IEEE
Reliability Society
NEWSLETTER http://www.ieee.org/society/rs

Vol. 48, No. 2, April 2002 (ISSN 1059-8642)

CONTENTS

Editor:
Dave Franklin
Associate Editor:
John Healy
Business Manager:
Bob Gauger

President's Message

Your IEEE Organization

In mid February, I attended the Organizational Units Series of meetings covering all of the Units that are involved in the management of the IEEE. As your Society President, I am a voting member of the Technical Activities Board (TAB), as are all Society and Council Presidents and the Division Directors. Motions come out of various standing committees or from the TAB itself, are discussed, and are voted upon. Those motions that are approved for recommendation are passed to the IEEE Board of Directors for final approval. The motions can include policy changes, tasking of Headquarters, tasking of Societies and Councils, establishment of a new incentive or product with resources funded, etc. Your Reliability Society is fortunate this year as we have two former Reliability Society Presidents attending TAB with me. Loretta Arellano is our Division VI Director and Dick Doyle is the Regional Activities Board (RAB) to TAB Representative.

If you haven't taken the time to look into the IEEE and its organization, I encourage you to review and understand how the various organizational pieces fit together. The IEEE is a complex international non-profit organization that operates on a global basis. The IEEE is the world's largest technical professional society and is devoted to advancing the theory and practice of electrical and electronics engineering and computer science. The IEEE serves engineers, scientists, and other professionals in approximately 150 countries. IEEE as an international professional organization is made up of approximately 400,000 members, spread across 10 geographic regions, organized in 298 sections, supporting 1156 Student Branches, almost 1300 Chapters, 37 Technical Societies, and 4 Technical Councils involving 31 Societies in at least 1 Council. The IEEE is a well-recognized and respected organization.

The Societies are the revenue engines for IEEE and represent about 65 percent of IEEE income. The Societies publish 105 of the IEEE's 115 different publications. Society members make up 75 percent of the subscribers, which translates to 822,800 subscribers. Societies also sponsor 90 percent of the IEEE conferences. As you can see, Societies are major participants in the IEEE, including your Society.

Your Society

In January on the Saturday before RAMS (the annual international Reliability and Maintainability Symposium), the first AdCom meeting

continued on page 5

IEEE RELIABILITY SOCIETY OFFICERS

President
Dennis Hoffman (d.hoffman@ieee.org)

Vice President - Membership
A. N. Campbell (ancampbe@sandia.gov)

Vice President - Publications
Dr. Robert J. Loomis, Jr
(r.j.loomis@ieee.org)

Vice President - Meetings
John Healy (healyj@cs.com)

Vice President - Technical Operations
William R. Tonti wtonti@ieee.org

Secretary
Jeff Voas (jvoas@cigital.com)

Treasurer
R. A. Kowalski (dkowalsk@arinc.com)

STANDING COMMITTEES

Standards and Definitions
T. Brogan
(Thomas_L_Brogan@res.raytheon.com)
Y. Lord
(Yvonne_Lord@mail.northgrum.com)

Meetings Organization
John Healy (healyj@cs.com)

General Membership
A. N. Campbell (ancampbe@sandia.gov)

Chapters
L. Arellano (l.arellano@ieee.org)

Academic Education Committee
M. Abramo (m.t.abramo@ieee.org)

Professional Development
M. Abramo (m.t.abramo@ieee.org)

Constitution and Bylaws
K. P. LaSala (k.lasala@ieee.org)

Nominations and Awards
K. P. LaSala (k.lasala@ieee.org)

Fellows
T. L. Regulinski (regulinski@ece.arizona.edu)

Finance
R. A. Kowalski (dkowalsk@arinc.com)

Historian
A. Plait (aplait@ieee.org)

Academic Education
Dr. Robert J. Loomis, Jr
(r.j.loomis@ieee.org)

TECHNICAL OPERATIONS

Vice President
William R. Tonti wtonti@ieee.org

Technology Committees (12 committees)

CAD/CAE
Janasak (kjanasak@raytheon.com)

Human Interface Technology
K. P. La Sala (k.lasala@ieee.org)

International Reliability
Joseph R Fragola (fragola@prodigy.net)

Mechanical Reliability
R. L. Doyle (r.doyle@ieee.org)

Microelectronic Technologies
Alan Street (alan@iris.com)
T. A. Rost (t-rost@ti.com)

Reliability Design
M. Roush (roush@eng.umd.edu)

Reliability Methodology
C. K. Hansen (c.k.hansen@ieee.org)

System Safety
Takehisa Kohda (kohda@kuaero.kyoto~u.ac.jp)

Software Reliability
S. J. Keene (s.keene@ieee.org)
Ann Miller (millera@ece.umr..edu

Standards & Definitions
Y. Lord
(Yvonne_Lord@mail.northgrum.com
T. L. Brogan
(Thomas_L_Brogan@res.raytheon.com

Testing & Screening
H. A. Chan (h.a.chan@ieee.org)

Warranty
Vacant

Systems Committees (8 committees)

Aerospace & Defense Systems
D. L. Franklin (d.l.franklin@ieee.org)

Automotive Systems
C. Aladekugbe
(Clement.Aladekugbe@carrier.utc.com)
B. Dodson (bdodson@visteon.com)

Consumer Electronics
F. Shenkelberg (fms@hp.com)

Energy Systems
M. Lively (MbeLively@aol.com)

Industrial Systems
H. Yajima (yajima@sdl.hitachi.co.jp)

Information Technology & Communications
J. Healy (healyj@cs.com)

Medical Systems
Vacant

Sensor Systems
K. P. La Sala (k.lasala@ieee.org)

IEEE Reliability Society Newsletter Inputs

All RS newsletter inputs should be sent to:

Editor: Dave Franklin
23309 Park Colombo, Calabasas, CA 91302
Tel: +1 818 586 9683
E-mail: d.l.franklin@ieee.org

Associate Editor: John Healy
healyj@cs.com

Business Manager: R. Gauger
r.gauger@ieee.org

ADVERTISING RATES

All copy that contains graphics or special fonts must be camera-ready or delivered on computer disk and be received by the due dates indicated.

Ad Size	One Time	2-3	4+
Full Page	$400	375	350
Half Page	$300	280	260
Third Page (vertical)	$240	225	210
Quarter Page	$205	190	180
Eighth Page	$120	110	100

Discounted per issue rates are shown for ads run in more than one issue.

The schedule for submittals is:

Newsletter	Articles Due	Ads Due
January	November 8	December 8
April	February 8	March 8
July	May 8	June 8
October	August 8	September 8

IEEE Reliability Society Newsletter (ISSN 1059-8642) is published four times a year in January, April, July and October by the Reliability Society of the Institute of Electrical and Electronic Engineers, Inc. Headquarters: 3 Park Avenue, 17th Floor, New York, NY 10016-5997. Sent at a cost of $1.00 per year to each member of the Reliability Society. Printed in U.S.A. Periodicals postage paid at New York, NY and at additional mailing offices. Postmaster: Send changes to Reliability Society Newsletter, IEEE, 445 Hoes Lane, Piscataway NJ 08854.

Editor's Column

We want to hear from you, please submit your articles, comments or question by email if possible.

Thanks,

Dave Franklin
Editor

Dear member society Presidents of IEEE Nanotechnology Council:

As you may know, the second IEEE conference on nanotechnology, IEEE-NANO'2002, will be held in Washington DC on August 26-28, with a day of tutorials on August 25. To find out more about the conference, please log onto http://ewh.ieee.org/tc/nanotech/nano2002/. Deadline for paper abstract submission is due by March 31. Registration information will be put on the web soon.

As a member sponsoring society of the Nanotechnology Council, your members would be interested in participating in nanotechnology activities. I would very much appreciate it if you can publicize this conference to your members, for example by putting a link to the conference in your society conference activities page. I would especially appreciate it if you can place the conference announcement in your societies newsletter, magazine, or transactions. The Call for Papers is in the website.

I look forward to seeing you at the conference.

Cliff Lau
IEEE-NANO'2002 General Chair
Nanotechnology Council
President-elect

Chapters News

Baltimore

Walter E Willing

Binghamton

Jefferson D Bronfeld

Boston Chapter

The Boston Chapter opened the New Year in January with a monthly meeting on the "SHARPE Graphical User Interface (GUI)." SHARPE, the Symbolic Hierarchical Automated Reliability and Performance Evaluator, is a popular software tool for solving complex reliability and availability models. It was developed by Professor Kishor Trivedi at Duke University. Chapter AdCom member Joe Dzekevich of Raytheon demonstrated the new GUI, which simplifies construction of the models solved by SHARPE.

In February, we held a related monthly meeting on "Applied System Reliability Modeling." Over the past few years, the Boston Chapter covered various reliability analysis tools and techniques in its meetings. The focus of this meeting was how to apply those tools and techniques to real-world problems. Chapter member Dr. Michael Elbert of Compaq Computer Corporation shared his experience and expertise on how to approach, select methods and metrics for, analyze, and interpret the results of reliability modeling problems.

Our March monthly meeting was held at the Waters Corporation in Milford, Massachusetts. Waters is the world's leading supplier of high performance liquid chromatography instrumentation and consumables, as well as thermal analysis and mass spectrometry products. Reliability Engineering Manager Richard Cass gave a presentation on "Waters Approach to Mechanical Reliability Testing," which included a guided tour of their reliability lab, machine shop, and assembly area.

We will close our 2001-02 activity year in May with a Spring Lecture Series on "Analyzing Statistical Data." Joe Dzekevich put together this three-evening course based on the book Basic Statistics, Tools for Continuous Improvement by Kiemele, Schmidt, and Berdine. Topics to be covered include: data plots; organizing data for statistical programs; descriptive statistics; "P", the "voice of the data"; T, paired, grouped, and non-parametric tests; two-way cross tabulation; linear regression and ANOVA for DOE; and residual analysis.

For more information on Boston Chapter activities, please visit our web site at http://www.channel1.com/users/ieee/home.html.

Jeff Clark
Chair, Boston Chapter
jaclark@ieee.org

Central New England

See Boston Chapter activities.

Jeffery A Clark

Chicago

Frank D Straka

Cleveland Chapter

Regards,

Vincent Lalli, Chair
Vincent.R.Lalli@lerc.nasa.gov

CINCINNATI Chapter

Dallas Chapter

Donald Butler
IEEE Dallas Section Chair
dpb@engr.smu.edu

Denver/Pikes Peak

Samuel J Keene

Japan Chapter

Shuichi Fukuda, Chair
Chair, Japan Chapter
fukuda@tmit.ac.jp

Los Angeles Chapter

In February we heard "Information Architecture on the Wild, Wild Web: Improving the Structure, Presentation, Accessibility, and Semantics of Our Electronic Content" given by Wayne Smith, Director, Office of Information Technology, College of Business and Economics, California State University, Northridge, wayne.smith@csun.edu

Deciphering the W3C alphabet soup (XML, CSS, SVG, DOM, SOAP, RDF, WAI, P3P, etc.) for publishing standards-based documents on the World Wide Web is rapidly becoming a full time job. Moreover, each of the "document" standards has subtle technological, architectural, design, and organizational touchpoints. Understanding the genesis, direction, and status of each of the W3C standards is increasingly critical in a highly interconnected world.

Probably the most ambitious initiative yet is the one to build the "Semantic Web"— that is, to embedded clarity, consistency, and mutually reinforced semantic meaning on the Web. This presentation will summarize these activities and discuss what future "information architectures" IT professionals will be building for their organizations.

Mr. Smith has been involved with computers since 1975. He graduated with a Bachelor's of Science degree in Management Information Systems from California State University, Northridge (CSUN) in 1984, and is currently a doctoral student in the School of Information Science at Claremont Graduate University. He has held various positions at CSUN including full-time lecturer in the Department of Accounting and MIS. Mr. Smith co-founded and taught in the desktop technology program of the CSUN Continuing Education program in 1986. He has been a network manager at a large UC campus and has also taught Financial and Managerial Accounting at a local community college. From 1991 to 1994, Mr. Smith supervised a team of programmers who designed and developed a major magazine imposition database and layout computer application for a Fortune 125 printing firm.

Mr. Smith is currently the Director of Technology in the College of Business Administration and Economics at CSUN where he helps manage the technology needs for 5,000 students, 150 faculty, and 35 staff. Mr. Smith has daily contact with students, most notably as the faculty advisor to the Management Information Systems Association student organization and as a frequent guest lecturer in the College. He has some enterprise-wide involvement as well, including network and server management, implementation of ERP (Peoplesoft) systems, developing custom DSS/OLAP solutions, classroom multimedia design, strategic planning and change management, and IT professional development.

In the past two years, Mr. Smith has been involved in doing pro bono work for other government agencies, including the Los Angeles Police Department, the Los Angeles County Office of Education, and Santa Monica College, in the area of hiring and selecting quality IT professionals and executives. Mr. Smith is a licensed amateur radio operator and is active in several religious and charitable organizations in the San Fernando Valley.

March 6, 2002 Subject: Trends in Information Security, Speaker: Roberta Gotfried, Raytheon Company, Electronic Systems, rlgotfried@west.Raytheon.com

The field of computer security began over 20 years ago in the form of a highly formal discipline aimed at protecting confidentiality of government classified information as the use of computers grew. Since that time, computer security has evolved as an engineering discipline through a series of incarnations, each one addressing a new set of objectives and new sets of threats - all the time trying to keep up with the rapidly changing world of computing and information systems. Now, privacy and cyber terrorism have taken a pre-eminent place in the field, with much wider public awareness.

This talk will review the evolution of the field of information security, look at recent trends in information security and look at what might lie ahead.

Ms. Roberta Gotfried is currently Director of Information Assurance Programs for Raytheon Electronic Systems and Chair of the Raytheon-wide Information Security and Information Management TIG. She has over 20 years of experience leading research and development of technology programs in software systems. She has lead research and development activities in information security for real-time systems for the last 10 years. She was a Principal Investigator and the lead system security engineer for numerous technology programs, including the DARPA-funded PROSE development for high performance computers and the Information Assurance Reliability Model program and is Program Manager for several research programs in embedded systems information technology. She was also Principal Investigator on the Secure Avionics Architecture Concept Development Program, to define the system security requirements for the Joint Strike Fighter Weapon System.

David L Franklin
d.l.franklin@ieee.org

Twin Cities

Minnesota Chapter

In 2002 the Twin Cities chapter had held meetings in January, February and March. The January 15 th. meeting was on the topic of "Accelerated Life Testing" by James McLinn, Reliability Consultant and hosted by StorageTek. Thirty-Four people attended. The February 19 meeting was at Unysis with Gerald Pattison of Physical Electronics speaking upon "Product Development and Reliability" with 29 people attending. Steve Theissen of mentor spoke in March on the topic of "ESD and Reliability" before a crowd of 20 at StorageTek. Meetings are planned for April and May.

James McLinn
Chapter Chair
JMReL2@Aol.com

Mohawk Valley

Vacant

North-Central-Southern Italy

Fausto Fantini

Ottowa

Dear Dr. Almuhtadi and Mr. Abdullah:

On behalf of the IEEE Executive Director, Dan Senese, it is a pleasure to in-

form you that the requirements of the IEEE Bylaws have been met, and the change in status of the Reliability/Power Engineering Society joint Chapter of the Ottawa Section has been approved. The Chapters will now be the Reliability Society Chapter and the Power Engineering Society Chapter of the Ottawa Section. The effective date of this Chapter change is 16 January, 2002.

At this time we are recording Dr. Almuhtadi as the Chair of the Power Engineering Society Chapter, and Mr. Abdullah as the Reliability Society Chapter Chair. When an election has been held, please use the enclosed Officer Confirmation form to report the officers to IEEE. If we can assist you in any way in the planning of the Chapter activities please let us know.

We extend our best wishes for the successful operation of this Chapter.

Sincerely,
Cecelia Jankowski
Managing Director
Regional Activities

Wahab Almuhtadi

Philadelphia Chapter

Fulvio E. Oliveto, Chairperson
Philadelphia Section
(856) 914-7298

San Diego Chapter

Chapter Chairman:
Michael V. Frank
sfainc@Pacbell.Net
R.L. Doyle, Secretary
IN REPLY
(858) 459-6504
REFER TO RLD:00801
r.doyle@ieee.org

Santa Clara Valley

Vacant

Singapore Chapter

(ED/Reliability/CPMT Joint Chapter)

Correction

Please note that, M.K. Radhakrishnan is the Chapter Chair from 2001 onwards. Dr. Ong was the Chapter chair in 1999 and 2000.

Dr. M.K. Radhakrishnan
Chapter Chair, IEEE Rel/CPMT/ED Chapter, Singapore
e-mail : radhakrishnan@ieee.org

South Plains

Michael E Parten

Switzerland

Mauro Ciappa
Switzerland Chapter Chair
email:

Toronto

Walter W Zessner

Washington DC, No. VA

Kenneth P La Sala

President's Message

continued from page 1

of 2002 was held in Seattle. The newly elected AdCom members and Society Officers were introduced and became, with the other AdCom members, the administrative function to guide and manage your Society. There are 18 elected AdCom members with six members elected each year. This approach allows your Society to have an influx of new members each year while allowing a smooth transition. Society Officers are elected from the AdCom and serve one-year terms.

Your AdCom addressed Society finances at the second AdCom meeting held in April on the Saturday before the IRPS (International Reliability Physics Symposium) in Dallas. Society dues, publication page counts, and non-member publication fees were discussed and established for 2003, as this information must be supplied to IEEE by June 2002. Additional revenue sources were discussed, as were educational products. The AdCom continues to focus on ways of providing benefit to its members as well as ways of being a career benefit to you.

Society Participation

As a continuing ending message, the Reliability Society is your Society. Your Society depends on volunteer services, so it can continue to function. Your Society is very fortunate that volunteers do continue to come forward, get involved, and contribute. But there is much that isn't getting done, especially in our Technical Operation committees, and these committee outputs are of direct benefit to our members — that is you and I.

Get involved. Participate.

There are plenty of ways and areas to match your interests. You can become involved in your local chapter, establish a chapter in your area, get involved in one of the Technical Operations committees, help develop IEEE reliability standards and best practices, or run for election as an AdCom member. Get involved and exercise your technical and / or administrative skills. If you are not sure how to get involved, contact your local chapter officers or your national officers. They will be more than happy to answer your questions and to guide you.

Have a great year,

Dennis Hoffman

dennis.r.hoffman@lmco.com

AdCom Meeting

Seattle, Washington
January 26, 2002

In attendance:

Norm Schneidewind, Martin Shooman, John Healy, Scott Abrams, Dennis Hoffman, Tom Brogan, Loretta Arellano, Christain Hansen, Ann Campbell, Ted Freeman, David Franklin, Bob Loomis, Tom Fagan, Ann Miller, Joseph Fragola, Alan Street, Koichi Inoue, Bill Tonti, Bob Gauger, Dick Doyle, Ken LaSala, Dick Kowalski, Yvonne Lord, Jeffrey Voas

8:00
Call to Order
D. Hoffman

Agree to Agenda - D. Hoffman

Introduced new AdCom class members, approve President appointments, and introduce officers - D. Hoffman. The group introduced themselves for all new and current members.

In the anticipation that RS will rewrite the Bylaws, Ken recommends that the 2 most recent full term past presidents will be made ex-officio with voting rights as of the date 1/01/02. AdCom approved the recommendation for the draft Bylaws.

Dennis Hoffman brought to the floor the appointed positions. For 2002 Dennis recommended: Secretary Dr. Jeff Voas, Treasurer Dr. Dick Kowalski, Trans Editor Dr. Way Kuo, Newsletter Editor David Franklin. The appointments were approved unanimously by ADCOM.

8:40-9:10
Minutes Approval
J. Voas / B. Tonti

Bill Reviewed the Action items. The motion was then made to accept the July and October minutes. The minutes were unanimously approved.

ACTION ITEM SUMMARY

Membership
Ann Campbell

1) VP Membership to develop a suitable membership form for the Transactions and the Newsletter.

2) Send the Reliability Society Survey to our membership no later than 2/2002, 7/21/01 Status: Contract signed. Survey completed, but has not been approved by ADCOM for sending to RS members. ½ status: Working Final draft in process.

3) Membership to review IES membership program, Millennium for Success, material to see what that organization is doing to retain and capture members and possibly develop some ideals for RS. (Institute of Environmental Sciences) 01/02/02 Status: Carried to Ann Campbell, to be reconstituted.

TechOps
Koichi Inoue

4) Ops Manual needs to be reviewed by old and new Tech Ops VPs to assure job descriptions are covered and are adequate. 01/01/02 TBD for next ADCOM.

5) Review and make a recommendation at the Jan 2001 AdCom meeting on Council sponsorship. Basically, are we getting our money's worth? Review Council involvement, along with travel and other liabilities, and make pro / con recommendation. 7/21/2001 Status: In Process, conclusions to be presented at October ADCOM.

ref: IEEE sponsors councils. IEEE provides seed money, they operate financially independent therein. We have 4 councils Nano-Technology, Sensors Council,(at a device type level) Intelligent Transportation Systems council, SuperConductivity council (Not supported by RS). All other the other 3 are supported. Recommendation: Continue on present track.

Publications
Bob Loomis

6) Overview papers (2-3 pages in length) in the Newsletter and to build a backlog. Put call for such papers in Newsletter. 01/01/02 status: Closed.

7) Work with RAMS in providing a CD-ROM for 2002, and eliminating the hard-copy RS mailing. 01/01/02 Status: New RAMS Proceedings Editor made using a CD-ROM to risky for the 2002 RAMS. However, the 2003 RAMS GC has been informed that the RS will be purchasing CDs instead of Hardcopy. Status Closed

Special Assignment
John Healy

8) Continue working on Article for the IEEE institute. Status as of 01/01/02. Not completed

President's Report
D. Hoffman

Dennis reviewed the history of the RS, its down and up swings. Dennis reviewed the target goal of how to make Society membership more valuable to its members. This is one of the main themes in the EXCOM report described below.

Nov TAB Meeting Report
L. Arellano / D. Doyle

Comments: TAB: Technical Activities Board is a meeting of all Society presidents. Dick Doyle represented RS. IEEE lost $22M in operating expenses in 2001. The action activities were: Presidents agreed to drop the TAB/RAB (regional activities board) reorganization for 1 year. A budget showing a $3M loss for 2002 was approved.

- Reliability Marketing Action Plan - A. Street
- Alan's Theme: Who are we trying to reach?
- Joint chapters do very well. e.g. Singapore is a joint RS/EDS chapter.
- Individual tech disciplines are best handled by tech ops.
- Mechanics of Publicity: www sites, e-mail lists, conferences, trade press articles, chapter presentations.
- Survey is a starting point; Action item to all: send random thoughts to Alan

Next, discussion by Ken/Marty on how to infuse this in college curricula. Marty indicates that this can be integrated in a lecture. David commented on quality vs. reliability. We allowed ASQ to certify reliability engineers and eat our lunch. Ann M. discussed the software video. *Result of discussion: We will wait for the survey results and then take further action*

Treasurers Report

R. Kowalski
FY01 Results & FY02 Budget

Three separate budgets are in process, past, current, and future years. Income

sources emanate from membership fees, APP (All Periodical package), and non-member transaction fees (e.g. a library), meetings and symposiums.

Meetings

J. Healy / J. Voas

Sponsored Conferences Report, New Sponsorships, and Meeting location planning. Joe will send out meeting request proposal. Dick Doyle presented Nano Technology conference status. Dick Doyle will write a review for the RS newsletter. A motion unanimously passed to send Bill to ASEE conference for ABET training in June for ABET, not to exceed $1200.00. Sam presented ISSRE post mortem. 130 people attended. Keynote was Motorola Global Services exec.

Fevzi Belli presented a discussion on Paterborn Germany AdCom meeting. Main airport is in Hanover. IEEE is not very active at the University, but IEEE Germany is active. Of the 18K students, about 9K students are engineering students. The journal equivalent to IEEE is "VED". 1K students are EE, 2K students are CS.

Joe discussed the chapter in Milan Italy, and it is coming together. (Enrico Zio). Not the best tourist place, but great restaurants, close to the Ferrari plant, transportation friendly. The polytechnic University is good, population approx. 12K. Reliability department is strong. Tutorials would be well received. Weather is not good in the fall. 2 airports are nearby. Bus and possibly train service is available. It is the industrial center of Italy. A straw man vote chose Italy as the first choice.

Publications
R. Loomis

Overview & Web site update - R. Loomis, T-Rel Performance in 2001, Plans for 2002 - W. Kuo, Database Project Status - W. Kuo. Bob indicates the project is complete. This will be demonstrated tomorrow (1/27/02) at the associate editors meeting. Joe Fragola indicates that the most useful transactions were those that are special issues. Marty discussed the non-practical transactions issues, and perhaps a special issue would solve this problem. Bob will remain a focal point for special issue inclusions. Action Item: ADCOM to send Bob new ideas for next ADCOM meeting. Bob mentioned that we also do special sections in a standard issue of the transactions.

Newsletter Status - D. Franklin, There is a magazine section of the newsletter. John Healy will take this over when it grows large enough. Ann requested that Dave e-mail a reminder when the material for the newsletter is due. Dave mentioned, "just send it". Loretta suggested that we keep a deadline in order to obtain chapter reports / schedules on a timely basis. Dave will work on this! He mentioned that the Chapters themselves do not report on a schedule.

Advertising Status for T-Rel & Newsletter - B. Gauger. Transactions provides approx $4K/yr. Newsletter has about $6.5K/yr. Bob mentioned a bartered advertisement with DTIC. Bob stated that this is a good win-win system.

T-SM Status - M. Abramo. Marsha remains as the T-SM representative. She conducted a first meeting in the management of T-SM. It is the number one cited journal in manufacturing type companies. Possibly a telecom will take place this summer. They are discussing a semiconductor society forming.

Video Tutorial Status - S. Keene. There was a taping in December. IEEE is not encouraging the production of any videos. They would like to provide information that is attractive to universities. i.e. On-Line resources.

T-DMR Status - A. Campbell / B. Tonti. 3rd edition was just published. 4th edition will be out in March. The total number of paper submitted 2001: 32, Number accepted 2001: 21, Number rejected 2001: 2, In revision: 9, Invited: 7, Contributed 23, Average 7 papers / issue for 2001, Submission to first decision: average of 57 days (publish at first decision)

Membership
Ann Campbell

Membership Report / Brochure / Action Plan - Ann Campbell, Membership Development Retreat (March 8-10, 2002) Coverage Plan, Chapters Report / Action Plan - L. Arellano. Loretta recommended that Ann attend Sections Congress '02 in Washington D.C. Dave volunteered to maintain the r07 e-mail for our 3K members.

PACE Report - B. Gauger for M. Abramo. Loretta described Bob's involvement for the PACE annual reward to be delivered to Bob in May for his 10 years of involvement. A motion carried unanimously that Bob has a budget not to exceed $2000.00 at the award PACE conference to make up any delta between PACE and out of pocket expenses.

Logo Development Status - C. Hansen, Net: Go to Christian with your vote or additional idea.

Technical Operations
B. Tonti / K. Inoue

Technical Operations Report, A motion unanimously carried to allow ATR to be reprinted by RAC and Japan's Union of Scientists and Engineers. Standards Status - Y. Lord, T. Brogan, Council Reports: Sensors (LaSala), ITS (Kaufman), Nanotechnology, (Campbell), IEEE Voting Machine Standard Team Status - J. Healy

Bill Made the motion to add 3 committees, Eric Snyder of Sandia Technologies for committee on WLR, Danielle Tanner of Sandia Nat. Labs for MEM's technologies, Eric Vogel and J. Seuhle of NIST for dielectrics, and Jody Van Horn of IBM for product burn-in. Motion is tabled, Bill to come back in April with interest and proposed activity.

Bill discussed the initiatives for Tech Ops:

- Education for members / potential members: By seminars, both paid and free e.g. TPC comm. chairs to place "public" knowledge on RS web site to be used by all in outside lectures. Lectures at high schools, colleges, chapters, companies.
- Publish chapter reports e.g. in T-DMR, The institute.
- Encourage actual publications in outside journals. e.g. RAMS to T-DMR.

A motion carried to create a new committee on six sigma, acting chair is Sam Keene. Bill asked for a new editor of the ATR and Thanked Christian Hansen for his superb job as editor, and expressed his regret that Christian nolonger had the time tto devote to the task. Scott Abrams agreed to take over the ATR editing.

John Healy: new team, voting standards. (Give it to Jeff). (Voting machine standards group). If you want to be on the team, contact John (see listing in front of newsletter).

Junior Past President's Report
K. LaSala

Nominations Committee Report, Awards and Medals Report / AdHoc Committee. One note: Engineer of the year is actual the annual award. By Laws & Constitution Change Status

Senior Past President's Report
L. Arellano

Div VI Highlights

Old Business

None other than that covered in the reports

New Business

A motion to fund the graphics artist $3K to work on a minimum of 3 logo designs passed. Christian Hansen will proceed. Please e-mail Christian any ideas that you have.

Course Sponsorship Proposal / General Topic Discussion. Proposal for a course on probabilistic risk assessment with RS sponsorship of a seminar to be labeled as an RS seminar / short course. The seminar is a 3 day venture. Joe and Bill will work out a plan under tech ops.

Appointment Terms / General Discussion - J. Fragola

Working Item: Have Tom and Yvonne work with Norm. RS/CSEE/IEEE and approach AIAA with the recommendation

5:00 Adjourn

6:30 Banquet

TechOps Status Report

January 2002-April 2002 William R. Tonti, VP TechOps

The TechOps Committee Meeting was held on January 27, 2000 in Seattle, Washington preceding the annual RAMS convention. Dr. Koichi Inoue former VP of Technical Operations introduced Dr. William Tonti as the incoming VP.

Attendees: Total 20, *Koichi Inoue, *John Healy, *Tom Brogan, *Yvonne Lord, *Christian Hansen, *Keith Janasak, Dennis Hoffman, *Ken Lasala, *Norm Schneidewind, Dick Kowalski, *Dave Franklin, *Hiroshi Yajima, *Scott Abrams ,*Dick Doyle, Bob Gauger, *Takehisa Kohda, *Ann Campbell, *Alan Street, Ted Freeman, *Sam Keene, Bill Tonti

* Technical Operations chair or committee member

Meeting Agenda:

1. Call to order by Koichi Inoue / Introduction of Tech Ops chairs, and incoming VP
2. TechOps year-end (2001) reports

VP TechOps report by Koichi Inoue

3. New VP's 2001 goals
4. Tech Ops Chairs Summary Reports:

Meeting Minutes:

1. TechOps Restructuring: Refer to attached summary by Scott Abrams, who has accepted the Tech Ops editorial position, formerly held by Christian Hansen.
2. New VP's Principle of TechOps Management:

As incoming VP I would like to continue with the strategy of Dr. Inoue, whereby quarterly tech ops reports are used to keep everyone abreast of current topics, and also used to help each chair organize their respective annual technology report. In addition, as Dr Inoue has previously put in place, these reports or lack therein are to be used to sunset inactive committees.

Additionally as incoming VP I am requesting each tech ops committee initiate a (or multiple) state of the art modular short course that the Reliability Society through Technical Operations can use to educate the engineering community at large, as well as universities, colleges and secondary schools. These short courses will be organized on the RS web site, with a suite of abstracts that may be viewed by the public. The technical presentations would be stored in a protected area, only viewable by the Technical Operations chairs and authors.

3. The following is a brief summary of the Technical Operations Chairs Reports presented at the annual tech ops meeting, or sent via e-mail: (Note: This information is taken from the written material electronically sent to the VP tech ops, and the tech ops editor) i.e.:
4. VP Tech Ops: Bill Tonti

wtonti@us.ibm.com

Tech Ops editor: Scott Abrams

sabrams@omnicongroup.com

CAD / CAE: Keith Janasak, Chair:

The Reliability CAD/CAE Tech Ops Committee's objective is be a conduit of information for today's R&M CAE tools and future emerging R&M CAE direction. The committee plans to become visible through the RAMs conference by offering an R&M CAE Track . This will include papers, tool vendor exhibits, tool overview presentations and demonstrations, and tutorials, pending participant feedback.

Consumer Electronics: Fred Schenkelberg, Chair:

The Consumer Electronics committee continues to grow, and is actively seeking additional members. In 2002 this committee plans to publish on " What can be done in the product development process to minimize the chance of a product catching fire?"

Human Interface technology Committee: Dr. Kenneth P. LaSala, Chair:

The Human Interface Technology Committee activities for 2001 consisted of assembling the HIT Committee contribution to the Reliability Society Annual Tech-

nical Report, preliminary discussions on committee terms of reference, incremental additions to the Web page, review of plans for a reliability conference in China and referral of the subject to the Reliability Society AdCom, and introductory discussions about a human reliability standard. For 2002 these activities shall be continued.

Industrial Systems Committee: Dr. Hiroshi Yajima, Chair:

For 2001, this committee was established, having the objectives:

- Survey of reliability technology at specific plant industries and troubles.
- Survey of reliability issues in real plant failure.
- Start up survey of reliability issues in organization and risk management.
- For 2002 the committee plans are:
- Survey of reliability issues in organization and risk management.
- Survey of reliability status and trend at plant industry
- Selection of new committee members.

Mechanical Reliability Committee: Mr. Richard L. Doyle, Chair:

For 2001, the committee: prepared and gave a tutorial presentation to the Singapore Chapter. The presentation was on "Thermal Analysis of Integrated Circuits and Small Systems". In cooperation with the Nanotechnologies Council, the committee chaired two sessions at the 2001 Nanotechnologies Conference.

In 2002 the committee plans to publish an RS newsletter article, and to hold a membership meeting to establish the strengths and weaknesses of the committee, and develop plans to utilize the present strengths, and to improve on the weaknesses.

Reliability Committee and ATR Editor: Christian Hansen, Chair:

For 2001, The Annual Technology Report (ATR) was completed and submitted to Dave Franklin. Plans are to publish IEEE-RS Newsletter, the RAC Journal, and the Journal of the Japanese Union of Scientists and Engineers.

Software Relibility: Dr. Samuel Keene, Chair:

In 2001 the committee members participated significantly in the International Software Reliability Engineering Symposium held in Hong Kong Mladen Vouk, Jeffrey Voas, Ann Miller, Joanne Betcha Dugan, and Sam Keene produced a fourth Software related video tutorial, "Developing Fault Tolerant Software".For 2002 Dr. Schneidewind proposed developing a cooperative working relationship on software standards with CS. Plans are to develop another tutorial on Software aspects of system security and risk mitigation, and to complete the Software Reliability Chapter for the McGraw Hill's Handbook for Electrical Engineers". Additionally the committee will investigate developing greater initiatives in Software and System Risk Mitigation.

Standards & Definitions: Co-Chairs Yvonne Lord, Tom Brogan:

The Standards & Definitions Committee continued support of the SCC37 Reliability Prediction IEEE 1413.1 Working Group during 2001. The WG held four (4) face-to-face meetings and nearly 20 teleconferences. Currently the document is in the pre-balloting stage and is being worked with the IEEE editor to resolve formatting inconsistencies.

The 2002 Plans are continued support and monitor the progress of the IEEE SCC 37 on Reliability Prediction (1413.1 Working Group) and support the balloting process.

System safety Committee: Dr. Takehisa Kohda, Chair:

In 2001 advanced highway cruise support systems (AHS) covering advanced safety vehicles were evaluated. Typical hazards newly introduced in these systems were identified and risks generated by the hazards were estimated. These results are published in transactions/conference papers and proceedings.

The 2002 plans to examine a general framework for the safety design of complex systems from the viewpoint of risk management. The introduction of advance information technology in various fields such as chemical plants, nuclear plants, airplanes, and automobile, makes the system difficult to confirm the safety in the design stage. In addition the technical committee plans to develop a web page for discussions among technical members as well as communication to RS members.

Sensors Committee: Dr. Kenneth P. LaSala, *acting* Chair:

In June '02, the IEEE SENSORS conference will be held in Orlando, FL. To date, the first three sensor journal issues have been mailed to subscribers

TC Committee: H. Anthony Chan, Chair:

In 2001, efforts were put in place so that RAMS would incorporate a tutorial and a technical session on stress testing and screening. This is now an integral part of the RAMS program. For 2002 plans include to develop test and screening standards processes.

Presently, the following committee chairs were present at the TECH Ops meeting, but I am missing a summary report. Please send me your 2001 results and 2002 plans via e-mail.

1) International Reliability:
Joseph R. Fragola ()
2) Microelectronic Technologies:
Alan Street (alan@irsi.com)
3) Aerospace & Defense Systems:
Dave Franklin ()
4) Information Technology & Communications:
John Healy (healyj@cs.com)

The following committees are active, but a chair did not attend the Tech Ops annual meeting. Please send me your 2001 results and 2002 plans via e-mail.

1)Automotive Systems:
Clement Aladekugbe ()
2) Energy Systems:
Mark Lively (MbeLively@aol.com)

The Following committees are Inactive, and do not have a chair:

1) Reliability Design:
2) Warranty:
3) Medical Systems:

AdCom Meeting Agenda

IRPS – Dallas – April 2002

Saturday's Meeting

8:30 Welcome
Hoffman
8:40 Minutes Approval
Voas (Keene)
9:00 Treasurer Report – 2001 and YTD 2002

Kowalski
9:20 VP Pubs Status Report
Loomis
9:40 VP Tech Ops Status Report
Tonti
10:00 VP Membership Status Report
Campbell
10:20 VP Meetings Report
Healy
10:40 Jr Past President Report
10:40 By-Laws & Constitution Changes
LaSala
11:10 New Award
LaSala
11:20 Treasurer Report – 2002 and 2003 Budget
Kowalski
11:40 IEEE Tax Impact
Hoffman / Kowalski
12:00 Lunch
1:00 Society Members / Subsidize / Discussion
Hoffman / All
2:00 Revenue Development
Hoffman
2:30 Membership / Chapter Plans
Campbell
3:00 Pubs Plans
Loomis
3:30 Conference / Seminar Plans
Healy
4:00 Tech Ops Plans
Tonti
4:30 Discussion
All
5:00 Adjourn

Sunday Meeting

8:30 Call to Order
Hoffman
8:35 IEEE Awards Board
Holton
9:05 Discussion
All
9:15 Singapore Chapter Status Report
Pey
9:30 2003 RS Pricing
Kowalski
9:45 Discussion
All
10:00 Consolidate / Agree upon Society Plans
Voas (Keene)
Discussion
All
12:00 Adjourn and Lunch

Nanotechnology and the Reliability Society

Marsha Abramo, Tim Drummond, and Dick Doyle were present and represented the Reliability Society at the First ever IEEE Nanotechnology Conference held 28-30 Oct 2001 at the Outrigger Hotel in Maui, Hawaii. All three members of our Team chaired 2 sessions each during the conference. It was a very valuable experience for all 180 participants that attended. The conference was well run and financially successful.

The 2nd Annual IEEE Nanotechnology Conference will be held August 26-28, 2002 at the Washington Hilton in Washington, DC with Dr. Clifford Lau and Conference Chairman.

At the Hawaii Conference a Nanotechnology AdCom meeting was held (27 Oct 2001) with Marsha Abramo, Tim Drummond, and Dick Doyle in attendance. At the meeting Dennis Hoffman's Email approving the Council's C&BL (with reservations) was placed on the view graph showing the RS position of requesting an Expanded Field of Interest. Reliability is now included in the present Topics of interest. Also in the same email was the request to have 2 members from each society on the council (a primary and alternate) with only one vote per society. Pencil changes were made on that change and accepted unanimously. The Reliability Society has appointed Ann Campbell as our primary representative and Ken La Sala as our alternate representative.

The IEEE Nanotechnologies Council has been officially sanctioned by the IEEE Board of Directors at their last meeting (February 17, 2002) in Tempe, Arizona. The Reliability Society is one of 19 IEEE societies represented on the Council and is playing a very active roll.

We have established many good alliances in the fast growing Nanotechnologies Council. RS needs to continue our involvement and help shape its future.

Sincerely,

Richard Doyle, RS Past President
Email: r.doyle@ieee.org

ISSRE' 2001 Highlights

ISSRE'2001 was sponsored by both IEEE Computer Society and IEEE Reliability Society. It began with a day of Tutorials, followed by three days of the core conference. The core conference included the Industry Day to host presentations from Industry, followed by 2 days of multiple tracks by refereed papers, panels and fast abstracts. On the Tutorials Day the first Workshop on Software Assessment (WOSA) was also be held.

The lure of Hong Kong and the great work of ISSRE'2001 program committee to encourage submissions resulted in a substantial increase in submitted papers over last year. We had close to 100 submissions for refereed regular papers, from which we accepted 38 papers, giving us an acceptance rate slightly lower than 40%, which was among the lowest acceptance rates in the past ISSREs.

In addition to refereed regular papers, ISSRE'2001 highlights four excellent keynote speakers. They are: Terrence Heng, Senior VP, Motorola; Steve McConnell, CEO, Construx Software; Kalyana Rao, Executive VP and CTO, Satyam Computers Services Ltd.; and Dalibor F. Vrsalovic, President, Intel On-line Services Inc. There were also 14 Industry Presentations from US Airforce, NIST, Motorola, IBM Research, Cisco Systems, Korea Advanced Institute, Hitachi Ltd, and Sony Corporation, etc. In addition, 4 panel sessions, 21 Fast Abstracts, and 13 Student Poster papers were presented in ISSRE'2001. Most of these contents appeared in an ISSRE'2001 Supplementary Proceedings. In conclusion, ISSRE'2001 program included 100 presentations of various disciplines and topics surrounding the subject of software reliability engineering.

The rich contents and variety of ISSRE'2001 program had attracted widespread supports from both the academy and the industry. A total of 12 organizations had jointly supported the conference. They are: The Chinese University of Hong Kong, The Hong Kong Polytechnic University, The University of Hong Kong, Sino Software Research Institute, Hong Kong University of Science and Technology, Hong Kong Productivity Council, Hong Kong Computer

Society, Software Dioxide, Honeywell, IBM, Motorola and Word Wide Web Consortium.

About 130 attendees had participated in ISSRE'2001. This marked a high level of attendance (close to previous ISSRE'2001 attendance level) comparing with other IEEE sponsored conferences after the 911 event.

At the same time, a post-conference survey reflected the following encouraging responses from the attendees :

1. Positive feedbacks were received on meals, organization and registration arrangements, etc.
2. 3/4 of the attendees who filled out the survey were first-time newcomers to ISSRE, indicating a significant increase of new bloods to the Software Reliability community as it was for the first time held in Asia.
3. Over 85% of the respondents will recommend the conference to their colleagues or will attend the conference next time.
4. High compliments were received on the quality of Keynote speakers' presentations with some commented that ISSRE'2001 has the best set of Plenary/Keynote speakers at any conference they have attended.

A short listed comment from the respondents are directly quoted below:

- The organizers did a wonderful job. The best conferences I have attended in the past 5 years are ISSRE2001 and ISSRE 2000.
- Technical staff did a wonderful job arranging the presentation equipment. The conference was smooth and comfortable throughout the week.
- I really got what I need to know.
- I wanted to learn about the topic from the software side and found the conference very interesting.
- Unexpected to get a good overview of our current "state of the art". My expectations were met.
- Best set of plenary / keynote speakers at any conference I have attended over 20 years.
- Hotel was great, especially for the price. The service is as good as I have ever seen.
- Session chairs did a good job in time control.
- It was a good idea to eliminate Tools Fair - we don't have critical mass to make it work well.
- Review and comments on the submitted paper are professional and excellent. However, the presentation files should also be reviewed to guarantee the quality of presentations.

ISSRE'2001 is a showcase of the dedicated hard work done by the ISSRE'2001 Program Committee in the previous year. It helps to lay the groundwork for the success of ISSRE'2002 that is held in Year 2002.

Selected ISSRE Abstracts to demonstrate the value of the conference

Belli, F., "*Finite-State Testing of Graphical User Interfaces*"

Based on finite-state automata (FSA) and equivalent regular expressions, the paper introduces a holistic view of fault modeling that can be carried out as a complementary step to system modeling, revealing much rationalization potential. Appropriate formal notions will be used to introduce efficient algorithms to systematically generate and select test cases. The completeness of the test can be determined exploiting the link coverage of the state transition diagram of the FSA that models both the desired and undesired behavior of the system under test; this enables a precise scalability of the test and analysis process, leading to a better cost-effectiveness The elements of the approach will be narrated by realistic examples which will be used also to validate the approach.

Chang, S-J. and P.T.Z. Kapauan, "*Modeling and Analysis of Using Memory Management Unit to Improve Software Reliability*"

Voice and data convergence, voice over packets and 3G Wireless demand rapid evolvability for switching systems to succeed in the global marketplace. To succeed, a switching platform 's software architecture must be able to quickly absorb new technologies and respond to new market needs. This presents a new challenge to switching software architects because a switching platform must also be able to meet very stringent reliability requirements. One such requirement is no more than 0.5 minute per year of total downtime (i.e. better than six 9's in total system availability) as specified in Telecordia 's GR-929-CORE. This paper establishes a framework for improving switching platform software fault tolerance while meeting the needs of fast-time-to-market via the use of a very common component of modern microprocessor called memory management unit (MMU) and provides a modeling and analytical method for evaluating different implementation alternatives. Finally, the paper presents examples based on modeling a 3G Wireless switching platform, to illustrate the effectiveness of using the proposed method. Modeling results show more than 200 times improvement can be achieved with use of MMU.

Cheung, S.C., S.T. Chanson, and Z. Xu, "*Toward Generic Timing Tests for Distributed Multimedia Software Systems*"

While multimedia software applications are becoming popular, few works exist on testing this important class of software, especially with respect to its temporal properties. Traditional software testing techniques mainly deal with functional correctness and cannot be directly applied to testing timing properties. In this paper, we present a framework for testing the generic temporal relations of media objects in distributed multimedia software systems (DMSS). The temporal relations are based on Allen 's basic binary temporal relations between two objects and extended to cover multiple number of objects in different streams. We have developed techniques for test case generation and test result analysis based on a distributed tester architecture. A prototype system has been built to test a DEC HPAS multimedia presentation system which is a typical multimedia system supporting W3C 's SMIL standard Detailed discussion on practical issues and illustration with a number of actual tests are given. Experimental results have shown that our framework is effective in detecting timing errors. The techniques and methodology are general and can be applied to other DAISS with only minor modification.

Goseva-Popstojanova K, A.P. Mathur, and K.S. Trivedi, "*Comparison of Architecture-Based Software Reliability Models*"

Many architecture-based software reliability models have been proposed in

the past without any attempt to establish a relationship among them. The aim of this paper is to fill this gap. First, the unifying structural properties of the models are exhibited and the theoretical relationship is established. Then, the estimates provided by the models are compared using an empirical case study. The program chosen for the case study consists of almost 10,000 lines of C code divided into several components. The faulty version of the program was obtained by reinserting the faults discovered during integration testing and operational usage and the correct version was used as an oracle. A set of test cases was generated randomly accordingly to the known operational profile. The results show that 1) all models give reasonably accurate estimations compared to the actual reliability and 2)faults present in the components influence both components reliabilities and the way components interact.

Jeske, D.R., X. Zhang, and L. Pham, "*Accounting for Realities when Estimating the Field Failure Rate of Software*"

In this paper, we developed a methodology to predict the failure rate of software in a field environment. The methodology accounts for some practical limitations associated with software failure rate models including, 1) the likely mismatch between test and field environments, 2) non-instantaneous fault removal times, and 3) the effect of deferring bug fixes to future releases. A recent project illustrates the implementation of the prediction methodology, and an analysis based on the actual field data indicates the methodology worked well for our application.

Jin, H, and P. Santhanam, "*An Approach to Higher Reliability Using Software Components*"

The general belief that component reuse improves software reliability is based on the assumption that the prior usage has exposed the potential software faults. In reality, this is not necessarily true due to the inherent differences in the environments and usage of the component. To achieve a high reliability for a component-based software system, we need reliable components that interoperate properly in the new environment. In this paper, we present a unified approach to do an evaluation of the interoperability of components. This involves a generic and systematic capture of the component behavior that expresses the various assumptions made by the designers about components and their interconnections explicitly. With the information captured at a semantic level, this approach can detect potential mismatches between components in the new environment and give guidance on how to resolve the mismatches to fit components in the new context. The capture of this information in an appropriate format and an automated analysis can show serious exposures to reliability in a component-based system, before it is integrated.

White, L., H. Almezan, and N. Alzeidi, "*User-Based Testing of GUI Sequences and Their Interactions*"

Testing Graphical User lnterfaces (GUls) is difficult, involving many states, inputs and events. We have previously reported a new method for testing GUls that is scalable and concentrates on user sequences of GUl objects and selections that collaborate, called complete interaction sequences (CIS) and that produce the desired response for the user called the responsibility. In this paper we will extend this approach by investigating the use of memory tools to detect missing effects and CIS sequences, investigating interactions between CIS sequences, and providing empirical studies of five different GUI systems.

Bassin, K., S. Biyani and P. Santhanam, "*Evaluating the Software Test Strategy for 2000 Sydney Olympics*"

The 2000 summer Olympic Games event was a major information technology challenge. With a fixed deadline for completion, its inevitable dependency on software systems and immense scope, the testing and verification effort was critical to its success. One way in which success was assured was the use of innovative techniques using ODC based analysis to evaluate planned a~zd executed test activities. These techniques were used to verify that the plan was comprehensive, yet efficient, and ensured that progress could be accurately' measured. This paper describes some of these techniques and provides examples of the benefits derived. We also discuss the applicability of the techniques to other software projects.

2001 Annual Statistics of the IEEE are Now Available Online! – URL Correction

The URL for the Annual Statistics of the IEEE was incorrectly stated in the March 2002 issue of Chapter Briefs. You can find the report at the correct address: http://www.ieee.org/secrpt. This report includes a breakdown of Membership by Society and Grade, Region, Section and Chapter. A particularly useful tool for Chapter development efforts can be found in Section C, Table 3. This table provides counts of Members for each Society in each Section. This may be useful if you are looking to increase your Chapter's membership by becoming a joint Chapter.

Access to the Annual Statistics of the IEEE is password protected. You can access the data using the same web account used to access papers and articles on IEEE Xplore?. If you do not already have a web account, you can register for one at: http://www.ieee.org/web/accounts/

For more information regarding Chapter Development Opportunities, please contact April Nakamura at +1 732 562 3846, e-mail: a.nakamura@ieee.org.

Standards News

CALL FOR VOLUNTEERS

IEEE P1616 WORKING GROUP - CALL FOR VOLUNTEERS

Motor Vehicle Event Data Recorders (MVEDRs)

The IEEE P1616 standard will provide a minimum data subset that will allow uniformity and enhance the value of crash data extensibility to provide for growth and product differentiation that will be openly shared with the public, industry and government. For more on this story, go to http://memcentral.standards.ieee.org/sa/member/sanews/archives/news15-Mar-02.html#1616

IEEE P830 WORKING GROUP - CALL FOR PARTICIPANTS AND REVIEWERS

Software Requirements Specifications

The revision process is beginning for this standard. For the general goals and contact information, go to: http://memcentral.standards.ieee.org/sa/member/sanews/archives/news15-Mar-02.html#830

IEEE COMPUTER SOCIETY FORMS THE INFORMATION ASSURANCE STUDY GROUP CALL FOR VOLUNTEERS

Employment of Common Criteria Protection Profiles is being considered for Key Technology Areas including Operating Systems; Storage Systems; Database Systems; Firewalls; Biometrics; Smart Cards; Intrusion Detection Systems; Public Key Infrastructure; Virtual Private Networks; Routers and Gateways; Web Browsers; Telecommunications Switching Devices; and Applications. For more information, go to: http://memcentral.standards.ieee.org/sa/member/sanews/archives/news15-Mar-02.html#study

UPDATE
ENGINEERS AND ELECTIONEERS JOIN IEEE EFFORT TO CREATE NEW STANDARDS FOR VOTING EQUIPMENT

More Than 130 Manufacturers, Election Officials and Others Aim to Make Voting More Reliable, Secure and Accessible. For more information, go to: http://memcentral.standards.ieee.org/sa/member/sanews/archives/news15-Mar-02.html#voting

NEWS
IEEE-SA UNVEILS NEW CORPORATE AND INTERNATIONAL AWARDS

IEEE-SA Awards and Recognition Committee (ArCom) is now seeking nominations for these prestigious awards. The nomination deadline is 15 May 2002. For a description of the awards and eligibility guidelines, go to: http://memcentral.standards.ieee.org/sa/member/sanews/archives/news15-Mar-02.html#awards

IEEE INTELLIGENT TRANSPORTATION SYSTEMS DATA REGISTRY (ITS-DR) SUBSCRIPTION FEE WAIVED FOR 2002

This was made possible through funding from the US Department of Transportation Federal Highway Administration (US DOT FHWA). The ITS-DR is specifically designed for the ITS Standards Developer, System Integrator, Application Developer, Data Dictionary Developer, Procuring Agency and others. It serves as an entry point into a comprehensive collection of information devoted to the support of clear-cut interchange and reuse of data and data concepts among the various functional areas of intelligent transportation systems. For more information, go to: http://memcentral.standards.ieee.org/sa/member/sanews/archives/news15-Mar-02.html#its

IEEE-SA BOARD OF GOVERNORS MEETING 24-26 FEBRUARY 2002
Piscataway, NJ, US

2002 Committee Appointments Made by President Ben Johnson http://memcentral.standards.ieee.org/sa/member/sanews/archives/news15-Mar-02.html#appointments

Options for Standards Support of Our Volunteer Working Groups http://memcentral.standards.ieee.org/sa/member/sanews/archives/news15-Mar-02.html#support

Highlights of the IEEE Board of Directors Meeting http://memcentral.standards.ieee.org/sa/member/sanews/archives/news15-Mar-02. html#bod

Awards Report http://memcentral.standards.ieee.org/sa/member/sanews/archives/news15-Mar-02.html#awards

Geographic Portal Rollout http://memcentral.standards.ieee.org/sa/member/sanews/archives/news15-Mar-02.html#

geoport

Federal Trade Commission Hearing http://memcentral.standards.ieee.org/sa/member/sanews/archives/news15-Mar-02.html#ftc

Joint Meeting with IEEE-SA Corporate Members http://memcentral.standards.ieee.org/sa/member/sanews/archives/news15-Mar-02.html#corp

Motions http://memcentral.standards.ieee.org/sa/member/sanews/archives/news15-Mar-02.html#motions

INTERPRETATION REQUESTS RESPONDED TO ON THE WEB

- IEEE Standards Interpretation for IEEE Std 802.3®, 2000 Edition, IEEE Standard for Carrier Sense Multiple Access with Collision Detection (CSMA/CD) Access Method and Physical Layer Specifications For more on this story, go to http://standards.ieee.org/reading/ieee/interp/802.3-2000/index.html

IEEE Standards Interpretations for IEEE Std 980-1994 IEEE Guide for Containment and Control of Oil Spills in Substations. For more on this story, go to http://standards.ieee.org/reading/ieee/interp/980-1994.html

Educational Activities Update

Harvard Business School Publishing Partners with IEEE

Harvard Business School Publishing (HBSP) has joined the growing list of premiere university partners of IEEE. HBSP provides selected online courses at a 10% discount for IEEE members. Currently thirteen courses in leadership, management, and strategy are being offered to IEEE members along with one powerful performance resource called Harvard ManageMentor [registered trademark].

HBSP courses utilize Harvard Business Review articles, interactive case studies and expert feedback from instructors. Each course is self-contained with all the resources you need provided for you online. In one to two hours at your desktop, you can acquire both new and classic business concepts to apply immediately to your job.

To assure your discount, enter through the IEEE Educational Activities Board at www.ieee.org/eab/verify/hbsp/verify.htm. You must pre-register in order to access the course list and see the demonstrations of each course. The pre-registration in no way obligates you to buy a course.

For more information about the Partners Program, see www.ieee.org/eab/eduPartners.htm, or contact Jason Prue, IEEE Educational Activities, at j.prue@ieee.org.

Lynn Murison
Outreach Administrator, IEEE Educational Activities
ph: 1.732.562.6526
www.ieee.org/organizations/eab/

IEEE EAB Teacher In Service Program Training Workshop online for Engineers Week

IEEE Section training for the IEEE Educational Activities Board (EAB) Teacher In-Service Program is now available online at www.ieee.org/eab/precollege/tispt/index.htm. The program features engineers designing and presenting technologically oriented subject matter to the Sections' local teachers. Sections can have enormous impact in their hometowns by providing engineering projects for teachers to use. One high school teacher, for instance, over the course of a year can influence over 125 students. Fourteen Sections, from Regions 1-8, have already been trained using these Workshop materials.

The site documentation is based on two in-person Workshops conducted in 2001 by Douglas Gorham, EAB Pre-College Education Manager. Volunteers trained at the Workshops are called "champions" of the program. They take the lead in implementing the Teachers' Workshops in their Section. Diane Collier, an In-Service "champion" from the Fort Worth, Texas (USA) Section who attended one of the in-person sessions, commented about the new site, "I have a contact at the Galveston, Texas Section that is interested in the program. This will be excellent for explaining getting started to him."

The online workshop is complete with step-by-step instructions on how to develop and implement a pre-college teacher-training program. Included are suggestions on how to identify and reach school officials; include the sessions as part of a teacher's professional development; and make sure that project ideas conform to state (US) or national (non-US) standards.

The presentations feature hands-on activities that will allow teachers to take the activities and concepts back to the classroom and teach it with assurance. At present there are a list of topics and two flyers that the Florida West Coast Section used to entice teachers to the In-Service Workshop posted at the website. As each Section reports on their teacher workshops, the new topics will be posted. The topics and flyers can serve as examples for further discussion by the Section volunteers.

Over 160 teachers in Florida have attended the sessions designed by the Florida West Coast and Miami Sections. Their response has been enthusiastic and gratifying, with feedback comments ranging from "We need to do more of these programs" to "Now we know where the resources are IEEE!"

For further information contact Douglas Gorham, at d.g.gorham@ieee.org.

Lynn Murison
Outreach Administrator,
IEEE Educational Activities
ph: 1.732.562.6526
www.ieee.org/organizations/eab/

Meeting Notices

Dear Colleague:

My name is Rolf Vollertsen, Communications Chair of the IEEE 2002 Integrated Reliability Workshop (IRW). This advance e-mail of our first Call for Papers is intended to give you the opportunity to start preparing an abstract while there is still some time. The committee of the 2002 IRW cordially invites you to submit an abstract describing your latest reliability related work.

1st CALL FOR PAPERS
IEEE 2002 International INTEGRATED RELIABILITY WORKSHOP

October 21-24, 2002
http://www.irps.org/irw/
Stanford Sierra Camp, Lake Tahoe, CA
Submission Deadline: July 5th, 2002

The Integrated Reliability Workshop focuses on ensuring semiconductor reliability through component fabrication, design, characterization, and analysis tools. It provides a unique environment for envisioning, developing, and sharing reliability technology for present and future semiconductor applications. Hot reliability topics of the workshop are: Cu interconnects, reliability of deep sub-micron, high speed, high frequency devices, new dielectric systems, and reliability modeling & simulation. We invite you to submit a presentation proposal that addresses one or more of the following topics:

- WAFER LEVEL RELIABILITY TESTS AND TEST APPROACHES
- IDENTIFICATION OF RELIABILITY EFFECTS
- NEW OR EXISTING RELIABILITY CHARACTERIZATION AND PREDICTION MODELS TO SHOW
- RELIABILITY TEST STRUCTURES
- CUSTOMER PRODUCT RELIABILITY REQUIREMENTS / MANUFACTURER RELIABILITY TASKS
- DESIGNING-IN RELIABILITY (CIRCUITS, PROCESSES, PRODUCTS)

Your submission should state clearly and concisely the results of your work and why they are significant. Representative data and/or figures that support your proposal are REQUIRED. You can submit your work as a paper or a poster.

Preferably, please e-mail your maximum two-page abstract (incl. figures) or airmail (express mail preferred) it with 15 copies to either the Technical Program Chair or the Vice Technical Program Chair. If you send the proposal by e-mail, please send it as a MS Word document or .pdf file. Your proposal must include the name, affiliation, complete return address, telephone and telefax numbers, and e-mail address for each author. Telefax submissions will NOT be accepted. All submissions will be acknowledged within three weeks. If you do not receive acknowledgment of your submission, please contact the Technical Program Chair. Visual aids for the ACCEPTED proposals are required by September 17, 2002 for inclusion in the Presentation Handout available at the workshop. A written version of your presentation is due at the workshop for inclusion in the Final Report.

Mail to: Gennadi Bersuker
IRW 2002 Technical Program Chair
nternational SEMATECH
706 Montopolis Dr.
Austin, TX 78741-6499
USA
(512) 356-7045
(512) 356-7640 (FAX)
gennadi.bersuker@sematech.org
.... or...
Alvin Strong
IRW 2002 Technical Program Vice Chair
International Business Machines MD
1000 River Street (ZIP 967A)
Essex Junction, VT 05452
USA
(802) 769-1326
(802) 769-1220
astrong@us.ibm.com

A few words about our Workshop environment:

From the moment you arrive at the south shore of Fallen Leaf Lake, you realize that you are taking part in something special. The IEEE Integrated Reliability Workshop (IRW) is quite a bit different from a typical technical conference. Attendees stay in cabins without TVs or phones, dress is casual (suits, ties and high heels are shunned), affiliations are downplayed, and meals are served at the lodge dining room, family-style. Attendees of the workshop are expected to actively participate and you feel yourself drawn into technical discussions from the start. This peaceful setting, free from the distractions and annoyances of modern life, presents a terrific opportunity to really get to know your colleagues, including internationally renown experts, an opportunity not usually available at bigger, more hectic reliability conferences. Every aspect of this conference, from the isolated location to the format of the technical program to the Wednesday afternoon off, is designed to get attendees to interact and network.

ADDITIONAL INFORMATION:
More information including links and a complete downloadable version (.pdf) of the Call for Papers is available on the IRW WebSite at www.irps.org/irw. We look forward to receiving your abstract and to meeting you in Tahoe!

Kind regards,
Rolf-P. Vollertsen
IRW 2002 Communication Chair
Infineon Technologies NA Corp.
1000 River Street (967A)
Essex Junction, VT 05452
Phone: +1 802 769 2823
Fax: +1 802 769 4304

Preliminary Notice

DSD'2002
EUROMICRO SYMPOSIUM ON DIGITAL SYSTEM DESIGN: Architecture, Methods, and Tools

http://www.co.umist.ac.uk/ dsd2002
Dortmund, Germany, September 4 - 6, 2002

The Symposium on Digital System Design addresses architectures and implementations of (embedded) digital systems, as well as efficient design methods and tools. It is a discussion forum for the research community working on state-of-the-art investigations, development, and applications in digital systems, processor and memory architectures and design, application specific processors, systems-on-a-chip, hardware/software co-design, circuit design, system validation, and design automation.

The main areas of interest are:

- Processor and memory architectures
- Special architectures and reconfigurable computing
- Specification and modelling
- Validation
- Synthesis
- System-on-a-chip

Check the DSD'2002 web site
http://www.co.umist.ac.uk/dsd2002

Relex PRISM Reflects Advances in Reliability Analysis

Greensburg, PA, January 24, 2002

Relex Software Corporation, the worldwide leader in reliability analysis software, has recently added the PRISM standard to its powerful arsenal of supported reliability prediction models. Originally developed by the Reliability Analysis Center (RAC) for predicting Mean Time Between Failures (MTBF) and analyzing system reliability, the PRISM standard has been completely integrated into the Relex Reliability Software Suite.

"Any failure information calculated by Relex PRISM is immediately available for use in other Relex modules," said Kevin Van Fleet, Vice President of Relex Software Corporation. "Relex's common database ensures that Relex RBD, Relex Fault Tree, Relex FMEA, and all other Relex modules and reliability standards can use the MTBF and reliability prediction values generated by Relex PRISM."

According to Van Fleet, Relex PRISM raises reliability analysis to a new level by providing for adjustments to base failure rate estimates using Bayesian analysis, predecessor data, and process grades. For example, early in the development phase of a system, reliability estimates are based on generic parts lists and default values for operational profiles and stresses. As test and field data become available, Bayesian analysis uses this empirical data to modify initial reliability predictions.

"Integrating test and field data into predictions provides for obtaining failure rates that are more representative of individual applications," explained Van Fleet. "Because specific variables that impact reliability cannot be included and accounted for in generic models, Bayesian analysis incorporates empirical data to strengthen the prediction foundation."

Similarly, predecessor analysis uses the reliability prediction of a predecessor product and its observed field failure rate as the basis for estimating the reliability of a "new" product. Because a new product is much more likely to be a marginal improvement rather than a revolutionary advancement upon a predecessor product, predecessor analysis can factor in the field failure rate experience of the predecessor product to improve the reliability prediction for the new product.

To account for process-related variability, the PRISM standard uses process grades. Answers to a series of questions for each of nine different processes—including design, part quality, manufacturing practices, and management techniques—establish scores that are totaled and then translated into a quantitative pi factor multiplier that impacts the predicted failure rate. "Because the failure rate a product experiences in the field can depend upon the processes used by manufacturers, process grades adjust failure rate predictions by the pi factor multiplier calculated by Relex PRISM to increase accuracy," said Van Fleet.

According to certified reliability engineers at Relex Software Corporation, the PRISM standard adopts a broader scope to predicting reliability by accounting for the

primary factors that influence the inability of a system to perform its intended functions. "When our engineers were implementing the PRISM standard within Relex, they quickly realized that Bayesian analysis, predecessor data, and process grades could be and should be extended to all of the reliability standards that we support," said Van Fleet. "So now, when Relex PRISM is licensed, all of its analytical techniques for adjusting and optimizing base failure rates can be used by Relex with any other supported reliability standard, including MIL-HDBK-217 and Telcordia."

An additional incentive for licensing Relex PRISM is the ability to select parts for analysis from the latest Nonelectronic Parts Reliability Data (NPRD) and Electronic Parts Reliability Data (EPRD) published by RAC. Base failure rates for NPRD and EPRD parts can be used in reliability predictions whenever a reliability calculation model for a specific part type is not found in MIL-HDBK-217, Telcordia (Bellcore), or the Mechanical Reliability Handbook. NPRD allows for the selection of a single line item from mechanical and electro-mechanical parts such as actuators, bearings, brakes, clutches, gears, pumps, seals, springs, and valves. EPRD, on the other hand, provides for the selection of multiple line items from electronic parts such as capacitors, diodes, integrated circuits, inductors, resistors, thyristors, transformers, and transistors. In addition to offering three subtype levels for selecting an EPRD part, Relex PRISM enables the entry of criteria for part quality, environment, and hermeticity (where applicable), and then automatically calculates the required merged failure rate. Having access to both NPRD and EPRD parts not only makes reliability analysis easier and faster but also ensures that results are more accurate.

About Relex Software Corporation

Relex Software Corporation is a world leader in reliability analysis software. Its products are used by thousands of engineers in a variety of businesses around the globe. In business since 1986, Relex Software Corporation asserts that its mission is to produce a superior line of high-quality software tools for reliability analysis. Long-recognized for their user-friendly, state-of-the-art features, the modular tools in the Relex Reliability Software Suite include an intuitive graphical user interface, support for scientific graphical charts, an enhanced CAD interface, visual system modeling with redundancy support, completely customizable output reports, extensive parts libraries, and a comprehensive online help system. For more information on Relex Software Corporation, an IS0-9001 and TickIt 2000 certified company, call 724.836.8800 or visit www.relexsoftware.com.

Dear Dr Samuel Keene,

I read your article with great interest.

I came across implementation of Six Sigma with the following steps: Define, Measure, Analyse, Improve, Control. But in a design environment where it is not easy to get many samples in early phase, I learnt that that is other implementation steps —- namely, IDOV ==> which stands for: Identify, Design, Optimise and Validate.

Is it possible to compare the differences in approach and share your views in the next issue of IEEE Reliability Society Newsletter?

It is also noted that to implement Six Sigma, we need to involvement of top management. My personal observations (having worked in a design environment for some time) is that if the next in line don't "believe" in Six Sigma, it is very difficult to push Six Sigma. In my discussion with speaker of Six Sigma, I learnt that there is a certain strategy of approach, namely: (in order of merit)

1. Manufacturing, Assembly, Supplier, Packaging, etc.
2. Process, Engineering, etc.
3. Sales, Marketing, etc.
4. Customer
5. Development

I see some truth in this strategy. If we start pushing Six Sigma at Development, and the Manufacturing is at another country (like in China) where Six Sigma is not understood or followed. Every thing that is Six Sigma driven at the Development Center in another country will find difficulty in see results. What is your view on this observation?

Best Regards,

LAM WENG KEEN
BCT Mainstream TV Development
Know-how & Standard Design
(Special Project/Robust Design)
Philips Electronics Singapore Pte Ltd
Tel: (65) 3502730
620A Lorong 1 Toa Payoh
Singapore 319762, Fax: (65) 2580892

experience

The Reliability Analysis Center (RAC) is a Department of Defense (DoD) Information Analysis Center operated by IITRI for more than 33 years. The DoD has chartered RAC as a Center of Excellence and a scientific and technical resource for information, data, analysis, analytical tools, training and technical assistance in the broadly defined fields of Reliability, Maintainability, Supportability and Quality. Our **60+ local engineers** are backed by IITRI resources at 15 IITRI locations with over 1300 employees of various technical backgrounds and expertise.

training

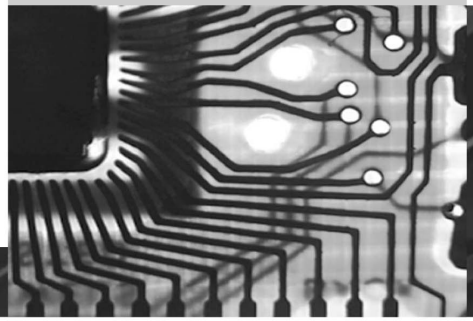
Learn from the experts with RAC's world-renowned professional reliability training program. Courses are taught by practicing professionals using relevant experience and real-world examples. To learn at your own pace, **RAC's distance learning** available on CD-ROM is structured for all individuals working in the reliability engineering realm.

consultation and implementation

RAC's technical staff is ready to provide support at all levels and in all areas of reliability. Organizations which already have relatively mature reliability programs have RAC work on very specific problems or issues. Others have no formal reliability program and RAC provides a wider range of support beginning with an assessment of the organization's reliability needs. Depending on a customer's needs, RAC will provide short-term, quick responses to immediate needs, or long-term studies and independent analysis. **Our philosophy is to bring the customer's level of knowledge and experience to a point where the customer can independently and successfully implement the reliability program for the long term.**

reliability data publications and software

As the **central resource for DoD and industry reliability data**, RAC offers the data that's important to your business, and we integrate this information into our products, including our publications and software. Our extensive line of reliability publications offers something for everyone: managers achieve a high-level understanding of the relationship between reliability and the bottom line, design engineers receive support for design trade-off analyses and decisions, and reliability practitioners will find practical application and how-to guides. **RAC's PRISM® software** sets a new standard in reliability prediction as a comprehensive resource that includes next generation component failure rate models, searchable failure rate databases, software reliability predictions and operating and non-operating failure rates.



PRISM®

At your service ...

RAC provides a host of services free of charge at our web site: http://rac.iitri.org.

- Bibliographic Searches
- Industry Software Directory
- R&M Standards Directory
- Related Web Sites Directory
- Industry Calendar
- PRISM Software Demo
- Downloadable Publications
- Industry Discussion Forum
- RAC Quarterly Technical Journal
- Up to 8 Hours Engineering Support

If you can't find what you are looking for on-line contact RAC.

RAC

Reliability Analysis Center
201 Mill Street, Rome, NY 13440-6916
Phone: 315.337.0900 or 1.888.RAC.USER
Fax: 315.337.9932
Email: rac@iitri.org

RAC is a DoD Information Analysis Center Operated by IIT Research Institute

Technical Magazine Section

Device Design Methodology and Reliability Strategy for Deep Sub-micron Technology

William R. Tonti
IBM Microelectronics, Essex Junction Vt.

Abstract

This tutorial will discuss device and process optimization techniques that may be employed in the design of present state of the art bulk silicon technology. MOSFET performance and reliability issues are contrasted.

Many issues influence a MOSFET's in-line process and field reliability. Ensuring a stable IC design is a great challenge and has many concerns associated with the scaling of lithographic feature size. Some of the topics discussed below are investigated using present DRAM technology. Including process tolerances and lifetime shifts during the design of a DRAM transfer device greatly influences MOSFET performance and reliability operating point. Given an appropriate relationship for each occurrence, a statistical design methodology ensures product stability. The device off-current (Iso) and on-current (Ion) trade-offs are the primary design goals of a given technology. Simple scaling (i.e. Ion ∝μ [C'ox/L]V, Iso ∝ μAe-VT /B) indicates both channel length and/or gate oxide thickness may be used to improve on-current. Assuming this ratio of C'ox /L is increased and all other MOSFET design parameters remain constant, then VT would decrease and lso would increase undesirably. Adding additional well/channel doping could be used to correct the design, but this may lead to an increased base VT tolerance, source-to-substrate sensitivity, and substrate hot-carrier problems if not implemented in a manner that minimizes these adverse effects. There is an optimum doping profile, which satisfies the above conditions.

Today's state-of-the-art isolation technology is box-shaped and commonly implemented as a trench filled with SiO2. This isolation tends to have a parasitic parallel device gated at the isolation edges. In some cases, Iso may be constrained by device edge count rather than total device width. Edge degradation therefore becomes a mechanism to characterize in this isolation technology. Wafer level and module level burn-in test methodologies are important early-life screens used to disposition product and improve overall yield by replacing circuit reliability failures with known good spare elements. Wafer burn-in stresses a chip for a short period of time, usually accessing and applying accelerated test conditions to critical areas that cannot be highly accelerated at the module level. Test coverage at wafer burn-in is 100%, and redundancy algorithms can be maximized prior to module burn-in. Module burn-in can take on many forms: static, dynamic, in-situ, or combinations of the above to achieve field reliability-objectives. This course is organized into four sessions. The first session describes MOSFET time zero design, and the effect of hot carriers on this decision. PMOS-buried and surface channel designs are contrasted; and a self-consistent substrate hot carrier design is described for NMOS transistors. Session II investigates the effect of shallow trench isolation on device reliability. Session III describes wafer burn-in screens; and session IV describes module-level burn-in.

William R. Tonti

William R. Tonti received the B.S.E.E. with honor (1978) from Northeastern University. He then joined IBM in Essex Junction, Vermont, where he presently is engaged in the development of PowerPC microprocessor reliability strategies. Previously Dr. Tonti was a program manager in the wired communication space, and has also contributed to the Giga-bit vertical cell DRAM technology development. He received an M.S.E.E. (1982) from the University of Vermont, an M.B.A. (1983) from St. Michael's College, and a Ph.D. in Electrical Engineering (1988) from the University of Vermont under the auspices of the IBM resident study program. Dr. Tonti is the 2002 International Reliability Physics Symposium General Chairman, and was the 2000 Integrated Reliability Workshop General Chairman. He has authored numerous contributed and invited papers, and holds over 65 U.S. patents. Dr. Tonti is a member of tau beta pi, eta kappa nu, a senior member of IEEE, an advisory board member of the IEEE Transactions on Device and Material Reliability, a recipient of the IEEE 3'rd millennium medal, and an ABET engineering curriculum evaluator. Dr. Tonti is a currently a member of the Reliability Society ADCOM., and serves as their VP of Technical Operations.

IBM Microelectronics Division
1580 Route 52, Bldg. 504
Hopewell Junction, NY 12533-6351

this page available

this page available

CALL FOR PAPERS

IEEE-NANO'2002

Second IEEE Conference on Nanotechnology

August 26-28, 2002

(Day of Tutorials, August 25)

Washington DC, USA

http://ewh.ieee.org/tc/nanotech/nano2002

Sponsored by
IEEE Nanotechnology Council
In cooperation with
IEEE Robotics and Automation Society (RAS)
IEEE Electron Devices Society (EDS)
IEEE Industrial Electronics Society (IES)
IEEE Circuits and Systems Society (CAS)

Council Societies

Robotics and Automation Society (RAS)
Electron Devices Society (EDS)
Industrial Electronics Society (IES)
Circuits and Systems Society (CAS)
Aerospace & Electronics Systems Society (AESS)
Antennas and Propagation Society (APS)
Computer Society (CS)
Electromagnetic Compatibility Society (ECS)
Components, Packaging, and Manufacturing Technology Society (CPMTS)
Engineering in Medicine and Biology Society (EMBS)
Instrumentation and Measurement Society (IMS)
Lasers and Electro-Optics Society (LEOS)
Magnetics Society (MS)
Microwave Theory and Techniques Society (MTTS)
Nuclear and Plasma Sciences Society (NPSS)
Reliability Society (RS)
Systems, Man, Cybernetics Society (SMCS)
Ultrasonics, Ferroelectrics, and Frequency Control Society (UFFCS)
Communications Society (ComSoc)

Topics of Interest

All areas of nanotechnology, including: nano-materials, nano-structures, nanolithography, nano-fabrication, nano-magnetics, nano-device, nanoelectronics, nano-photonics, nano-optics, nano-actuators, nano-sensing, nano-manipulation, nano-robotics, quantum dots and devices, quantum computing, nano-systems-on-a-chip, giga-scale systems, carbon nanotubes, nanocrystals, nano-device modeling and simulation, nanomaterial characterizations, nano-architectures, nano-biology, nano-bio-medical sciences, nano-device/system design, reliability, and manufacturing.

General Chair: Dr. Clifford Lau, ONR, lauc@onr.navy.mil, 703-696-0431
Program Chair: Prof. Piergiorgio Uslenghi, UIC, uslenghi@uic.edu, 312-996-6059

Paper Submission

Abstract due date: March 31, 2002
Format: Two pages (one page text and one page figures)
Electronic Submission: In MsWord or pdf file
Send to: Prof. Piergiorgio Uslenghi, ieee-nano@ece.uic.edu
Acceptance notification: End of April, 2002
Full paper due date: End of June, 2002

http://ewh.ieee.org/tc/nanotech/nano2002