tel: (703)487-4650.

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Conference Calendar

DATE	CONFERENCE	PLACE
1992		
April 23	30th Annual All-Day Seminar Reliability Engineering: Alternative Techniques For Today's Business Environment	Sheraton Tara Route 9 Framingham, MA
Contact: Jim Kalembe, 6 Ohio Road, Tyngsboro, MA 01879-2365		
New techniques and approaches over a diverse product range will be presented for achieving high reliability for less cost. Registration fees include seminar, lunch, and dinner are \$175 for IEEE members, \$200 for non-members. Seminar Proceedings will be available after April 23rd for \$15 by calling (617)455-3394.		
May 3-6	Custom Integrated Circuits Conference Abstracts due November 7, 1991	Boston, MA
Contact: Mrs. Roberta Kaspar, Technical Program Coordinator, CICC '92 1597 Ridge Road West, Suite 101C, Rochester, NY 14615-2514 Tel: (716) 865-7164		
May 7-8	SMT Reliability and Manufacturing Issues Registration by April 15, 1992	Lugano, Switzerland
Contact: Ms. K. Ambuhl, ETH Zurich, Tel: 01 256 27 43		
Reliability of Surface Mount Technology is becoming a hot subject because of pitch reduction and of difficulties in cleaning. This workshop is being planned on the wake of the International Seminar of Sept. 26, 1991. Werner Engelmaier of Engelmaier Inc. and Dieter Bergman of IPC will talk on "Design and Land Pattern Definition" and "Design for Reliability and Quality for Manufacturing", respectively. Other talks will be on "Rework and Repair" (B. Willis, EPS), "Solid Solder Deposition" (W. Maiwald, Siemens, and M. Weinhold, DuPont), and "Cleaning and Reliability" (B. Ellis, Protonique). Every talk will be followed by work in small groups.		
May 18-20	42nd Electronic Components & Technology Conference	San Diego, CA
Contact: Iwona Turlik, Microelectronics Center of N.C., 3021 Cornwallis Road, Research Triangle Park, NC 27709 Tel: (919) 248-1847 Fax: (919) 248-1455		
Jun 10-12	European Safety and Reliability 92	Copenhagen, Denmark
Contact: Kurt Petersen, Systems Analysis Dept. RISO National Laboratory, PO Box 49, DK-4000 Roskilde, Denmark Tel: (45) 42 37 12 12 x3082 Fax: (45) 46 75 71 01		
Jun 15-18	COMPASS - 7th Annual Conference on Computer Assurance	Gaithersburg, MD
Conference Information: Robert Ayers, ARINC Research Corporation, 2551 Riva Road, Annapolis, MD 21401, Tel: (301)266-4741, Fax: (301)266-4040		

Program Chair: Dr. Edgar H. Sibley, Dept. of Information & Software
Systems Engineering, George Mason University 4400 University Drive,
Fairfax, VA 22030-4444, Tel: (703)993-1640, Email: esibley@gmu.edu

Aug 25 Advanced Technology Workshop College Park, MD
Registrations due Influence of Temperature on Microelectronics
15 May 1992 Device Failure Mechanisms

(See advertisement elsewhere in the newsletter for more information)

Contact: Pradeep Lall, CALCE Electronics Packaging Research Center
University of Maryland, College Park, MD 20742
Tel:(301)405-5342, Fax:(301)314-9477

Aug. 25-28 International Reliability Availability Philadelphia, PA
Maintainability Conference for the
Electric Power Industry

Conference on generation, transmission, and distribution, including application,
modeling, design, and manufacture.

Program Information: Mr. Bob Filipovits, Pennsylvania Power & Light, 1005 Brook-
side Road, Allentown, PA 18106, Tel: (215)398-5158

Oct 4 GaAs Reliability Workshop Fountainbleu Hotel
Preceding the GaAs Symposium Miami Beach, FL

Seventh annual one-day workshop bringing together researchers, manufacturers,
and users of GaAs devices. Cost is \$60 and includes a full day of GaAs reliability
presentations, two breaks, luncheon, and copies of presentation summaries. Registra-
tion must be received by September 18, 1992 to ensure a luncheon reservation. To
register, mail your name, address, and phone number to EIA/JEDEC, JC-50 Work-
shop, 2001 Pennsylvania Ave. NW, Washington, DC 20006 with a \$60 check. Late
registration will precede the Workshop from 7-8:30 am on October 4th. For more in-
formation contact general chairman, Anthony A. Immorlica at (315) 456-3514.

Oct 7-9 3rd International Symposium Research Triangle Park, NC
on Software Reliability Engineering

Contact: John C. Munson, Division of Computer Science, University of
West Florida, Pensacola, FL 32514, Tel: (904) 474-2989
jmunson@dcs119.dcsnod.uwf.edu

1993
Sep 29-Oct 1 16th International Symposium on Computer Rome, Italy
Performance Modeling, Measurement and Evaluation

Contact: **North America:** Dr. Stephen S. Lavenberg IBM T.J.Watson Research Ctr.,
P.O. Box 704, Yorktown Heights, NY 10598, Tel: (914) 784-7573
Europe & Others: Prof. Giuseppe Iazeolla, University of Rome II,
Electronic Engineering Dept., Viale della Ricerca Scientifica,
1-00173 - Roma - Italy, Tel: 39-6-79794486

Call For Papers

1992
Nov 4-6

IASTED

International
Association of Science
and Technology for
Development

International
Conference on
Reliability,
Quality Control and
Risk Assessment
Washington, D.C.

Survey papers and case
studies are solicited on:

- Reliability
- Human Factors
- Risk Analysis
- Quality Costs
- Testing
- Fault Tolerance
- Simulation
- Software Safety
- Modeling
- Availability and Maintainability

Submit 3 copies (15 double
spaced pages max.) by
May 1, 1992.

Notification of acceptance/
rejection by June 30, 1992.
Camera-ready papers due
September 15, 1992.

Dr. Hoang Pham
Program Chairman
Idaho National Engineering
Laboratory
P.O. Box 1605, M/S 2406
Idaho Falls, ID 83415
Tel: (208)526-9274
Fax: (208)526-2930

ADVANCED TECHNOLOGY WORKSHOP

Influence Of Temperature On Microelectronic Device Failure Mechanisms

August 25, 1992,
CALCE Electronics Packaging Research Center
University Of Maryland
College Park, MD 20742



In Cooperation With

U.S. Army, Ft. Monmouth, New Jersey
IEEE Reliability Society (IEEE)
International Society For Hybrid Microelectronics (ISHM)
International Electronic Packaging Society (IEPS)
Society For The Advancement Of Material And Process Engineering (SAMPE)

The workshop will focus on discussions on the following topics:

- o Relevance of temperature in microelectronic reliability
- o Discussion of failure mechanisms activated by temperature at equipment operating temperatures
- o Relevance of steady state temperature in screening, qualification, and derating of ICs

Registration Fee

The registration fee is U.S. \$60 which covers the cost of meeting room, facilities, breaks, lunch, and proceedings.

Accommodations

The workshop will be held at the Center of Adult Education, University of Maryland, College Park. A block of rooms will be reserved for participants. Information on other hotels in the area will be provided. The daily rate for these rooms range from \$75 to \$85.

Registration Form

Advanced Technology Workshop - August 25, 1992
Influence Of Temperature On Microelectronic Failure Mechanisms

Mr., Ms., Prof., Dr.

Date _____

Name _____

Organization _____

Address _____

Telephone _____

City/State _____

Fax _____

Code/Zip _____

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Country _____

Please mail registration form by 15 May 1992 to:

Pradeep Lall
CALCE Electronics Packaging Research Center
University of Maryland
College Park, MD 20742
Tel: (301) 405-5342 Fax: (301) 314-9477

- I will attend the workshop
 I would like to submit a paper

RELIABILITY SOCIETY 30TH ANNUAL ALL DAY SEMINAR
BOSTON IEEE RELIABILITY CHAPTER
THURSDAY, APRIL 23, 1992
SHERATON TARA, ROUTE 9, FRAMINGHAM, MA

“Reliability Engineering: Alternative Techniques For Today’s Business Environment”

In today’s business environment where sales have slowed and present budgets are tight, many companies are approaching reliability in different ways. These companies still want to produce a reliable product but have been driven to optimize the cost effectiveness of their reliability programs. This has led to new techniques and approaches for achieving high reliability for less cost. This year’s seminar seeks to present these new techniques over a diverse product range.

PAPERS TO BE PRESENTED WILL BE IN THE FOLLOWING AREAS:

- Reliability Predictions •
- Warranties •
- Software Reliability •
- Reliability Growth •
- FMECA •
- CAD/CAE •
- Stress Screening •

AS THEY RELATE TO:

- Automotive
- Military
- Medical
- Commercial Aircraft
- Consumer Electronics
- Computers
- Aerospace

REGISTRATION FEES: (fees include seminar, lunch, and dinner).

Prior to March 28, 1992: \$150 IEEE members, \$175 non-members

After March 28, 1992: \$175 IEEE members, \$200 non-members

NOTE: A \$25 rebate issued to non-members who join the IEEE within a reasonable time.

Make checks payable to: Reliability Chapter of Boston IEEE Section

Mail checks and registration form to: Jim Kalemba

6 Ohio Road

Tyngsboro, MA 01879-2365

30th ANNUAL ALL DAY RELIABILITY SEMINAR REGISTRATION FORM

Name _____ Company/Affiliation _____

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