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President's Message

Japan's Reliability Society

The Japan Chapter of the Reliability Society extended an invitation to me, as the Society's President, to visit Japan and to give lectures in Kyoto and in Tokyo. Professor Yoshinobu Sato is the Chair of the Japan Chapter of the Reliability Society. It was he who arranged and received authorization from the IEEE Tokyo Section to extend this invitation. Spread over the last five years, four of our Society's past Presidents have received a similar invitation and have visited Japan and given lectures. After coordination with our Society's AdCom and my employer, I was very pleased to accept this invitation. After some coaxing, my wife (Judy) agreed to accompany me on this wonderful trip.



As I learned when we held our fall 1999 AdCom meeting in Japan, our Japanese Reliability Society chapter officers are excellent hosts. Dr. Koichi Inoue and his wife, Yasuko, were our hosts in Kyoto. Dr. Inoue is on our AdCom, is Vice President of Technical Operations, and is a Professor at Kyoto University. The Inoues went out of their way to make us feel very comfortable. They met us at the Airport, got us to where ever we needed to be, dined with us at various restaurants offering all types of Japanese foods, invited us into their home, and showed us historical sites around Kyoto. Mrs. Inoue hosted Judy while Dr. Inoue and I were working – I couldn't play tourist all the time.

I gave an IEEE / Reliability Society Overview presentation and a lecture on "Advances in Systems Reliability" at Kyoto University to a group of students, graduate students, instructors, and industry personnel, including a gentleman from Italy. After a question and answer period, Judy and I were guests at a dinner where each of the undergraduate students gave a short presentation introducing themselves and their interests. The graduate students presented their research topics that were associated with unmanned helicopter applications. The vehicles are used for hazardous assignments such as chemical application (agricultural spraying) and for flying into volcanic areas with deadly fumes. They showed some video footage taken from one of these helicopters after an eruption – it was very impressive. One area that they are researching is automated pattern flying for spraying. Judy and I really enjoyed that evening interacting with the students.

Kyoto is a very old but beautiful city. The city planners have done an outstanding job of retaining the historical within a modern vibrant city. Kyoto is a large city with a small city feel. Ancient Kyoto was the imperial capital of Japan for over a thousand years. Enfolded by scenic hills to the north, west, and east, which the founding Emperor described as a 'natural fortress,' the city reigned from 794 to 1868 as the cultural and artistic center of the nation as well as the political nucleus. The more than 1600 Buddhist temples and 270 Shinto shrines attest to its importance as a religious focal point, while the impressive Im-

continued on page 4

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The schedule for submittals is:

Newsletter	Due Date
January	October 8
April	January 8
July	April 8
October	July 8

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Editor's Column ■ ■ ■ ■

Letter of Thanks

May 25, 2001

Dear Mr. Dennis Hoffman and AdCom members:

On behalf of Tokyo Chapter Chair, Prof. Yoshinobu Sato, I would like to express my sincerest thanks to Mr. Dennis R. Hoffman, President of IEEE Reliability Society and also to each of RS AdCom members, who made this Presidential visit to Tokyo Chapter possible.

Mr. & Mrs. Dennis Hoffman performed a great job both in Kyoto and Tokyo. Below are some of their activities in Japan:

1. On the afternoon of May 16th, he gave the first two-hour Special Lecture in Kyoto University, one of the worldly renowned universities. The title of his presentation was "Recent Advances in Systems Reliability", in which, in the first quarter, he introduced the audience into the world of IEEE and its Reliability Society, and then he talked about recent advances in systems reliability, mainly from the product design and integrated view point, including PHM and HALT/HASS. He succeeded in giving the audience, especially Kyoto University students, deep impression and impact that "Reliability Engineering is an Excellent Field and Career". The number of participants were twenty-six, of which 17 were undergraduate and graduate students, in-

cluding a visiting student from Italy, 4 were from Kyoto University faculty and 4 from industries. He spoke so slowly and so clearly that the audience could understand him very well, but on the other hand I am afraid that it gave him a big stress.

2. On the evening of May 16th, after he paid a visit to Prof. Inoue's Lab. on UAV (Unmanned Aerial Vehicle), Mr. & Mrs. Hoffman attended a welcome dinner given by Prof. Inoue at Kyoto University Alumni Hall and there they met Prof. Inoue's students, his Staffs and their wives. After the dinner, Mr. & Mrs. Hoffman enjoyed hearing the presentation made by the students on their research topics and self-introductions in English. Thanks to Mr. & Mrs. Hoffman, they had an invaluable experience to express themselves in English. I would like to express my heartiest thanks for their kindest cooperation with me.

3. On the afternoon of May 18th, he gave the second two-hour Special Lecture in Tokyo University of Mercantile and Marine, to which Chapter Chair, Prof. Sato, belongs. The title and the contents of his Second Lecture were almost the same as these in Kyoto University. He presented his talk more slowly and more clearly than in Kyoto, so the audience could catch at their best what he spoke. The number of participants at Tokyo was fourteen, of which 6 were from universities, 5 were from industries and 3 were students. His very impressive and the most up-to-date presentation attracted many questions and comments from the industry attendees. Even after the meet-



Mr. & Mrs. Hoffman in Kyoto.

ing adjourned, he had a line of questioners to answer.

4. On the evening of May 18th, Mr. & Mrs. Hoffman attended a party hosted by Chapter Chair, Prof. Sato, where they met and talked with Chapter Officers and some of Special Lecture attendees. Though it was a simple buffet-style dinner party, as we Japanese like to have, I do hope Mr. & Mrs. Hoffman enjoyed it very much.

Again, we thank Mr. & Mrs. Dennis Hoffman for their coming to Japan in spite of the long flight (14 hours or more) from Dallas. We also would like to extend our thanks to all of AdCom members for sending him to Tokyo Chapter. Finally, we also express our thanks to IEEE Tokyo Section, which financially supported us to invite our President, Mr. Dennis Hoffman, to Japan. Our ties between Reliability Society and its Tokyo

President's Message

Continued from page 1

perial Palace and Shogun's Palace are reminiscent of the aesthetic splendor of the city's once pivotal role. Kyoto is the seventh largest city in Japan with a population of 1.4 million people. So whether viewing the dazzling Golden Pavilion mirrored in its smooth reflecting pond, absorbing a glittering time honored festival, or simply wandering through its picturesque narrow streets, Kyoto is a city to behold.

Dr. Inoue accompanied us to Tokyo on a new bullet train. Dr. Sato and two of his graduate students, Tsuneharu Shimodaira and Takahiro Kawashima, met us at the station and navigated us to our hotel. Our Tokyo visit was underway.

I gave the same IEEE/Reliability Society Overview presentation and lecture on "Advances in Systems Reliability" at Tokyo University of Mercantile Marine to a group of graduate students, instructors, and industry personnel, including several gentlemen associated with the Japanese Space Program. Dr. Sato is a professor at this university. After a detailed question and answer period, Judy and I were guests at a reception at the university. We had a good time in this causal setting talking with the Tokyo Chapter AdCom members and trying new types of Japanese foods.

Tokyo is a huge city with skyscrapers by the mile. It is almost unbelievable that they

are able to build and fill that many. The graduate student, Takahiro, was able to borrow his parent's car so our Tokyo hosts could show us Tokyo and Takahiro's hometown of Yokohama. Yokohama is home to the tallest building in Japan and extremely long, high, and beautiful bridges – ocean-going ships pass under them. All the beautiful buildings and bridges are an architectural delight – our third son is an Architect who we wished could have been with us. Tokyo is the capital and largest city of Japan. Tokyo is one of Japan's 47 prefectures, consisting of 23 wards, which comprise the core of the city. About eight million people live in the 23 wards of Tokyo and twelve million in the metropolitan area. However, since Tokyo's suburbs extend into the neighboring prefectures, greater Tokyo can have a population of up to 30 million people. The government moved to Tokyo in the year 1603 when Tokugawa Ieyasu established the Tokugawa Bakufu in Tokyo (then called Edo). With the Meiji Restoration of 1868, Edo was renamed Tokyo (Eastern Capital), and the emperor moved from Kyoto to Tokyo. I was very pleased that we were able to see some of Tokyo on this trip, as that wasn't possible on the 1999 trip.

Yokohama is situated on a peninsula facing the western coast of Tokyo Bay and lies 30 kilometers (18.6 miles) from Tokyo. More than 3.27 million people live in Yokohama, qualifying it as Japan's second largest city. The port of Yokohama was

opened in 1859 and is Japan's largest international trading port.

Dr. Shuichi Fukuda is an AdCom member and is a Professor at the Tokyo Metropolitan Institute of Technology, where we gave tutorials in 1999. Yasuyo, Dr. Fukuda's wife, hosted Judy while I was at the Tokyo University of Mercantile Marine and showed her many districts within Tokyo and some of its sites. On Saturday evening, Dr. Fukuda invited us to his home to meet his family and to dine with them. His three young adult children stayed at home on a Saturday evening to meet us. His daughter is named Yuki and she will be attending the University of Maryland-College Park as a graduate student this fall and his sons are Keiya and Kota. Kota commutes several hours each way by subway to his university – a truly dedicated student. Keiya is the eldest and studies German and German history. Judy and I were both very grateful to Dr. Fukuda and his family for their great company, delicious meal, and extremely enjoyable evening.

I am very thankful to our Japan Chapter for inviting me, for the opportunity to present to such distinguished audiences, to see a little more of Japan, and for the friendships that are continuing to be developed. My sincere thanks to our Japanese hosts for giving of their time and energy to make us so comfortable in their beautiful country.

Dennis Hoffman
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Editor's Column

Continued from page 3

Chapter have been reunited again and getting stronger.

The report of these activities described above will be submitted to the RS Newsletter, July issue by Tokyo Chapter Chair, Prof. Sato.

Many thanks and best regards,

Koichi Inoue
Sr. Past Chair, Tokyo Chapter

From the Editor

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

Dave Franklin
Editor



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Chapter Activities

Baltimore

Walter E Willing

Binghamton

Jefferson D Bronfeld

Boston Chapter

Although the summer marks the end of our activity year, the Boston Chapter Advisory Committee (AdCom) is hard at work planning next year's activities.

We closed out the year with three events. In April, Dana Crowe and Carl Bunis of Tyco Electronics (M/A-Com) hosted a monthly meeting on "Design for Reliability: Understanding the Physics," which included a tour of their reliability laboratory and environmental test services.

In May, we held our 38th Annual Spring Reliability Symposium. This year's theme was "Reliability and Safety," and Dr. William Goble, author of the book "Control System Safety Evaluation and Reliability," was the keynote speaker. Eight papers were presented on topics that examined the relationship between reliability and safety. We thank the Program Chair, John Peter Rooney of Lucent Technologies, for organizing the event.

We also held our Spring Lecture Series in May. Gene Bridgers of Sycamore Networks and Joe Dzekevich presented their second lecture series of the year on "Design of Experiments with the Fusion One Software Tool."

The success of the Boston Chapter is a direct result of the dedication of our AdCom members. Most of them have served on the AdCom for multiple years. I would like to recognize each of them for their efforts over the past year:

- Jim Fahy - Vice Chair, Secretary, and Webmaster
- Don Markuson - Treasurer and Awards
- Warren Snow - Arrangements and Registration
- Gene Bridgers - Lecture Series
- Joe Dzekevich - Lecture Series
- John Rooney - Spring Symposium

This group has worked well together, and most will continue in their positions next year, subject to the approval of the Chapter members in our annual election held in April.

For more information on Boston Chapter activities, please visit our web site at <http://www.channell.com/users/iee/home.html>.

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Central New England

Jeffery A Clark

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Cincinnati Chapter

Dallas Chapter

The Dallas chapter completed another successful season of monthly presentations on reliability related subjects. Our topics not only focused on mainstream reliability but on presentations with implications to product reliability.

We started off our presentation schedule in September of last year with Barry Ferrell from Lockheed Martin Aeronautics describing "JSF's Prognostics & Health Management (PHM) Systems - The Next Generation Approach to Enhanced Maintenance and Mission Availability". Although still in the proposal stage, JSF required a comprehensive PHM system for detecting and isolating failures as well as predicting remaining useful life for critical components. Barry's expertise as the PHM Team Lead provided insight into these capabilities.

October's presentation focused on a potential failure mechanism in printed circuit boards from Conductive Anodic Filament (CAF) growth. Lon Chase pre-

sented the background overview of this catastrophic failure mechanism with examples and testing that occurred during an airborne radar study. Lon presented a comprehensive worst-case model that could be used to predict the time to failure under given environments.

After a break for the holidays in November, a presentation on laser safety was held. Bobby Womack provided his expertise on the technology of common industrial lasers, how lasers interact with the human eye, and the safety requirements necessary to prevent eye damage.

January held a very interesting description and demonstration on the Digital Micro-mirror Device (DMD) reliability testing and modeling. Andrew Sontheimer from Texas Instruments (TI developed and sells DMD projector equipment under the DLP trademark) showed the current applications of DMD and aspects associated with the high level of device reliability achieved.

February's meeting featured a presentation by Cris Lofgren from Amtech Lighting Services on "Reduced Cost & Increased Reliability Through High Benefit Lighting." Cris described the benefits of improved lighting on maintenance cost and the environment through reliability and efficiency.

Tim Rost presented a description of selected semiconductor wear out mechanisms and associated reliability testing in March. Tim's presentation also described how emerging process technologies such as Cu interconnects, low-K dielectrics, and alternate gate dielectrics will influence reliability design guidelines. Tim manages the reliability group in Silicon Technology Development at Texas Instruments.

In April, a presentation was held on "Reliability Enhancement of OEM Products by HALT and HASS Testing" by Gil Bastien of Screening Systems, Inc. The presentation described the trend toward HALT and HASS and advantages of this type testing.

The season ended with our May presentation by Micah Koons on an inte-

grated approach to FMECA, testability and safety analysis. Although traditionally done as separate analysis, the commonality between them facilitates significant cost savings when combined as described by Micah.

The Dallas chapter is planning another exciting season of reliability related presentations starting again in the fall. More information is available from a Chapter representative.

Lon E Chase
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Denver/Pikes Peak

The IEEE Reliability Society will host an accelerated testing (AST) workshop at Storage Technology in Louisville, Colorado on Thursday June 14, starting at 4:30pm to 7:30 pm. This will be a mix of live interaction with AST experts (Charlie Felkins and Kirk Gray) plus clips from the new AST IEEE video tutorial CD made by the reliability society. The presentations and workshop will cover:

1. How AST reduces cycle time and improves product robustness
2. How many samples are required for successful Stress Testing; (both for HALT and HASS)?
3. When should HALT and HASS be performed?
4. What tests and testing equipment are needed?
5. How to get started doing AST, set up considerations and economic payoffs
6. Which products benefit the most from AST?
7. What stress variables are most effective for AST and what stress levels should be used?
8. Should both component and systems still be burned in?
9. Important Lessons learned from AST experts

10. What is the role of stress testing in contract manufacturing?
11. How to get development engineering's buy-in for AST

Samuel J Keene

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See our chapter web site, at <http://www.odegard.com/rssd> for current meeting activities.

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Reliability Society AdCom Candidates Sought for 2002/2003/2004 Term

The IEEE Reliability Society is seeking candidates for serving on its Administrative Committee (AdCom) for the three-year term that spans 2002/2003/2004. The candidates should be members of the IEEE Reliability Society and have both technical and management experience. Serving on the AdCom requires attending the quarterly AdCom meetings and participating in one or more of the following areas of activity:

- Technical Operations,
- Meetings,
- Membership,
- Publications.

Additional information about these areas of activity can be found in the Reliability Society Constitution and By Laws at

If you are interested in becoming and AdCom member, please have either your employer supervisor/manager or an IEEE officer (e.g. chapter chair, society officer, section or region chair) nominate you. With their nominating message, please include the information shown below. Please send nominations to Ken LaSala, Junior Past President at not later than 15 July 2001:

- Your full contact information: name, mail address, telephone number, FAX number, e-mail address.
- A concise professional biography that summarizes your technical and management experience and your educational background. The biography should be 350 words or less.

- A short statement of what you can contribute to the Reliability Society.
- A short statement that identifies in which Reliability Society activity area you would like to participate.

The submission date for nominations is firm. Your information will be forwarded to our Nominations Committee, which will consider it for inclusion in our 2001 AdCom election ballot. Self-nominations will be considered, although priority will be given to those nominated as described above.

If you know other people who you believe would be good candidates for the AdCom, please encourage them to have their nominations submitted.

IEEE Reliability Society ADCOM Meeting

April 28, 2001
Orlando Wyndham

Meeting Attendees:

Marsha Abramo, Loretta Arellano, Ann Campbell, Dick Doyle, Ted Freeman, Suichi Fukuda, Bob Gauger, Christian Hansen, John Healy, Dennis Hoffman, Koichi Inoue, Lori Kaufman, Dick Kowalski, Ken Lasala, Alan Street, Bill Tonti, Jeff Voas.

The meeting was called to order promptly by Dennis Hoffman, the Reliability Society president. The January meeting minutes and this agenda were unanimously approved by the ADCOM. T. Freeman made a friendly suggestion that all abbreviations be fully elaborated in the minutes. The secretary and the ADCOM agreed to adhere to this.

Next AdCom reviewed the action items in the minutes. The Old Action Items were reviewed and updated.

President's Report, D. Hoffman

The IEEE has 366K members. Member retention is down. Overseas membership is

up. IEEE has distributed offices (e.g. Tokyo, Singapore) and will measure themselves in areas of customer satisfaction.

The IEEE is financially sound with revenues grown from \$67M at 12/95 to \$132M at 12/99. 2000 results were worse than expected, with a net surplus=\$0.00 (Budget <\$5.1M> Actual <\$11.6M>). Total Assets are \$272.7M (69% of assets are investments). Total 2000 Revenue is \$196M. 51% are periodicals, and publications. IEEE has been budgeting a deficit, but typically came in with a surplus actual. The last two years have not had this actual surplus. IEEE societies are funding the shortfall.

2001 IEEE Focus: Institute Focus, Members Careers, Image, Teamwork. TAB finance meeting this May, where IEEE will institute a pullback from the societies (Review R. Kowalski report).

Dennis presented a review of the IEEE technical experts guide. The ADCOM is expanding this list to cover the Reliability Societies interests, and will complete this task off line through e-mail.

February TAB Meeting Report, L. Arellano

Tab Products: Convert all Society proceedings into adobe PDF, to be posted in the IEL (IEEE Electronic Library). Each IEEE member can view the society related documents.

Secretary's Report, B. Tonti

ADCOM Roster Update / Make Edits Web Based Roster System Request. The Roster was updated throughout the day. Bill will streamline the amended roster and provide Robert Loomis with a spreadsheet to be posted on the RS website by Robert.

Spectrum has requested an article on RS. Bill will contact IEEE, and determine what they have internally planned for this article. RS would like to have an entire issue, it appears Spectrum is indicating just an article on the Reliability Society.

- RS Booth at conferences
- Take advantage of publicity opportunities. (e.g. upcoming Spectrum article)
- Brochure
- Take into account of changing demographics of members.
- Offer CEU's (Continuing education units), or scholarships.

Member Survey Status,

A. Campbell / M. Abramo

The survey is completed at the ADCOM level. It now has to be reviewed by an IEEE research group. The following are survey related cost issues: The cheapest survey is to send via e-mail, however RS only has 80% e-mail id's. RS would like to use a mixed mode of e-mail and snail mail. RS would like to use an external research group to perform the mailing and to analyze the data. The cost is approximately \$14K.

Technical Operations Report,

K. Inoue

Annual Tech ops meeting held 1/22/01

13 Tech Ops chairs and 10 ADCOM members attended the meeting.

The following reorganized committees were described in detail at this meeting. The committee names and chairperson are repeated below. For further detail please contact Dr. Inoue or the committee chairperson directly..

Committee and Chair

- Human Interface Technology, Kenneth La Sala
- Mechanical Reliability, R.L. Doyle, P. Hetherington
- MicroElectronic Technologies, A.N. Campbell, T.A. Rost
- Reliability Methodology, C.K. Hansen
- Reliability Design, M. Rousch
- System Safety, Y. Sato
- Software Reliability, S. Keene Jr.
- Standards & Definitions, Y. Lord, T. Brogan
- Warranty, W.A. Zeller
- Information Technology & Communications, J. Healy
- CAD/CAE, K. Janasak
- Testing & Screening, H.A. Chan

- Automotive System, C. Aladekugbe, B. Dodson
- Industrial Systems, H. Yajima
- Energy System, M. Lively, J. Zamanali
- Aerospace & Defense Systems, D. Franklin

Committee significant events

The technical operations report: "The Status of Reliability Engineering Technology 2001" is completed and published. This white paper can be downloaded from the RS web site. The following topics are covered: Human Interface Technology, Software Reliability, Mechanical Reliability, New CAD/CAE Technologies, IEC System Safety Standards, Industrial Systems Reliability, Semiconductor Device and Product Reliability. Dr. Christian K. Hansen edited the document.

The contributing authors of this report were:

R. L. Doyle, Dr. W.F. Ellis, Dr. C.K. Hansen, D. Hoffman, Y. Hong, Dr. K. Inoue, Dr. S.J. Keene, T. Kohda, Dr. K.P.Lasala, Y. Sata, Dr. W.R. Tonti, J.P. Rooney, H. Yajima

Chapters Report, L. Arellano

Highlights:

Chapter Formations

- Joint Reliability and CPMT UK & RI chapter kick off held 1/30/01
- Spain has not yet responded to e-mails. This activity will continue.
- In Romania Mihai Ciobotea is the main contact. Presently there are 9 members. A recommendation is to provide joint chapters.
- In Israel Nicky Bernstein is a main contact.
- The Northern Italian chapter is about to be dissolved. Interest exists from Giorgio Turconi. Effort is in place to make direct contact to Giorgio.
- In Germany, Erik Zindel is a main contact.

A new senior member campaign has been kicked off by Loretta, a member elevated to IEEE senior status will result in the chapter receiving a US\$25 check. This re-

sults in member retention, RS society promotion, and a means of returning RS funds directly to chapters. Additionally a motion was passed to extend an ADCOM members visit in a city where an active chapter is formed so that the ADCOM member can visit the chapter. This implies the ADCOM member is already in that location for some other reason (e.g. a conference, company-related business, on vacation etc.), and RS would compensate an extra day to accommodate a chapter visit.

Loretta reminded everyone that the RS Chapter Congress Awards, and workshops. will be held 7/22 in san Diego following the ADCOM meeting, and those ADCOM members willing to support this activity should plan there July itinerary accordingly.

Standards Report, Y. Lord, T. Brogan

Currently being worked is "IEEE Guide for selecting and Using Reliability predictions based upon IEEE 1413". The scope of the document is processes and methodologies for conducting reliability predictions for electronic systems and equipment.

Council and Liaison Report

ITS Report, A. Campbell

Nanotechnology, A. Campbell

Sensors Status, K. LaSala

IEEE Sensors Council ADCOM meeting to be held on 6/14/2001. IEEE Sensors 2002 conference supported by RS vote (2/28/2001). This allows SC to proceed with planning IEEE sensors 2002. A draft proposal is in need of further refinement. The IEEE Sensors Journal June inaugural issue is completed. (contains 108 pages, but the rate of submissions is low)

IRPS 2001 Pre-Review, Tony Oates IRPS General Chair

10 tutorials and workshops are in place. The Tuesday evening program is a

- RS Booth at conferences
- Take advantage of publicity opportunities. (e.g. upcoming Spectrum article)
- Brochure
- Take into account of changing demographics of members.
- Offer CEU's (Continuing education units), or scholarships.

Member Survey Status,

A. Campbell / M. Abramo

The survey is completed at the ADCOM level. It now has to be reviewed by an IEEE research group. The following are survey related cost issues: The cheapest survey is to send via e-mail, however RS only has 80% e-mail id's. RS would like to use a mixed mode of e-mail and snail mail. RS would like to use an external research group to perform the mailing and to analyze the data. The cost is approximately \$14K.

Technical Operations Report,

K. Inoue

Annual Tech ops meeting held 1/22/01

13 Tech Ops chairs and 10 ADCOM members attended the meeting.

The following reorganized committees were described in detail at this meeting. The committee names and chairperson are repeated below. For further detail please contact Dr. Inoue or the committee chairperson directly..

Committee and Chair

- Human Interface Technology, Kenneth La Sala
- Mechanical Reliability, R.L. Doyle, P. Hetherington
- MicroElectronic Technologies, A.N. Campbell, T.A. Rost
- Reliability Methodology, C.K. Hansen
- Reliability Design, M. Rousch
- System Safety, Y. Sato
- Software Reliability, S. Keene Jr.
- Standards & Definitions, Y. Lord, T. Brogan
- Warranty, W.A. Zeller
- Information Technology & Communications, J. Healy
- CAD/CAE, K. Janasak
- Testing & Screening, H.A. Chan

- Automotive System, C. Aladekugbe, B. Dodson
- Industrial Systems, H. Yajima
- Energy System, M. Lively, J. Zamanali
- Aerospace & Defense Systems, D. Franklin

Committee significant events

The technical operations report: "The Status of Reliability Engineering Technology 2001" is completed and published. This white paper can be downloaded from the RS web site. The following topics are covered: Human Interface Technology, Software Reliability, Mechanical Reliability, New CAD/CAE Technologies, IEC System Safety Standards, Industrial Systems Reliability, Semiconductor Device and Product Reliability. Dr. Christian K. Hansen edited the document.

The contributing authors of this report were:

R. L. Doyle, Dr. W.F. Ellis, Dr. C.K. Hansen, D. Hoffman, Y. Hong, Dr. K. Inoue, Dr. S.J. Keene, T. Kohda, Dr. K.P.Lasala, Y. Sata, Dr. W.R. Tonti, J.P. Rooney, H. Yajima

Chapters Report,

L. Arellano

Highlights:

Chapter Formations

- Joint Reliability and CPMT UK & RI chapter kick off held 1/30/01
- Spain has not yet responded to e-mails. This activity will continue.
- In Romania Mihai Ciobotea is the main contact. Presently there are 9 members. A recommendation is to provide joint chapters.
- In Israel Nicky Bernstein is a main contact.
- The Northern Italian chapter is about to be dissolved. Interest exists from Giorgio Turconi. Effort is in place to make direct contact to Giorgio.
- In Germany, Erik Zindel is a main contact.

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sults in member retention, RS society promotion, and a means of returning RS funds directly to chapters. Additionally a motion was passed to extend an ADCOM members visit in a city where an active chapter is formed so that the ADCOM member can visit the chapter. This implies the ADCOM member is already in that location for some other reason (e.g. a conference, company-related business, on vacation etc.), and RS would compensate an extra day to accommodate a chapter visit.

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IRPS 2001 Pre-Review, Tony Oates IRPS General Chair

10 tutorials and workshops are in place. The Tuesday evening program is a

technical poster session. An Industry expert panel discussion on burn-in elimination is part of the technical program this year. IRPS had anticipated 700 attendees. 2 weeks prior to Easter IRPS was on track for this attendance. During the following period an approximate 300-400 person shortfall became evident as registrations dropped off.

In response to this IRPS enabled cost cutting measures to minimize the loss, without impacting the conference. The IRPS Assumption is the economy is the main reason for the shortfall.

Junior Past President's Report, K. LaSala

Constitution and Bylaws:

To date comments have been received from William Tonti, Loretta Arellano and Ken Lasala. The following changes have been proposed, and carry the following considerations.

Changes that are ready for ADCOM consideration:

- Create a Historian position.
- Use e-mail for elections

Changes that are "not" ready for ADCOM consideration:

- Create a senior past president position
- Create a presidents Advisory Committee

Robert Gaugher has an action item to download and distribute the constitution for all ADCOM members to review at the next meeting.

The 2001 Nominations and Awards

The Committee Members are: K. Lasala, Chair T. Freeman, S. Keene, C. Hansen, T. Fagan, H.Hartt Members. This year the 2001 RS Engineer of the Year Award program will be refined so that ambiguities related to evaluation criteria will be minimized, and the solicitation and candidate review will follow due process. The awards committee will consider other awards such as (but not limited to) the Lifetime Achievement Award.

The 2002 RS election schedule closes 11/15/01.

Senior Past President's Report, L. Arellano

The past presidents meeting was held in January. Those in attendance were R. Doyle, L. Arellano, K. Lasala, T. Fagan, V. Monshaw, D. Hoffman. The new name of this committee is now changed to the "Advisory Board". The board will operate under the President and include past presidents and invited guests.. The committee will be included into the bylaws. The Sr. Past President will chair the board, and will meet yearly as a minimum. The past presidents agenda includes the following Bylaw and Constitution proposals:

- Add Sr Past President, 2 yr. term with EXCOM vote
- President, 2 yr term with no second term allowed
- VP's, 2 yr term with a second term option

RS ADCOM Resolutions

- 1) Ken La Sala: Placed a Motion on the floor consisting of the following elements: Provide a meeting summary for the RS newsletter with the agenda included. Provide a description in the newsletter of all motions passed. Do not abbreviate any item. The motion was seconded by Dick Doyle, and unanimously carried.
- 2) Richard Kowalski placed a motion on the floor to increase the non-member subscription from \$200 to \$225 in accordance with IEEE guidelines. The motion was seconded by William Tonti, and unanimously carried
- 3) Richard Kowalski placed a motion on the floor to submit the 2002 budget to IEEE in accordance with present ADCOM meeting discussions. The motion was seconded by Dick Doyle, and unanimously carried.
- 4) Ken Lasala: placed a motion on the floor that the Reliability Society is in co-operation with The International Conference on System Reliability and Human Factors to be held 10/14-10/17 2002 at Shanghai Jiao Tong University. Dick

Doyle seconded the motion. The vote: In Favor: 9, Opposed: 4 (Christian Hansen to be duly noted) , Abstained:3 (to be duly noted are Ken Lasala and Lori Kauffman. The motion carried.

- 5) Bill Tonti placed a motion on the floor authorizing \$14K for Ann Campbell to send out a mixed mode e-mail/snail mail Reliability Society membership survey, and for an external research firm to analyze the data for the Reliability Society, also providing the raw data in spreadsheet form back to the Reliability Society. Dick Doyle seconded the motion.

The vote: 3 abstained, 1 opposed, 13 were in favor, and the motion carried.

- 6) Ann Campbell placed a motion on the floor requesting that RS aid in the kick off of the Dallas RS Chapter's technical presentation season, beginning this September 2001. This would entail an IEEE related evening. Reimbursement is not to exceed \$1300. Dick Doyle seconded the motion. The motion carried, Loretta Arellano abstained.

- 7) Ann Campbell placed a motion on the floor to extend Bill Tonti's ABET stay in Albuquerque, New Mexico to attend the ASEE conference, and place material in the IEEE booth, making university contacts. Dick Doyle seconded the motion. The motion carried, Bill Tonti abstained.

- 8) Koichi Inoue placed a motion on the floor to Send Ken La Sala to the sensors council in Munich Germany, funds in the neighborhood of \$3000.00. John Healy seconded the motion. The motion carried, Ken La Sala abstains.

- 9) Loretta Arellano placed a motion on the floor that RS endorse and authorize funding for a chapter senior member campaign. Each chapter will receive a \$25.00 check from RS for each individual member that is elevated to "IEEE senior member status". John Healy seconded the motion. The motion carried.

- 10) Loretta Arellano placed a motion on the floor, for ADCOM to endorse and authorize funding (1 night hotel and chapter dinner expense) for an ADCOM member to visit an active RS chapter. Dick Doyle seconded the motion. The motion carried.

TechOps TC Activity Reports and Plans for 2001

IEEE Reliability Society - TechOps Status Report

From January 21 to April 27, 2001

Presented at the AdCom Meeting in Orlando, April 28, 2001

Koichi Inoue, VP TechOps

1. The Annual TechOps meeting was held on January 22, 2001.

Participants as many as 23+x attended the meeting, of which 13 were TechOps Committee Chairs and 10+x were AdCom members and guests.

List of Attendees:

Koichi Inoue, Ann Campbell, Ken LaSala, Sam Keene, Dave Franklin, Bob Gauger, Tom Brogan, Keith Janasak, Dennis Hoffman, Tom Fagan, Shuichi Fukuda, Hiroshi Yajima, Theodore Freeman, Takehisa Kohda, John Healy, Yvonne Lord, Richard Kowalski, Loretta Arellano, Marvin Roush, Dick Doyle, Fred Schenkelberg, Christian Hansen and William Tonti.

Agenda:

8:00-8:30 Breakfast

8:30 Call to Order by Koichi Inoue

8:30-8:40 Past President's Message by Ken LaSala

8:40-9:00 Summary of TechOps Activities in 2000 by Koichi Inoue

9:00-11:30 Activity Reports and Plans for 2001 by each Chair

11:30-11:50 TechOps Plans for 2001 by Koichi Inoue

11:50-12:00 New President's Message by Dennis Hoffman

12:00-13:00 Lunch

TechOps Committee Semi-Annual Activity Reports

A half of the first year in the New Century has already passed. In response to my request for all the Technical Operations Committee Chairpersons to send me their semi-annual activity reports, I have had the following nine inputs. Note that the semiannual activity reports are not mandatory but optional to the Chair-



persons this year. Year-end activity reports are, however, not optional but mandatory to every Chairperson. You will see a collection of activity reports in the Newsletter, scheduled to be published in the April issue 2002

If you are interested in any of these Technical Committee activities, please contact me or send a mail directly to the chairs for joining their activities or for your comments.

Koichi Inoue
VP TechOps
inoue.k@ieee.org

CAD/CAE

Chair: K. Janasak
(kjanasak@raytheon.com)

The Reliability CAE/CAD Tech Ops Committee's objective is to act as a clearinghouse for information regarding today's R&M CAE tools and tomorrow's emerging R&M CAE technology. The primary mechanism for this "information transfer" is the annual Reliability & Maintainability Symposium (RAMS) which will be held in Seattle, Washington in January 2002. Further information regarding the conference can be found on the RAMS home page at <http://www.rams.org>.

Our committee members continue to support the RAMS Program Committee in a variety of capacities. RAMS 2002 will again feature a R&M CAE Track which will include papers, tool vendor exhibits, tool overview presentations and demonstrations, and panels. A new session is being added to address "Innovative R&M Technology Applications", and will feature panelists describing the development and application of Prognostics & Health Management (PHM) technology. PHM is a critical part of an integrated methodology for system maintenance and health management, and provides a comprehensive approach for detecting and isolating failures as well as predicting the remaining useful life for critical components.

The topics of "Human Reliability" and "A Practical Methodology for R&M Tool Selection" have also been addressed by the Tech Ops Committee through papers and tutorials given at RAMS 2001 this past January in Philadelphia, PA. Abstracts for papers on these and other related topics are being coordinated for presentation at RAMS 2002 and the 4th Annual Systems Engineering & Supportability Conference, which will be held in October 2001 in Dallas, TX.

continued on page 14

Tech Ops

Continued from page 11

Human Interface Technology

Chair: K. P. LaSala (k.lasala@ieee.org)

Activity Plans for 2001

For 2001, the committee is considering the following activities:

- 1) The Human Reliability Standard
- 2) Managing and updating our Web site
- 3) Supporting the proposed conference in China

The human reliability standard is a continuing project, as is the work on the committee's Web site. During 2000, our committee member from the Peoples' Republic of China proposed holding a human reliability conference in China. During our annual committee meeting on 24 January 2001 at RAMS, the committee will develop details for the above three projects and consider new projects that the committee members might want to propose.

Committee Activities for 1Q 2001

1. Annual Committee Meeting. The committee conducted its annual meeting on 24 January 01, at the Philadelphia Marriott, Philadelphia, PA, USA. Six members attended. The topics that were discussed included the human reliability standard, managing and updating committee Web site, and supporting the proposed conference in China. Actions and milestones were developed for the first two items. The conference in China was referred to the Reliability Society AdCom because the scope of the conference exceeded the scope of the committee. The RS AdCom will discuss technical support for the conference at its 28 April 01 meeting in Orlando.
2. Committee Web site. Following the assignments of the 24 January committee meeting, committee web master Dr. L. Filgueiras conducted a design review of the committee Web page and began making improvements. RS Web site software was sought so that the committee Web site could be brought into closer alignment with the RS Web site.

3. Human Reliability Standard. The principal activity underway at this time is the development of a matrix that shows the relationship of human engineering program activities to reliability program activities. Dr. K. LaSala and Dr. L. Filgueiras are the principal investigators for this.

4. Reliability Conference in China. As stated above, this matter has been referred to the RS AdCom. Several committee members have been identified as potential participants in the development of this conference. Dr. Yi Hong prepared the proposal for the conference.

5. Committee Terms of Reference. Committee members Dr. H. Gigley, Dr. T. Kohda, and N. Criscimagna have begun drafting the Terms of Reference for the Committee.

6. IEEE Spectrum Special Section on Human Interface Technology. Committee members Dr. L. Kaufman and Dr. H. Gigley are determining the feasibility of the HIT committee developing a special section on Human Interface Technology for the IEEE Spectrum.

7. HIT Committee Alias. At the request of the HIT committee, IEEE Headquarters established an e-mail alias for the entire HIT committee.

8. Committee Member Technical Activities. Dr. L. Filgueiras currently is the leader of the Human Factors task in a recently signed cooperation project between the GAS -Workgroup for Safety Analysis at Escola Politecnica, University of Sao Paulo and IPV - Brazilian Institute for Flight Protection, a Ministry of Aeronautics organization. This project intends to research reliability and safety issues related to the new generation of Communication, Navigation and Surveillance/Air Traffic Management systems. Dr. Yi Hong reports that The System Reliability & Human Factors Engineering of Shanghai Jiao Tong University just launched a project on an integrated software package for ship reliability engineering. In this software package, human performance reliability will be considered. It is the first time to try to link human performance reliability with system reliability in China. Dr. K. LaSala recently completed an analysis

of methods available for the qualitative human factors evaluation of industrial electronics facilities.

Microelectronics Technologies

Co-Chairs: A. N. Campbell (ancampbe@sandia.gov)

T. A. Rost (t-rost@ti.com)

The primary activity of the Microelectronics Technology committee Jan - May 2001 has been in the production of articles for the Newsletter. Bill Tonti and Wayne Ellis of IBM have prepared an article for the July issue, and I am working to have a short article from Texas Instruments in the October issue.

Systems Safety

Chair: Y. Sato (yoshi@ipc.tosho-u.ac.jp)

System Safety Committee has taken an example of advanced highway cruise support systems (AHS), i.e., a support system for automobiles turning to the right (or to the left in the USA). This system serves the drivers with information about approaching cars in the opposite lane in order to prevent car crashes. Stochastic models are now under consideration by the Committee for assessing functional safety of the system.

Software Reliability

Chair: S. J. Keene (s.keene@ieee.org)

The role and functionality of software in modern computer-based systems is growing at a tremendous rate. This is mounting pressure on software developers to deliver better quality software. Companies are being held more accountable for the field quality of their systems and software. Current experience indicates software failures are increasing in proportion to system failures as organizations create more complex systems, while the information about these failures is frequently less than complete, uniform or precise. A proper collection and analysis of software failure data lies at the heart of a practical evaluation of the quality of software-based systems. Software-based systems differ from pure hardware systems in many ways. Software failures are not driven by the physical wear-out seen in hardware, and software repair processes and procedures are different than those for hardware. Furthermore, in practice, software is more change-prone than

hardware. Software reliability demands different reliability approaches and its own unique data collection and analysis requirements.

The Reliability Society is addressing this need with 4 tutorials:

1. Developing Reliable Software in the Shortest Development Time
2. Developing Safety Critical Software
3. Software Testing
4. Developing Fault Tolerant Software

The first three tutorials are finished and available. The Fault Tolerant Tutorial is under development. It is described below (text contributed by Dr. Mladen Vouk, one of its developers)

Fault Tolerant Software

Software development processes and methods have been studied for decades. Despite that, we still do not have reliable tools to guarantee that complicated software systems are fault-free. In fact, it may never happen that we will have the tools to guarantee error free software. The reason is that there are two basic ways of showing that software code is correct, proof of program correctness and exhaustive testing, and it is very doubtful that either approach will ever be practical for use with very complex software-based systems although re-use of reliable software building blocks (objects) may go a long way towards achieving that goal. Techniques for proving software correct tend to work only for small simple synchronous systems, while testing methods, although increasingly more sophisticated, do not guarantee production of error-free code because exhaustive testing is not practical in most cases. Therefore, it is reasonable to investigate techniques, which permit software-based systems to operate reliably and safely even when (potential) faults are present. A way of handling unknown and unpredictable software (and hardware) failures (faults) is through fault-tolerance. Over the last two decades, there has been a considerable amount of research, as well as practical software engineering, in this area. In this presentation, we introduce some elementary principles that underlie construction of fault-tolerant software based on the software diversity principle, that is, provision of fault-tolerance

through functional redundancy. We first provide some background information, including an overview of major industrial and academic efforts related to fault-tolerant software. We then present the principles and terminology, and give a general overview of the more common techniques for tolerating software faults. This is followed by a discussion of more advanced techniques, and then by some techniques which can be used in modeling the behavior of fault-tolerant software. Finally, we discuss issues such as independence of failures, and issues related to development and cost of fault-tolerant software.

Standards & Definitions

Co-Chairs: Y. Lord (yvonne_lord@md.northgrum.com)

T. L. Brogan (Thomas_L_Brogan@res.raytheon.com)

The Standards & Definitions Committee continued support of the SCC37 Reliability Prediction IEEE 1413.1 Working group during the first half of 2001. The status of this activity is summarized below:

SCC 37 Reliability Prediction IEEE 1413.1 Guide (Background)

This project, sponsored by the IEEE Standards Board SCC-37 is intended to provide available methods that assist in the development of a prediction satisfying the attributes of the IEEE 1413 standard "Methodology for Reliability Prediction and Assessment of Electronic Systems and Equipment's" published in 1998. Specifically the Guides intent is to provide:

- * A process for reliability prediction
- * Methods and models to predict reliability for electronic components and systems
- * Clear definitions and descriptions of reliability metrics
- * Criteria for reliability prediction methods and models to make risk informed decisions on their use

The active committee members supported by an extended team have been holding either monthly telecons or face to face meetings at various sites. The active committee members include the following individuals (shown with company affiliations): Dr. Michael Pecht (P.E., IEEE Fellow, CALCEPSC, Committee Chair),

Jerry Cartwright (P.E., Reliability Manager, Celectica, Committee Secretary & Facilitator), Dan Donahoe (P.E., Technical Staff, Sr. Member IEEE, Compaq, Committee Technical Editor), Gary Buchanan (Sr. Engineer, Compaq), Dr. Vladimir Crk (Principal Reliability Engineer, Honeywell), Jon Elerath (Mgr., Reliability Engineering, IBM), Jeff Harms (Electronics Engineer, NSW), Tyrone Jackson (Engineering Specialist, Aerospace Corp.), Dr. Ari Jain (Senior Consultant, Lucent Technologies), Jack Sherman (Consumer Society Representative, Motorola), Dr. Alan Wood (Dir., Rel Eng, Computer Soc. Rep., Compaq), Lou Gullo (Manager of Corporate Product Assurance, Sensormatic), Yvonne Lord, Manager Reliability Engineering, Northrop).

A schedule for 2001 teleconferences and meeting and can be found at <http://grouper.ieee.org/groups/reliability/wg1413/>.

Working Group (WG) Status (June 2001)

During the first half of 2001 the WG, held five teleconferences and three face to face meetings to work out the details of document sections as listed below.

Upcoming key dates for the WG include the following:

- * 7/18&19 – Meeting in Chicago to vote on submitting the Draft Guide for external review.
- * 8/1 – All sections submitted for external review.
- * 8/15 – Submit Draft Guide for external review.
- * 12/31/01 – Submit Draft for Balloting

Many of the sections have been completed with the committee refining the inputs as part of their monthly sessions. The current document outline is shown below.

Current Guide Outline (May 2001)

Section 1 Introduction – Section Coordinators Ari & Jerry

Section 2 Background - Section Coordinator Alan Wood

- 2.1 Basic Concept & Definitions
- 2.2 Reliability Prediction, Purpose, Timing and Selection
- 2.3 Reliability Prediction Inputs (Alan, Mike & Jon)

2.3.1 Reliability Prediction Metrics and Goals

- 2.3.1.1 Constant Rate Metrics
- 2.3.1.2 Probability of Success Metrics
- 2.3.1.3 Availability and Maintainability Metrics
- 2.3.1.4 Reliability Goals and Requirements

- 2.3.2 System Architecture
- 2.3.3 Operating Environment
- 2.3.4 Operating Profile

Section 3 Reliability Prediction Methods - Section Coordinator Mike Pecht

3.0 Reliability Prediction Methods - Jon

3.1 Getting started - Similarity Analysis Process (pp1-6) – Jon Elerath and Ari

- 3.1.1 Phase in the Mission

3.2 Predictions based on Field Data - Alan

- 3.2.1 Types of Field Data
 - 3.2.1.1 Failure Data
 - 3.2.1.2 Non-Failure Data (old section 3.8)

- 3.2.1.3 Quality of Data
- 3.2.2 Statistical Analysis of Field Data

- 3.2.2.1 Plot Distribution of TTF Data
- 3.2.2.2 Goodness of Fit – Tom
- 3.2.3 Similarity Analysis

3.3 Predictions based on Test Data - Jon

- 3.3.1 Accelerated
- 3.3.2 Non-Accelerated

3.4 Predictions based on Damage Simulation - Tom

- 3.4.1 Generic Process
- 3.4.2 Empirical Models
- 3.4.3 Mechanistic Models

3.5 Predictions based on Handbooks-Dormant/Non-Operating Reliability Methods – Ari & Tyrone

3.5.1 Corporate Proprietary Handbooks – Ari

3.5.2 Industry Standards and Military Standards and Handbooks

3.6 Assessment of Methods Based on IEEE Criteria - Mike

Section 4. System Reliability Methods - Section Coordinator Vladimir Crk

- 4.1 Reliability Block Diagram
 - 4.1.1 Series System
 - 4.1.2 Parallel System

4.1.3 Stand-by System

4.1.4 (k, n) Systems

4.1.5 Complex System

4.1.5.1 Complete Enumeration Method

4.1.5.2 Conditional Probability Method

4.1.5.3 Cut-set Methodology

4.2 Fault Tree Analysis

4.3 Reliability of Repairable Systems

4.4 Monte Carlo Simulation

Section 5. Case Study - Tyrone

Appendix A Statistical Data Analysis - Jon

Continued Plans for 2001

Continue to support and monitor the progress of the IEEE SCC 37 on Reliability Prediction (1413.1 Working Group) and support the release and review of the Draft document scheduled for the middle of August 2001.

Testing & Screening

Chair: H. A. Chan (h.a.chan@ieee.org)

2001 Workshop on Accelerated Stress Testing will be held on September 24th, 25th and 26th, 2001 at Seattle, Washington. This workshop is technically co-sponsored by IEEE Reliability Society. The program includes two days of technical presentations, a one-day tutorial from leaders in the field and a two-day exhibition featuring AST related suppliers. The call for abstract may be found at: <http://www.ewh.ieee.org/soc/cpmt/tc7/ast2001/index.html>

The following book has just come out in May 2001: Accelerated Stress Testing Handbook: Guide for Achieving Quality Products, edited by H. Anthony Chan and Paul J. Englert, published by Wiley-IEEE Press. IEEE RS reviewed this book.

<http://catalog2.wiley.com/catalog/frameset/1,8279,R09UT1NSXzQxMQ==,00.html?keyword=ACCELERATED+STRESS+TESTING>

All royalty proceeds due the editors and authors from this book are donated to Missionaries of Charity, founded by the late Mother Teresa of Calcutta, for the benefit of their work in the continuation of serving the needs of the poor.

A new tutorial, “Accelerated Life-Testing,” was given at the 2001 RAMS by Pantelis Vassiliou and Adamantios Mettas. H. A. Chan and Paul T. Parker gave the tutorial, “Product Reliability through Stress Testing,” for the 6th consecutive year at the 2001 RAMS.

Consumer Electronics

Chair: F. Schenkelberg (fms@hp.com)

The Consumer Electronics systems committee is beginning to take shape with a three new members. Stefan Mozar, Director, CCM Consulting; CHAN Kim Foo and Jason ONG Chong Seong both reliability engineers with Philips Singapore. We are actively working to encourage others to join the committee.

We have discussed the possibility of providing a tutorial during the upcoming IEEE International Symposium on Consumer Electronics 2001 (ISCE'01) IEEE Consumer Electronics Society, IEEE Communications Society Victoria. See URL, <http://ewh.ieee.org/r10/victorian/isce01/> for the call for papers.

We have decided to increase the membership a bit more before starting on any particular project.

Industrial Systems

Chair: H. Yajima (yajima@sdl.hitachi.co.jp)

At Industrial Systems Committee, we set up the committee objective

1. to survey the trend of system safety in real industrial plant and
2. to investigate safety concept at industrial systems from view point of risk management and organizational science.

Also, a member of our committee joined investigation of JCO Criticality accident occurred on September 30, 1999 in Japan, and made clear the articles by summarizing the causes of the accident and lesson learned through discussion on the situational factors that facilitated the workers' unsafe action, and then organizational factors of JCO, particularly problems in operational management and business management.

ADCOM Agenda

July 21, 2001

7:30-8:30

Continental Breakfast

8:30

Call to Order, D. Hoffman

8:30-8:40

Agree to Agenda, D. Hoffman

8:40-9:00

Minutes Approval, B. Tonti

Review of Action Items in Minutes, All
9:00-9:45

President's Report, D. Hoffman

ExCom Meeting Report

June TAB Meeting Report

9:45-10:00

Secretary's Report, B. Tonti

10:00-10:15

Break

10:15-11:00

Technical Operations Report, K. Inoue

Technical Operations status / Committee
significant events

Standards, Y. Lord, T. Brogan

Council and Liaison Reports

ITS Report, A. Campbell

Nanotechnology, A. Campbell

Sensors, K. LaSala

RS join the IEC TC 56 US TAG, K.
LaSala

11:00-11:30

Treasurer's Report, R. Kowalski

FY01 Actuals vs Budget

FY02 Budget Planning

VP Meetings Credit Card Action Status

11:30-12:00

Meetings Report, J. Voas

AdCom Meetings Plan

Conference closeouts and budget approvals

Significant events

12:00-1:00

Lunch

1:00-2:00

Publications Report & Web Status, R.

Loomis

Transactions report, W. Kuo

Evans Project Status, W. Kuo

Newsletter report, D. Franklin

T-SM Report, M. Abramo

T-MDR Report, A. Campbell

Web Report, R. Loomis

Video Report, S. Keene

2:00-2:45

Membership Report, A. Campbell

Membership Action Plan Status, A.
Campbell

Member Survey Status, A. Campbell

Logo Status, A. Campbell

Chapters / Chapter Visits, L. Arellano

Chapters' Congress Plan, L. Arellano

Videotaping Chapter Meeting Test Case

Status, Dallas RS Chapter, T. Freeman

2:45-3:00

Break

3:00-3:30

Junior Past President's Report, K. LaSala

By-laws and constitution revision progress

3:30-4:00

Senior Past President's Report, Arellano

4:00-4:15

ABET / ASEE 2001 Conference Report,

B. Tonti

4:15-4:30

Old Business

4:30-5:00

New Business

5:00

Adjourn

RS Chapters Congress

San Diego

Sunday, July 22

Agenda

8-8:30

Register and Continental Breakfast

8:30 -8:45

Introductions

8:45-9:15

Overview of Society/IEEE

9:15-9:45

Chapters

Chapters Retreat 2000 debrief

Society benefits to chapters

9:45-10

Break

10-10:30

Membership

Presentation

Display info (how to set up, reserving for
events, etc)

10:30-11:00

Video Presentation/Demo

11-11:30

Conferences

11:30-12

Tech ops

12-1 Lunch

view videos/display/material

1-1:30

Pubs

1:30 -3:30

Chapter reports Each Chair

15 minute each

3:30-5

Discussions/ lessons learned/ wrap-up

Loretta

Educational Activities Update

Connecticut teenager wins \$10,000 IEEE Presidents' Scholarship

Mariangela Lisanti has won the \$10,000 IEEE Presidents' Scholarship with her project "Conductance Quantization in Au Nanocontacts." IEEE past President Bruce Eisenstein presented the 17 year old senior from Staples High School, Westport, Connecticut US with the award on 10 May at the annual Intel International Science and Engineering Fair (ISEF) held this year in San Jose, CA. The IEEE Foundation supported Scholarship is the only Institute-wide scholarship awarded to a pre-college student. It is the largest special award given by an organization at Intel ISEF. Lisanti developed a novel technique for measuring conductance quantization in metallic nanowires, using gold as its conductor. It is both faster and less expensive than the three devices commonly used. Her device cost \$35 to build, while the other devices average \$100,000.

Lead judge Keith Gudger, Santa Clara Valley Section, fielded a team of 14 judges, including Rachel Wilson, who will serve as Lead Judge for the 2002 Intel ISEF, to sort through the 1230 projects. Finalists hailed from 43 countries, Argentina through Venezuela, Native American Indian lands, and 47 of the United States.

2001 WebEd Workshop Contest

The IEEE Educational Activities Board (EAB) is sponsoring a contest for the development of an outstanding overview tutorial for web delivery. Prizes are \$500.00, \$350.00, and \$200.00. They will be awarded to the winning IEEE Technical Society. This contest was announced at the 2001 Web Ed Workshop in Alexandria, VA, USA but is not limited to societies who sent representatives to that event. Societies may submit more than one entry for consideration.

Representatives of nearly 20 technical societies and councils attended the 2001

Technical Societies WebEd Workshop, held 21-22 April. Funded by the IEEE Foundation, the Workshop was designed by the Educational Activities Board Society Education Committee (EAB SEC), chaired by Saifur Rahman. Lively and collegial, the Societies gave a summary of their current and future plans for educational outreach. Lyle Feisel, EAB VP, outlined his vision of education as a member benefit, and EA staff and volunteers presented information on production support available to the Societies. In a hands-on session, attendees learned tips and tricks of using Hotfoot to record and compress their audio-PowerPoint presentations, complimentary copy supplied by the EAB SEC. The attendees agreed to contribute an audio-PowerPoint tutorial to the IEEE Professional Development Institute by 14 September.

University of New Mexico courses

The IEEE is once more making video tutorials from the University of New Mexico available. Four tutorials on microelectronics are ready to ship. These state-of-the-art courses focus on test engineering, technical foundation, failure analysis, and reliability. Training managers and individual engineers in the manufacturing fields will benefit from the structured course layout and expert lectures. For more information on the following titles, visit the IEEE store, www.ieee.org/store. All titles in English only.

- Microelectronic Failure Analysis Order Product: #HV7059
- Microelectronic Failure Analysis - Technical Foundation Lectures Order Product: #HV7060.
- Microelectronic Reliability Order Product: #HV7048
- Microelectronic Test Engineering Order Product: #HV7047

CD ROM delivery to replace videos

Educational Activities has begun migrating selected video tutorials to the

friendlier CD-ROM format. The format is world compatible, has jump capabilities, and, by its nature, modularizes course content. The courses formerly at the 2000 EAB Video-on-Demand site and most of the PE Review courses have already been packaged as CD-ROMs. EA will be phasing out its reliance on videotape delivery. Some future tutorials on CD-ROM will include a running English language transcript synchronized with the presentation. The running transcript reinforces the lesson and allows for clarification of regional or national dialects of the presenters.

For further information on any of these items, see www.ieee.org/eab or contact Lynn Murison, l.murison@ieee.org

New on the Web

We now have on-line access to the Transactions on Reliability and the Transactions on Semiconductor Manufacturing through the IEEE Xplore system. The on-line journals start in 1988 and run through the present. Also, per our agreement with EDS, I have authorized them access to the T-Rel.

If you go to the IEEE homepage (not the RS homepage, but the IEEE homepage), you can find an Xplore link buried in the yellow border on the right. Getting into Xplore requires registering on the IEEE site. If you have bought something on-line or have renewed your membership on-line, you are already registered.

You can review abstracts of all of the IEEE stuff, but at this point full text access is limited to the above plus the items that the IEEE permits all their members to view on-line.

In addition the IEEE has on-line, the IRPS Proceedings, the RAMS Proceedings and the IRW Proceedings (or whatever the IRW calls is record). However, the IEEE has denied my request for access to them. I am working the issue.

Regards

Bob Loomis



Nominations for IEEE/ABET Evaluators Now Open

PISCATAWAY, NJ, 20 June 2001. Contribute to the engineering professional and public good. The IEEE Educational Activities Board seeks engineering professionals from industry, government, and academe to serve as program evaluators for accrediting engineering and engineering technology programs at U.S. universities. Nominations will be accepted through 31 October 2001.

The Accreditation Board for Engineering and Technology, Inc (ABET) provides a peer review of university programs that is vital to the continuing quality of the engineering and engineering technology professions. Aside from supporting the health of the profession, there are more tangible rewards for evaluators and their employers. The evaluators are

trained in the Quality Process and are able to hone their decision-making skills. By virtue of being on campus, evaluators come in contact with the next wave of future innovators and industry leaders.

“The training helps to keep you up to date with all the changes being made every year in the criteria,” said William Boley, Litton Guidance & Control Systems. “The campus visits are a great opportunity, to see first hand, the different approaches being taken in engineering education.”

The IEEE members selected will attend a one-day training seminar on the IEEE/ABET accreditation process. After training, these program evaluators are dispatched in teams, one evaluator to a

program, to visit engineering and engineering technology departments across the country on behalf of the IEEE and ABET. Evaluation sessions take place each fall and generally run for two to three days.

Read comments from a first-time evaluator. Information packages, including the application and nomination forms, are available on the web for engineering and engineering technology programs. For more program information, contact <eab-accred@ieee.org>.

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



International Standards Meeting Notice

International Integrated Reliability Workshop

aka Wafer Level Reliability Workshop

You may want to bookmark our web address!
<http://www.irps.org/irw/>

Scheduled for Oct. 15-18, 2001
at S. Lake Tahoe, California

Location: Stanford Sierra Camp, Fallen Leaf Lake, Calif.
getting there from Reno, Nevada: Tahoe Casino Express
driving there from Reno Airport: (directions) in 14 steps
weather links and sky cam of South lake Tahoe

**IEEE RELIABILITY SOCIETY SPONSORSHIP OF:
CONFERENCES, WORKSHOPS, TRANSACTIONS, AND COUNCILS
6/12/2001**

ORGANIZATION OR CONFERENCE	RS PARTICIPATION	CONFERENCE SHARE	RS REPRESENTATIVE	RS COMMITMENT
RAMS	One of 10 sponsors	10% of total and annual commitment of \$2K	T. Fagan V.R. Monshaw	\$ Committed – Annual Seed Money
IRPS	Sponsored with ED	50%	Ann Campbell Alan Street	\$ Committed
International Symposium on Software Reliability Engineering (ISSRE)	Sponsor with Computer Society	10% in '98 20% in '99 10% in '00 20% in '01	Sam Keene Jeff Voas W.W. Everett	\$ Committed
Integrated Reliability Workshop (IRW)	Sponsored with ED	50%	D. Franklin O.D. Trapp Bill Tonti	\$ Committed
Pacific Rim Dependable Computing (PRDC)	Technical Sponsor	0	Voas M. Lyu	
IEEE Sensors Council	Sponsor with 15 other IEEE Societies		Ken LaSala	Committed \$2000
ITSC	Participant and Voting Member	None known	O.D. Trapp L. Arellano	Committed \$1000 for year 2000
IV2001 Related to ITSC	Same as above		Prof. Toshio Fukuda	
International Conference on Testing Computer Software (TCS'01)	Technical Sponsor; organized by USPDI	0	Voas	
Superconductivity Council	Paid Cash to participate		Ken LaSala	Committed \$5000
International Symposium on Assembly and Task Planning	Technical Sponsor	0	TBA	
SDRC Symposium on Reliability Computing	Technical Sponsor	0	TBA	
Annual Microelectronics Reliability and Qualification Workshop	Technical Sponsor	0	A. Campbell	
PSAM	Technical Sponsor	0	M Shooman J.Fragola Dr. Modarres	Held every other year
History Project			Ken LaSala	\$ 1000 – one time deal

ORGANIZATION OR CONFERENCE	RS PARTICIPATION	CONFERENCE SHARE	RS REPRESENTATIVE	RS COMMITMENT
Transactions on Semiconductor Manufacturing	RS = 56.9%, EDS = 29.8%, CPMT = 8.4%, SSC = 4.9%		Marsha Abramo, Representative to Steering Committee	
ASQ Six Sigma Conference	Technical Sponsor. ASQ	0	Sam Keene	
IEEE Transactions on Reliability			W. Kuo, Editor R. Loomis, VP Pubs	
Annual Microelectronics Reliability and Qualification Workshop	Technical Sponsor (held in Pasadena CA)	0	Dick Doyle	
Accelerated Stress Testing Workshop	Technical Sponsor	0	Tong Chan	
High Assurance Systems Engineering Conference 2001	Financial Sponsor	20%	Mladen Vouk	
Reliability Conference in China	Technical Sponsor	0	Voas	
Transactions on Device and Material Reliability	50% / 50% financial co-sponsor with EDS		Tony Oates is the Editor	
Nano-technology Conference (NANO-2001)		TBA		
Transactions on Material and Device Reliability -- Web Based (?)	RS & EDS	Kowalski checking on this	A. Campbell, Representative to Steering Committee	

Technical Magazine Section

IEC Standard document IEC 61014, Ed. 2 Review

by Ken La Sala

Draft IEC Standard document IEC 61014, Ed. 2: Programs for reliability growth.

This international standard specifies requirements and gives guidelines for the exposure and removal of weaknesses in hardware and software items for the purpose of reliability growth. It applies when the specification calls for a reliability growth program of equipment (electronic, electromechanical and mechanical hardware as well as software) or when it is known that the design is unlikely to meet the requirements without improvement. A statement of the basic concepts is followed by descriptions of the management, planning, testing (laboratory or

field), failure analysis and corrective techniques required. Mathematical modeling, to estimate the level of reliability achieved, is outlined briefly.

IEC 60300-3-14, Ed. 1: Dependability management – Part 3-14: Application guide – Maintenance and maintenance support.

This part of IEC 60300-3 is intended for use by a wide range of suppliers, maintenance support organizations and users and can be applied to all products, equipment and systems. This standard describes a framework for maintenance and maintenance support and the various minimal common practices that should be undertaken. Maintenance and maintenance

support are a major element of dependability as described in IEC 60300-1 and IEC 60300-2. The purpose of this standard is to outline in a generic manner the basic methods, processes and techniques necessary to achieve adequate operational dependability to meet the needs of the customer. In some cases, regulatory and other mandatory requirements need to be considered. This standard is applicable to all types of hardware and software, most of which require a certain level of maintenance to ensure that their required functionality, operational dependability, capability, safety and regulatory requirements are achieved. These can be described as products, equipment and systems.



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