Reliability Society

NEWSLETTER

Vol. 52, No. 3, August 2006

President's Message

Dear Reliability Society Members,

Exciting events have recently transpired that will have a long lasting effect upon you, the Reliability Society members. This message is a mid term report card on the activities that we have worked on as an ADCOM, and have closed at this date. Clarifying, the RS ADCOM is the elected administrative committee who takes input and guidance from Society members and then volunteers their time to turn ideas into reality. To become an ADCOM member, one must be a member of IEEE and also the Reliability Society. Presently we are seeking ADCOM members for the upcoming 2007-2009 term. If you are interested please make contact with Jeff Voas, jvoas@saic.com. Jeff is responsible for running the ADCOM election.

Reliability Society Field of Interest Statement

The Technical Activities Board (TAB) unanimously approved in June our updated field of interest (FOI) statement: Here is the update: (TAB consists of all IEEE Society/Council presidents, and the division directors who govern the Societies).

RS FOI:

The Society is concerned with the strategies and the best practices for attaining, assessing, assuring, and sustaining system reliability throughout its life cycle.

Reliability is a design attribute of a system (encompassing service and process). Even though reliability is intangible physically, it is a true system performance measure.

Note: System reliability in this context implies the reliability of any product tier starting at the materials level, then the device / component level, then the assembly / unit / module level, to a system or system of systems. The term system is meant to be a broad term so that anyone within Reliability Engineering working on or with a product or process or service can be included within this Society.

Additionally, by having Reliability as an attribute, with the Society's broad perspective of the term, leads to the use of descriptive terms, such as: dependable, trustworthy, available, maintainable, reliable, fault-tolerant, graceful degradation, failure immunity, secure, safe, intuitive, resilient, reliant, etc. Reliability is integral to Design, Availability, Maintainability, Testability, Diagnostics, Prognostics and Health Management, Integrity, Security, Quality, Supportability, Human Engineering, and System Safety.

The Society membership encompasses engineers who are designing, analyzing, producing, and assessing some portion or level of a system, be it hardware, software, devices, processes, or materials.

Clearly this statement encompasses who we are, and our span of interests, which I hope you agree is quite broad. I encourage you to share this amongst your colleagues and encourage them in becoming a member of the Reliability Society.

Reliability Society College Scholarship Awards:

Our college scholarship new initiative program is funded and launched, and is in the final stages of appearing on our web site. Shown below is a portion of the press release the Society is making available to any student who would like to apply. Please note, this scholarship is awarded internationally. "The IEEE Reliability Society has established and is pleased to announce its plan to

offer scholarships to graduate students and upper division undergraduate students. Up to five $2000 scholarships will be awarded each year to students who have demonstrated achievement in their studies and who have taken at least one course with reliability content."

The ADCOM is pleased to launch this program, and to encourage students to pursue an interest in reliability.

Conferences:

The Reliability Society in co-operation with System Man and Cybernetics Society have successfully launched a new joint conference, SIRI. This will now become an annual venue and be managed jointly by both Societies. Shown below is the listing through January 2007 of the upcoming sponsored RS conferences and their respective dates.

- Integrated International Reliability Workshop(IIRW 2006), Stanford Sierra Conference Center, Fallen Leaf Lake, CA., http://www.iirw.org, October 16-19
- International Symposium on Software Engineering(ISSRE 2006), Raleigh, North Carolina, Nov 6-10, http://www.csc2.ncsu.edu/conferences/issre/travel.php
- System Integration and Reliability Improvements (SIRI 2006) Hanoi, Vietnam Dec 13-15, http://paris.utdallas.edu/siri/
- Annual Reliability and Maintainability Symposium (RAMS 2007), Orlando, Florida, Jan 22-26, http://www.rams.org

Our Society information booths have been refreshed, and will be at each of these conferences. Please contact Marsha Abramo (mabramo@us.ibm.com) and let her know if you are willing to mange the display at any one or more conferences you normally attend. The booth will be well stocked with giveaways and membership recruitment material. We can use your help!

Student Lectures:

The next set of student lectures will be in conjunction with our September 28'th ADCOM, to be held at the University of Tennessee in Knoxville. This is open to the public, so if you happen to be in the neighborhood, or would like to ask the experts any questions feel free to attend..

Trust Magazine:

Under the leadership of Bret Michael, we are planning to bring a proposal for this exciting new Society magazine to the November 2006 IEEE TAB meeting. Our planned target launch date for the magazine is January 2008, to initially appear quarterly. The magazine will serve two important purposes. Firstly, it will provide a means for the reliability community and broader dependability community to learn about recent advances in building trustworthiness into systems of all types. Secondly, the magazine will serve as a vehicle for bringing a wide spectrum of IEEE Societies and Councils together to give members of IEEE a holistic view of trustworthy systems. The focus of the magazine will be on real-world experience in building trust into systems, so we intend to solicit case studies from engineers, policy makers, and users, packaging this into an easy to read product.

In order to meet the Reliability Society's goal of producing timely content in the magazine,the editorial board intends to keep the submission-to-publication time for articles to a maximum of sixty days. The first issue of IEEE Trust Magazine will focus on the results of the IEEE Security Grand Challenge. The magazine will also contain regularly scheduled columns.

The Cyber Security Grand Challenge:

As originally conceived by Jeff Voas, a reliability competition that can both describe and avert a physical and cyber attack on the net has gained national attention and is in a mid life stage of adoption by IEEE. As a Society we are excited to bring this competition forward, and we are awaiting confirmation from IEEE executives to further pursue this venture.

I hope you found this message both informative and brief. Until we meet again, best regards,

Bill Tonti

mailto:wtonti@US.IBM.COM

From the Editor

Welcome to the IEEE Reliability Society e-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.

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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SocietyNews

Chapter Awards

The chapter awards committee is pleased to announce the results of the 2005 Chapter Awards.

1st Place - Singapore (90.0 points)

2nd Place - Dallas (74.2 points)

3rd Place - Boston (69.2 points)

4th Place - Baltimore, Cleveland, Denver, Italy, Ottawa, San Diego, Twin Cities

Congratulations to all participating chapters!

TAB Approved Update to Reliability Society Constitution

The Reliability Society AdCom revised the RS Constitution to clarify our Field of Interest statement and to make minor changes to reflect actual operating practices. The IEEE TAB Administration approved the minor changes to the Reliability Society Constitution in May 2006, less the update to our Field of Interest. The Field of Interest statement requires review by all Society Presidents and was approved by the Presidents at the TAB meeting on June 24, 2006. Please review the Constitution and if you have comments provide them to Dennis Hoffman, RS Past President, at d.hoffman@ieee.org.

The Reliability Society governing documents are posted on the Reliability Society web site for your use and reference at any time. The RS Constitution, ByLaws (will be updated next), and Operational Manual (updated annually) are posted on the web site.

RS Constitution

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Reliability Society to Offer Scholarships

The IEEE Reliability Society is pleased to announce scholarships to graduate students and upper division undergraduate students. Up to five $2000 scholarships will be awarded each year to students who have demonstrated achievement in their studies and who have taken at least one course with reliability content.

“We are extremely pleased with this outreach effort, and hope that these scholarships encourage students to take an interest in Reliability Engineering and to understand that reliability is an overarching factor in whatever they may be studying and what they will do in their career. If you are a student, and have taken a course with reliability content which sparked an interest in reliability, I encourage you to apply for this scholarship” said Bill Tonti, the President of the IEEE Reliability Society.

Detailed requirements and applications for the scholarship are available here and on the Reliability Society website (http://www.ieee.org/portal/site/relsoc/) and through school financial aid offices.

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IEEE Transactions on Device and Materials Reliability (TDMR)

Dear Colleague:

As a member of the reliability community I am sending you this message to keep you informed of the latest research results in the area of component reliability.

The editors of the IEEE Transactions on Device and Materials Reliability (T-DMR) would like to inform you that the March 2006 issue of the T-DMR is now available via the IEEE Xplore website: http://ieeexplore.ieee.org/xpl/RecentIssue.jsp?punumber=7298.

This issue contains 15 high quality papers covering a large range of topic areas in microelectronics component reliability. For more on TDMR including the table of contents and links to the article abstracts. Note also T-DMR has a very rapid publication cycle, and the most recently accepted articles (assigned to upcoming T-DMR issues) are also accessible for viewing and downloading from the link on the same Xplore web page. We encourage you to visit this page regularly to find the very latest in microelectronic reliability research findings. For more on the TDMR and this issue.

If you would like to receive automatic alerts whenever future issues of T-DMR are published on IEEE Xplore, please visit the IEEE email alerts web page to sign up at: http://ieeexplore.ieee.org/xpl/tocalerts_signup.jsp.

Anthony A. Oates

T-DMR Editor-in-Chief

Taiwan Semiconductor Manufacturing Company

Hsinchu, Taiwan

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Society Solicitations

The IEEE Reliability Society solicites nominations for the following annual society awards. More information will be provided in future newsletters closer to the submittal dates.

Fellows Nomination Information

Reliability Society Engineer of the Year Award for 2006

Reliability Society Lifetime Achievement Award for 2006

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ChapterActivities

Boston

Dallas

Japan (Chapter Award Paper abstracts)

Authors: H.Yamamoto & T.Akiba, H.Hirose, Y.Ihara, M.Kimura

Singapore

Twin Cities

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TechnicalOperations

Technical Committee Reports

Design for Reliability (DfR) Committee

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.

Shuichi Fukuda
VP Technical Operations
E-mail: ShuFukuda@aol.com

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A list of the Technical Committees and their Chairs:
IEEE RS Technical Committees

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Announcements

RAMS 2007

International Integrated Reliability Workshop (IIRW) 2006 - Call for Papers

System Integration and Reliability Improvements (SIRI) 2006

Note: The dates have changed to December 13-15, Hanoi

Risk Management and System Dependibility & Safety Lambda Mu 15 Symposium

International Symposium on Pacific Rim Dependable Computing 2006(PRDC)

International Symposium on Software Reliability Engineering (ISSRE) 2006

Portable Computing 2007 - Call for Papers

IEEE Sensors Applications Symposium 2007 - Call for Papers

CALL FOR AWARDS NOMINATIONS - IEEE Nanotechnology Council

1st Annual IEEE Systems Conference 2007 - Call for Papers

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Constitution - IEEE Reliability Society

Original Constitution Approved 06/12/51
Amended 07/07/53
11/09/54
09/09/58
11/14/62
03/03/64
Revised 09/30/70
10/06/78
05/01/86
10/01/94
06/24/06

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Article I - Name and Objectives

Section 1. This organization shall be known as the IEEE Reliability Society.

Section 2. The objectives of the Society shall be scientific, literary, and educational in character. The Society shall strive for the advancement of the theory and practice of electrical engineering and of the allied arts and sciences, and the maintenance of a high professional standing among its members, all in consonance with the Constitution and Bylaws of the IEEE and with special attention to such aims within the field of interest of the Society as are hereinafter defined.

Section 3. The Society shall aid in promoting close cooperation and exchange of technical information among its members and to this end shall hold meetings for the presentation of papers and their discussion and, through its Committees, shall study and provide for the needs of its members.

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Article II - Membership

Section 1. Membership in the Society shall be available to members of the IEEE in any grade, including Student, having a professional interest in any phase of the field of interest of the Society.

Section 2. Nonmembers of the IEEE may become Affiliates of the Society and may participate

in Society activities, as provided by the Society Bylaws and subject to the applicable IEEE Bylaws.

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Article III - Field of Interest

Section 1. The Society is concerned with the strategies and the best practices for attaining, assessing, assuring, and sustaining system reliability throughout its life cycle.

Reliability is a design attribute of a system (encompassing service and process). Even though reliability is intangible physically, it is a true system performance measure.

> Note: System reliability in this context implies the reliability of any product tier starting at the materials level, then the device / component level, then the assembly / unit / module level, to a system or system of systems. The term system is meant to be a broad term so that anyone within Reliability Engineering working on or with a product or process or service can be included within this Society.

Additionally, by having Reliability as an attribute, with the Society's broad perspective of the term, leads to the use of descriptive terms, such as: dependable, trustworthy, available, maintainable, reliable, fault-tolerant, graceful degradation, failure immunity, secure, safe, intuitive, resilient, reliant, etc. Reliability is integral to Design, Availability, Maintainability, Testability, Diagnostics, Prognostics and Health Management, Integrity, Security, Quality, Supportability, Human Engineering, and System Safety.

The Society membership encompasses engineers who are designing, analyzing, producing, and assessing some portion or level of a system, be it hardware, software, devices, processes, or materials.

Section 2. The field of interest of the Society may be enlarged, reduced, or shifted moderately as the needs of the occasion indicate, with the provision that such revisions shall be processed as an amendment to this constitution. The new field of interest must also be approved by the IEEE Technical Activity Board (TAB).

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Article IV - Financial Support

Section 1. The Society shall collect an annual assessment or fee from its members, as prescribed in the Society Bylaws.

Section 2. The Society may make registration charges at its Society meetings, symposia, conferences, and conventions. The registration fee for nonmembers of the IEEE shall be higher than for IEEE members.

Section 3. The Society may raise revenues by other means, such as advertising, shows, request for contributions, sale of publications, and charges for sending our notices to non-Society members, provided such means are consistent with applicable IEEE Constitution and IEEE Bylaws, and do not encroach on revenue fields of prior established Societies or sections. Revenue means not explicitly covered by the IEEE Constitution or IEEE Bylaws must be

approved by the IEEE General Manager before being adopted by the Society.

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Article V - Organization

Section 1. The Society shall be managed by an Administrative Committee (AdCom) of 18 elected members-at-large plus members ex-officio with vote as specified in the Bylaws. (There may also be members ex-officio without vote.)

Section 2. Technical Committees may be established as needed to develop specific areas of the Field of Interest.

Section 3. Sub-societies may be formed as provided in the IEEE Bylaws, and the supervision of sub-society affairs, other than by the AdCom, shall be as prescribed in the Society Bylaws.

Section 4. The terms of the 18 members-at-large of the AdCom shall normally be for three years, with 6 members to be elected each year. Only two consecutive terms are permitted, but eligibility is restored after a lapse of one year. The AdCom shall have the right to approve special provisions affecting the length of member term and shall document those provisions within the Society Bylaws.

Section 5. The AdCom shall annually elect one of its members as President, and four others as Vice-Presidents, whose terms shall be for one year. A Secretary and a Treasurer shall also be appointed annually for one-year terms. These two officers need not be elected members of the AdCom, and they may be reappointed.

Section 6. The President, under direction of the AdCom, shall have general supervision of the affairs of the Society. The President shall preside at meetings of the AdCom, at general meetings of the Society, and at the Annual Meeting of the Society, and have such other powers and perform such other duties as may be provided in the Society Bylaws, or as may be delegated by vote of the Society AdCom. In the President's absence or incapacity, his/her duties shall be performed by one of the Vice-Presidents, selecting one of their number to act as President.

Section 7. The AdCom may utilize the services of IEEE Headquarters as bursar for all or part of the Society funds, as provided by the IEEE Bylaws. If any part of the Society funds are received and deposited separately, the terms and conditions shall be in accordance with IEEE Bylaws and subject to the provisions of the Society Bylaws and to any special limitations imposed by the AdCom.

Section 8. The duties and responsibility of the officers shall be as defined hereunder and in the Society Bylaws and as delineated by the AdCom.

Section 9. The Vice-Presidents, as soon as expedient after election, shall, with exception of the Membership Committee, appoint the standing Committees provided by the Society Bylaws. The Society President shall appoint the Membership Committee as provided by the Society Bylaws. Other special or ad hoc Committees may be authorized by vote of the AdCom and shall serve until their successors are appointed or the Committee dissolved.

Section 10. The President shall be an ex-officio member of all Committees of the Society. The President is a member of the IEEE TAB and, when notified of a meeting of said Board, shall represent the Society at the meeting, or send an alternate. If an alternate cannot be found, the

President shall present the views of the Society by a letter.

Section 11. The newly elected President, Vice-Presidents, and members of the AdCom shall assume office in January of each year, unless a different time is provided in the Society Bylaws. The newly elected AdCom members and the officers shall be installed at the January AdCom meeting.

Section 12. The officially constituted officers of the Society shall have the authority to obligate the funds and assets of the Society to promote the Society's activities, as prescribed in the IEEE Bylaws. Contracts may be executed only by the IEEE. Proposed contracts for Reliability Society activities shall be submitted to IEEE Headquarters for review and execution.

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Article VI - Nomination & Election of the Administrative Committee

Section 1. Nomination and election of the 18 members-at-large of the AdCom shall be as prescribed in the Society Bylaws. Provision shall be made for nominating petitions from the Society membership to place a name or names on the ballot.

Section 2. Within-term vacancies on the AdCom shall be filled by appointments, for the unexpired terms, by the President with the consent of the AdCom.

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Article VII - Meetings

Section 1. The Society may hold meetings, conferences, symposia, or conventions either alone or in cooperation with other IEEE entities, or other technical organizations, subject to the IEEE Bylaws. The Society shall sponsor at least one technical conference of national (USA) or international scope each year.

Section 2. Conferences or sessions on governmentally classified material are prohibited.

Section 3. The AdCom shall hold at least three meetings per year, one an Annual Meeting. Special meetings of the Committee may be called at the discretion of the President or upon request of three voting members of the AdCom.

Section 4. Seven voting members of the AdCom shall constitute a quorum. All voting members shall have an equal vote, both elected and ex-officio with vote.

Section 5. A majority vote of those voting members of the AdCom attending a meeting shall be necessary for the conduct of business, except as otherwise provided in this Constitution.

Section 6. Business of the AdCom may be handled by correspondence, telephone, or other electronic communication where, in the opinion of the President, matters requiring action can be adequately handled in that manner. All such actions shall be made a matter of record by citation in the minutes of the following AdCom meeting. A majority vote of the voting members of the AdCom is necessary for approval of actions handled in that manner, unless otherwise provided in the Constitution or Bylaws.

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Article VIII - Publications

Section 1. Publications undertaken by the Society shall be subject to IEEE policies and to any further guidance or controls prescribed by the AdCom or its duly appointed Committees. The Society shall be responsible for the financial aspects of its publications program.

Section 2. The President, with the advice and consent of the AdCom, shall appoint the Editor of each publication. Other editors may be appointed as prescribed in the Bylaws. The duties of an editor, and his compensation, if any, shall be as prescribed in the Bylaws.

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Article IX - Amendments

Section 1.Amendments to this Constitution may be initiated by petition submitted by twenty-five members of the Society, or by the AdCom. Amendments may be adopted by at least two-thirds of the voting members present in meeting assembled but not less than fifty percent of the total voting members of the AdCom, provided that notice of the proposed amendment has been sent to each members of the AdCom at least 20 days prior to such meeting; or amendments may be adopted by a two-thirds e-mail vote of the voting members of the AdCom provided a 30 day period is provided for such responses. Amendments to the Constitution must be approved by the TAB. After such approval, the amendments shall be published in the Society Newsletter, with notice that they go into effect unless 10 percent of the Society members object to the AdCom within 30 days after the effective publication date stated in the instructions in the publication. If such objections are received, a copy of the proposed amendments shall be mailed with a ballot to all members of the Society at least 30 days before the date appointed for return of the ballots, and the ballots shall carry a statement of the time limit for their return to the IEEE office. When a mail vote of the entire Society membership is necessary, approval of the amendments by at least two-thirds of the ballots returned shall be necessary for enactment.

Section 2. Suitable Society Bylaws, and amendments thereto, may be adopted by a two- thirds vote of the voting members of the AdCom present in meeting assembled, provided that notice of the proposed Society Bylaw, or amendment, has been sent to each member of the AdCom at least 20 days prior to such meeting; or a Society Bylaw, or amendment, may be adopted by a two-thirds e-mail vote of the voting members of the AdCom provided a 30 day period is provided for such responses. A Society Bylaw, or amendment, shall take effect upon AdCom approval and shall be published in the Society Newsletter for member notification and mailed to the TAB Secretary.

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The IEEE Reliability Society Scholarship

http://www.ieee.org/portal/site/relsoc/

Description:
This scholarship recognizes active students who are members of the IEEE and who demonstrate promise in their academic and/or professional Reliability Engineering accomplishments.

Prize:
Multiple $2,000 scholarships are available per year.

Eligibility:
Full-time Graduate Students, Seniors, and Juniors in degree programs in engineering, computer science, or other well-defined reliability-related field who are active members or student members of the IEEE. At least one course in Reliability Engineering or closely related field should be completed. Minimum overall grade point average should be 3.0 for undergraduate students and 3.5 for graduate students.

Basis for Judging:
- Involvement in IEEE activities – 30%;
- Academic achievement (with preference given to those who demonstrate excellence in reliability) – 40%;
- Extracurricular activities related to your academic/professional interests – 10%; and
- Letter of evaluation by at least one of the instructors who taught you a course with reliability engineering content – 20%.

Deadline:
Multiple scholarships will be awarded each calendar year. Submission deadlines are:
- Summer Term – April 1st
- Fall Term – July 1st
- Winter Term – November 1st

Note: All material must be received by the submission deadline.

Submission Requirements:
- The IEEE RS Student Scholarship Application;
- An essay (not to exceed two pages) describing your academic accomplishments, professionally related extracurricular activities, work history, career goals, and the relevance of reliability engineering to them;
- An official academic transcript of all college courses completed;
- A degree plan with reliability-related courses clearly identified; and
- One or more recommendation letter(s) from the instructor(s) of reliability-related course(s) you have successfully completed.

Contact:
IEEE Reliability Society Scholarship
Attn: Dr. Robert Loomis
3865 Hidden Hills Dr.
Titusville, FL 32796

IEEE Reliability Society Scholarship Application

All APPLICANTS – Please provide the following information along with this application:

1. **An essay describing your academic accomplishments, professionally related extracurricular activities, work history, career goals, and the relevance of reliability engineering to them.**
2. **An official academic transcript of all college courses completed.**
3. **A degree plan with your reliability-related courses clearly identified.**
4. **One or more recommendation letter(s) from the instructor(s) of reliability-related course(s) you have successfully completed.**

Applications will be considered incomplete until all documents are received. With the exception of signatures and dates, documents should not be handwritten.

Please select your current level of education:

☐ **Junior** ☐ **Senior** ☐ **MS/ME Student** ☐ **PhD/DE Student**

Last Name	First Name	MI	GPA/Scale (e.g. 3.5/4.0)

Student Permanent Address	Student School Address	Student Telephone Number(s)

School Name and Address	School Telephone Number(s)

Major Field of Study (be specific – e.g. Electrical Engineering, Industrial Engineering, Computer Science, Physics, etc):

Email Address:

Authorization to Release Scholarship Information

Federal Law requires that we obtain written permission before releasing information to the news media regarding scholarship recipients. If you wish to give such permission, please sign. If you do not sign, we will not release information to the media. However, it will not adversely affect your scholarship application.

_____

Applicant's Signature and Date

I certify that all statements in this application and related materials are correct.

_____

Applicant's Signature and Date

Submission Deadlines (Note: All material must be received by the appropriate submission deadline):

- **Summer Term – April 1st**
- **Fall Term – July 1st**
- **Winter Term – November 1st**

Please submit all application material to:

IEEE Reliability Society Scholarship
Attn: Dr. Robert Loomis
3865 Hidden Hills Dr.
Titusville, FL 32796

Announcement

IEEE Trans on Device and Materials Reliability

Dear Colleague:

As a member of the reliability community I am sending you this message to keep you informed of the latest research results in the area of component reliability.

The editors of the IEEE Transactions on Device and Materials Reliability (T-DMR) would like to inform you that the March 2006 issue of the T-DMR is now available via the IEEE Xplore website: http://ieeexplore.ieee.org /xpl/RecentIssue.jsp?punumber=7298.

This issue contains 15 high quality papers covering a large range of topic areas in microelectronics component reliability. **See below for the table of contents** and links to the article abstracts. Note also T-DMR has a very rapid publication cycle, and the most recently accepted articles (assigned to upcoming T-DMR issues) are also accessible for viewing and downloading from the Forthcoming link on the same Xplore web page. We encourage you to visit this page regularly to find the very latest in microelectronic reliability research findings.

If you would like to receive automatic alerts whenever future issues of T-DMR are published on IEEE Xplore, please visit the IEEE email alerts web page to sign up at: http://ieeexplore.ieee.org /xpl/tocalerts_signup.jsp.

About T-DMR - The IEEE Transactions on Device and Materials Reliability (T-DMR) publishes the latest research findings related to the reliability of microelectronic components. T-DMR seeks to provide leading edge information that is critically relevant to the creation of reliable microelectronic products. The scope of T-DMR includes reliability issues related to electronic, optical, and magnetic devices, MEMs devices and Microsystems and packages. Topic areas include the reliability of materials used in these devices and Microsystems and packages, and the properties of the materials, and associated interfaces and microstructures that impact reliability; reliability of devices,

materials, processes, interfaces, integrated microsystems, MEMS-sensors, transistors, technology (CMOS, BiCMOS, etc.), integrated circuits (IC, SSI, MSI, LSI, ULSI, ELSI, etc.), and thin film transistor applications.

►► T-DMR is an on-line journal in all aspects of the publication process. This enables rapid review and publication of articles to facilitate the fastest possible dissemination of results.

►► T-DMR typically publishes papers on-line within 2 to 3 weeks of acceptance by the editor. Publication cycle times are usually significantly shorter than for most paper publications. All articles are available for downloading from IEEE Xplore at:►► http://ieeexplore.ieee.org /xpl/RecentIssue.jsp?punumber=7298. Article abstracts are freely available to non-IEEE members for viewing, while pdf downloads of T-DMR articles are free to all IEEE members until December 31, 2006. Institutional subscribers (libraries, corporate subscribers to IEEE ASPP/IEL) receive free access to abstracts and pdf downloads.

►► Articles for publication in T-DMR may be submitted at http://mc.manuscriptcentral.com /tdmr. Instructions for authors are also available at this address.► For additional questions concerning T-DMR, please contact the IEEE Electron Devices Society Publications Office at j.marsh@ieee.org.

►► To unsubscribe from this IRPS mailing list send a blank e-mail message to: mailto:IRPSmailinglist-removal@ieee.org

Anthony A. Oates

T-DMR Editor-in-Chief

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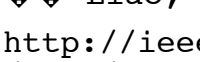
http://ieeexplore.ieee.org
/xpls/abs_all.jsp?isnumber=33920&
arnumber=1618648&count=15&index=0

Rapid diagnostics of ASIC circuit marginalities using dynamic laser stimulation


Liao, J.Y.; Woods, G.L.; Marks, H.L.

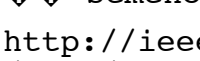
http://ieeexplore.ieee.org
/xpls/abs_all.jsp?isnumber=33920&
arnumber=1618649&count=15&index=1

Impact of self-heating effect on long-term reliability and performance degradation in CMOS circuits


Semenov, O.; Vassighi, A.; Sachdev, M.

http://ieeexplore.ieee.org
/xpls/abs_all.jsp?isnumber=33920&
arnumber=1618650&count=15&index=2

Enhancement in ultrathin oxide growth by thermal-induced tensile stress


Chien-Jui Hung; Jenn-Gwo Hwu

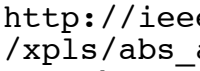
http://ieeexplore.ieee.org
/xpls/abs_all.jsp?isnumber=33920&
arnumber=1618651&count=15&index=3

Reliability of Pb-free preplated leadframe under atmosphere and accelerated aging test


Jongwoo Park; Young-Hee Kim; Seung-Woog Wang; Seung-Woo Lee; Hyungoo Jeon

http://ieeexplore.ieee.org
/xpls/abs_all.jsp?isnumber=33920&
arnumber=1618652&count=15&index=4

Reversible off-state breakdown walkout in passivated AlGaAs/InGaAs PHEMTs


Wen-Bin Tang; Yue-Ming Hsin

http://ieeexplore.ieee.org
/xpls/abs_all.jsp?isnumber=33920&
arnumber=1618653&count=15&index=5

Reliability-extrapolation methodology of semiconductor laser diodes: is a quick life test feasible?

Electrostatic discharge effects in ultrathin gate oxide MOSFETs


Cester, A.; Gerardin, S.; Tazzoli, A.; Meneghesso, G.

http://ieeexplore.ieee.org /xpls/abs_all.jsp?isnumber=33920& arnumber=1618660&count=15&index=12

Impact of STI on the reliability of narrow-width pMOSFETs with advanced ALD N/O gate stack


Chung, S.S.; Chang-Hua Yeh; Hsin-Jung Feng; Chao-Sung Lai; Jiuun-Jer Yang; Chi-Chun Chen; Ying Jin; Shih-Chang

http://ieeexplore.ieee.org /xpls/abs_all.jsp?isnumber=33920& arnumber=1618661&count=15&index=13

ESD failure mechanisms of analog I/O cells in 0.18-/spl mu/m CMOS technology


Ming-Dou Ker; Shih-Hung Chen; Che-Hao Chuang

http://ieeexplore.ieee.org /xpls/abs_all.jsp?isnumber=33920& arnumber=1618662&count=15&index=14

The following defines the RS Fellows Committee, nomination and evaluation process.

From Dr. Thad Regulinski

2.8.2.3 Fellow Committee
The Society Fellow Committee consists of IEEE Fellows who are members of the Reliability Society (07). The Fellow Evaluating Committee is a subset of the Society Fellow Committee, and its function is to prepare technical evaluations and ranking of the nominees.

2.8.2.3.1 The Society Fellow Committee Chair
The Society Fellow Committee Chair is appointed by the Junior Past President with the advise and consent of ADCOM. The Chair must be an IEEE Fellow and cannot be a nominator, reference or endorser, and cannot be a member of the IEEE Fellow Committee or the IEEE Board of Directors. These requirements apply equally to all members of the Society Fellow Committee and members of the Fellow Evaluating Committee. The Chair organizes and chairs the Fellow Evaluating Committee assuring that the backgrounds of members include researchers, educators, technical managers, and practitioners. Should the Chair be a personal friend of the nominee, the Chair recluses him / her self and appoints a Chair of the Evaluating Committee. The Chair instructs the Evaluating Committee about factors constituting technical evaluations consistent with RSF-2 form titled Reliability Society Fellow Evaluation Criteria and Evaluation Weightings, ranking of the nominees and the preparation of the individual evaluation form B-3's which the Chair signs, confirming that no conflict of interest exists among the evaluating committee members.

2.8.2.3.2 The IEEE Fellow Nomination Process
One does not sponsor a candidate for the IEEE Fellow award, any more than one can sponsor a candidate for the Pulitzer or Nobel award. One is nominated for the Fellow award by the Nominator, who prepares the IEEE Nomination B-27 form. Any person, including a non-member, is eligible to serve as nominator, except members of the IEEE Board of Directors, members of the IEEE Fellow Committee, Society Fellow Committee Chairs, Chairs of a Society Fellow Evaluation Committee reviewing the B-27 Nomination form, or IEEE Staff.

2.8.2.3.3 The Responsibilities of the Nominator

- Obtains a copy from IEEE of the GUIDELINES for IEEE SOCIETY / COUNCIL EVALUATIONS OF FELLOW GRADE NOMINATIONS herewith referred to as the GUIDE, by phone 732-981-0060, or on line using the Electronic Fellow Nomination Process accessing it at<www.ieee.org/.fellows>
- Studies the contents of the GUIDE diligently and follows detailed directions on the preparation of IEEE Fellow Nomination Form B-27.

- Prepares the IEEE Fellow Nomination Form B-27 consistent with verifiable information and data on the nominee available from public records among others and from the nominee ONLY if necessary facts or background information is not available elsewhere.
- Selects a minimum of 5 and maximum of 8 active (paid up) IEEE Fellows as References for the candidate outside the candidate's own organization whenever possible, or at least minimize the number from within to avoid the question of partiality that can arise if most References are from the candidate's organization. Selects judiciously the nominee's References based on their personal knowledge of the nominee's technical accomplishments and their ability to address those accomplishments with a high degree of specificity and avoiding painstakingly broad generalities.
- Provides those asked to be References for the candidate with (a) Fellow Nomination form B-27 and (b) IEEE Fellow Grade Reference Form (B-29) and instruct them to submit the B-29 form directly to the IEEE Fellow Committee by the 15 March deadline either on line or by mail addressed: IEEE, Fellow Program Administrator, 445 Hoes Lane, Piscataway, N.J. 08855-1331, USA. It is vital that this be followed up to assure that all Reference forms are in fact sent to IEEE prior to the deadline.
- Selects the Technical Society or Council engaged in the technical field specified in the proposed citation for the nominee (item #4, p1 of B-27 Form).
- Determines the need, if any, for an endorsement of the nomination. A maximum of three endorsements, limited to one page each, are allowed. An endorsement has no IEEE standard form but may be submitted as a regular business letter. The endorsement of the nomination is OPTIONAL and can be offered voluntarily by any IEEE member or non-member, IEEE section or chapter, indeed anyone in or outside the electrical / electronics profession who can provide additional information on the nominee's principal contribution. This suggests that the nominator may also request an endorsement from anyone who can provide from personal experience some information not otherwise generally known.
- Considers the risks which must be carefully weighed against any potential gain of having an endorsement of the nomination. One is that any endorsement, particularly by heavy artillery of a Society President or Chair of Society Awards Committee, may suggest to the IEEE Fellow Committee that the nominee's contribution cannot stand on its own without outside aid. The other risk is that any repetition of what already has been said either on the B-27 Form or by the References may diminish the intrinsic value of the endorsement and thereby jeopardize the candidate's ranking. The IEEE Fellow Committee which evaluates over a thousand nominations submitted every year has little time, tolerance, or patience for flowery encomiums; the Committee is interested only in verifiable facts, most of which come from a computer search performed by the Chair

of Society Evaluators.

2.8.2.3.4 Individual Evaluations addressing Items A through E on Form (B-3)

Members of the Fellow Evaluation Committee

A) Ascertain whether the work of the candidate is recognized and considered outstanding in the candidate's contribution to the Reliability discipline and/or its practices.
B) Describe how the work of the candidate compares with Fellows of the Reliability Society on a discipline-wide, national and international basis. Equal recognition should also be accorded to Technical Leadership and to "Practitioners", who may contribute significantly to the design, synthesis, operation and evolution into practical use or manufacturing of products or systems.
C) Indicate why the candidate qualifies for the Fellow Grade.
D) Advise whether the proposed citation furnished by the nominator is appropriate or provide a revised citation.
E) Indicate whether the designation by the nominator of Engineer / Scientist, Technical Leader, Educator, or Practitioner is consistent with the nominee's individual contributions as delineated on the B-27 Form.
F) Indicate a score in the box, which qualifies the candidate for the Fellow grade and ascertain that all members of the Fellow Evaluation Committee involved in the evaluation of the candidate are listed by name.

2.8.2.3.5 Summary Form (B-93)

The chair of the Fellow Evaluation committee with concurrence of all members of the committee lists all candidates evaluated on the Summary Form (B-3) in descending order, with #1 as the highest rank and with each candidate identified by with numeric score and the qualification categories: EQ for Extraordinarily Qualified, HQ for Highly qualified, Q for Qualified and MQ for marginally qualified .

IEEE Reliability Society Newsletter Submission
from the Boston Chapter
July 2006

Greetings from the Boston Chapter! The 05-06 meeting season completed in May & meeting plans for 06-07 are well underway.

In April, EMC Corporation hosted our monthly meeting entitled: *"Software Reliability & Defect Prediction"* presented by Obaid Quadri (EMC) & Nihar Senapati (GE healthcare). This was well attended by EMC employees & IEEE meeting members. An overview was provided of the principles & process related to software reliability assessment. Various methods that predict defect densities in lines of code were reviewed, the presentation was well received. Thanks to AdCom member Eddie Robins for coordinating arrangements.

Meeting Lecturer Ray Velaquez provides an overview of x-ray laminography detection capabilities.
- images courtesy of AdCom member G. Kedem (RSA Security Inc)

Our May monthly meeting was held at RSA Security Inc. "*Demystifying 5DX X-ray Laminography*" with guest speaker Ray Velazquez, business development manager for Agilent technologies. Ray reviewed automated X-ray laminography technology & how it is utilized to determine solder joint density & integrity on assembled circuit cards. Several examples were reviewed & IEEE member Steve Herchenroder from Enterasys Networks followed up with a case example of 5DX capabilities.

Upcoming meetings:

Planning & publicity for the September monthly kickoff meeting is complete. It will include a tour of EMC Corporation's manufacturing operations & materials science laboratories located in Franklin MA. Online registration & details will be posted to the website in August.

For November, we will hold our meeting at Thermo-Electron in Lowell MA. Doug Smith will review unique electrical circuit analysis / troubleshooting techniques utilized for design debug tools.

October & December meetings are in the planning stages & will be announced shortly. Please check our website for details on upcoming meetings.

The Boston Reliability chapter advertises upcoming meetings, registers attendees & uploads past presentations on our IEEE hosted web-site.

The URL is http://www.ieee.org/bostonrel.

Regards,
Aaron C. DerMarderosian Jr.
Chair, Boston Chapter

Dallas Chapter

The Dallas Chapter is pleased to announce our upcoming presentation series:

Future speakers for the 2006/2007 Season:

2006 Speaker Topic
Sept. 19 Glen Robertson RoHS Testing
Oct. 17 Bill Sterchak COTS

** Special presentation
Nov. 1 Michael Pecht Counterfeit Electronics
How they make their way into our products and what we can do about it -
Counterfeit electronics have been found in everything from cell phones to military weapon systems. This presentation discusses counterfeit electronics, who makes them and how they enter into the products that we buy and use. It is based on various experiences from the CALCE Failure Analysis Laboratory at the University of Maryland as well as first hand knowledge from investigations by Prof Pecht. He will also present some of the ways to stop counterfeit parts from entering the supply-chain and products.

Nov. 21 Ann Marie Neufelder Software Reliability
Dec No meeting

2007
Jan. 16 John Radman Trace Labs
Feb. 20 Lon Chase COTS Reliability
Mar. 20 Vivian Zhu IRPS topic
Apr. 17 Jodi Roepsch Failure Analysis for component/PWB issue

Regards,
Lon Chase
Chapter Chair

Best Paper Award 2005

IEEE RS Japan Chapter

Paper Title: Efficient algorithm for the reliability of a 2-dimensional cylindrical *k*-within-consecutive-(*r*, *s*)-out-of-(*m*, *n*):F system

(The Institute of Electronics, Information and Communication Engineering, Vol.E87-A No.5, pp1251~1257, 2004)

By Hisashi Yamamoto and Tomoaki Akiba

Abstract;

A linear or circular consecutive-*k*-out-of-*n*:F system has been extensively studied and numerous papers have been appeared since the early 1980s. A linear or circular *k*-within-consecutive-*r*-out-of-*n*:F system is an extended system for a linear or circular consecutive-*k*-out-of-*n*:F system.

Papastavridis and Koutras(1993) proposed the two-dimensional version of a linear or circular *k*-within-consecutive-*r*-out-of-*n*:F system. The system is called 2-dimensional rectangular or cylindrical *k*-within-consecutive-(*r*, *s*)-out-of-(*m*, *n*):F system. A recursive formula for the reliability of a 2-dimensional rectangular *k*-within-consecutive-(*r*, *s*)-out-of-(*m*, *n*):F system was proposed by Lin and Zuo(2000), and Akiba and Yamamoto(2001), independently.

In this paper, we take notice of a 2-dimensional cylindrical *k*-within-consecutive-(*r*, *s*)-out-of-(*m*, *n*):F system(denoted as a cylindrical system as follows). This system consists of $m \times n$ components arranged on a cylindrical grid. Each of *m* circles has *n* components, and this system fails if and only if there exists a grid of size $r \times s$ within which at least *k* components are failed. If $k = r \times s$, then the cylindrical system becomes a circular connected-(*r*, *s*)-out-of-(*m*, *n*):F lattice system.

A cylindrical system may be used as a reaction chamber covered by the feelers for measuring temperature system. As another example, this system may be used as a TFT (Thin Film Transistor) Liquid Crystal Display system with 360 degrees wide area. For example, we consider this system consists of 8 panels with 640×480 dots VGA screen panel. These screens are connected with mutually in the short side and make the cylinder form. This system has

480 times 5120 ($=8\times640$) dots as picture elements. If TFT LCD system fails when at least 10 picture elements fail in any 10×10 grid, this system can be denoted by a 2-dimensional cylindrical 10-within-consecutive-(10,10)-out-of-(480,5120):F system.

In this paper, we proposed recursive algorithm for the reliability of a cylindrical system. As the basic idea behind this algorithm, we make a cut in the cylindrical system between ray 1 and ray n and treat the system as a rectangular system. This severed system differs, however, from an ordinary rectangular system since, in addition to ordinary failure conditions, the system will fail also if all components within an $r\times s$ grid on $2(s-1)$ rays consisting of rays $n-s+1$ to n and rays 1 to $s-1$ fail. Obtaining the reliability of this system determines the reliability of a "rectangular system with component states given on both ends" and that, in turn, of a cylindrical system. Our proposed recursive algorithm computed the reliability of the "rectangular system with component states given on both ends" by using a recursive formula for ray.

For the evaluation of our proposed algorithm, we obtain the order of the computing time and memory size. And we show some results of numerical experiments, which were executed in order to compare our proposed algorithm with previous study. As a result, we show our proposed algorithm is more effective than previous study, when n becomes large.

IEEE RS Japan Chapter Award 2005

"The Trunsored Model and Its Applications to Lifetime Analysis: Unified Censored and Truncated Models, *IEEE Transactions on Reliability*, Vol. 54, No. 1, pp. 11-21 (2005.3)" by H. Hirose.

Abstract;

What is the trunsored model?

The primary objective in proposing the trunsored model is to make it easier to test the hypothesis $H_0 : s = s_0$ using the likelihood principle, where s_0 is the ratio of the fragile population to the total mixed population of fragile and durable populations. Here, it is assumed that the fragile samples will eventually fail whereas the durable samples are assumed never to fail. To estimate the parameters in an underlying probability distribution with (right) censored homogeneous observed data, the censored model is used when the total sample size n is known, and the truncated model is often used when n is unknown. When s_0 is close to 1, it is preferable to test the hypothesis, $H_0 : s = s_0$, before adopting either the censored model or truncated model because the standard errors of the parameters in the truncated model are markedly larger than those in the censored model. The trunsored model can easily perform this test by replacing f and F with sf and sF, as if the censored model were used when n is known, where f is the density function, F is the probability distribution function, and $|s| < \infty$. The trunsored model is the same as the limited failure population model, LFP model, when $0 < s < 1$.

Applicability of the trunsored model

Typical applications of the trunsored model are as follows:

1) Recall decision making by manufacturers: By estimating the ratio of the fragile population to the total mixed population, manufacturers can judge whether they should recall their products for safety reasons by assessing the ratio at an early stage. A small ratio may indicate that the manufacturers can handle failed products on an individual case basis.
2) Assessment of the effectiveness of cancer treatment: When a newly developed cancer treatment is introduced, physicians can assess the effectiveness of the new treatment by comparing the survival rates between the new and old treatments. The survival rate can be estimated at an early stage when the trunsored model is used.

3) Severe infectious disease alert: By estimating the case fatality ratio of infectious diseases at an early stage, the WHO can alert people to prevent the spread of a disease. The case fatality ratio can be estimated based on the number of infected persons, the number who have died, and the number of survivors. In this case, the (type I) mixed trunsored model [1] is used.
4) Precautions against possible failures: If the items in a system have two phases, one in which the time of failure is observable and the other in which the appearance of a malcondition is observable (but not the time at which the condition changes from good to bad), and if the probability distributions of the time of failure and of the appearance of malconditions have some common relationship, e.g., the distributions have the same shape parameters, then the system manager can estimate the total number of malconditions at an early stage. In this case, the (type II) mixed trunsored model is used.

What's next?

The trunsored model is fundamentally an incomplete data model and is useful in lifetime analysis. However, the combination of the trunsored model and other field methods, such as the decision tree, may expand the applicability of the trunsored model, as well as the applicability of various mixed trunsored models.

Reference

[1] H. Hirose, The mixed trunsored model with applications to SARS, *Mathematics and Computers in Simulation*, to appear.

IEEE Reliability Society Japan Chapter
RELIABILITY ENGINEERING AWARD

Development of X-ray CT based failure analysis methods for electronic devices and materials

By Yoshiyuki IHARA

Abstract;

The author has worked on the failure analysis of electronic parts and semiconductor devices for a long time. Through these experiences, the author believes that grabbing a failure condition visually is the key to success in the failure analysis.

At first the author grappled with the failure analysis of electronic parts with Focused Ion Beam (FIB). Originally FIB had been applied to the failure analysis of semiconductor devices. The author applied FIB to analyses of various electronic parts and reported many analysis examples. Now FIB is widely used as a fundamental tool for the failure analysis of minute electronic parts such as surface mount devices (SMD).

Next the author grappled with the failure analysis of the electronic parts with X-ray computed tomography (CT). At that time, X-ray CT had given the big results in the medical treatment field.

The author thought that this technology might be useful for the failure analysis, and has applied X-ray CT system to the failure analysis of various electronic parts. Using X-ray CT system, the author has done many failure analyses on capacitors (aluminum electrolytic capacitor, multilayer ceramic capacitor and film capacitor) and mechanical parts (relay, switch and connector). Through these analyses, the author confirmed that X-ray CT based method was a very effective one for the failure analysis. X-ray CT makes it possible to get much information about failed parts under nondestructive analysis. So it can enhance accuracy of analysis that needs decapsulation or breaking down of failed devices. These results were reported at ‘Technical Group of Reliability’ under 'Institute of Electronics, Information and Communication Engineers (IECE)', and reported at ‘Reliability and Maintainability Symposium’ under 'Union of Japanese Scientists and Engineers (JUSE)', between 1994 and 2000.

Early developed X-ray CT systems had a performance limitation on scanning resolution and image processing. On this account they were applied to the limited applications. However, now their performance was rapidly improved and many applied examples have been reported. For example, an analysis of void and crack in the solder ball of BGA is getting into the news.

X-ray CT is expected to be located as more important technology in the field of failure analysis of the electronic parts according to the improvement of scanning resolution and the advancement of the image processing technology.

Best Paper Award 2003
IEEE Reliability Society Japan Chapter

By Mitsuhiro Kimura
Department of Industrial and Systems Engineering,
Faculty of Engineering, Hosei University,
E-mail: kim@k.hosei.ac.jp

Abstract;
In this decade, operational environment surrounding software systems has been dramatically changing into hard one with the growth of the Internet technologies. The concept of software reliability is able to be summarized as one of the measurements of must-be quality for the users of software system. Basically, the software reliability is quantifiable by using a simple rule whether the software system performs as expected by the users. However, we should consider that this measurement rule is appropriate if and only if the software system is operated on a single computer hardware and/or some sort of closed networks, not like the Internet. That is, the software reliability is measurable if the operational profile of the software system is definite from the viewpoint of its developers. Conversely, it is difficult for the software developers to measure the software reliability if the software will be used in open networks like the Internet, because of the difference between the operational profile supposed during its development phase including the testing phase, and the actual operational environment. At this point, we need to especially consider the existence of malicious users if software systems are operated in such open networks. The term open network essentially means that participants in the network may have anonymity to some extent. It is natural that the anonymity allows the existence of malicious users. Thus, we now have the problem that the software reliability assessment which is based on the developers' knowledge and ability, is not always trustful, because, in the software development process, the software developers cannot previously anticipate the unknown behavior of the malicious users and how they attack on the software system in the operational phase of the developed software system. Actually, we have already experienced that the software systems providing several common services as infrastructure (e.g., httpd, bind, sendmail, etc.) in the Internet have been often attacked by the malicious users, and caused many serious software failures.

In this award-winning paper[1], we have proposed a concept of software vulnerability in order to consider such a difficult situation surrounding the recent software development by extending the IPO (input-program-output) model, and distinguished it from software reliability. Based on the concept of software vulnerability, we have developed a stochastic assessment model by using a nonhomogeneous Poisson process.

[1] M. Kimura, "A study on software vulnerability assessment modeling and its application to e-mail distribution software system," The Journal of Reliability Engineering Association of Japan, Vol. 25, No. 3, pp. 279-287, 2003. (in Japanese)

Finally, we have evaluated software vulnerability of sendmail program by analyzing its actual security-hole data collected through its operational phase.

As a result, this model showed good performance for the actual data set. However, it should be noted that this assessment model only provides an ex post facto evaluation in principal, because the model needs time-series data of security-hole treatments for the attacks actually encountered. Therefore we need to invent a new methodology to forecast software vulnerability evaluation before its exposure to the Internet.

Report by Singapore REL/CPMT/ED Chapter (27 July 2006)

1. Short Courses

- 19 May 2006, "Variability in Nano-CMOS Devices and Circuits", Prof Navakanta Bhat, Department of Electrical & Computer Engineering, Indian Institute of Science, Bangalore, India.

2. Distinguished Lectures

- 3 July 2006, "Role of Relaxation Time in Dielectric Theory", Prof Gorur Govinda Raju, University of Windsor, Canada.

3. Workshop – 11th WIMNACT Singapore

The 11th Workshop and IEEE EDS Mini-colloquium on NAnometer CMOS Technology (WIMNACT-Singapore) was successfully held on July 4, 2006 at Meritus Mandarin Hotel in Singapore. This mini-colloquium is the 4th one organized and sponsored by the IEEE Rel/CPMT/ED Singapore Chapter, with co-sponsorship from the EDS Distinguished Lecturer (DL) Program. The event was held together with the 13th International Symposium on the Physical & Failure Analysis of Integrated Circuits (IPFA 2006), in celebration of the 20th Year of IPFA. After the welcome address by the Chapter Chair, Mr. Wilson Tan, Prof. Hiroshi Iwai, EDS Jr. Past President and founder of WIMNACT series, delivered an opening address with a brief history of all the past-year WIMNACT's.

There were eight invited speakers, including six DL from overseas. The Workshop started with the talk given by Prof. Hiroshi Iwai from Tokyo Institute of Technology entitled "High Dielectric Constant Gate Insulator Technology," followed by the talk on "Electrical Resistance: A Bottom-up View" given by Prof. Supriyo Datta from Purdue University. Prof. Cary Yang from Santa Clara University gave the talk on "Carbon Nanofibers as On-chip Interconnect and Thermal Interface Materials." The morning session concluded with the talk on "Silicon Nanowire Devices and Their Applications to Biosensors" by Dr. N. Balasubramanian from the Institute of Microelectronics (IME, Singapore). The afternoon session had four DL talks: "MOSFET Modeling Beyond 100nm Technology" by Prof. Mitiko Miura-Mattausch from Hiroshima University, "Multi-Gate MOSFET Based Non-volatile Memory Design" by Prof. Mansun Chan from Hong Kong University of Science & Technology, "Partnering for SoC Foundry" by Dr. Shih-

Wei Sun from UMC, and "Atomic Scale Characterization for Nanoelectronic Devices" by Mr. Chih-Hang Tung of the IME, Singapore. The Workshop ended with a concluding remark by the Chapter Secretary, Prof. Kin-Leong Pey, and presentation of tokens of appreciation to all the speakers by the Chapter Chair, Mr. Wilson Tan.

The Workshop was attended by more than 80 participants from the local industries and academic institutions. A membership drive was also held in conjunction with the WIMNACT and IPFA, with many new IEEE members signed up. The 11th WIMNACT-Singapore has been another successful event, which the Singapore Chapter has contributed towards the EDS and its members. The complete information on the 11th WIMNACT-Singapore, including the slides and snapshots as well as links to the past WIMNACT series, has been made available from the following website:

http://www.ntu.edu.sg/eee/eee6/conf/WIMNACT06.htm

From left to right: Shih-Wei Sun (DL speaker, UMC), Chih-Hang Tung (DL speaker and Chapter member), Mansun Chan (DL speaker, HKUST), Hiroshi Iwai (DL speaker, Tokyo Inst. Tech.), Mitiko Miura-Mattausch (DL speaker, Hiroshima Univ.), Supriyo Datta (DL speaker, Purdue Univ.), Wilson Tan (Chapter Chair), Kin-Leong Pey (Chapter Secretary), Steve Chung (SRC-AP Vice-Chair), Xing Zhou (Organizer and Chapter member).

A section of the 11th WIMNACT-Singapore delegates listening attentively to Prof Hiroshi Iwai Opening Address.

4. Conferences

13th INTERNATIONAL SYMPOSIUM ON THE PHYSICAL AND FAILURE ANALYSIS OF INTEGRATED CIRCUITS (IPFA 2006)

The 13th International symposium on Physical and Failure Analysis of Integrated Circuits (IPFA) was held 3 – 7 July 2006 at the Meritus Mandarin hotel on Orchard Road in the heart of Singapore's commercial centre. This year IPFA celebrated its 20th year with a special lunch held on the first day of the symposium at which its founder members and past committee members were invited guests.

IPFA developed from the formation of IEEE Failure Analysis Special Interest Group in 1985 and the Inaugural IPFA 1987 was organized by Singapore Section, in cooperation with Industrial Electronics Society & NUS EE Faculty. Since then it has developed into

the premier Asian conference on reliability and failure analysis of devices and integrated circuits. It is sponsored by the Reliability/CPMT/ED Singapore Chapter and the IEEE Electron Devices & Reliability Societies.

IPFA began with two days of tutorials followed by the three day technical symposium in parallel with an exhibition of FA and characterization equipment.

The six half-day tutorials, four on Monday, in two parallel sessions, and two on Tuesday were:

- Ultra High Resolution in Scanning Electron Microscopy: Nestor Zaluzec (Argonne National Labs)
- Electromigration in Cu Interconnect Reliability: Eckhard Langer (AMD)
- Transmission Electron Microscopy in Failure Analysis of ICs: S. Subramaniam (Freescale)
- Reliability of Lead-Free Solder Joints for Semiconductor Packaging: John Lau (Agilent)
- Test & Failure Analysis: Burnell West (Credence)
- Atomic Force Microscopy Principles and Role in Failure Analysis: Terence Kane (IBM)

The tutorials were well attended with an average of 38 participants for each.

This year IPFA was exceptionally fortunate to open the technical symposium with two outstanding keynote speeches. Prof. Dr. Hiroshi Iwai of Frontier Collaborative Research Center, Tokyo Institute of Technology, and past president of EDS, spoke on the “Future of Nano-CMOS Technology and its Production" after which Dr. Chih-Yuan Lu Sr. Vice-President of Microelectronics & Memory Solution Group, Macronix Int. Co. gave a presentation on "Nonvolatile Semiconductor Memory Technology - Today and Tomorrow".

This year the Best paper exchanges from ESREF and ISTFA were presented on the second day of the Technical Symposium. From ESREF, L. Bechou presented **“**Electroluminescence Spectroscopy for Reliability Investigations of 1.55 µm Bulk Semiconductor Optical Amplifier”. From ISTFA F. Zachariasse presented “Diffractive lenses for High Resolution Laser Based Failure Analysis”.

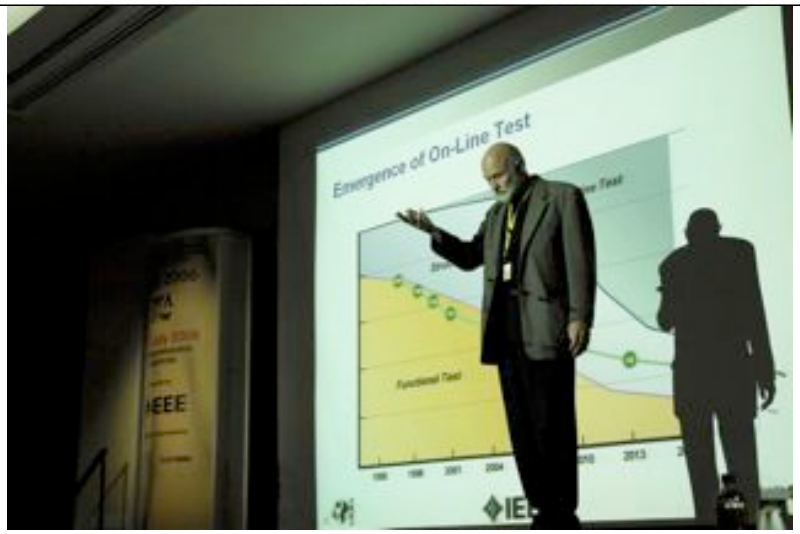
During the rest of the symposium there were 6 invited papers and another 44 contributed papers presented orally. This year the poster session, with 18 papers, was organised around an extended buffet lunch which proved to be very successful and provided plenty of time and opportunity for participants to view and discuss the posters.

This year IPFA attracted just under 200 participants, with the majority coming from Asia but about 40 from the rest of the world, mostly Europe and USA. This year the Conference banquet was an al fresco barbecue at the side of the Singapore River.

The IPFA exhibition ran for three days and provided an opportunity for 26 companies to show their products and services. There was also an FIB user group meeting held on the Wednesday evening. During the conference the call for papers for IPFA 2007, to be held in Bangalore, India was announced.

Keynote speech by Professor Hiroshi Iwai.

Keynote Speaker, Dr. Chih-Yuan Lu, receiving his token of appreciation from General Chair, Alastair Trigg



Invited paper by Dr Burnell West

IPFA2006 Organizing Committee Members (left to right): Thomas HENG, Kin Leong PEY, Jiann Min CHIN, Wilson TAN, Chee Lip GAN, Wai Kin WONG, Chih Hang TUNG (Technical Program Chair), Alastair TRIGG (General Chair), Nam HWANG, MK RADHAKRISHNAN, Lim SOON. Absent from the photo: Eddie ER, Kok Tong TAN, John THONG

IPFA2006 General Chair (Alastair Trigg) expressing his appreciation to all Invited Speakers & Conference/Exhibition participants during the Banquet Dinner celebration.

Left to right: Tutorial Speakers Burnell West (2nd), Nestor Zaluzec (4th), Sam Subramaniam (5th) and conference delegates sharing a toast with Tutorial Program Co-Chair Jiann Min CHIN (6th)

IPFA2006 Organizing Committee posing with the local participants

IPFA2006 Delegates enjoying a vantage view of the Singapore River during the banquet

EPTC2006

The 8th Electronics Packaging Technology Conference (EPTC 2006) will be held on 6-8 December 2006 at the Pan Pacific Hotel Singapore. It is an international conference event organized by the IEEE Reliability/CPMT/ED Singapore Chapter, sponsored by IEEE CPMT Society. EPTC 2006 will feature technical sessions, short courses and exhibitions. The conference has received a total of 194 abstract submissions coming from 22 countries and the Technical Committees will complete the abstract reviews by 31 July 2006. Further details can be found at the conference website (http://www.eptc-ieee.net).

5. Others

Book Prize Awards (Academic Year 2005-06)

- We have received official notification from the Nanyang Technological University of this year's Chapter sponsored Book Prize Award recipients as follow:
  - Nanyang Technological University, School of EEE, "IEEE Reliability/CPMT/ED Singapore Chapter Book Prize" was awarded to Mr Alexander Tanzil (First Class Honours degree attained).
  - Nanyang Technological University, School of Mechanical & Aerospace Engineering, "IEEE Reliability/CPMT/ED Singapore Chapter Book Prize" was awarded to Mr Chan Zhiwen (Second Class Honours - Upper Division attained).
  - Nanyang Technological University, School of Materials Science Engineering and Mechanical Engineering Department, "IEEE Reliability/CPMT/ED Singapore Chapter Book Prize" was awarded to Miss Liu Hongping (First Class Honours degree attained).

IPFA 20th Year Celebration

- IPFA2006 marks the 20th Year of IPFA since its first inception way back in 1987.

  Wilson Tan, IPFA Board Chairman, recounted the brief history of IPFA starting from the Formation of IEEE Failure Analysis Special Interest Group in 1985. After which, IPFA1987 was organized by Singapore Section, in cooperation with the Industrial Electronics Society & NUS EE Faculty. Daniel Chan (General Chair) and Lim Kin Ping (Technical Chair) together with their 7 co-founding team members organized the 1st IPFA conference in Hyatt Hotel, Singapore. IPFA1991 was organized by Singapore Section, in cooperation with Industrial Electronics Society & NUS CICFAR. In 1993, the Special Interest Group became first, the Singapore Chapter of the Reliability Society, and then the Joint Reliability / CHMT Societies Chapter. IPFA1993 was organized by Singapore Section & Reliability/CHMT Chapter. In 1994, the Group evolved into its current Joint Reliability / CPMT / ED Chapter. From 1995 onwards, IPFA was organized by Rel / CPMT / ED Chapter, Technically Co-sponsored by IEEE Electron Device Society, in cooperation with NUS CICFAR and IME. In 2002, added in technical co-sponsorship by the Reliability Society. IPFA conference continued as a biennial event until IPFA2001 when sufficient interest from the Failure Analysis and Reliability communities prompted IPFA committee to organize it annually, beginning in 2002.

IPFA's vision has been to develop it to be the Asian counterpart to corresponding conferences like IRPS & ISTFA in the USA and ESREF in Europe. Key programs implemented include:

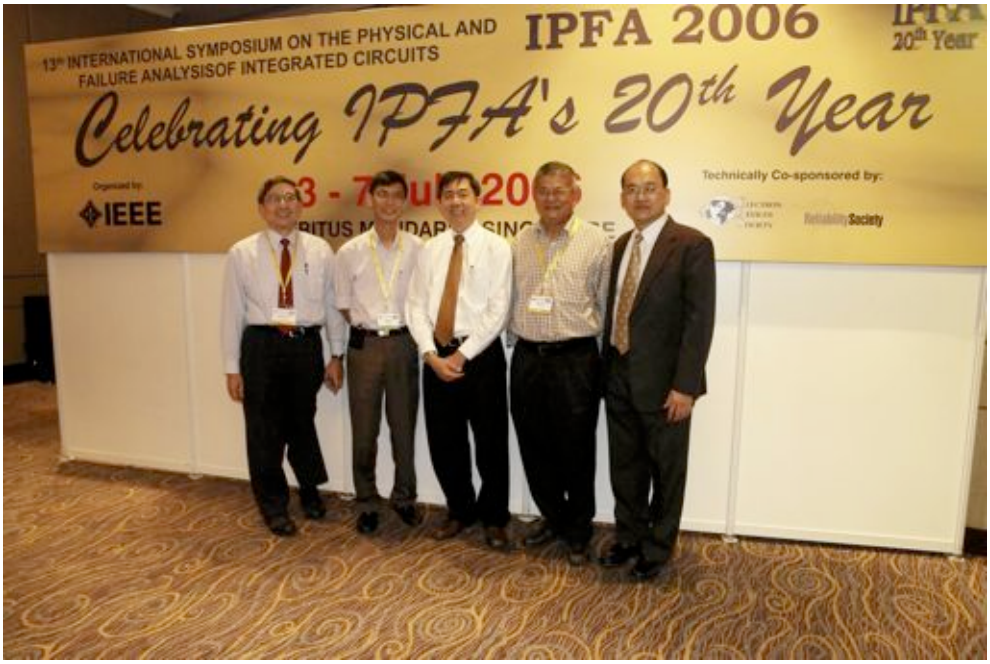
- IPFA Best Paper Award in 1997
- Best Paper (FA) Exchange with ISTFA in 1999
- Best Paper (RELIABILITY) Exchange with ESREF in 2000
- IPFA Technical Program Steering Committee in 2002
- IPFA Board formation in 2004

2004 heralded the first attempt by the IPFA Board to host IPFA2004 in Taiwan. And the remarkable success in Taiwan spurs the IPFA Board to consider going regional again. IPFA2005 & IPFA2006 was held back in Singapore and in 2007, IPFA2007 will be held in Bangalore, India in cooperation with the EEE ED/SSC Bangalore Chapter.

After which, Daniel Chan recounted how Kin Ping first initiated the idea of organizing the first IPFA conference and enlisted the help of the 7 co-founding members (Jacob Phang, Low Teck Seng , Swee Yong Khim, Ong Soon Huat, Goh Chong Meng, Grace Yow & Philip Ho Yat Seng). 5 of the 9 Founding members together with other long service members were present during the IPFA 20th Year Celebration with Kin Ping joining in through a video webcast from his USA residence.

Wilson Tan later gave away tokens of appreciation to all the Founding members and long service members with memoirs of past IPFA brief history & photos neatly stored in a 1GB ThumbDrive and thanked John Thong for organzing this event.

Daniel Chan recounting the formation of Failure Analysis Special Interest Group in 1985 and the 1st IPFA in 1987 as the General Chair



Founding members present during the celebration From Left to Right:: Daniel Chan, Philip Ho, Swee Yong Khim, Ong Soon Huat, Jacob Phang

Long Service volunteer members of IPFA

IPFA Board Chairman (Wilson Tan) presenting a memento to Founding Member & 1st IPFA 1987 General Chair (Daniel Chan)

By Wilson TAN
Chair, Singapore REL/CPMT/ED Chapter

Minnesota Reliability Consortium ⬩ composed of the Twin Cities Reliability Society,⬩ IEST and the Reliability Division of ASQ

MRC schedule for 2006⬩

April 18, 2006 ⬩ Paul Palmes of Northern Tool presented ⬩Ensuring Reliability Through Audits⬩ at Emerson process to 23 excited people. Paul showed how the process could be used to evaluate reliability.

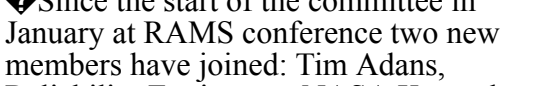
May 16, 2006 ⬩ Larry Akre of Emerson Process spoke at a joint meeting with the Medtronic Quality society on ⬩Reliability Testing for ROHS compliance⬩ Forty-eight people attended for the largest meeting of the year. Larry showed the test methods for and the pitfalls of the move away from lead based solder for electronics. Slides showed the difficulty of obtaining good solder joints and the growth of tin whiskers.

June 20, 2006 ⬩ Elections were held at this meeting and new officers elected for the coming year. Larry Akre was elected Chair, Frank Costabilo Vice Chair and Jim McLinn Treasurer of the Twin Cities RS chapter. Four people were selected for a steering committee. Dan Selness of Stratasys spoke at Teradyne about ⬩Developing a Reliability Program for a company⬩ Twenty-three people attended the last meeting of the year.

The Twin Cities RS chapter will develop a new fall program over the summer at a series of planning sessions.

Contact James McLinn at 763 498-8814 or JMReL2@Aol.com for more details.

PROGRESS REPORT ON DESIGN FOR RELIABILITY COMMITTEE


Since the start of the committee in January at RAMS conference two new members have joined: Tim Adans, Reliability Engineer at NASA Kennedy Space Center and Beth Baslock, Chief Engineer with U.S. Army. We reviewed the new paradigms as published in the last issue of the Reliability Society Newsletter (copy attached).

The paradigms are:

1.

Spend lot of time on requirements analysis

2.

Reliability goal: No mission stopping failures for a specified

life

3.

Measure effectiveness of Reliability by life cycle costs

4.

Design for Twice the Life because it lowers life cycle costs (Dev

s personal criteria: must produce 500% ROI)

5.

Design for prognostics because many failures cannot be predicted from components. They are the property of system interactions.

The main tasks scheduled are to promote the knowledge of designing for reliability. Some are:

Sam Keene and Dev Raheja will be conducting a tutorial on Design for Reliability in Hanoi at the IEEE conference on System Integration and Reliability Improvement

Lou Gullo, Sam Keene and Dev Raheja are listed as instructors for DFR course by the RMS Partnership organization

RAMS conference was enthusiastic about the Panel on DFR for 2007 but the hotel did not have enough meeting rooms. We expect a Panel in 2008

Bob Stoddard has been trying to bring in DFR at Software and Six Sigma conferences

Dev Raheja will be giving a talk on designing for safety and reliability at Kennedy Space Center on October 20.

We are planning to write a book if IEEE Press accepts the proposal. We will discuss this at the next meeting.

The committee meets first Thursday of every month through teleconferencing

Please let me know if I overlooked anything major.

Best regards,
Dev

Useful Information
Transactions on Reliability
Reliability Training
Discussion Forum
Job Postings & Resumes
What is Reliability?
Bylaws & Constitution
Chapters, Committees & Officers
Annual Technology Report
Reliability Society Newsletter
RS Blog
RS LinkedIn
Site Map
E-mail IEEE RS Web Master
JOIN NOW!

Tech Ops Committees

Status of Tech Ops technical committees:

Technologies:

Name	Chair
1) Reliability Design	**vacant**
2) Software Reliability	Sam Keene s.keene@ieee.org
3) MicroElectronics	**vacant**
4) Human Interface	Ken Lasala: k.lasala@ieee.org
5) International Reliability	Joe Fragola fragola@prodigy.net
6) Warranty	Judith Koslov Judith.Koslov@Sun.com
7) Testing and Screening	Anthony Chan h.a.chan@ieee.org
8) Standards and Definitions	Y. Lord yvonne.lord@ngc.com / T. Brogan Thomas_L_Brogan@raytheon.com
9) CAD / CAE	**vacant**
10) Mechanical Reliability	Dick Doyle ddoyle@cts.com
11) System Safety	Takeshia Khoda kohda@vib.kuaero.kyoto-u.ac.jp
12) Assurance	James Bret Michael bmichael@nps.navy.mil
13) Six Sigma Reliability	Sam Keene s.keene@ieee.org
14) Maintainability	Stefan Mozar s.mozar@ieee.org
15) Emerging (new) Technology	**vacant**

Systems:

16) Aerospace and Defense	Lon Chase l.chase@ieee.org
17) Automotive	Guangbin Yang gyang1@ford.com
18) Information Technology & Communications	**vacant**
19) Energy Systems	Mark Lively MbeLively@aol.com
20) Medical	Patrick Corcoran patcorkshome@yahoo.com
21) Consumer Electronics	Fred Schenkelberg fms@hp.com
22) Sensors	Ken Lasala (acting) k.lasala@ieee.org
23) Industrial Systems	Hiroshi Yajima yajima@sdl.hitachi.co.jp

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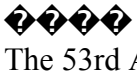
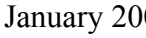
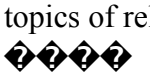
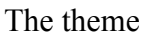
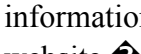
2007 Reliability and Maintainability Symposium

The 53rd Annual Reliability & Maintainability (RAMS) will be held in Orlando, Florida USA in January 2007.RAMS is the foremost Symposium in the US and possibly the world covering the topics of reliability, maintainability, safety and risk. 

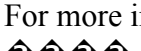
The theme of the 2007 RAMS is "Reliability and Maintainability in the New Frontier."  More information about topics that are relevant to the theme of the 2007 Symposium may be found on our website. 

For more information please visit our website - http://rams.org





Jim Hess
RAMS Webmaster



Meeting: 2006 IEEE International Integrated Reliability Workshop (IIRW)

Sponsors: Both IEEE Electron Device, and IEEE Reliability Societies

When: Oct. 16-19, 2006

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

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

2-page Abstract Deadline: July 14, 2006.

Submit your abstract to the Technical Program Chair:

Technical Program Chair: Yuan Chen, yuan.chen@jpl.nasa.gov

Jet Propulsion Laboratory 4800 Oak Grove Drive MS 303-230 Pasadena CA 91109

Additional Details at URL: http://www.iirw.org

This year's **IIRW 2006 Keynote Topic** is "**Reliability Challenges: Preventing Them from**

Becoming Limiters to Technology Scaling" presented by Jose Antonio Maiz, Intel Fellow, Technology and Manufacturing Group Director, Logic Technology Quality & Reliability, Intel Corporation

The Conference is published in the IEEE referenced IIRW Final Report.

Conference General Chairman: John Conley Jr., Sharp Laboratories of America, jconley@sharplabs.com

Send questions or comments to Webmaster, IEEE Reliability Society.
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Call for Papers

The First IEEE International Conference on

System Integration and Reliability Improvements

SIRI 2006

Hanoi, Vietnam

13-15 December 2006

Sponsored by: IEEE Reliability Society
IEEE Systems, Man and Cybernetics Society

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skeene@attglobal.net

Hoang Pham
hopham@rci.rutgers.edu

Duc H. Nguyen
ducnh@vnu.edu.vn

Program Chairs

Jian Chen
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Eric Wong
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Local Arrangements Chair

Hien T. Nguyen
thehien@vnn.edu.vn

Finance Chair

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Int'l Participation Com.

Seiichi Takeuchi (Chair)

Shuichi Fukuda (Co-Chair)
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Publicity Chairs

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mxie@nus.edu.sg

Hien T. Nguyen
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Web Masters

W. Art Chaovalitwongse
wchaoval@rci.rutgers.edu

Hai Hu

Asian Liaison

Tsu-Tian Lee
ttlee@cn.nctu.edu.tw

Conference website
http://paris.utdallas.edu/siri/

BACKGROUND:

SIRI focuses on the theory and practice of Systems Integration with special emphasis on the orderly and reliable introduction of emerging technologies into world class products. The conference scope includes techniques and practices to (1) gather and validate product requirements, (2) perform technology assessment, opportunity and risk analysis, and (3) apply the best development practices to assure successful product realization. This will be big enough in attendance to represent major SIRI topics, but small enough to provide an in-depth representation of theory or practice in these areas. We hope to have Industry and academic participation, product and device suppliers, as well as a healthy mixture of theory and practice.

CALL FOR CONTRIBUTIONS:

- ✓ Lessons Learned on developing new products, including success stories and pitfalls found in developing, releasing and supporting fielded products
- ✓ Requirements collection strategies and validation
- ✓ New chip technologies
- ✓ Embedded systems
- ✓ Impact of regulations on product design
- ✓ Six Sigma contributions to World Class product development
- ✓ Building security into products
- ✓ Software system verification
- ✓ Integrating COTS components into new products
- ✓ System integration for human computer interaction
- ✓ Maintaining COTS components through development and field support
- ✓ Support strategies for fielded systems
- ✓ Role of simulation and prototypes
- ✓ Accelerated testing to demonstrate life capability
- ✓ Physics of Failure (POF) contribution to robust product design
- ✓ Experimental design considerations
- ✓ Building "Green Systems"
- ✓ Mitigating EMC and other environmental effects on new designed equipment
- ✓ Supply chain management
- ✓ Design tools and automation

IMPORTANT DATES:

Submission of proposal for tutorial sessions: June 15, 2006
Submission of invited sessions: June 15, 2006
Regular papers, written in English, should be submitted electronically: July 15, 2006
Notification of Acceptance/Rejection: August 1, 2006
Final camera-ready papers: September 15, 2006

For further information, visit the conference website at http://paris.utdallas.edu/siri/

Accepted papers will be published in the Conference Proceedings. Outstanding papers will be considered for publication in special issues of the IEEE Transactions on Reliability and Transactions on Systems, Man and Cybernetics.

RISK MANAGEMENT AND SYSTEM DEPENDABILITY & SAFETY

IMdR-SdF

CALL FOR PAPERS

THEME OF THE SYMPOSIUM

RISKS & PERFORMANCES

Efficient risk management involves not only taking actions to exercise preventive and protective capacities, but also engaging an offensive process in order to improve efficiency, quality and availability. Safety and performance are therefore objectives which reinforce each other to sustain industries and services.

Many examples in industrial sectors show that the appropriation of a risk management approach procures greater reactivity and higher performances in an entity. This improvement is obtained through a constant effort at controlling the organization and its processes which are key components for performance.
[un espace de trop]
In selecting the theme of "Risks and Performances" for our Symposium, I hope to convince European and international socio-economic actors - industrials, investors, decision-makers, authorities, universities, research laboratories, and other stakeholders - who want to improve their performances, to promote the idea that risk analysis and management issues are an integral part of an organisation's strategic orientation, as equal as marketing, financial and production issues. All the following sectors are concerned: transport, energy and environment, automotive, petrochemicals, chemicals, agro-industry, aerospace, defence, telecommunications, mining industries, information systems, textile, finances...

The programme will put the accent on communications focusing on convergences and synergies between risk prevention and protection strategies and performance-improvement strategies

- The topics might therefore include:
- Relevance of allocating risk-reducing resources related to criticity;
- Consistant management of uncertainties as a function of the issues at stake;
- Management of component ageing and examples of availability, maintenance and safety policies integrating the obsolescence factor;
- Explanation of renewal policies related to obsolescence;
- Dependability methods and tools applied more particularly to complex systems and systems including hardware and software;
- Integration of social, organisational and human factors in technical decisions and management;
- Transverse and global risk analysis and decision aids;
- Vigilance culture;
- Crisis anticipation and management;
- Feedback from experience on technical and organisational aspects;
- Performance and risk management indicators;
- Cost-profit approaches in risk management;
- Economic intelligence approaches;
- ...

The topics above may be dealt with several standpoints:
Industrial applications, strategies, innovations, methodological approaches, tools, theses and in-depth studies, debate ... Risk and performance management is a major challenge for industries, services and research.

Laurent Magne
Scientific committee Chairman

SYMPOSIUM COMPONENTS

- **The sessions**, at the center of the symposium, are organised in **oral sessions and poster sessions**.
- **The industrial exhibition** offers to exhibitors a showcase for their achievements.
- **The tutorials**, scheduled at the beginning of the symposium, are an opportunity for transmitting knowledge.
- **The round table** is an opportunity for a broader debate.
- **The plenary sessions deal with** topical subjects.
- **The workshops** represent places for sustained dialogue on precise subjects.
- **The university-industry forum** enhances possibilities for initial or continuing education & training.
- **The technical visits**, at the end of the symposium, afford access to various companies' premises.
- **A dinner** enables participants to meet and mix in a more casual atmosphere.
- **The golden λμ** will be awarded to the best industrial and academic communications.

SCHEDULE

Deadline for abstracts : 23 DECEMBER 2005

Notification to selected authors : 20 MARS 2006

Deadline for complete texts : 12 MAY 2006

DOMAINS

- Accidents
- Decision aids
- Cost/profit
- Life time and prolongation
- Human factors
- Reliability of structures
- Reliability of Information Systems
- Optimisation
- Impacts of organisations
- Legacy
- Maintenance
- Project risks and financial risks
- Simulation
- Standardisation
- Feedback from experience
- Logistics support
- Advanced statistics
- System dependability and safety
- Safety
- Environmental and health risks

GUIDELINES FOR CONTRIBUTORS

The official language at the symposium is French. However, as the Organisation Committee wishes to confer a European dimension, communications focusing on European or trans-national issues are strongly encouraged. It will also be feasible to organise English communications. All the communications, either oral or poster, must include an abstract in English. Selected papers will be published in a scientific journal. Authors wishing to submit a communication are requested to send to the symposium secretariat by **23 DECEMBER 2005** an abstract in French in the form of a computer file (WORD, PDF) between 600 and 1200 words long. The abstract – which must contain no formulae and no illustration – is to be mailed (on floppy disk) or e-mailed to **lm15@imdr-sdf.asso.fr**. The submitted paper must **follow exactly the structure** described below (selection criterion). In particular, the section titles must appear exactly as shown.

GENERAL INFORMATION

- **Title :** as short and clear as possible.
- **Name of author(s) :** main author underlined.
- **Author(s)' contact details :** company, address, telephone, fax, e-mail.
- **Key words :** a list is given in the abstract template. Choose those that correspond most closely to the paper you are submitting; you are free however to add other key words considered informative and meaningful.
- **Domains :** a list is available on the symposium site. If your paper does not fit in any of those listed, indicate a domain you consider appropriate.
- **Type of presentation preferred :** Oral, Poster or Either.

SUBMISSIONS OF COMMUNICATIONS: abstract in five sections

- **Objectives :** goals of the work presented in the paper
- **Context :** presentation of the subject, scope and stakes at issue
- **Method :** handling of the decision problem; innovative aspects
- **Results :** feedback, findings, successes or failures, lessons learned, etc.
- **References :** provide recent references (maximum 3).

Special attention will be paid to submissions explicitly addressing the decision-making angle and tackling the subject from an innovative perspective. Special sessions will be reserved for the theoretical and mathematical aspects.
You will find on the symposium website **http://imdr-sdf.asso.fr/lm15**, under the heading "Guidance for Contributors", a template for presenting an abstract, together with a completed example, as well as a host of other information about the λμ15 Symposium.

SUBMISSIONS OF TUTORIALS

Anyone wishing to propose a tutorial should submit the subject, goal and a tentative programme to the Symposium secretariat.

SYMPOSIUM ORGANIZING COMMITTEE

The INSTITUT pour la MAÎTRISE des RISQUES et la SÛRETÉ DE FONCTIONNEMENT (IMdR-SdF)

Since 1989, Institut de Sûreté de Fonctionnement, later called Institut pour la **M**aîtrise des **R**isques et la **S**ûreté de **F**onctionnement has contributed to making system dependability and safety part of a sector contributing to the competitiveness of social and economic actors. This has been done, among other ways, by providing methods and tools available to anyone, and circulating information on the subject, as well as by means of a substantial library housed in its Orientation and Documentation Centre and on its web site: **www.imdr-sdf.asso.fr**.
IMdR-SdF is the guarantee for the scientific content of the symposium which gathers every two years, attracting over 500 participants of industrial, scientific, academic and service companies.

The Symposium Organizing Committee, chaired by Mr Jean-Louis RICAUD, Vice-Chairman of RENAULT Group, includes:
- IMdR, represented by its President, Guy PLANCHETTE, and its Treasurer, Philippe THIREAU (ASTRIUM),
- a representative of SEE, Jacques GIRARD,
- the following partners:

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Sophie Latrive
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E-mail: lm15@imdr-sdf.asso.fr
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Dassault Data Services
Karama KANOUN
LAAS
Armelle KOSTADINOV
Ligeron S.A.
Virgile LA LUMIA
Technicatome
Chidung LAC
France Télécom - R&D
André LANNOY
IMdR-SdF
Emmanuel LARDEUX
AIR LIQUIDE
Bruno LE BRETON
DGA
Isabelle LEGRAS
BULL
Maurice LEMAIRE
IFMA - LaRAMA
Alain LEROY
Fractal Système
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Raymond MARIE
IRISA
Agnès MATHEVET
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The 12th IEEE International Symposium on Pacific Rim Dependable Computing (PRDC'06)
at University of California, Riverside, USA
December 18-20, 2006
http://www.cs.iupui.edu/~ydai/PRDC06/

PRDC 2006 is the twelfth in this series of symposia started in 1989 that are devoted to dependable and fault tolerant computing. PRDC is now recognized as the main regular event of the Pacific area that is covering the many dimensions of dependability and fault tolerance, encompassing fundamental theoretical approaches, practical experimental projects, and commercial components and systems. As applications of computing systems have permeated in every aspects of daily life, the dependability of computing system has become increasingly critical. This symposium provides a forum for countries around the Pacific Rim and other areas of the world to exchange ideas for improving the dependability of computing systems The symposium will be organized by the University of California, Riverside, a city on the west coast of USA. The roots of the University of California date back to 1907 when the California State Legislature established the Citrus Experiment Station to conduct research on the agricultural problems of Southern California. Riverside is fortunate to have a wealth of sites and buildings that provide a link to the city's past and a strong sense of place. Examples include the Mission Inn, the Chinatown site, the National Packing House, Citrus Experiment Station and engineering feats like the Gage Canal. Riverside is also close to some famous sites including Disneyland, Beaches, and some big cities.

 Topics of interest include (but not limited to):
 - Software and hardware reliability, testing, verification and validation
 - Dependability measurement, modeling and evaluation
 - Safety-critical systems and software
 - Architecture and system design for dependability
 - Fault tolerant algorithms and protocols
 - Tools for design and evaluation of dependable systems
 - Reliability in Internet and Web systems and applications
 - Dependability issues in computer networks and communications
 - Dependability issues in distributed and parallel systems
 - Dependability issues in real-time systems, database and transaction processing systems

PAPER SUBMISSIONS
Manuscripts should be submitted in the following categories:
Regular Papers and Practical Experience Reports. Regular Papers should describe original research (not submitted or published elsewhere) and be not more than 20 double-spaced pages including figures and tables using 11-point type. Practical Experience Reports (of 5-12 pages) should describe an experience or a case study, such as the design and deployment of a system or actual failure and recovery field data. The title page should include a 150-word abstract, five keywords, authors names and address and include a line specifying whether the submission is a Regular Paper or a Practical Experience Report. The full mailing address, phone, fax and email address of the corresponding author should be specified. All submissions must be made electronically. Additional submission opportunities are also possible at a later deadline under the form of Fast Abstracts.

Please visit our web site for full submission instructions and updated information on the symposium.
http://www.cs.iupui.edu/~ydai/PRDC06/

IMPORTANT DATES
Submission:□□□□□□□□□□□□□□□ May 15, 2006
Notification :□□□□□□□□□□□□ July 31, 2006
Final version:□□□□□□□□□□□□ September 15, 2006

PUBLICATION
Accepted papers will appear in a proceeding published by IEEE Press. Selected papers that are presented will be published in a special issue of Some International Journals

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The 17th IEEE International Symposium on Software Reliability Engineering (ISSRE 2006)

November 6-10, 2006
Raleigh (Research Triangle), North Carolina, USA
http://www.issre.org

The International Symposium on Software Reliability Engineering (ISSRE) focuses on the practice and theory of software systems reliability engineering and analytics. The scope ranges from techniques and practices to verify, validate and test software, to those needed to estimate and predict its reliability, availability and dependability, to those that make it more tolerant to faults and (unexpected) changes in operating conditions, to the impact different development methods and processes have on the field reliability of a software-based product.
While, as always, the conference will provide an in-depth representation of both software reliability engineering (SRE) theory and experimentation, this year strong focus will be on the SRE practices and challenges faced by the software industry and by government systems, and on how SRE relates to security related software failures.

Topics, as they relate to reliability, availability and dependability of software and software-based systems, include but are not limited to the following

- Reliability, availability and dependability modeling and practices
- Software development methods, processes and standards (including reliable, secure and trustworthy software architectures)
- Software safety, security, trust and information assurance analysis
- Verification, validation and testing (including formal methods)
- Empirical studies; Metrics and measurements, estimation, and prediction
- Tools and automation (including SRE analytics and visualization)
- Fault-tolerant, robust and dependable software-based systems (including SRE of cyber infrastructure components such as storage, networking, switching, high-performance systems and applications, virtualization frameworks and solutions, and mobile and wireless devices and infrastructural components) - Networked software-based systems (including end-to-end workflows & services. ad hoc networks, sensors)
- Reliability of critical systems with software components (e.g., Internet and cyber infrastructure, bio-medical, flight and other transportation, information security)
- Open source systems
- Role of reliability in government and government-sponsored software-based systems - SRE implementation and experiences, workforce development and training

IMPORTANT DEADLINES:
Research Track Papers: April 7, 2006 (full length papers - up to 20 pages)

Workshop, Tutorial & Panel: May 15 2006 (one page proposals)
- Please send letter of intent ASAP so we can coordinate hotel rooms

Industry Practices Abstracts (papers, experience reports): June 30 2006
(full length papers, upto 20 pages)

Fast Abstracts & Student Papers: August 1 2006 (see web page for details)
http://www.issre.org

ISSRE will be collocated with the workshop on Advances in Model-Based Software Testing (A-MOST06), 6-7 Nov 2006

ORGANIZATION
General Chair: Mladen A.Vouk, NC State University, USA
Program Committee Co-Chairs: Carol Smidts, U. of Maryland, USA and Amit Paradkar, IBM Research, USA

Complete list of the Organizing Committee and Program Committee is available on-line at http://www.issre.org

Sponsored by: IEEE Computer and Reliability Societies.

FINAL CALL FOR PAPERS ⬩ DEADLINE EXTENDED!!

www.ieee-portable.org/2007

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IEEE PORTABLE 2007 seeks technical papers tutorial presentations, panel discussions, and trade-show-like demonstrations on different aspects of PID engineering

⬩

Schedule Paper Submissions:

Full-Length Paper Due: **15 September 2006**

Notification of Full Paper Acceptance: **15 November 2006**

Final Papers Due: **6 January 2007**

⬩

IEEE PORTABLE 2007 will bring together communications, electrical, industrial, manufacturing, materials, mechanical, optical, and reliability engineers and business leaders involved in various types of Portable Information Devices (PIDs), to address and discuss state-of-the-art challenges, attributes and pitfalls in PID-related areas of engineering and applied science, with an emphasis on the interaction of the hardware and software, as well as their functional and physical (mechanical) performance, reliability and durability.

⬩

Visit: **www.ieee-portable.org/2007** for the full Call for Papers and submittal information

⬩

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CALL FOR PAPERS

2007 IEEE Sensors Applications Symposium

6-8 February 2007

San Diego, California, USA

www.sensorapps.org

The 2007 IEEE Sensors Applications Symposium (SAS-2007) provides a unique forum for sensor users and developers to meet and exchange information about novel and emergent applications in smart sensors, biology, homeland security, system health management, and related areas. Collaborate and network with scientists, engineers, developers and customers, in a balance of formal technical presentations, workshops, and informal interface meetings-

A unique feature of this conference, found nowhere else.

SAS-2006 had the following tracks:

Sensors:
- Smart sensors and standards (IEEE 1451.X)
- Wireless and networked sensors
- Biosensors
- MEMS and nanosensors
- Virtual sensors

Sensor Applications:
- Homeland security
- Multisensor data fusion
- Nondestructive evaluation and remote sensing
- Integrated system health management (ISHM)
- Commercial development

Additional topics for workshops and new session tracks are especially welcome-please contact the Program Chairs.

Important Dates:

- 01 October 2006: Abstract submission deadline
- 01 December 2006: Notification of acceptance
- 01 January 2007: Final manuscript submission deadline

For Additional Information:

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Visit the Sensors Applications Symposium website at: http://www.sensorapps.org

Call for Papers

1st Annual IEEE Systems Conference

April 8-11, 2007

Hyatt Regency Waikiki, Honolulu Hawaii USA

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Conference Theme

The theme of the IEEE Systems Conference is Engineering Complex Integrated Systems and Systems-of-systems – Implications for Systems Engineering, Systems Integration, and Systems Thinking.

Background

The IEEE Systems Council facilitates interactions among communities of interest on system-level problems and applications. System-level thinking is essential in the world today, not only for technical systems but also for society at large. The Council addresses the discipline of systems engineering, including the issues and complexities of system-level and system-of-systems applications, focusing on the total systems effectiveness of complex integrated systems of national and global significance.

Conference Objectives

This conference seeks to create an interactive forum for the advancement of the practice of system design, development, and management, across the multiple disciplines and specialty areas associated with the engineering of systems. The conference will provide a venue for systems engineering practitioners, managers, researchers, and educators to exchange innovative concepts, ideas, applications, and lessons learned addressing:

- Applications-oriented topics on large-scale systems and system-of-systems in topics noted below
- Systems engineering, education, standards, processes and methodologies for the system-of-systems environment
- Research opportunities and results relating to system-of-systems

Topic areas for consideration include:

- System architecture, especially at the system-of-systems level
- Engineering systems of systems including risk management
- Systems reliability
- Engineering Processes for the system-of-systems design environment
- Systems engineering quality management
- Systems modeling & simulation
- Systems Verification and Validation
- Systems engineering education and training
- Program/Project management for system-of-systems
- “Systems thinking” benefits
- Technology transfer between academia and industry
- Societal and Political impacts of systems and systems design
- The impact of systems engineering on other engineering fields
- Systems considerations such as:
    - Disaster response

- Energy management & sustainability, including renewable energy
- Communications systems
- Medical systems
- Gaming and entertainment systems
- Transportation Systems
- Global Earth Observation
- Sensors integration and Application for a Net-centric environment
- Large-scale systems integration in any application area

We invite authors to submit short (not to exceed 750 words) abstracts of proposed technical papers. Abstracts must fully describe the planned content. Abstracts must include the following administrative information: paper title, author's name(s) and title, e-mail address, phone number(s), mailing address and organization.

Abstracts should be submitted electronically to the Technical Program Chair, Paul Croll, at pcroll@csc.com

IMPORTANT MILESTONES:
Abstract Submission Deadline: **October 01, 2006**
Acceptance Notification and Author Instructions: **November 10, 2006**
Submission of Camera-Ready Papers: **February 01, 2007**

Technical Program information contact:	**Conference information contact:**
Paul R. Croll, Technical Program Chairman Computer Sciences Corporation 5166 Potomac Drive King George, VA 22485 (540) 644-6224 pcroll@csc.com	Bob Rassa, General Chairman Raytheon Company 2000 E. El Segundo Blvd, MS R01/B523 El Segundo, CA 90245 (310) 334-0764 RCRassa@raytheon.com

About the IEEE Systems Council:
The IEEE Systems Council is the newest Technical Activities Board organization and was formed in June 2005. The Field of Interest for the Council follows:

This Council integrates IEEE activities regarding aspects of multiple disciplines and specialty areas associated with the engineering of systems. This Council covers, but is not limited to the following:

- *Systems engineering, education, standards, processes and methodologies*
- *Modeling, simulation and integration related to design, testing, production and support*
- *Design aspects for robust design, human factors, safety, security and usability*
- *Transition of products from design to production, deployment and use*
- *Quality control and system management*
- *Program/product/project management interactions*
- *Risk Management*
- *Systems Architecture*

Member Societies of the Council are:
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