

Reliability Society

NEWSLETTER

Vol. 50, No. 2, May 2004

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President's Message



**Dear IEEE Reliability Society Members:**

We recently held our April ADCOM meeting in Phoenix at IRPS'04, and in this message, I simply want to provide a short listing of a few of the highlights from that meeting. The minutes from that meeting provide far greater detail.

To begin, it appears that IRPS'04 was yet another successful conference for our Society from the standpoint of the number of attendees, the content of the program, and profitability. I wish to thank all Society volunteer members for again providing value to the attendees of IRPS'04. As a society, we can be proud of their efforts.

Secondly, I am happy to announce that the financial books of the Society for the calendar year of 2003 have closed at the Institute. Unbelievably, and for a variety of reasons, we were able to gain a surplus of approximately \$378K. Through undesirable yet necessary cost cutting, both at the Society level and Institute level, and better investment strategies, we now have begun to rebuild our finances. Our approximate net worth is nearly back to \$1M. That will serve us well in the future and allow us to rebuild and become a healthier organization.

Thirdly, as you know, the 2004 RAMS and IRPS proceedings are available to all members at no charge in 2004. The ADCOM voted to continue this practice for the 2005 venues. We unfortunately cannot yet guarantee this for years past 2005, but we know that we can guarantee it for 2005. The ADCOM felt that this was the correct policy for given the 2003 surplus.

Fourth, the redesign of our website is well underway. The work is being done at the Institute. The Institute has offered a reasonable cost to us for doing so. They have already given certain web-related services to our Society at no-cost. Our goal is to have this redesign that conforms with the Institute's preferred template completed in 2-3 months.

Fifth, we are holding a two-day seminar series on the topic of software reliability in the Washington D.C. area in early September. If you want more information on the topics covered, please contact Dr. Sam Keene ([s.keene@ieee.org](mailto:s.keene@ieee.org)). Sam and Dr. Bill Tonti have been instrumental in working with Dave Barber in finding the venue, organizing it, and marketing it

Sixth, our 2004 "new initiative" program in e-learning is well underway. Our first module on applying international law concerning acts of war to cyberspace is completed. This module will be linked to other modules that are yet to be completed, and when done, will provide a new offering that will be sold and owned by our Society. While this topic may seem completely out of the

mainstream of our Society's field-of-interest, I ask that you read the article titled "The Farewell Dossier" by William Saphire. It was published on February 2, 2004 and that can be found at nytimes.com. It clearly shows how deliberate and malicious Trojan Horse technologies can thwart even the best efforts at designing in reliability. And given the times we live in today, we can no longer assume that malicious intent will not impact the best efforts at creating trusted and high integrity systems.

And finally, we need to elect the ADCOM class of 2007 by the end of August, and so please be on the lookout for your ballots fairly soon. We are doing this differently this year so that the incoming President for 2005 is able to attend the last 2004 TAB meeting with me. I believe that it is an easier and more efficient transition within the ADCOM if we know who is coming aboard at the officer levels before we hit the Holiday Season, and therefore we will be holding elections much earlier than in past years.

I wish you all a terrific Summer, and do not hesitate to contact me with an recommendations or comments. And please vote!

Jeffrey Voas  
[voas@cigital.com](mailto:voas@cigital.com)

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#### From the Editor

Welcome to the first IEEE Reliability Society e-Newsletter. As in the past with the hardcopy newsletter, an issue will be published quarterly and published to the Reliability Society website.

We welcome your articles, comments or questions. All RS Newsletter inputs should be sent electronically to [l.chase@ieee.org](mailto:l.chase@ieee.org).

February                      Inputs due January

May                              Inputs due April  
August                          Inputs due July  
November                      Inputs due October

Publishing of advertisements will be available in future issues. Advertisements will be accepted in common graphic format.

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#### Special Announcement

##### **NEW Reliability Society moves to electronic (web-based) information distribution**

Members can now access the following publications electronically by going to **IEEE Xplore®** and signing in using their IEEE member web accounts.

- **Reliability and Maintainability Symposium (RAMS) Proceedings**
- **International Reliability Physics Symposium (IRPS) Proceedings**
  - Note: There is a 2 month delay for current year proceedings availability
- **Transactions on Reliability**
- **Transactions on Device and Materials Reliability**

Members can go to the **What's My Access** page (a link on the Xplore Home Page) and they will see a list of the offerings available to them based on their society memberships. Direct links to the conference home pages will be provided there. Likewise, the subscription identifier feature allows users to know what PDFs are available to them at the time they are performing an article search (or any other), by use of an icon next to the article entry in their search results.

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## Society Nominations

### Reliability Society Engineer of the Year Award for 2004

The IEEE Reliability Society is soliciting nominations for its Reliability Society Engineer of the Year Award for 2004. This award is aimed to recognize key contributions to the Reliability profession within the last few years. Nominees will be considered according to the following criteria:

- **Reliability Contributions**
  - Reliability Technical Contributions
  - Reliability Management Contributions
  - Reliability Publications
  - Contributions to Reliability Education
- **Professional Services to IEEE**
  - Reliability Society Service
  - Other IEEE service positions

An administrative superior of the nominee (e.g. department head, supervisor, or chapter chair) should make and submit the nomination. The nomination package should consist of a one-half page biography of the nominee plus up to four pages of concise descriptions of the accomplishments. For technical contributions, please concisely describe why the contribution is unique. For managerial and educational contributions, please concisely explain the obtained benefits. Please limit identified publications to only those in which the nominee was the sole or principal author. The accomplishments should be organized according to the above-described criteria. **The last date that nominations may be submitted is 1 October 2004. Send the nominations to Dennis Hoffman, your Society's Jr. Past President, at [d.hoffman@ieee.org](mailto:d.hoffman@ieee.org).**

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### Reliability Society Lifetime Achievement Award for 2004

The IEEE Reliability Society is soliciting nominations for its Reliability Society Lifetime Achievement Award for 2004. The IEEE Lifetime Achievement Award was created to recognize sustained outstanding contributions to the field of Reliability Engineering. Typically the contributions will span the career of the individual, usually in excess of 25 years. The contributions meriting this award must clearly be within the area of Reliability Engineering.

Nominations must be submitted by a peer or supervisor of the nominee. Self-nominations or nominations from a member of the IEEE Reliability Society Nominations and Awards Committee will not be accepted. The nomination package should consist of a one-half page biography of the nominee plus up to four pages of concise descriptions of the nominee's lifetime accomplishments / achievements. **Nominations may be submitted until the end of September 2004. Send the nominations to Dennis Hoffman, your Society's Jr. Past President, at [d.hoffman@ieee.org](mailto:d.hoffman@ieee.org).**

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### Reliability Society AdCom Candidates Sought for 2005/2006/2007 Term

The IEEE Reliability Society is seeking candidates for serving on its Administrative Committee (AdCom) for the three-year term that spans 2005/2006/2007. For clarification, the AdCom manages the operation of the Reliability Society. The candidates need to be a member of the IEEE Reliability Society and should have both technical and managerial experience. Serving on the AdCom requires attending periodic AdCom meetings (max of quarterly) and participating in one or more of the following areas of Reliability Society committee activities: Technical Operations, Meetings, Membership, and / or Publications. More about these areas of activity can be found within the Reliability Society Constitution and By Laws on our [Society web site](#).

If you are interested in running for election to become an AdCom member, please **send the following information to Dennis Hoffman, your Society's Junior Past President, at [d.hoffman@ieee.org](mailto:d.hoffman@ieee.org) by not later than 1 July 2004:**

- Your full contact information: name, mailing address, telephone number, FAX number, and e-mail address.
- A concise professional biography that summarizes your technical and management experience and your educational background. The biography needs to be 350 words or less.
- A short statement describing why you want to be an AdCom member and what you can contribute to the Reliability Society through being an AdCom member.
- A short statement that identifies in which Reliability Society activity area you would like to participate.
- Please include an endorsement from your supervisor / manager if possible. If that is not possible, please have a Reliability Society AdCom member, Chapter Officer, or member endorse your candidacy. In addition, please provide assurance, either personal or from your employing organization, that you will have adequate support to attend and participate in the scheduled AdCom meetings (usually held on Saturdays at different city locations) each year of your elected term.
- Statement that you are a current IEEE member with Reliability Society membership.

Your information will be forwarded to our Nominations Committee for their review and inclusion in our AdCom ballot in early fall of 2004. To be included in the ballot, all requested information needs to be provided on time. **If you have questions, e-mail Dennis Hoffman at [d.hoffman@ieee.org](mailto:d.hoffman@ieee.org) or call Dennis at 817-777-3517 (work).**

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#### Chapter Activities

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#### Technical Operations

##### Society Technical Committee Recruiting Notice

The IEEE Reliability Society national organization is recruiting technical committee members and possibly committee chairpersons for the following technical committees: Software Reliability, System Safety Technology, Human Interface Technology, Mechanical Reliability, Standards & Definitions, CAD/CAE, Microelectronic Technologies, Industrial Systems, Sensor Systems, Information Technology & Communications, Consumer Electronics, International Reliability, Aerospace & Defense Systems, Testing and Screening Technology, Automotive Systems, Energy Systems, 6 Sigma Reliability, Medical Systems, Reliability Design, Warranty, Nuclear Reliability, Maintainability Technology, Assurance Technology, and Emerging (New) Technology.

The basic work for each technical committee consists of developing plans associated with the reliability aspects of the respective field, both present day tactical issues, and long term strategic direction. This is accomplished through four short

quarterly written reports that are edited and compiled by the reliability society technical operations editor, and placed in the Reliability Society newsletter, which can be found on our [Web site](#). Additionally, an annual written assessment of the technology in the committee's area of interest is requested. This Annual state of Reliability Technology Report is published world wide, and receives a high level of readership and interest from communities that extend well beyond the IEEE and the Reliability Society. It has become the societies cornerstone publication.

Other work may include the development of standards, guidelines and educational tutorials through the society infrastructure. Working in one of the technical committees is an excellent opportunity to "network" and keep your knowledge current. If you are interested, please contact me and send a short biography with an indication of your experience in the field of interest.

If you do not have a direct interest in either of the above opportunities, please pass this to a fellow reliability, hardware, software, or systems engineering professional who might have an interest.

Thanks for your consideration.

William R. Tonti  
VP Technical Operations  
Tel: (802) 769-6561  
E-mail: [wtonti@ieee.org](mailto:wtonti@ieee.org)

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**Technical Committee Activities Focus Spot**  
**Excerpts from the Annual state of Reliability Technology Report**

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**Announcements**

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[Nanotechnology Research](#)

[Communication Society e-Transactions](#)

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**Wanted. Reliability as a product attribute in advertisements. Requesting your assistance.**

You may have noticed the use of Reliability in product advertising. It is a plus that these companies are putting Reliability before the public in a positive fashion.

I plan to contact each company and request an article from them describing how they ensure reliability in their product, in both design and sustaining perspectives. It would be great to provide this insight to our community via this Newsletter, which I plan to do if the companies are willing to participate and share.

To aid in this endeavor, I am asking for your assistance in identifying companies that are using the product attribute of reliability in their advertising. Please send a digital picture or scanned picture as an e-mail attachment to me, Dennis Hoffman ([d.hoffman@ieee.org](mailto:d.hoffman@ieee.org)), your Society's Jr. Past President. Let me know if you want to be identified as the source or are just providing the information. Thank you in advance for your assistance.

Here are the first two companies using Reliability in their advertising. I got the idea from seeing the RUUD billboard in the Fort Worth area. I really like that "Reliability is a cool thing". The saying really ties into their product line.

**JELD-WEN**, <http://www.jeld-wen.com/>



Your home isn't just a dwelling. It's a haven. At JELD-WEN we're dedicated to crafting reliable windows and doors, because we know how important it is for your home to feel like a retreat. Our products are designed to bring you energy efficiency, security, and most of all, peace of mind. You'll simply have less to worry about, and more time to enjoy life with your family. Because we keep our promises, you can keep yours. JELD-WEN creates a vast array of windows and doors.

**RUUD: A 100-YEAR TRADITION OF RELIABILITY** <http://www.ruudac.com/>

The RUUD® story started in the 1880s when Edwin Ruud, a Norwegian mechanical engineer, came to America and developed the first successful automatic water heater. Incredibly reliable, Ruud's water heater was eagerly accepted by the public as the symbol of modern living and convenience. That early success marked the beginning of a tradition of innovation and value that led to the introduction of RUUD heating and air conditioning equipment in the 1950's. Today, RUUD manufactures some of the most reliable Air Conditioners, Furnaces, Package Units and Accessories in the industry.





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## Reliable Code is Predicated on The Understandability of the Code Structure Dr. Samuel J. Keene

Developing software is much like writing a novel, except it is most often developed by multiple writers (programmers), whose writings must dovetail. This "novel" has to tie together and be maintainable by others over its life. A lot of software reliability equates to the understandability of the code base. Software is always being maintained. There are four maintenance drivers:

1. Perfective changes – adding functionality, which might be new or overlooked
2. Adaptive – to have the code work on a different platform or do a different job
3. Corrective – fixing bugs
4. Preventive – preclude a problem

Change and maintenance of code are high-risk items. The more clear the code structure is, the more reliable the ensuing maintenance actions.

### Code understandability

We start to maintain code as soon as it is coded. Code understandability, and ease of maintenance, and better reliability, will be augmented by:

- Increasing cohesion of the code modules
- Low coupling between modules, minimizing the interactive impacts of change
- Self describing, longer variable, mnemonic names
- Uniform conventions, structures, naming conventions and data descriptions
- Code modularity will be optimized for best understandability while minimizing overall code complexity
- Self documenting code
- Commenting will be used to explain extraordinary programming sequences
- Code formatted for greatest clarity and understanding
- Modular system architecture providing for configuration flexibility and future growth.
- A single function or operation allowed per line of source code.
- No negative logic allowed; especially no double negative logic in the coding
- A database will store any configuration parameters expected to change regularly, allowing them to be changed without affecting operations or changing the software. Otherwise, changes compromise the program structure and increase its complexity.
- Consistency of the design, source code, notation, terminology and documentation
- Software design (including flow charts) will be maintained to reflect the current software code level
- Code will be harmonized after each modification to assure all the above rules are maintained

The reliability of our code and the satisfaction of the customer will be enhanced with clarifying the product requirements, product interfaces and the structure of the code implementation.



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## LOSS OF THE SHUTTLE: TECHNOLOGY; Computers Driving Shuttle Are to Be Included in Inquiry

By STEVE LOHR

Columbia's onboard computer hardware and software -- not the crew -- were driving when the craft made its fatal re-entry last Saturday.

Those computer systems, state-of-the-art designs when the shuttle program began in the 1970's, detected a drag under Columbia's left wing and ordered flight-control jets to compensate by steering the craft to the right. Their performance will be investigated as part of the inquiry into why Columbia was destroyed, NASA officials say.

The computers act as the electronic brain of the flight control system. Computer avionics experts say the shuttle program's hardware and software systems, despite their age, have a record of extraordinary reliability. The technology, they say, is a triumph of custom machines and programming code that has been designed and endlessly tested to perform flawlessly in the harsh conditions of space travel.

For this specialized task, they say, mature computers and code are robust and trustworthy instead of an antiquated safety hazard.

"These systems are older, but they are highly reliable," said Norman F. Schneidewind, a computer scientist at the Naval Postgraduate School, who has worked with NASA. "The design, testing and work processes are focused on making sure the technology works, all the time."

In the last year or so, NASA did consider the option of using new avionics computers, according to people close to the space administration. Finding replacement components for the old machines has been a headache for NASA, and eventually the shuttles may switch. But there were other budget priorities for the administration, say these insiders, who add that safety was not the reason new computer systems were being considered.

Besides, there are real risks to moving to newer computer systems, the experts point out. The main one is altering the complex interaction between the hardware and software, which can introduce bugs. And software bugs can have catastrophic consequences in space.

In 1996, for example, the European Space Agency's Ariane 5 rocket, which took \$7 billion and 10 years to build, exploded less than a minute into its maiden voyage because of a software bug. An investigation found that some new code had been added from the Ariane 4, and it had not been properly tested.

As for the shuttle's systems, I.B.M. began development work on them in 1972, nine years before the first spacecraft was launched. The company chose the best and most appropriate pieces of technology from its various products and its research laboratories, and came up with a hybrid machine, the I.B.M. AP-101.

Over the years, shuttle scientists have installed improvements to the AP-101, like solid-state electronics for its memory instead of magnetic disks. Yet the basic design of the five onboard AP-101 computers -- black cubes about 18 inches on a side -- remains the same.

The programming language used for these unusual machines is similarly tailored for its task. It is called HAL/S (high-order assembly language/shuttle), and was specially developed for space-flight applications like instantaneous handling of streams of data from shuttle sensors.

The AP-101 computers process data at a tiny fraction of the rate of today's personal computers. Yet today's computers need a lot of processing firepower because they routinely handle big graphics, as well as audio and video files. All of that is important for people playing computer games or downloading music over the Internet but not relevant to the shuttle's performance.

The flight-control system on a shuttle craft is designed mainly to process sequence after sequence of numeric data. The data come from sensors on the guidance system, accelerometers measuring acceleration and gyros measuring the rotation of the craft.

The onboard computers, experts say, are designed to process those chunks of numeric data at the rate

of perhaps 1,000 times a second.

"That data coming out of the gyros and accelerometers is not going to come out faster," said Col. John Keesee, an Air Force aeronautical engineer and a senior lecturer at the Massachusetts Institute of Technology. "The guidance functions are not pushing you to faster processors."

The shuttle's software team is famed in the industry for the flawless quality of its programming code. It is one of a handful of projects in the world to receive a Level 5 rating from Carnegie Mellon University's Software Engineering Institute for the reliability of its code and the rigor of its testing processes. The guidance system program has more than 400,000 lines of code; recent versions have had less than one error -- and none that degraded the performance of the program, let alone raised safety concerns.

The working environment of the coders who build the shuttle programs is orderly and regimented -- a world apart from that of young hackers, staying up all night to ship new products every few months. "They have a system of process improvements, design reviews and testing procedures that almost no one else does," said Mr. Schneidewind, a software engineering expert, of the shuttle coders.

But at least one expert -- Richard Doherty, a consulting engineer who did research for a member of the commission that investigated the Challenger explosion -- questioned whether the computers onboard the Columbia had all the information they needed. After tiles were damaged on takeoff, Mr. Doherty said, NASA could have sent up a few changes in the software guidance program to adjust for increased drag on the left side of the craft.

"It might have made some difference," Mr. Doherty theorized, "but we'll never know how much."

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**IEEE Reliability Society AdCom Agenda**  
**Saturday, April 24, 2004**  
**Phoenix, AZ**  
**(associated with 2004 IRPS)**

TERM EXPIRES 2004 (DEC 31)	TERM EXPIRES 2005 (DEC 31)	TERM EXPIRES 2006 (DEC 31)
Scott B. Abrams Dr. Ann Campbell Dr. Ann Miller Dr. Norm Schneidewind Dr. Christian Hansen Dr. Bill Tonti	Marsha Abramo Arellano Dave Franklin Dr. Jeffrey Voas Alan Street	Loretta Lon Chase Ted Freeman Lou Gullo Dr. Judy Koslov Jim McLinn Eric Snyder Bob Stoddard

**Current AdCom Officers (ExCom):**

Jeffrey Voas, President  
 Ann Miller, VP Meetings  
 Marsha Abramo, VP Membership  
 Christian Hansen, VP Publications  
 Bill Tonti, VP, Tech Ops  
 Samuel Keene, Secretary  
 Richard Kowalski, Treasurer  
 Dennis Hoffman, Jr. Past President  
 Ken LaSala, Sr. Past President  
 Dick Doyle, Region VI Director

**Attendees:**

Robert Stoddard  
 Jim McLinn  
 Scott Abrams  
 Lon Chase  
 Christian Hansen  
 Marsha Abramo  
 Dennis Hoffman  
 Ann Campbell  
 Alan Street  
 Lou Gullo  
 Dave Franklin  
 Judy Koslov  
 Jeff Voas  
 Sam Keene  
 Bill Tonti  
 Eric Synder

### **President's Report -- J. Voas**

Savannah TAB outcome included TAB FINCOMM and \$50K new initiatives  
Product Safety Engineering Society (PSES) proposals – B. Tonti (rep to PSES). Need a call for papers, budget, and conference success history.

Updates from Matt Loeb and Larry Wilson (e.g., new IEEE virtual community on “trustworthy software”).  
To join, go to:

<https://www.ieeecommunities.org/trustworthysoftware>

This has been completed and will be available on the RS web site.

Note. Headquarters will migrate our web site to the CMS format which is easier to maintain.

### **2002 Past President's Report -- D. Hoffman**

#### Awards Change:

Increasing the honorarium and adding acceptance travel expense proposal for the Lifetime Achievement Award and the Engineer of the Year Award was approved by the AdCom by e-mail -- thanks for the quick response. This RS proposal was forward to the IEEE TABARC for TAB approval.

1. IEEE RELIABILITY SOCIETY LIFETIME ACHIEVEMENT AWARD, IEEE Reliability Society  
Revise prize items: Increase honoraria from \$500 TO \$1,500, plus up to \$1,000 for travel expenses for recipient to attend the January IEEE Reliability Society  
AdCom Awards Banquet.
2. IEEE ENGINEER OF THE YEAR AWARD (ANNUAL RELIABILITY SOCIETY AWARD), IEEE Reliability Society  
Revise prize items: Increase honoraria from \$1,000 TO \$1,500, plus up to \$1,000 for travel expenses for recipient to attend the January IEEE Reliability Society  
AdCom Awards Banquet. TABARC ballots are due back by April 23. Our proposal should be approved at the next TAB meeting.  
Update: TABARC approved all proposals. Proposals will be sent to TAB for consent approval.

#### Award Nominations:

Solicitation for nominees sent to AdCom and posted on Newsletter. Nominations open until late September.

#### N&A Committee Volunteer Members for 2004:

Tom Fagan (Non- AdCom)  
Henry Hartt  
Bob Loomis  
Bill Tonti  
Bob Stoddard  
Alan Street  
Ted Freeman  
Lou Gullo

#### AdCom Candidates to date:

- John Healy
- Bob Loomis
- Bret Michael
- Sam Keene
- Ann Miller
- Scott Abrams

Candidate solicitation open until July 1. Solicitation sent to AdCom and posted in Newsletter.

#### Election Plans:

Plan is to have AdCom election complete by late August. Then hold RS Officer elections to be completed by early October. Plan is to have a President-elect by then so he / she will be able to accompany Jeff to the November TAB meeting.

#### By-Law Revisions:

Plan is to revise the By-Laws to allow electronic voting to conduct RS business (not AdCom election voting) and for Officer elections. The dates of elections need to be modified to allow earlier officer election.

#### Fellows Nominations:

Dr. Thad Regulinski, FIEEE, chairs the RS Fellows Committee and has posted the nomination process within the Newsletter.

#### **Treasurers Report -- R. Kowalski**

##### FY03 Results

FY05 Budget (membership estimate, options, approve draft budget) – M. Abramo and J. Voas

##### General Financial Status

Improvement due to RS budget reductions plus an improving investment market, reducing the HQTs tax on RS

We thought we might provide more deliverables to members, eg CD ROM of RS publications (Burlington adcom)

#### **Meetings Highlights -- A. Miller**

Conference closeouts and budget approvals

Next Adcom Meeting in Burlington Vt on Saturday July 24. Marsha and Bill to help Ann with arrangements

Significant events

2004 IRPS status – B. Tonti/A. Campbell- - Conference registrations look up this year

#### **Publications Highlights -- C. Hansen**

Publications will be available starting April 30, 2004

New initiative “educational” module on international laws in cyber-security – B. Michael

Transactions report - Issues are on time – 604 page count for 2004

Acceptance rate about 30%, 2 year cycle time

E-Newsletter report

T-SM Review Report

T-DMR Report – electronic access in March

New Website development underway with HTQTS assistance

Working with Larry Todd Wilson and Matt Loeb on new Society-owned products – Keene, Tonti, and B. Michael

#### **Membership Highlights – M. Abramo**

##### Membership Overview

Update – Latest report indicates membership at 1922 (4/22/04). 60% of 2003 RS members have renewed

Chapters (France trip? and others (Philly)) – Loretta. Jeff agreed to send a delegation to the new France Chapter

#### **Technical Operations -- B. Tonti**

Technical operations status and committee significant events

Status of standards

Software seminars in D.C. in September

2003 ATR is completed

#### **4 Seven Minute Talks –**

Electronic Fuses - Bill Tonti

Six Sigma - Sam Keene

Discussion on the subject matter of the short talks and how the Society can leverage this information.

#### **New Business – New Initiatives**

Jeff to check with Val Monshaw about his remaining as Rep. to RAMS.

Need for new internal initiative (less than \$50k)

Council vs. Society -- Past President's recommendations to date

Our reliance (and HQ's reliance) on the equity market for profitability

Offering more content for \$30.00 / year?

#### **Old Business**

Society Historian – Dave Franklin has accepted this post and will contact Alan Plait for records

#### **Actions**

1. Need PSES Conference on PS Engineering – financial cooperation – need CFP and Budget and history on conferences and demonstrated capability; how many attendees to break even Jeff

2. Update single issue price for Transactions to increase price for non-members and members (from \$20 for IEEE and \$10 for RS members) Marsha
3. Conference liaisons will provide news letter inputs to the newsletter immediately following conference:  
RAMS: Tom FIRPS: EricLRW: Bill TontilSSRE: Sam
4. Manage advertising for news letter and transactions Scott
5. TDMR: Why can't new Transactions be moved into ASPP without the 3 year waiting period – maybe sliding scale over three years, to hard on new startup pubs to overcome financial obstacle Dick Doyle
6. Send update of distinguishes speakers to IEEE Marsha
7. Set up email alias for the seminar and for advertising the seminar series across IEEE. Also Spam policy Jeff
8. RS booth contest development Jim
9. Council formation vs Society Dennis
10. Invite Reliability oriented tecg ops chairs from other societies to participate in our tech ops activities and fill some tech ops vacancies Bill
11. Add Tom Winfield to speakers for Sept seminar With new agenda, look at maritime institute for a place to hold the meeting Jeff
12. Dave Franklin contact Alan Plait to get society historical records Dave
13. Coordinate Visit to welcome and engage new RS chapter in Paris Marsha, Loretta, SamSam

## Dallas Chapter

*By Lon Chase, Chapter Chair*

### 2004 Chapter Outstanding Service Award

The IEEE Dallas Section hosted an annual awards ceremony on April 24, 2004. The Reliability Society chapter outstanding service award was presented to Faye Bilger. Faye is the current Dallas society chapter secretary.



Faye has been an outstanding member of the Reliability Society in her support of the local chapter this year. She has conducted her responsibilities in the society professionally for several years but has also gone far beyond expectations. Faye has aggressively and energetically taken on many additional challenges to ensure the society activities are conducted successfully.

Faye is very active as a professional in the community through local school science fair judging, activities through Raytheon's Women's Leadership Network and Habitat for Humanity. Without Faye, the local Reliability Society chapter would not be as successful.

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### Chapter Programs

The Dallas chapter has continued its program of technical presentations. The following are the most recent presentations.

**Subject:** "Counterfeit Devices"

**Date:** February 10, 2004

**Speakers:** James Izzo and Barbara Waller, Raytheon Failure Analysis Laboratory

#### **Program Summary:**

The presentation is on "Counterfeit Parts." How to identify counterfeit parts, examples of probable counterfeit devices, what to look for and lastly recommended actions to ensure you don't use counterfeit parts. "Counterfeit" devices have become common in the industry with some estimates ranging as high as 10%. Raytheon McKinney is beginning to address this issue by checking for some of the more obvious counterfeits. General awareness on the part of the Reliability and engineering community should help us minimize the counterfeit related issues

#### **About the Speakers:**

Barbara joined Raytheon/TI in 1980 and TI Reliability Labs in 1982. She has over a dozen publications primarily in the area of soldering

assembly, cleaning and related analytical techniques and has represented Raytheon on several national industry committees on cleaning, soldering and related reliability issues. She is a registered P.E. and manager of the McKinney Failure Analysis Lab. Jim joined Raytheon/TI Reliability Labs in 1979. Jim has 20+ years of component test and analysis experience with a thorough understanding of the theory of operation on many device types. He also is innovative in developing test/analysis procedures in the face of time/instrument constraints. He is a Failure Analysis Lab Technician (Electronic Engineering Technician (N95) with Honors (2003)).

**Subject:"Electrostatic Discharge (ESD) in CMOS technologies: phenomenon, protection methodology and new issues for future generations"**

**Date: March 9, 2004**

**Speaker: Mr. Gianluca Boselli, Silicon Technology Development group of Texas Instruments, Dallas, Texas**

**Program Summary:**

Electrostatic Discharge (ESD) is a major reliability concern. Every pad must be protected against ESD to avoid potential damage during manufacturing, handling and testing of chips. In this presentation, the basics of the phenomenon will be discussed. Circuits to protect pads against ESD will be reviewed with particular emphasis on high current behavior of components in CMOS technology. New issues related to future generations will also be discussed.

**About the Speaker:**

Gianluca Boselli joined the Silicon Technology Development group of Texas Instruments, Dallas, Texas, USA, in February 2001. His current work focuses on ESD and Latch-up development for advanced CMOS technologies with special emphasis on processes and modeling aspects. Gianluca completed his master's studies in electrical engineering at the University of Parma, Italy, in 1996. In 2001 he completed his doctoral studies at the University of Twente, The Netherlands, where he worked on CMOS components high current phenomena. Gianluca has authored several papers in the area of ESD and Latch-up. He has been the recipient of the "Best Paper Award" on behalf of Microelectronics Reliability Journal in 2000. He also received "The Best Paper Award" and the "The Best Presentation Award" at the EOS/ESD Symposium in 2002. Gianluca serves on the Technical Program Committee of the EOS/ESD Symposium and of the International Reliability Physics Symposium (IRPS).

**Subject:"Electronics Industry Conversion to Green Package Materials from a Component Suppliers Perspective"**

**Date: March 11, 2004**

**Speaker: Mr. Doug Romm, Texas Instrument**

**Program Summary:**

Doug Romm will present on the topic of "Electronics Industry Conversion to Green Package Materials from a Component Suppliers Perspective". Doug's presentation will address the main issues motivating the conversion to Pb-free/Green materials and the impact upon integrated circuit (IC) packaging. Doug will discuss an overview of what the Semiconductor industry is doing in response to demands for lead-free/green packaging and specifically provide TI's response. Details will include choices for a lead-free component finish and impact of high-temperature processing. Brief discussion of the tin whisker

issue will also be provided.

**About the Speaker:**

Doug Romm works in the Material and Process development setion of TI's Standard Linear and Logic Packaging group. Doug is leader of the TI Worldwide Lead-Free Strategy Team which is chartered to continue to enhance TI's leadership position in the supply of lead-free capable components. Doug is a Member Group Technical Staff at TI and also serves as Chairman of the EIA Soldering Technology Committee. Doug received his BSME from Texas Tech University and MS in Engineering Management from Southern Methodist University. Doug has been a member of the Package Development group at TI since 1989. Doug has published more than 10 technical papers and has 2 US patents in the areas of IC package development.

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Denver Chapter  
By Sam Keene, Chapter Chairman

The IEEE Reliability Society sponsored a March talk by Mr. Chuck Rice, President of Impod and faculty member of the CU School of Management on Creative approaches to Problem Analysis and Decision Making. Chuck is both entertaining and informative. Chuck is a certified Kepner Tregoe trainer and has long been a world-wide consultant in this area. He taught novel and creative approaches to problem solving.

Sam Keene  
720-684-2277

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Ottawa Chapter  
By Raed Abdullah, Chapter Chairman

The IEEE Reliability Society Ottawa Chapter is seeking volunteers for coordinating the second bi-annual Canadian Reliability and Maintainability Symposium 2005. Those interested may e-mail [RaedAbdullah@ieee.org](mailto:RaedAbdullah@ieee.org)  
Also, check our section website for updates on events: [ottawa.ieee.ca](http://ottawa.ieee.ca)

Cheers,  
Raed Abdullah



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## Singapore Chapter

*By Kin Leong PEY*

*Chair, IEEE Reliability/CPMT/ED Singapore Chapter*

**Below are The Singapore Chapter activities for Jan – Mar 2004.**

### 1. Conferences

IPFA'04, jointly organized by IEEE ED Taipei Chapter, IEEE Taipei Section, National Chiao Tung University (NCTU) and IEEE Reliability/CPMT/ED Singapore Chapter, will be held on July 5-8, 2004, Science Park, Hsinchu, Taiwan. It has received overwhelming abstraction submissions.

Dr Alastair Trigg of the Institute of Microelectronics, Singapore, the general chair of IPFA'05, is forming the organizing committee. It will be held in Singapore in July 2005.

The chapter has decided to hold IPFA outside Singapore in Asia Pacific region every alternate year. IPFA was started in 1987 in Singapore, and is fully owned by IEEE Rel/CPMT/ED Singapore Chapter.

The 6<sup>th</sup> Electronics Packaging Technology Conference (EPTC 2004) will be held on 8-10 December 2004, Pan Pacific Hotel, Singapore. Dr. Toh Kok Chuan, the general chair, has already formed the organizing committee comprising 16 members. The call of papers has been announced.

### 2. Technical Talks

Date	Presenter	Title
7 Jan 2004	Dr Tao Guoqiao	Embedded Flash --- The Philips/SSMC Approach With 2T-FN-NOR
26 Feb 2004	Professor Rao Tummala	SOP VS SOC AND SIP FOR MIXED-FUNCTION ELECTRONIC AND BIOELECTRONIC APPLICATIONS
3 Mar 2004	Professor Mark Lundstrom	THE TRANSISTOR: FROM LILIENTFELD TO LANDAUER
17 Mar 2004	Dr Steven H. Voldman	ESD AND LATCHUP INRF CMOS AND RF BICMOS SILICON GERMANIUM TECHNOLOGY

### 3. Plans

Two more technical talks are organized – one is on 12 April 2004 by Professor Chandan Kumar Sarkar on Gate Oxide Degradation in MOS Devices Under High Field Stress-Breakdown Issues and the Model, and one is being planned in May.

A mini-colloquium is planned in the 3<sup>rd</sup> week of July 2004.



A short course on "Thermal management of IC" by Dr. Bernie Siegal, IEEE Fellow is planned.

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Twin Cities Chapter  
By James McLinn, Chapter Chair

The Twin Cities Chapter planned 2004 with 5 meetings in the first half. In January James McLinn spoke on Ultra-Reliability to 16 people. February had Carl Schmuland speaking on the topic of "The 10 Most Powerful reliability Tools" to 32 people. March brought the end of our snow season and Mark Anderson speaking on "Handling Dirty Data for DOE". Fifteen people attended. April was on EMC and reliability. Dan Hoolihan had 13 people in attendance. The May meeting is planned for "Software Reliability", with Bob Stoddard of Motorola and new officers elections for the coming year.

January 20, 2004  
James McLinn, Consultant, spoke on "Achieving Ultra-Reliability" to 22 people.

February 17, 2004  
Carl Schmuland of Medtronic spoke on "The 10 most powerful reliability tools" to 32 people.

March 16, 2004  
Mark Anderson on Stat-Ease will speak on "Handling dirty data of Design of Experiments".

April 20, 2004  
Dan Hoolihan of TUV will speak on "Electromagnetic Compatibility and Reliability".

May 18, 2004  
Robert Stoddard of Motorola will speak on "Software Reliability".



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## Human Interface Technology (HIT)

Dr. Kenneth P. LaSala  
Chair of the Human Interface Technology Reliability

One of the most exciting developments in human-machine interfaces is implementing the control of computers by human thought. Based on the fact that the brain prepares for a moving a limb a full half-second before the limb actually is moved, computer scientists ([http://ida.first.fhg.de/projects/bci/bbci\\_official/index\\_en.html](http://ida.first.fhg.de/projects/bci/bbci_official/index_en.html)) at the Fraunhofer Institute for Computer Architecture and Software Technology and the Benjamin Franklin University Clinic, both in Berlin, and the University of British Columbia (<http://www.ece.ubc.ca/~garyb/BCI.htm>), among others, have been investigating controlling computer by thought alone. By fitting subjects with an electroencephalograph (EEG) and training the students for approximately 200 hours, the scientists have been able to have the students to move simple objects on a computer screen. They recognize the interface must be able to determine the intention of the human in a single reading of brain waves. This requires noise filtering produced by both the brain and EEG equipment. Two present disadvantages of the current EEG approach are that the EEG equipment is too expensive for commercial use at this time, and a conductive gel is required to ensure a good electrical interface.

The concept of reading the mind for a variety of purposes is not particularly new, but current technology greatly enhances the ability of performance monitors and researchers to do so. In addition to EEGs, researchers at the University of Pennsylvania are using Functional Magnetic Resonance Imaging (fMRI) to scrutinize the brains of subjects during question-and-answer periods for purposes of lie-detection. fMRI is a technique for determining which parts of the brain are activated by different types of physical sensation or activity, such as sight, sound or the movement of a subject's fingers. This "brain mapping" is achieved by setting up an advanced MRI scanner in a special way so that the increased blood flow to the activated areas of the brain shows up on Functional MRI scans. For those interested in reliable human performance, it is a conceptual step to extend to the in-situ performance and condition monitoring of operators. Not only can performance be recorded and analyzed subsequently, but also operator fitness or condition can be monitored in a manner that allows a fatigued operator to be replaced before he or she makes incorrect decisions or takes incorrect actions.

While brain-computer interaction research is opening a new dimension of human interfaces, most interface research and development is focusing on the advanced uses of the more commonly recognized visual, auditory, and tactile sensory modes. Automatic speech recognition, bimodal audiovisual speech recognition, speech-gesture multi-modal interfaces, emotion analysis (by means of evaluating facial expressions, body movements, and both vocal and physiological reactions) are some of the specific research and developmental topics. One direction pursued by NEC (<http://citeseer.nj.nec.com/sharma96speechgesture.html>) uses visual hand gesture analysis and speech recognition for developing a speech/gesture interface for controlling a 3-D display. The interface enhances an existing application that is a virtual visual computing environment for molecular biologists. The free hand gestures are used for manipulating the 3-D graphical display together with a set of speech commands.

An interesting concept in human-computer interfaces is the use of animated agents to communicate with humans. These agents are life-like characters that speak, emote, and gesture. According to Ronald Cole of the University of Colorado (<http://www.is.cs.cmu.edu/SpeechSeminar/Slides/RonCole-September2003.abstract>) and his IEEE Proceedings co-authors, while technology supports the development of these agents, there is a lack of experimental evidence that animated agents improve human-computer interaction. Much of the work by Cole and others focuses on animated agents that can carry on tutorial, task-oriented dialogs. Although most research on such dialogs has focused on verbal communication, nonverbal communication can play many important roles as well, as is suggested in the speech-gesture research mentioned above.

Haptic (touch-based) feedback now is being explored especially in modern medicine, in which visual-haptic activities play a major role. Sensor-haptic interfaces are playing a significant role in tele-operation systems. Tele-operation systems are an important tool for performing tasks that require the sensor-motor coordination of an operator but where it is physically impossible for an operator to undertake such tasks



in situ. The vast majority of these devices supply the operator with both visual and haptic sensory feedback in order that the operator can perform the task at hand as naturally and fluently as possible and as though physically present at the remote site. Closely related to haptic feedback is haptic holography (<http://web.media.mit.edu/~wjp/pubs/thesisAbstract.pdf>, W. Plesniak et al.), a combination of computational modeling and multi-modal spatial display. Haptic holography combines various holographic displays with a force feedback device to image freestanding material surfaces with programmatically prescribed behavior. A convenient reference for some of the above described research and development is Proceedings of the IEEE, September 2003, Vol. 91, No. 9.

**Conference Awareness:**

According to Yi Hong of the University of Shanghai, in October 2002, the Reliability Committee of China Society of Naval Architecture and Marine Engineering (CSNAME) held a conference on system reliability and human factors at Shenzhen, Guangdong. The topic of the conference is "let's be more reliable". About 100 paper authors attended the conference.

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### System Safety

Dr. Takehisa Kohda  
Chair of the System Safety Reliability  
Formation of APASES:

Dr. Koichi Inoue reported the foundation of APASES. The Asia Pacific Association of Safety Engineering Societies (APASES), an association of scientific and technical societies in Asia and Pacific Rim concerned with safety engineering and science, has been founded on October 2, 2003 and its first Steering Committee meeting was held on November 18, 2003 in Taipei, Chinese Taipei. The founding societies of the organization are Korea Institute for Industrial Safety (KIIS, Korea), Japan Society for Safety Engineering (JSSE, Japan), Center for Environmental, Safety & Health Technology Development, Industrial Technology Research Institute (CESH-ITRI, Chinese Taipei), China Society of Science and Technology of Labor Protection (China), and Society of Loss Prevention in the Oil, Chemical and Process Industries (SLP, Singapore). At the first Steering Committee meeting in Taipei, the representatives from the founding societies signed the Constitution, which was reviewed and commented by Dr. Ken LaSala, the past President of IEEE Reliability Society, at its draft version. The objectives of APASES are:

- 1) Promote the international exchange of scientific and technical information that relate to safety engineering and science in the broadest sense, and to serve all those concerned with theory and application of them.
- 2) Provide a framework for collaboration between those working in safety engineering and science, irrespective of race, creed, color or political orientation, or of geographical location and to promote free exchange of ideas and experts within its professional field.

The activities of APASES are to promote the safety engineering and science, in cooperation with regional and other international organizations, by:

- 1) Organizing and sponsoring the Asia Pacific Symposium on Safety (APSS) every two years.
- 2) Establishing other meetings or technical committees as considered desirable to achieve the objectives of APASES.

For each country or region in Asia and Pacific Rim, one scientific or engineering organization, having a strong interest in safety engineering and science and a sound professional background, will be welcomed to APASES as a Member Organization.

For further information, please be in contact with Dr. Koichi Inoue, Secretary of APASES, at [inoue@cottus.mech.osaka-sandai.ac.jp](mailto:inoue@cottus.mech.osaka-sandai.ac.jp). (Senior member and Past VP of Technical Operations, IEEE Reliability Society)

Maintenance of IEC 61508 and related sector/product standards:

Dr. Yoshinobu Sato reported the current state of maintenance of IEC 61508 and related sector / product standards. Recently computer systems have been widely applied to safety-related systems for achievement of safety functions. This general trend forced IEC to compile IEC 61508 as a standard related to functional safety of electrical / electronic / programmable electronic safety-related systems (SRS). Seven Parts of IEC 61508 have been successively published during the two years ending May, 2000. Two concepts of Overall Safety Lifecycle and Safety Integrity Level (SIL) are the main frameworks of the standard. The former is the technical framework to deal systematically with all the activity necessary to achieve the required SIL for SRS. SILs are target failure measures for a safety function, allocated to an SRS. In accordance with the standard, SRS is specified with its safety function(s) and SIL(s). The SIL is specified with four levels of safety integrity. The safety integrity is currently defined in terms of either "the probability of failure to perform its safety function in low demand mode of operation" or "the probability of dangerous failure per unit time in high-demand or continuous mode of operation". Thus, both reliability and safety engineering are united in the standard.

IEC 61511, Functional safety of safety instrumented systems for process industry sector, is a sector standard of functional safety. Three Parts of the standard have been also published during the year ending July, 2003. Currently other sector / product standards such as IEC 62061, Safety of machinery – Functional safety of electrical, electronic and programmable control systems -, and IEC 61800-5-2, Functional safety requirements for adjustable speed electrical power drive systems, are being drafted by

designated international technical committees based on IEC 61508.

Maintenance of IEC 61508 is presently being undertaken by as it is called Maintenance Teams MT12 and MT13, aiming at publishing a complete revision of IEC 61508 in March of 2006. One of the interesting topics for the maintenance is acceptance of (application software) Data Driven Systems into the standard, which would make specific text changes to Part 3. Here, the data-driven system is that where the source code is generic to a wide class of specific applications, and where the logic of a specific application is primarily defined by data. Digital Data Communication is also an interesting topic for the maintenance. Acceptance of data communications, including LAN, WAN, Field Bus, and the Internet, will bring about changes to the text of Part 2. Communication failures could constitute common cause failures, and this would need to be included in the standard. Another topic is remote access and security, i.e., security failures that can lead to failures of functional safety. It was agreed among MT12 and MT13 that IEC 61508 must take account of ongoing security work by other organizations and that the general approach in IEC 61508 would be to state the need for security as well as to refer as much as possible the other standards in this area.

#### Risk Engineering Symposium:

Dr. Toshiyuki Inagaki reported the first risk engineering symposium organized by IEEE Reliability Japan Chapter. As Chair of the IEEE Reliability Society Japan Chapter, Prof. T. Inagaki (Univ. of Tsukuba) organized the Risk Engineering Symposium on October 31, 2003, 13:00-17:00 at the Tokyo Campus of the University of Tsukuba. The following two lectures were delivered.

- 1) Changes in societies and security systems (by Akira Satori, SECOM, Ltd.)
- 2) Post-accident analysis of a Korean subway fire (by Kazuhiko Nakazawa, Tokyo Metropolitan Fire Department)

More than 60 people attended to the symposium, and exchanged their views and opinions on risk perception and safety management. For further information on the symposium, please be in contact with Dr. Toshiyuki Inagaki, inagaki@is.tsukuba.ac.jp.

#### Safety Engineering Education for the Future:

Dr. Takehisa Kohda reported the roundtable discussion on "Safety Engineering Education for the Future" held at the second day of APSS2003, Asia Pacific Symposium on Safety held at Taipei International Conference Center, in Chinese Taipei on November 18-19, 2003. More than 200 people attended the symposium. At the discussion, the panelists and attendants introduced the current states of educational systems on safety engineering in Australia, Korea, Japan, Taiwan, Canada and Finland. Most of them were related to the occupational safety, environmental safety, health, and chemical safety. The object of safety engineering is to protect people, property and environment from any possible danger in a system. What should be done was discussed for this purpose. Differences in educations between companies and universities were pointed out. In his impression, the scope of the education should be specified at first, and its content or course must be systematically organized for the specific purpose of a learner. For further information on the details of the round table discussion and further movements, please contact with Dr. Ross Coulton (Senior Lecturer, The University of Newcastle, Australia), the host of the round table discussion, rcoulton@mail.newcastle.edu.au.

#### Reviews of Members' Achievement in Systems Safety

- Reliable Control Framework in Design of Safety Related Systems: (Please contact with Dr. Kocihi Suyama, suyama@e.kaiyodai.ac.jp) Reliable control has been brought to attention by its contribution to system design according to IEC 61508. Majority decision making framework in design of reliable control for the safety related systems is proposed, and its contribution to systems safety is analyzed. The property of majority decision making is also discussed in relation to the policy of IEC61508 to improve systems safety.

- Evaluation of Safety Index Level Using Sequential Failure Logic: (Please contact with Dr. Yoshinobu Sato, yoshi@e.kaiyodai.ac.jp). The relationships among safety index levels, operation modes, and hazard event frequencies are not always cleared up. A new model using sequential failure logic is developed for the description of causation of hazardous events in the system composed of equipment under control, its control system, and its safety-related system. The relationship between the demand and hazardous event frequencies in dynamic state is formulated based on the model.

- Development of Autonomous Aero-Robot for Information Gathering: (Please contact with Dr. Koichi Inoue, inoue@cottus.mech.osaka-sandai.ac.jp) Information gathering on a disaster area is very important for disaster response activities. For this purpose, an autonomous aero-robot, or unmanned aerial vehicle is developed. It has the following characteristics: bird's-eye view video and images, human interface presenting this information, 3D terrain mapping of disaster area, GPS-INS hybrid navigation system.

Experimental results show this effectiveness.

- Evaluation of Accident Sequence Conditions: (Please contact with Dr. Takehisa Kohda, kohda@kuaero.kyoto-u.ac.jp) A derivation method of accident sequence conditions using a system behavior model is given. Firstly, system behavior model is developed based on the design assumptions: 1) physical behavior (the bond graph), 2) control actions (the information flow), 3) component failure assumptions (deviation of 2) and 3)). Based on the global system state equations derived from system behavior model, minimal cut sets in FTA are derived. These minimal cut sets can be transformed to accident sequence conditions by considering event sequence dependency. As long as the system behavior model is consistent, the correctness of obtained result can be guaranteed. A simple probability evaluation method of system failure occurrence is also developed using conventional minimal cut sets.

- Risk-Based Design of Safety Instrumentation Systems: (Please contact with Dr. Takehisa Kohda, kohda@kuaero.kyoto-u.ac.jp) The optimal inspection policy is given for the safety instrumentation system (SIS) with self-diagnosis function using the method of risk-based inspection. Assuming two types of failure: dangerous failure and safe failure, expected number of normal trips, spurious trips and hazards are given. Based on the risk caused by SIS failure, the optimal policy of RBI is discussed.

Product safety Engineering Society:

The IEEE Reliability Society is helping to form a sister society, the IEEE Product Safety Engineering Society (PSES). Given the overlap of Reliability and PSES, Mark Montrose the president of PSES describes its character below:

The Product Safety Engineering Society (PSES) has initiated operation as of 1 January 2004. It is the first new society created by IEEE in nearly 20 years from a Technical Committee and not Technical Council. The Technical Committee was based within the Electromagnetic Compatibility Society (EMCS) and had been operating as TC-8 since 1991.

For many years, PSES was operating as PSTC (Product Safety Technical Committee) with a now-outdated paper-based newsletter, replaced by the IEEE Virtual Community, and an active email reflector emc-pstc@ieee.org. There is continual membership of over 1000 on the reflector, which has been operational since 1996. In fact, IEEE used the PSTC virtual network to debug and beta test the current Virtual Community due to the success of this users group.



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## 2004 IEEE INTERNATIONAL SYMPOSIUM on SOFTWARE RELIABILITY ENGINEERING (ISSRE)

Call for Papers, Tutorials, Presentations on industry best practices, Workshops, Student papers

November 2-5, 2004, Saint-Malo, FRANCE

<http://www.issre.org/2004/>

=====  
This event includes: Technical paper tracks, Tutorials, Industry best practice presentations, Workshops, and more!

ISSRE focuses on the theory and practice of Software Reliability Engineering. The conference scope includes techniques and practices to (1) verify and validate software, (2) estimate and predict its dependability, and (3) make it more tolerant/robust to faults. Over the years, the conference has grown steadily attracting about 200 participants on a regular basis. The conference is big enough to represent all the key topics in software reliability engineering, but small enough to provide an in-depth representation of theory or practice in these areas. Industry participation has also increased over time, leading to a healthy mixture of theory and practice. This year's theme is on the use of model-driven software development and its implications on software dependability.

ISSRE 2004 will be held in Rennes (Nov. 2) and Saint-Malo (Nov. 3-5). Both towns are medieval cities. Saint-Malo is a corsair (a corsair is a kind of official "pirate," hired by the king) city located on the north coast of Brittany, close to the Mont Saint-Michel and to Rennes. Every street corner, every shore recalls the city's legendary past, along the innumerable walks and seafront promenades. Close to Saint-Malo, the Mont Saint-Michel is one of Brittany's best-known attractions.

### Deadlines

Regular papers: April 18, 2004

Call for Workshops: February 5, 2004

Call for Tutorials: June 1, 2004

Call for Industry Practice: July 1, 2004

Call for Student Papers: July 10, 2004

Call for Fast Abstracts: July 10, 2004

### General Chair

Yves Le Traon, University of Rennes I; IRISA research institute, France

[yletraon@irisa.fr](mailto:yletraon@irisa.fr)

### Program Chairs

Lionel Briand, Department of Systems and Computer Engineering, Carleton University, Canada  
Software Quality Engineering Lab (SQUALL)

[briand@sce.carleton.ca](mailto:briand@sce.carleton.ca)



Jeffrey Voas, Cigital, Inc., USA

[jmvoas@cigital.com](mailto:jmvoas@cigital.com)

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**2004 International Integrated Reliability Workshop  
Meeting: 2004 IEEE International Integrated Reliability Workshop IRW**

Sponsors: Both IEEE Electron Device, and IEEE Reliability Societies

When: Oct. 18-21, 2004

Where: Stanford Sierra Camp, S. Lake Tahoe, California

Purpose: The workshop provides an open forum for presentations, posters, topical discussion groups and focused special interest groups on reliability, technology for all present and future semiconductor applications.

2-page Abstract Deadline: June 18, 2004

Submit your abstract to the Technical Program Chair:

Rolf-Peter Vollertsen, [rolf.vollertsen@infineon.com](mailto:rolf.vollertsen@infineon.com)  
Infineon Technologies AG, mail#64382,  
Otto-Hahn-Ring 6, 81739 Munich, Germany

Additional Details at URL: <http://www.irps.org/irw/>

Keynote Speaker: Tim Forhan, Senior VP Corporate Reliability, AMI Semiconductor  
"Managing Tomorrow's Reliability Risks Today"

The Conference is published in the IEEE referenced  
"IEEE International Integrated Reliability Workshop Final Report".

Please contact me if you need any additional information.

Joachim Reiner  
IRW 2004 Vice Communications Chair  
[joachim.reiner@empa.ch](mailto:joachim.reiner@empa.ch) +41'1'823 4892

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Send questions or comments to [Webmaster](#), IEEE Reliability Society.

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## Product Safety Engineering Society and our 2004 IEEE Product Safety Engineering Symposium

### Product Safety Engineering Society

#### IEEE Announcement:

[http://www.theinstitute.ieee.org/portal/index.jsp?pageID=institute\\_level1\\_article&TheCat=2202&article=tionline/legacy/inst2003/sep03/9w.newssociety.xml](http://www.theinstitute.ieee.org/portal/index.jsp?pageID=institute_level1_article&TheCat=2202&article=tionline/legacy/inst2003/sep03/9w.newssociety.xml)

Note: The Reliability Society is a co-sponsor of the PSES

#### Safety Engineering Society page:

<http://www.ieee-pses.org/>

#### Old news letters with good articles:

<http://www.ewh.ieee.org/soc/emcs/pstc/psn/>

### 2004 IEEE Product Safety Engineering Symposium

#### Information about the symposium is available at:

<http://www.ieee-pses.org/symposium> a

Note: IAS is a co-sponsor of the symposium

#### The call for papers for the Symposium is at:

<http://www.ieee-pses.org/symposium/Call4Papers2004.pdf>

Jim Bacher



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## NATIONAL ACADEMIES CALL FOR APPLICATIONS FOR NANOTECHNOLOGY CONFERENCE

Dear colleagues,

The National Academies Keck Futures Initiative is accepting applications from active researchers for the Designing Nanostructures at the Interface Between Biomedical and Physical Systems conference which will be held from Nov. 19 to 21, 2004, in Irvine, California. Applications are due May 14, 2004, and can be completed online at [http://www7.nationalacademies.org/keck/Keck\\_Futures\\_Conferences.html](http://www7.nationalacademies.org/keck/Keck_Futures_Conferences.html).

Invitations to attend the conference will be sent by late June. The National Academies Keck Futures Initiative will pay all travel expenses, including lodging and meals, for invited attendees.

The conference will include plenary sessions on topics such as the future of nanomaterials and an overview of biological machines. Two poster sessions are scheduled, and all attendees are expected to display a poster or interactive display. Conference attendees will spend approximately 10 hours in focus groups over the three days exploring questions related to nanoscience and nanotechnology. Substantial time is built into the schedule for informal networking among the attendees, who will include researchers, as well as representatives from funding organizations, university leaders, and the science media.

The National Academies Keck Futures Initiative conferences bring together over 100 of the nation's best and brightest researchers from academic, industrial, and government laboratories to ask questions about -- and to discover interdisciplinary connections between - important areas of cutting-edge research. This year's conference provides an opportunity for researchers from different disciplines to focus on new questions in nanotechnology. Participants will gain not only a wider perspective but also, in many instances, new insights and techniques that might be applied in their own work. Conference attendees are also eligible for Futures grants, which support interdisciplinary research.

Funded by a \$40 million grant from the W.M. Keck Foundation, the National Academies Keck Futures Initiative is a 15-year effort to catalyze interdisciplinary inquiry and to enhance communication among researchers, funding agencies, universities, and the general public. The objective of the Futures Initiative is to stimulate interdisciplinary research at the frontiers of scientific inquiry. The Futures Initiative builds on three pillars of vital and sustained research: interdisciplinary encounters that counterbalance specialization and isolation; the identification and exploration of new research topics; and communication that bridges languages, cultures, habits of thought, and institutions. Toward these goals, the multifaceted National Academies Keck Futures Initiative incorporates three core activities each year: Futures conferences, Futures grants, and National Academies Communication Awards. For more information, visit [www.nationalacademies.org/keck](http://www.nationalacademies.org/keck).

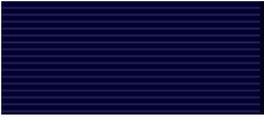
For application procedures and requirements, visit [http://www7.nationalacademies.org/keck/Keck\\_Futures\\_Conferences.html](http://www7.nationalacademies.org/keck/Keck_Futures_Conferences.html).

Please invite your colleagues to apply and to participate.

Thank you –

Way Kuo

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## Communications Society's e-Transactions on Network and Service Management (eTNMS)

Dear Colleague:

You are invited to view the first issue of the Communications Society's newest online publication e-Transactions on Network and Service Management (eTNMS). This online-only e-publication is committed to the timely publication of archival-quality papers that advance the state-of-the-art and practical applications of network and service management. Both theoretical research contributions (presenting new concepts and techniques) and applied contributions (reporting on experiences and experiments with actual systems) and tutorials with current and permanent value are published.

For a limited time, access is free.

See it now at <http://www.comsoc.org/eTNMS>

Raouf Boutaba  
Editor-in-Chief



## 2005 International Conference on Asian Green Electronics – Design for Manufacturability and Reliability (2005AGEC)

March 15-18, 2005,

Shanghai New International Expo Centre SNIEC, Pudong, Shanghai, China

### Call for Papers

You are cordially invited to submit papers to the 2005 International Conference on Asian Green Electronics – Design for Manufacturability and Reliability (2005 AGECE). The conference will be held in Shanghai, China in line with electronica China 2005 and Productronica China 2005 Exhibition.

The purpose of the conference is to present the latest advancements in environmentally compatible electronics design, manufacturing and packaging technology. The goal is to help electronics companies design and manufacture green electronics products for the global market.

#### Abstracts and Papers

Papers are now invited from other industry participants as well as researchers from academic and government organizations on the following topics:

- I Design for green electronics
- I Green manufacturing technologies including lead-free solders, conductive adhesives and other green technologies
- I Halogen free substrates
- I Environmentally Friendly Packaging and Design Technologies
- I Life Cycle Analysis and Assessment
- I Life Cycle Cost Analysis
- I Life Cycle Data Management

 Rounded Rectangle: August 01, 2004 Abstract Submission August 15, 2004 Abstract Acceptance October 01, 2004 Full Paper Due

An electronic form of a one-page, 300 word abstract with name,

address, phone and fax numbers, and email address must be submitted to the technical committee by email at [wywong@ee.cityu.edu.hk](mailto:wywong@ee.cityu.edu.hk) on/before August 01, 2004. Instructions for preparing the full paper will be sent to authors whose abstracts are accepted after review. Accepted papers will be published in a formal IEEE Conference Proceedings with an ISBN number. Participants will be required to register for the conference upon notification of acceptance of their full papers

#### Shanghai's Electronics Industries

Since the opening and reform policy was introduced in China, the emphasis has been laid, first and foremost, on the development of the Changjiang River Delta Region, which are opening up to the outside world. In modern history, Shanghai is the earliest industrial development area in China. From 1949, the number of industrial enterprises in Shanghai has increased almost thirty times, and the gross value of industrial output of Shanghai is 6.9% in China.

Now the Shanghai government encourages developing new electronic communication industry and new material industry. In 1999, the electronic communication industry output value was 59.49 billion RMB, and the gross value of industrial output in new technology industries will be more than 170 billion RMB. China's World Trade Organization membership should further enable Shanghai to continue providing electronics manufacturing services, as well as to move to the top of the electronics industrial product chain in all aspect of product development.

<http://www.ee.cityu.edu.hk/~agec>

According to the development blueprint for the Changjiang River Delta, by 2010, Shanghai will lay a solid foundation as an international economic centre; Ningbo will be turned into a modernized international port city; Nanjing will lay a sound foundation as an international metropolis; Hangzhou will virtually be turned into an international tourist city. It is estimated that within in the next two decades, the Changjiang River Delta is very likely to grow into an extraordinary belt of metropolises, which can be compared to that around Tokyo and Osaka in Japan.

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