

News bits

Changes coming to ESD Association web site

Look for some exciting new changes to the ESDA web site (www.esda.org) in coming months. Two new pages are under development—a page devoted to Membership information and a page focusing on Volunteer Activities.

As these new pages become functional, there may be resulting changes in the content of existing pages. For instance, membership information currently on the About ESDA page may move to the new Membership page. If you have explored the web site recently, you may have noticed these additions to the main menu.

The new pages are currently under construction and expected to be fully functional in the next few months.

In this issue

HQ & Human Resources	1
From the president	2
Singapore program	2
From the Threshold chair	3
Philippine ESD Forum	3
Feb. Stds meeting update	5
June Stds meeting schedule	5
ESD design seminar	7
BoD Nominations process	7
Calendar of events	8
Survey says	8
Symposium program	9
Symposium schedule	9
Symposium exhibits	10
Institutional listings	11-12



ESD Association HQ and the Human Resources Business Unit

by
Lisa Pimpinella
HQ Operations Manager



Lisa Pimpinella

In the January/February issue of Threshold, I contributed a column called “**ESD Association Headquarters: A look back and now**”. The last article took a look at the Headquarters office in 1993 and explored the Symposium Business Unit. For this issue I will introduce you to the Human Resource Business Unit and continue the story about HQ Operations.

A Look Back: 1996

The ESDA Headquarters office was located in a commercial office complex. In 1996 we had four HQ Team members who functioned as assistants to our many Association committees. One of those committees was the Membership Committee. The primary focus of this committee was serving our members and customers.

This time the phrase “You’ve come a long way Baby” applies to this committee since it has grown beyond its original structure into a full, active Business Unit. This unit now contains multiple committees and many enthusiastic volunteers chairing activities while still maintaining its focus on you: our most valuable resource!

Look Now: 2004

The ESDA Headquarters is now located in a rustic wooded office complex, and the staff of three HQ Team Members—who I introduced you to in the last issue—enjoys participating in the many Business Units of the Association. The Human Resource (HR) Business Unit is a particular favorite; after all, we sometimes experience Rome, Italy through our international members! We enjoy the interaction with our customers on the phone, through email and mail, as well as in person at our educational events and committee meetings. It is truly a pleasure to experience this interaction with such a diverse, unique group of people.

The HR unit has grown to encompass seven committees: Association Awards, Volunteer Recognition, Volunteer Resources, Nominations, Local Chapters, Membership, and Corporate Sponsorship.

The Human Resources Business Unit

The Human Resources Business Unit is located on the Business side of our organizational structure and is comprised of a Business Unit Manager: Kay Adams, Tech Wear, Inc., five committee chairs: Mike Chaine, Micron Technology Inc.; Ted Dangelmayr, Ted Dangelmayr Associates; Tim Jarrett, Guidant Corporation; Michele McSwain, TW Clean, Inc.; and Dale Parkin, IBM Corporation, as well as HQ support. This unit is responsible for our members, customers, volunteers, local affiliations, and association awards.

HQ staff participates in all of the unit’s committee functions and lends support to

From the president

Understanding the ESD Association



Ed Weggeland

I would like all ESDA members to better understand our organization.

Executive Committee

The Executive Committee (ExCom) is made up of three Director-elected officers: President, Senior Vice President (responsible for business operations), and Vice President (responsible for technical operations); all serve one year terms.

In addition there are two functional appointments: Treasurer and Secretary, plus the past President who provides counsel and advice.

The HQ Operations Manager participates in all ExCom meetings. The secre-

tary to ExCom also serves as secretary to the Board.

Board of Directors

The Board is made up of twelve (12) Directors elected by the membership. Each serves for a three-year term, and can be re-elected for another three-year term. After six continuous years of service as a director, at least a one-year stand-down is required before being eligible to run for Director again.

With the advice and consent of ExCom, the President may appoint individuals to the Board to provide specific objective leadership. The Board meets four times each year, at the three regular meeting series in February, June and at Symposium, and in December at Association headquarters.

Business Units

Functional business operations are organized into seven units:

1. Standards Development (STDS)
2. Symposium (SYM)
3. International Council on Education (ICE)
4. Certification (CERT)
5. Headquarters Operations (HQOPS)
6. Human Resources (HR)
7. Marketing and Communications (M&C)

The Senior VP coordinates HQOPS, M&C and HR. The VP coordinates STDS, SYM, ICE and CERT.

Business Unit Managers (BUM) and Chairs are recruited and appointed to lead specific organizational activities. This year they are:

STDS Chair – Ron Gibson

HR BUM - Kay Adams

M&C BUM – Craig Zander

CERT BUM – Ron Gibson

SYM General Chair – John Kinnear

Team Work

Each manager has a team assembled that contributes to establishing and meeting specific business goals and objectives. These teams and groups of volunteers meet three times a year, typically in February, June and at Symposium.

Your ESDA Officers, Directors, BUMs and Chairs, along with active team volunteers contribute their talents, experience and valuable effort in keeping ESDA at the forefront of technology and problem solutions. That is why the ESD Association is the leader in our industry.

Continued on page 6

Association news

ESDA schedules education program in Singapore

The ESD Association has scheduled an education program in Singapore on March 24 and 25, 2004. Sponsored in partnership with two Singapore-based organizations, Pro-Pack Materials Pte Ltd. and PSB Corporation Testing Group, this two-day seminar is designed to educate and train professional ESD program managers. Since the ESD Association introduced the ANSI/ESD S20.20 seminar two years ago, the demand for knowledgeable ESD program managers has grown, and this new

two-day seminar was developed to meet this growing industry need.

Targeted to quality control professionals, facilities managers, and ESD coordinators, this seminar will provide information on ESD fundamentals, ESD problems and causes, in-plant verification requirements, audit procedures, ESD measurement methods, methods for designing ESD control programs, and methods for assessing ESD processes for conformance to ANSI/ESD S20.20.

The three courses offered during this two-day seminar are among the required courses for obtaining the ESD Association's ESD Program Manager Certification. The three courses are **ESD Basics**, **ESD Auditing & Evaluation Measurements**, and **ANSI S20.20 ESD Program Development and Assessment**.

ESD Basics, offered March 24, 2004, will be taught by Stephen A. Halperin, Stephen

Continued on page 6

Free downloading of more ESD standards?



Leo G. Henry

It is now official. Here comes more of the free stuff, some for a limited time only. Sounds like a department store sale ad, doesn't it? If you have not already noticed, the front page of our website (www.esda.org) has more "free" buttons than there are rocks on the "red planet" (don't ask). This time, they have added so much free stuff that I have to make a list. In addition to the free download of ANSI/ESD S20.20-Control Program Standard in English (1999), in Chinese (2003), and in

Spanish (2003), there are these new ones:

1. **The ESD White-Paper** first published in 2002. Exact title: *ESD Phenomena and the Reliability for Microelectronics*. The online price is now free, not only to members but to the general public as well. So spread the word, tell a friend. This free download became available in December 2003, but if you want a nice, glossy 53-page hard copy, you may purchase one for the low cost of \$35.00 per copy with added discounts for quantity purchases. This White Paper not only addresses the importance of ESD on electronic circuits, but presents a summary of future issues and challenges which will be facing ESD reliability as we make further advances in semiconductor technologies.

2. **The Human Body Model Standard Test Method:** ANSI/ESD STM5.1-2001—*Electrostatic Discharge Sensitivity Testing-HBM Component Level*. This STM updates and revises an existing standard. It

establishes a procedure for testing, evaluating and classifying the ESD sensitivity of components to the defined HBM event.

3. **The Machine Model Standard Test Method:** ANSI/ESD STM5.2-1999—*Electrostatic Discharge Sensitivity Testing — MM Component Level*. This STM updates and revises an existing standard. It establishes the procedure for testing, evaluating and classifying the ESD sensitivity of components to the defined MM event.

4. **The Charged Device Model Standard Test Method:** ANSI/ESD STM5.3.1-1999—*Charged Device Model (CDM)-Component Level*. This STM updates an existing standard. It establishes the procedures for testing, evaluating, and classifying the ESD sensitivity of components to a defined CDM event.

Continued on page 6

Local chapter news

Philippine ESD forum organized by ASEMEP

The ASEMEP Electrostatic Discharge Council (AEC), the first chapter of the Electrostatic Discharge Association (ESDA) in Asia, is organizing the first ever Philippine Electrostatic Discharge Forum to be held on March 17 & 18, 2004 at the New World Renaissance Hotel, Makati City, Philippines. This event is sponsored by the Semiconductors and Electronics Industries in the Philippines (SEIPI) and the Association of Semiconductor & Electronics Manufacturing Engineers of the Philippines (ASEMEP),

The objectives of the Philippine Electrostatic Discharge Forum are to promote

awareness and understanding of ESD, showcase the trends and developments in ESD detection and control, and provide an Asian venue for a NARTE ESDC Engineer Exam. International and local delegates involved in ESD control within and outside the semiconductor and electronics industries in Asia are expected to attend the forum.

Suppliers to the industry will showcase Test & Audit Equipment, ESD & Clean Room Garments, ESD Control Equipment, ESD Control Accessories, ESD Safe Materials, Publications, and Training Materials. Currently, this is the only event focused

on the ESD market in the Philippines.

In addition to the exhibits, sponsors will bring technical experts to present lectures and tutorials during the technical session. Mr. Ed Weggeland, President of the ESD Association, as well as other foreign speakers will be participating in the forum.

For more details about the Philippine ESD Forum, please contact Fairs & More Inc. (Philippines) at +632 8451324 or +632 7596680 and look for Zai Tan. You may also e-mail your inquiries to: aec-esd@fairsandmore.com or visit the official website of AEC, <http://aec.ase MEP.com.ph>.

Association news

Continued from page 1

ESD Association HQ and the Human Resources Business Unit

each one of them. This Business Unit encompasses all of our volunteers, members and customers. The Business Unit is intertwined with all of the associations' other Business Units through the networking of our members and customers, and all units overlap and interact.

I have been the HQ staff person and the program manager responsible for Human Resources for 8 years. It has since grown into the vast network that it is today. Terri DeMario, our Marketing Administrator, has recently been assigned to this Business Unit, in addition to her function serving the Marketing & Communications Business Unit.

The primary responsibilities to the unit are to participate in the sub-committee activities, serve our customers and members, perform any associated office functions, and help to initiate and achieve any committee goals and plans—in addition to working independently and with the Human Resource Business Unit and Committee members.

Activities that HQ staff works on throughout the year while working with the Human Resources Team include:

- Maintain the membership database and roster
- Create, print, distribute, and process renewal notices
- Update the member section of the website
- Work with the Local Chapter Chairs
- Administer the Board of Directors election process
- Assist with the planning and implementation of volunteer activities
- Obtain Association award plaques
- Assist in volunteer recruitment
- Coordinate the Corporate Sponsor Program

Hopefully I have enhanced your knowledge about Headquarters' involvement with the Human Resources Business Unit. The tasks listed are just a few of the many

tasks associated with this area of the ESDA. In future issues I will detail HQ support of another Business Unit.

Human Resources Business Unit



Kay Adams
Human Resources
Business Unit
Manager



Mike Chaine
Committee Chair:
Volunteer
Resources



Ted Dangelmayer
Committee Chair:
Corporate
Sponsorship



Tim Jarrett
Committee Chair:
Nominations &
Membership



Michele McSwain
Committee Chair:
Membership



Dale Parkin
Committee Chair:
Local Chapters &
Volunteer
Recognition

Update on standards activity

by
Tammy Muldoon
Program Manager



Tammy Muldoon

February 2004 Standards Meeting Series

The ESD Association Standards Committee (StdCom*) and working groups (WG) held their February 2004 meeting series at the Wilshire Grand in Los Angeles, CA on February 19-22, 2004. The Standards Committee approved the publication of four new documents. The four new Standard Practices are:

SP5.4 – 2004 Transient Latch-up Testing – Component Level Supply Transient Stimulation. This Standard Practice instructs the reader on methods and materials needed to perform Transient Latch-Up testing, and elaborates on a variety of technical issues.

SP5.3.2 – 2004 Sensitivity Testing – Socketed Device Model (SDM) Component Level. This Standard Practice provides a test method for generating a Socketed Device Model (SDM) test on a component integrated circuit (IC) device.

SP5.5.1 – 2004 Sensitivity Testing Transmission Line Pulse (TLP) Component Level. This Standard Practice defines a method for pulse testing to evaluate the voltage-current response of a component under test.

SP14.1 – 2004 System Level Electrostatic Discharge (ESD) Simulator Verification. This Standard Practice provides guidance to designers, manufacturers, and calibration facilities for verification and specification of the systems and fixtures

used to measure simulator discharge currents.

All four of these Standard Practices are expected to be available for sale by June 2004.

February 2004 Working Group Activities

Garments - WG2 was reactivated at the February 2004 meeting series. The Garments WG reviewed STM2.1-1997 and decided that technical changes to the document are needed. The new Work Statement was completed. The completion of a Work-in-Process (WIP*) document is targeted for June 2004.

Ionization - WG3 continued their review of ADV3.2 – Selection and Acceptance of Air Ionizers. The Appendix “Safety Voltage Levels and Ionizer Offset Voltage” will be rewritten with more emphasis on CDM voltage levels, and less emphasis on HBM voltage levels. Document revisions were

made and given to WG members for review and approval. Once it is approved by the WG members, it will be submitted to Technical and Administrative Support Committee (TAS*) for review.

Human Body Model Device Testing - WG5.1 continued work on developing a new standard practice document focusing on alternate test methods for ESD testing of high pin count devices. Two additional test methods were discussed: “Power Supply Reduction”, and the “Rotation Test Method”, which will be split into two separate methods.

CDM Device Testing - WG5.3.1 continued working on the development of a spark-free method to calibrate ESD testers. Two testing labs worked on the spark-free method; each using different ESD testers. Committee members have been assigned individual sections to write for a proposed Technical Report. The WG is planning to revise STM5.3.1-1999 by 2005.

[Continued on page 8](#)

Tentative Schedule

June 2004 ESD Association Standards Meeting Series
Gaylord Texan Resort & Conference Center, Grapevine (Dallas), TX
June 3-8, 2004

Thursday, June 3, 2004	Garments WG-2 Grounding WG-6 Working Group Chairs
Friday, June 4, 2004	Sunday, June 6, 2004
TAS Ionization WG-3 Device Testing WG-5 Handlers WG-10	ICE TAS Simulators WG-14 Gloves WG-15 Standards Committee
Saturday, June 5, 2004	Monday, June 7, 2004
TAS Flooring WG-7 Cleanrooms WG-55 Work Stations WG-53 Device Testing WG-5 Packaging WG-11	Human Resources Steering
	Tuesday, June 8, 2004 Board of Directors

Association news

Continued from page 2

ESDA schedules education program in Singapore

A. Halperin & Associates, Ltd./Prostat Corporation. This course is a new tutorial covering the causes of ESD and device failure, critical elements related to charge generation, discharge and failure models, criteria necessary to obtain ESD control in a static sensitive environment, selecting products and materials for use in ESD sensitive environments, and a fundamental overview of S20.20 program requirements.

ESD Auditing & Evaluation Measurements, offered March 25, 2004, also will be taught by Stephen A. Halperin, Stephen A. Halperin & Associates, Ltd./Prostat Corporation. Introduced two years ago to support S20.20 in-plant verification requirements, the course covers audit measurement procedures, S20.20 ESD control recommendations, several control options, and selection and use of ESD control products and materials.

ANSI S20.20 ESD Program Develop-

ment and Assessment, a two-day course offered March 24 and 25, 2004, will be taught by Ron Gibson, Celestica International Inc., and John Kinnear, IBM Corporation. This seminar will provide instruction on designing and implementing an ESD control program based on *ANSI/ESD S20.20 Standard for the Development of an Electrostatic Discharge Control Program*. This standard document, published in 1999 by the ESD Association, is rapidly becoming a universal standard of operation for protection of electrical and electronic parts, assemblies and equipment. This course will provide attendees with the tools and techniques to prepare for an ESD facility audit.

For more information on the Singapore seminar, contact the ESD Association, 7900 Turin Rd., Bldg. 3, Rome, NY 13440-2069. Ph: 315-339-6937. Fax: 315-339-6793. Web site: <http://www.esda.org>. E-mail: info@esda.org.

From the Threshold chair

Continued from page 3

Free downloading of more ESD standards?

5. **ANSI/ESD S541-2003—Packaging Materials for ESD Sensitive Items**. This standard describes the packaging material properties needed to protect electrostatic discharge (ESD) sensitive electronic items, and references the testing methods for evaluating packaging and packaging materials for those properties. Where possible, performance limits are provided. Guidance for selecting the types of packaging with protective properties appropriate for specific applications is provided.

By the way, I hope you also saw that the **newly revised 2003 ESD Glossary of Terms** has been published and is now available, yes for free downloading. Exact title: *ESD ADV1.0-2003: Glossary of Terms*. In this Advisory, the definitions and explanations of various terms used in Association ESD Standards and documents are covered. The document also includes other terms commonly used in the electronics industry. So go ahead, download that too.

One more: this has been up there for some time but it is not as obvious as the others. The three Awareness Symbols (ANSI/ESD S8.1-2001) are Free. The 3 symbols are: the ESD Susceptibility Symbol, the ESD Protective Symbol, and the Common Point Ground Symbol. Have at them.

And now you are asking yourself, why an entire article on free downloading of stuff? Again, we are attempting to point out items of benefit to visitors of our web site, so please do visit the website again and take another look. You may see something that you missed; then tell a friend.

Until next time
Stay Focused and Bhappy



leogesd@ieee.org

From the president

Continued from page 2

Understanding the ESD Association

Volunteers

Of course, we need more volunteers to actively participate in all areas of operations. We have many “engines” (business operations) and each needs “fuel” (participants). I encourage any and all members of ESDA to reach out and contact the HR group to discuss how and where you can contribute by becoming an active participant.

Each volunteer participant has their own reasons for being active in our Association. The reasons are numerous, from “giv-

ing back to an industry that provides a rewarding professional career” to “I learn from my experiences and the knowledge gained improves my company’s product quality”.

Together we all keep the Association running smoothly, serve industry and further the knowledge base in ESD areas. Let’s keep that going strong – we need YOUR help to continue to do so.

Ed Weggeland
President

ESD Association announces ESD design seminar May 24-25 at ESDA Headquarters in Rome, NY

The ESD Association has scheduled an ESD design seminar to be held May 24-25, 2004, at the ESD Association Headquarters in Rome, NY

Developed by the Association's International Council on Education (ICE), the technical seminar for on-chip ESD protection designers is part of the Association's effort to expand technical education beyond the annual EOS/ESD Symposium. Created specifically to meet the needs of persons responsible for ESD protection in circuit design, the two-day seminar program includes in-depth technical education in a number of specific areas including the following:

ESD in the Industrial Semiconductor IC Context: What is ESD? Why is it important? What methods are used to control it?

ESD Models and ESD Testing: Description of the three models and model issues from the designer's point of view.

ESD Device Operation: Fundamentals of MOS device operation, the role of PMOS, BiCMOS and the similarity of the techniques for CMOS, bipolar devices, DENMOS and LDMOS devices and protection techniques.

ESD Circuit Operation: Operation of and issues with NMOS circuits, including implementation, simulation, and experimental results.

Technology Impact on ESD Design Choices: Review of ESD protection design options as a function of technology and process fluctuations.

Special Circuit Requirements and Their Impact on ESD: Mixed voltage protection, RF and analog protection, BiCMOS, high voltage protection, and new latchup effects.

CDM ESD Protection: Concerns and considerations; fast enough diodes, transistors, and SCRs; the on-chip CDM event.

Design Examples and Case Studies: Layout methods, ESD rules, new design methods, case studies of protection design problems, and class exercises.

Instructors for the seminar are Charvaka

Duvvury, Ph. D., Texas Instruments, and James W. Miller, Motorola.

Detailed information on the seminar will be mailed to all ESDA members and also

may be downloaded from the ESDA Web site, www.esda.org. For more information on the ESD Design Seminar, contact ESDA headquarters.



Charvaka Duvvury



James W. Miller

BoD nominations process

Hello ESD Association Members!

Each year, the Constitution and Bylaws of the Association require the membership to elect four Members at Large to the Board of Directors (BoD). Members are elected to three-year terms.

The Association's Nominations Committee is required to prepare a slate of candidates to fill the four BoD positions, which will be vacated on December 31, 2004. The candidates may be nominated by the Committee or a member may submit a petition for a nominee. Petitions must contain 25 identifiable signatures and membership numbers of current ESD Association members, and were due by mail no later than February 18, 2004 at Association Headquarters: ESD Association, 7900 Turin Road, Bldg. 3, Rome, NY 13440-2069. (Faxed petitions are not accepted.)

In January, ESD Association members were sent a letter in the mail for nomina-

tions by petition to this slate. During the February meeting series in Los Angeles, CA, held February 19-24, 2004, the nominations committee reviewed and selected the candidates for the BoD nominations slate.

Ballots will be sent to the general membership by May 1, 2004, and must be returned no later than July 1, 2004. The results of the election will be announced at the Annual Meeting during the 2004 EOS/ESD Symposium in Grapevine (Dallas), Texas, September 19-23, 2004.

The nominations committee encourages all members to do their part to help elect the best-qualified BoD possible. And, of course, be sure to vote!

Further information is available from the ESD Association, 7900 Turin Road, Bldg. 3, Rome, NY 13440; phone: 315-339-6937; fax: 315-339-6793; e-mail: info@esda.org.

Standards

Continued from page 5

Update on Standards activity

Socket Discharge Model (SDM) Device Testing - WG5.3.2 met and reviewed comments received from the DSP5.3.2 industry review. The comments received were non-technical in nature and some editorial changes were made. This Standard Practice was approved for publication by StdCom.

Transient Latch-up Device Testing - WG5.4 discussed comments received from the DSP5.4-2003 industry review. This Standard Practice was approved for publication by StdCom.

Transmission Line Pulsing (TLP) - WG5.5 continued discussions on Transmission Line Pulse (TLP) round robin testing. DSP5.5.1-2003 was approved for publication by StdCom. The WG is also working on several TLP related technical reports.

Grounding - WG6 continued to work on revising the current grounding standard. The revised grounding document will address the concept of equipotential bonding. They also discussed the definition of Common Point Ground and how it applies to the EPA. The completion of WIP6.1-2004 is targeted for April 2004.

Flooring - WG7 continued development of a 10 volt measurement for conductive flooring systems by reviewing the results of the latest round robin test. The WG has been told to proceed with the development of the 10 volt test method for conductive flooring. This change will bring the flooring test method in line with other ESD Association test methods.

Handlers - WG10 reviewed discharge current measurements taken from small and large IC's placed onto a grounded surface. Repeatable waveforms were found to be obtainable to below 100V charging levels. Reports of additional samples of the same IC's are expected to be reported in June.

Packaging - WG11 reviewed and resolved comments received from WIP11.13-2003 - Two Point Resistance, StdCom vote-by-mail. This WIP is now being elevated to a Draft Standard Prac-

tice and will be issued to industry for review.

Simulators - WG14 met and reviewed one non-technical comment received from the DSP14.1-2003 Industry Review. This Standard Practice was approved for publication by StdCom.

Gloves - WG15 is continuing to develop a test method for gloves and finger cots. TAS provided comments to the WG on the latest WIP document.

Workstations - WG53 is continuing to work on its draft of a compliance verification document. Seating, Continuous Monitors, and Wrist Strap sections are complete. The Footwear and Flooring sections are being reviewed by the WG Chair. The Workstations, Grounding, and Garment sections are currently in the process of being written.

Cleanrooms - WG55 reviewed TAS' comments of TR11-01 – Electrostatic Guidelines and Considerations for Cleanrooms and Clean Manufacturing. The WG discussed general changes in Cleanrooms, and their application of static control of Cleanrooms.

* ESD Terms:
StdCom – Standards Committee
TAS – Technical and Administrative Support Committee
WIP – Work-in-Process
WG – Working Group

Calendar of events

March 2004

ESD Northwest Chapter Membership Meeting: March 9, 2004, Vanguard EMS, Beaverton, OR; www.esdnw.org

CleanRooms East/PDA SciTech Summit: March 9-11, 2004, Orange County Convention Center, Orlando, FL; www.cleanrooms.com or www.pda.org

Midwest Chapter ESD Association Membership Meeting: March 10, 2004, www.midwestesd.org

International Cleanrooms and Industrial Clearing Water Treatment Exhibition: March 10-12, 2004, Shanghai, China www.iest.org

Silicon Valley EOS/ESD Society Membership Meeting: March 16, 2004, Ramada Inn, Sunnyvale, CA; www.esdsva.org

ASEMEP Electrostatic Discharge Council (AEC) Philippine Electrostatic Discharge Forum, March 17-18, 2004, New World Renaissance Hotel, Makati City, Philippines; <http://aec.asemep.com.ph>

Texas ESD Association Meeting: March 22, 2004, S20.20 Overview; Sematech, Austin, TX; www.centxesdassoc.homestead.com

IEEE International Symposium on Quality of Electronic Design: March 22-24, 2004, DoubleTree Hotel, San Jose, CA; www.ieee.org

Continued on page 10

Association news

And the survey says...

Beginning with the May/June 2004 issue of *Threshold*TM, a monthly column will address the many questions and comments expressed by the membership in their response to an e-mailed survey conducted by the ESD Association's (ESDA) Human Resources Business Unit.

Structured in a question and answer format, the column will present several questions chosen from the survey responses, and will provide answers to those questions.

The primary goal of the ESDA is to serve our members in any way possible. The survey responses received will serve as an excellent source of direction in our quest to serve the membership.

As many of you know, this survey was distributed by e-mail in August 2003, and members also responded by e-mail. The ESD Association sincerely thanks those members who took the time to send in their comments.

Symposium program taking shape

The venue may be new this year, but attendees of the 26th Annual EOS/ESD Symposium will find a familiar experience at the Gaylord Texan Resort and Conference Center in Grapevine (Dallas), Texas. Scheduled for September 19-23, 2004, the symposium will combine technical sessions, tutorials, workshops, exhibits and other events representing the best education, the latest research, and the most up-to-date technology the international ESD community has to offer. This year's symposium features in-depth educational opportunities focused on three primary tracks: ESD Test, Failure Analysis, and Systems; Factory, Materials, and ESD Control; and Device, Design, and Technology.

Technical Sessions

This year's technical sessions feature more than 50 technical papers presented in parallel sessions. Topics covered in these technical sessions will include on-chip protection, systems issues, magnetic recording issues, RF, transmission line pulsing, materials, and factory issues. Interactive workshops offer opportunities for peer discussion. In-depth tutorials include full-day sessions on topics such as ESD Basics, ESD On-Chip Protection, System Level ESD/EMI, and ESD in Magnetic Recording.

Tutorials and Workshops

Symposium week opens officially on Sunday, September 19 with a full day of ESD tutorials. Additional tutorials are scheduled for Monday, September 20 and Thursday, September 23. The preliminary tutorial schedule includes approximately 20 sessions covering topics such as ESD Basics, On-Chip Protection, ESD in Highly Sensitive Devices, ANSI S20.20 ESD Program Development and Assessment, ESD Auditing & Evaluation Measurements, Packaging Principles and Air Ionization: Issues & Answers. Several new tutorials have been added to the schedule to help attendees obtain the new Program Manager Certification announced last year. Several workshops offered on Wednes-

day, September 22 include subjects such as On-Chip Protection, TLP, Magnetic Recording, and ESD Standards.

Exhibits

Attendees will have the opportunity to visit nearly 100 exhibit booths offering ESD control products and services. Beginning the afternoon of Monday, September 20, through Wednesday, September 22, the exhibit hall will be open to anyone interested in EOS and ESD.

Other events

As well as the exemplary educational opportunities, the symposium offers authors' corners that provide opportunities for in-depth discussions with authors of this year's technical papers, a welcome reception, an awards breakfast, the Association luncheon and annual meeting, and a professional and technical women's reception. Also taking place during symposium week are several days of standards meetings, during which the various working groups meet to discuss and further the development of standards documents.

The detailed Symposium Program will be mailed in early summer, and will also be available at that time on the ESDA web site (www.esda.org).

The ESD Association, in cooperation with the IEEE, sponsors the EOS/ESD Symposium. It is technically co-sponsored by the Electron Devices Society. The general chair is John Kinnear, IBM Corporation. The technical program chair is Carl Newberg, River's Edge Technical Service/Microstat Labs.

New Venue

The Gaylord Texan Resort and Conference Center in Grapevine (Dallas), Texas is a new resort opening in April 2004, located just 6 minutes from the Dallas-Fort Worth Airport, and 20 minutes from downtown Dallas and downtown Fort Worth. This state-of-the-art convention and meeting facility offers 400,000 sq. ft. of space to accommodate the Symposium, with breakout rooms equipped for professional video, audio, lighting, high-speed internet access and networking systems.

Preliminary Schedule Symposium Week 2004

Friday, September 17
Standards Meetings

Saturday, September 18
Standards Meetings

Sunday, September 19
Registration Opens
Standards Meetings
ANSI/ESD S20.20 Seminar, Part 1
Tutorials

Monday, September 20
Registration
ANSI/ESD S20.20 Seminar, Part 2
Tutorials
Welcome Reception (Exhibit Hall)
Exhibits (p.m. only)

Tuesday, September 21
Registration
Awards Breakfast
Plenary Session

Tuesday, September 21 (continued)
Exhibits
Technical Sessions
Professional and Technical Women's Reception

Wednesday, September 22
Registration
Technical Sessions
Exhibits
Association Luncheon and Annual Meeting
Workshops

Thursday, September 23
Registration
Technical Sessions
Tutorials

Friday, September 24
NARTE ESDC Technician Exam
NARTE ESDC Engineer Exam

Symposium

Exhibits feature products, services, solutions

The 2004 EOS/ESD Symposium will feature approximately 100 exhibit booths displaying ESD products and services from leading companies. All in one place at one time, attendees will be able to cover the broad spectrum of static protection, control, testing and analysis, as well as prominent trade publications. Admission to the exhibits is free to all those interested in EOS and ESD.

Information on exhibiting may be obtained by contacting Lisa Pimpinella, ESD Association, 7900 Turin Road, Building 3, Rome, NY 13440, Phone: 315-339-6937, Fax: 315-339-6793, e-mail: info@esda.org. There is still exhibit space available, but it's going

fast. Exhibit hours: Monday, September 20, 7:00 p.m.-10:00 p.m.; Tuesday, September 21, 9:00 a.m.-5:00 p.m.; and Wednesday, September 22, 9:00 a.m.-12:00 p.m. and 2:00 p.m.-4:00 p.m.

List of Exhibitors

As of February 17, 2004

3M Electronic & Interconnect Solutions Division	H.C. Starck, Inc.
ACL/Staticide Inc.	ION Systems
Aesops, Inc.	ITW Richmond Technology
Associated/ACC International, Ltd.	Monroe Electronics, Inc.
Barth Electronics, Inc.	Noveon Static Control
Botron Co. Inc.	NOVX Corporation
Century Container Corporation	Oryx Instruments
Conductive Containers, Inc.	RTP Company
Credence Technologies, Inc.	Simco Company
Desco	Static Control Components
Dou Yee Enterprises	Static Solutions
Electronic Polymers, Inc.	Statico
Electro-Tech Systems, Inc.	Stephen Halperin & Assoc/ Prostat
ESD Consultancy	Tech Wear Inc.
FLEXCO	Thermo Keytek
	Trek Inc.
	Vidaro Corp.



Calendar of events

Continued from page 8

ESDA Education Program: March 24 & 25, 2004, PSB Corporation Testing Group, Singapore; www.esda.org

April 2004

ESD Northwest Chapter Board Meeting: April 13, 2004, Vanguard EMS, Beaverton, OR; www.esdnw.org

Midwest Chapter ESD Association Membership Meeting: April 14, 2004, www.midwestesd.org

JEDEX San Jose: April 15-16, 2004, San Jose Marriott, San Jose, CA; www.jedec.org

Silicon Valley EOS/ESD Society Membership Meeting: April 20, 2004, Ramada Inn, Sunnyvale, CA; www.esdsiva.org

8th Annual Atlanta SMTA EXPO: April 22, 2004, Gwinnett Center, Duluth, GA; www.smta.org

ESTECH, the 50th Annual Technical Meeting and Exposition of IEST: April 25-28, 2004, Riviera Hotel, Las Vegas, NV; www.iest.org

May 2004

NEPCON East: May 4-6, 2004, Hynes Convention Center, Boston, MA; www.nepconeast.com

ESD Northwest Chapter Membership Meeting: May 11, 2004, Vanguard EMS, Beaverton, OR; www.esdnw.org

Texas ESD Association Meeting: May 17, 2004, Regional Tutorial Program; 3M Innovation Center, Austin, TX; www.centxesdassoc.homestead.com

ESDiscovery 2004: May 18, 2004, Silicon

Valley EOS/ESD Society; AMD Campus Common Building, Sunnyvale, CA; www.esdsiva.org

SMTA Medical Electronics Symposium: May 19-20, 2004, Marriott Minneapolis Airport Hotel, Bloomington, MN; www.smta.org

ESD Design Seminar: May 24-25, 2004; ESD Association headquarters, Rome, NY; www.esda.org

IEEE International Symposium on Power Semiconductor Devices 7 IC's: May 24-27, 2004; Kitakyushu International Conference Center, Kitakyushu, Japan; www.ieee.org

ESDiscovery ASIA 2004: May 26-June 1, 2004 in Singapore, Penang, and Shanghai, presented by the Silicon Valley EOS/ESD Society; www.esdsiva.org

Institutional Listings

<p>Howell Packaging, Division of F.M. Howell & Company P.O. Box 286, Elmira, NY 14902 Tel: 607-734-6291 Fax: 607-734-8667 Designers & Manufacturers of ESD Protective Packaging, Paperboard & Thermoformed Plastic, In-House Testing</p>	<p>DESCO 3651 Walnut Avenue, Chino, CA 91710 Tel: 909-627-8178 Fax: 909-627-7449 www.desco.com Manufacturer of ESD control products including wrist straps, mats, foot grounders, ionizers, shielding bags, floor finish & more</p>
<p>Conductive Containers, Inc. 4500 Quebec Ave. North, New Hope, MN 55428 Tel: 1-800-FARADAY Fax: 763-537-1738 www.corstat.com Manufacturer of CORSTAT conductive corrugated products and ESD safe thermoformed plastic designs for shipping, storage & handling.</p>	<p>3M Electronic Solutions Division Tel: 1-800-328-1368 www.3M.com/eisd Manufacturer of static control permanent flooring, wrist/heel straps, static shielding bags, & testing/monitoring equipment</p>
<p>VPI 3123 S. 9th St., P.O. Box 451, Sheboygan, WI 53082-0451 Tel: 800-874-4240 Fax: 920-458-1368 E-mail: floor@vpiflooring.com www.vpiflooring.com Manufacturer of ESD Control Solid Vinyl Floor Tile</p>	<p>TREK, INC. 11601 Maple Ridge Road, Medina, NY 14103 Tel: 585-798-3140 Fax: 585-798-3106 Web: www.trekinc.com Manufacturer and designer of instrumentation and sensors for measuring surface voltage, ionizer performance, and surface resistivity</p>
<p>Kenflex Corporation 460 NE Hemlock, Suite A, Redmond, OR 97756 Tel: 541-923-4765 Fax: 541-923-4190 sales@kenflex.com Manufactures FLEXCELL®, FLEXSTAND®, FLEXTOTE® circuit board transport and protection units, also on Web. For additional information: www.kenflex.com</p>	<p>ACL Staticide 1960 E. Devon Avenue, Elk Grove Village, IL 60007 Tel: 847-981-9212 Fax: 847-981-9278 www.aclstaticide.com Cleanroom products, topical antistats, floor finishes and coatings, static detection meters, monitors, computer cleaning products</p>
<p>ESDSYSTEMS.com 432 Northboro Rd. Central, Marlboro, MA 01752-1823 Tel: 508-485-7390 Fax: 508-480-0257 www.esdsystems.com A full line of ESD control products: wrist straps/foot grounders/mats/ ionizers/floor finish/shielding bags/smocks/testers & more</p>	<p>Wolfgang Warmbier Untere Giesswiesen 21, D-78247 Hilzingen, Germany Tel: 49-7731-86880 Fax: 49-7731-868832 www.warmbier.com ISO 9002 certified for advice, supply and manufacturing of static control materials and systems</p>
<p>Monroe Electronics 100 Housel Avenue, Lyndonville, NY 14098 Tel: 585-765-2254 Fax: 585-765-9330 E-mail: electrostatics@monroe-electronics.com www.monroe-electronics.com Full line manufacturer of static measurement equipment</p>	<p>Static Solutions 331 Boston Post Rd., E., Marlboro, MA 01752 Tel: 508-480-0700 Fax: 508-485-3353 www.staticsolutions.com Manufacturer of patented ESD, Maintenance, Clean Room, Hospital Products, Monitors, Testers, Metal Wrist Bands - "Stat-O-Flex", coatings and more. Value Priced.</p>
<p>HMS Compounds, Inc. P.O. Box 388, Mansfield, TX 76063 Tel: 817-468-3099 Fax: 817-468-3122 www.hmscompounds.com Manufacturers of Conductive and Static Dissipative Thermoplastic Sheet and Roll Stock for ESD Protection</p>	<p>VPI Mirrex Corp. 1389 School House Road, Delaware City, DE 19706 Tel: 302-836-5950 Fax: 302-836-7571 www.vpicorp.com Manufacturer of ESD thermoplastic materials for the display and protection of static sensitive components</p>
<p>Saint-Gobain Advanced Ceramics 1225 Aero plaza Drive, Colorado Springs, CO 80916 Tel: 719-637-8737 Fax: 719-380-5591 E-mail: william.losch@saint-gobain.com Manufacturer of Cerastat™ ESD ceramics products to customers' prints: tools, fixtures, wear parts for data storage & other electronic industries</p>	<p>RMV Technology Group, LLC ESD Materials Testing (paper, polymers, foam) Tel: 925-673-0225 www.esdrmv.com Fax: 925-672-3316 NARTE Certified ESD Engineer on Staff & Certified DVBE S20.20 Program Leadership, Materials Evaluation & ESD Product Qualification Comprehensive ESD Audits, On-Site Seminars & Employee Training</p>
<p>Tek Stil Concepts, Inc. P.O. Box 67, Haddonfield, NJ 08033 Tel: 800/603-0848 856/428-4464 Fax: 856/429-6532 www.tekstilconcepts.com E-mail: info@tekstilconcepts.com ESD dissipative and conductive vinyl sheet and tile, ESD carpet tile, ESD high traction safety floor tile</p>	<p>ProLine 12 Rogers Rd., Haverhill, MA 01835 Tel: 800-739-9067 Fax: 978-374-4885 www.1proline.com E-mail: Bench@1proline.com Manufactures ESD modular and ergonomic workstations</p>
<p>PROTEKTIVE PAK 14040 Central Ave., Chino, CA 91710 Tel: 909-627-2578 Fax: 909-363-7331 www.protektivepak.com Corrugated paper and plastic containers, tape, labels, and bags for ESD protected handling of electronic devices and components</p>	<p>Barth Electronics, Inc. 1589 Foothill Drive, Boulder City, NV 89005 Tel: 702-293-1576 www.barthelectronics.com ESD Test Equipment, including AdVanTage TLP™. Setting the standard for measurement & true ESD simulation.</p>

Minimum rates are \$600.00 for six consecutive issues. Larger contributions are welcome. No agency fee is granted for soliciting such contributions. Inquiries, or contributions made payable to the ESD Association, plus instructions on how you wish your Institutional Listing to appear, should be sent to: ESD Association, 7900 Turin Rd., Building 3, Rome, NY 13440-2069 Tel: (315) 339-6937, Fax: (315) 339-6793, e-mail: info@esda.org

Institutional Listings

<p style="text-align: center;">Molded Fiber Glass Tray Co.</p> <p>6175 US Highway 6, Linesville, PA 16424 Tel: 814-683-4500 Fax: 814-683-4504 www.info@mfgtray.com Manufacturer of static dissipative trays and containers for static protection</p>	<p style="text-align: center;">rubberbands.net</p> <p>PO Box 75267, Colorado Springs, CO 80970 Tel/Fax: 719-683-2419 www.rubberbands.net Electronic Grade Rubber Bands, mfd. in the USA, vacuum-sealed antistatic, dissipative, conductive with distributors worldwide.</p>
<p style="text-align: center;">Vermason Ltd.</p> <p>1 Avenue One, Letchworth, Herts., SG6 2HB, England Tel: +44 1462 672005 Fax: +44 1462 670440 sales@vermason.co.uk Manufacturer of ESD products. For more information, www.vermason.com</p>	<p style="text-align: center;">Tech Wear</p> <p>2205 Faraday Ave., Suite B, Carlsbad, CA 92008 Tel: 760-438-7788 Fax: 760-438-6868 Email: kay@techwear.com www.techwear.com Industry leader in static control garments, including groundable cleanroom garment systems.</p>
<p style="text-align: center;">Your Listing Can Appear Here</p> <p>Contact ESD Association for Details 7900 Turin Rd., Building 3, Rome, NY 13440-2069 Tel: (315) 339-6937, Fax: (315) 339-6793, e-mail: info@esda.org</p>	<p style="text-align: center;">Your Listing Can Appear Here</p> <p>Contact ESD Association for Details 7900 Turin Rd., Building 3, Rome, NY 13440-2069 Tel: (315) 339-6937, Fax: (315) 339-6793, e-mail: info@esda.org</p>

Minimum rates are \$600.00 for six consecutive issues. Larger contributions are most welcome. No agency fee is granted for soliciting such contributions. Inquiries, or contributions made payable to the ESD Association, plus instructions on how you wish your Institutional Listing to appear, should be sent to: ESD Association, 7900 Turin Rd., Building 3, Rome, NY 13440-2069 Tel: (315) 339-6937, Fax: (315) 339-6793, e-mail: info@esda.org

More institutional listings, previous page

Threshold

*Threshold*TM is published six times a year by the ESD Association, a not-for-profit corporation. It strives for the advancement of theory and practice of electrical overstress avoidance and of allied arts and sciences and the maintenance of a high professional standing among its members and others.

© Copyright 2004, ESD Association, Rome, NY

ThresholdTM Publication Schedule

<u>Issue</u>	<u>Deadlines</u>
May/June -----	April 1
July/August-----	June 1
September/October -----	Aug. 1
November/December -----	Oct. 1
January/February -----	Nov. 19
March/April -----	Feb. 1



7900 Turin Road, Building 3
Rome, NY 13440-2069
Tel: (315) 339-6937 Fax: (315) 339-6793
E-mail: info@esda.org
Web: www.esda.org

Newsletter Staff

Threshold Chair

Leo G. Henry, Ph.D.
ESD/EMI/TLP Consultants
P.O. Box 1665, Fremont, CA 94538
Tel: 510-657-5252 Fax: 510-657-9661
E-mail: leogesd@pacbell.net

Board of Directors Sponsor

Craig Zander
Restronics Company, Inc.
7125 Washington Ave., So., Edina, MN 55439
Tel: 952-941-9135
E-mail: czander@restronics.com

Editor

Terri DeMario
ESD Association
7900 Turin Road, Bldg. 3, Rome, NY 13440
Tel: 315-339-6937 Fax: 315-339-6793
E-mail: info@esda.org

Associate Editors

Development

Ed Weggeland, Static Control Components, Inc.

Protection Design

Steve Voldman, IBM Microelectronics

Technology

Charvaka Duvvury, Texas Instruments

Editorial Advisory Board

Threshold Chair

Leo G. Henry, ESD/EMI/TLP Consultants

Board of Directors Sponsor

Craig Zander, Restronics Company, Inc.

President

Ed Weggeland, Static Control Components, Inc.

Sr. Vice President

Mark Kelly, Delphi Electronics & Safety

Vice President

Joe Bernier, Intersil

Human Resources

Kay Adams, Tech-Wear

ESD Association Headquarters Staff

Terri DeMario
Tammy Muldoon
Lisa Pimpinella