

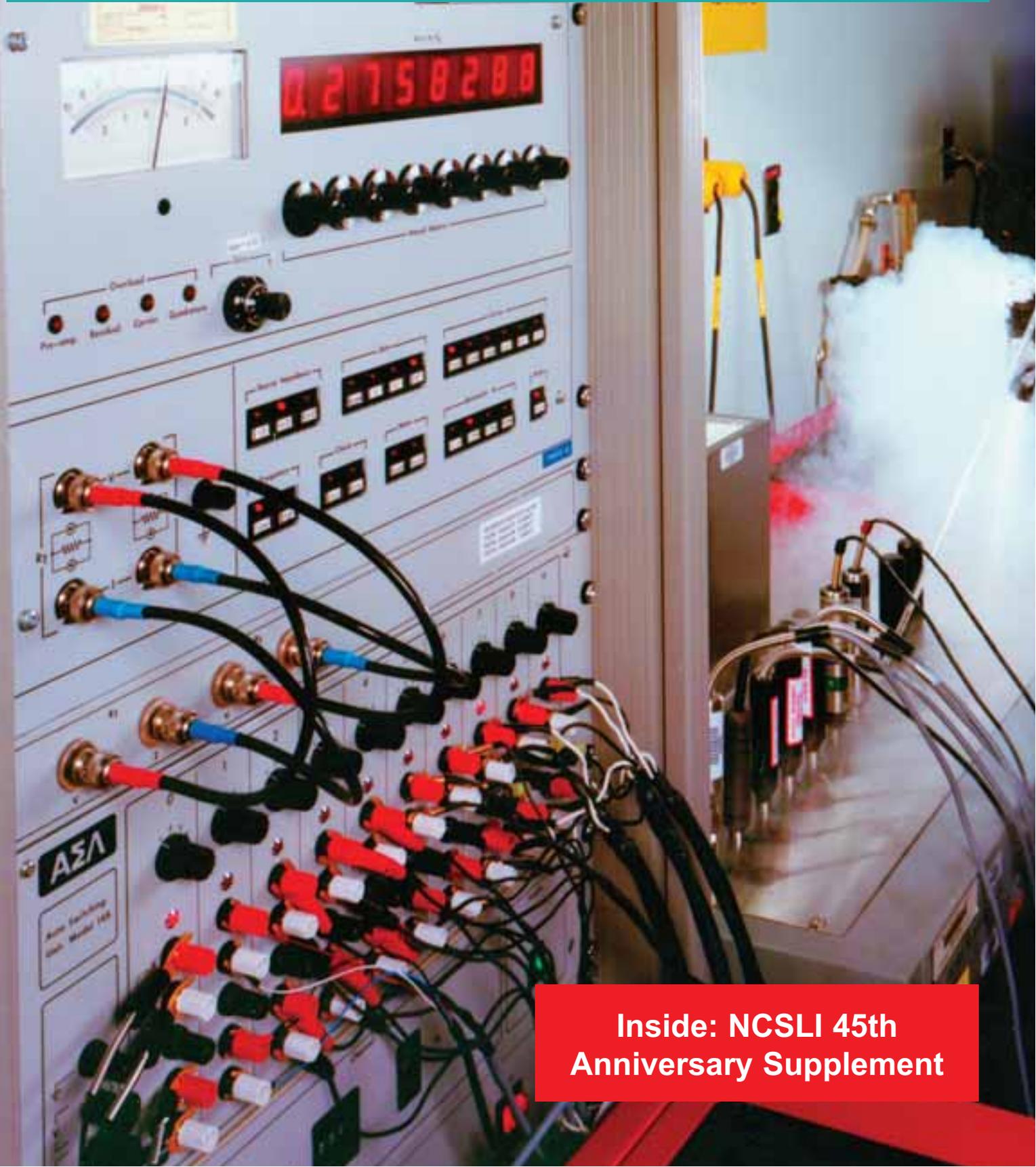
VOL 46, NO 3, JULY 2006



# NCSLI Newsletter

## NCSL International

*Serving the World of Measurement Since 1961*



**Inside: NCSLI 45th  
Anniversary Supplement**

**NCSLI Newsletter**  
**Vol 46, No. 3, July 2006**

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NCSL International is a non-profit Colorado corporation. It is an international association of laboratories and organizations that maintain or have an interest related to measurement standards and calibration facilities.

The NCSLI Newsletter is sent to NCSLI International member organizations (3 copies) and to a special listing of activities and key personnel whose work is closely related to that of NCSLI International. Send member delegate address changes to the NCSL International Business Office at 2995 Wilderness Place, Suite 107 Boulder, CO 80301-5404.

NCSLI acknowledges and thanks Agilent Technologies for sponsoring the NCSLI Newsletter Editor position.

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**On the cover:** Photo courtesy Bionetics Corp.

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**EDITOR'S MESSAGE**

**Another Birthday?**

When you get to my age, you don't necessarily welcome birthdays. But every 5 years, NCSLI takes a little time out to celebrate our continuing international activity on behalf of the global metrology community. This 45th year of contribution to better measurements comes at a time when our world is changing rather dramatically. Against a background of technology advances, tight budgets, massive changes in manufacturing processes, and a revolution in communications, NCSLI remains a global force in strategic activities to multiply the impact of metrology, quality and standards.



*John Minck  
NCSLI Editor*

As I do every 5th anniversary, I try to assemble a collection of articles and pictures to summarize and emphasize the importance of who we are and what we do. This takes the form of a commemorative document which is bound inside this newsletter. You will find that the insert can be removed with a single staple, in case you wish to save it for your archives. You might also wish to circulate it around to your upper management to educate them about metrology. I have also printed extra copies if you wish to have more for possible promotion to your management or others. Just contact the NCSLI business office.

**Another NCSLI giant**

Ask any NCSLI old timer about Dave Mitchell, and you will get the same response. In the 1960s, Dave was one of the movers and shakers within NCSLI, the 1974 president and later Wildhack winner. His work managing the world-class metrology lab at Rockwell-Autonetics put him at the forefront of advanced metrology industry practices. He was a tireless spokesman for our industry sector, and later advanced to corporate positions of considerable influence. We were a bit stunned to hear that Dave passed away almost a year ago, but we honor him with the obit on page 9.

John L. Minck  
Editor

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# PRESIDENT'S MESSAGE

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*Jeff Gust*  
*NCSLI President*

## Heading to Nashville

Hopefully by the time that you are reading this message, you will have already registered for our Annual Workshop and Symposium to be held in Nashville, Tennessee on August 6th through the 10th. If you haven't registered, now is the time!

Once again, our conference committee has put together a great workshop for us. This year's conference theme is "**Metrology's Impact on Society.**" There will be 26 tutorials, five parallel technical sessions during the conference, and 43 committee and special meetings to be held around the conference. These meetings are open to anyone, so when you organize your schedule for the workshop, please plan on attending a Committee meeting!

In addition to the technical meetings, we will have over 150 vendors exhibiting their wares and making themselves available for your questions. If you would like to experience some of the offerings from the home of Country Music, please plan to attend our International Event, held at the Wild Horse Saloon.

If you have not already done so, you can make your hotel reservations at the Renaissance Nashville Hotel at 800 327-6618. Regular registration for the workshop ends on June 26, and Late registration is available through the end of the conference. All the information you need is on our NCSLI website.

## April Board Meeting

Our Second Quarter Board of Directors Meeting was held on April 23- 26 at our business office in Boulder. We were treated to a couple of inches of snowfall while in Boulder, but bad weather rarely affects metrologists as we spend the majority of our time working in a conference room!

Some of the biggest tasks accomplished at the Board of Directors Meeting were administrative in nature, the somewhat dull tasks that are necessary for the good operation of our organization. During the Board Meeting, we adopted a Committee Chair Handbook, which we hope will be a valuable resource for our volunteer Committee Chairs. We owe our thanks to Terry Condor from 3M, our Midwestern U.S. V.P. for leading efforts on this handbook. Work was also done on revising and updating the Region/Section Coordinator Handbook, which is being led by Lonnie Spires, our Northeast U.S. V.P. from Dynamic Technology Inc.

Jesse Morse, our 174 Committee Chair from Fluke, reported that the ANSI Z540 writing committee has approved ANSI Z540.3. This publication should be available soon, and there will be a panel discussion about this subject at the annual workshop. The next task for the group is to develop a handbook for the interpretation of ANSI Z540.3 which will be done by the 171 Committee.

The 8th edition of the SI brochure is now available for free download from the BIPM website <[www.bipm.fr](http://www.bipm.fr)>. This is an excellent reference for anyone who is interested in measurement.

## NIST Promotions

I would like to offer my congratulations to a long-time fellow board member and friend, Carol Hockert, who has been named Chief of the Office of Weights and Measures at NIST. The experience gained in her previous position as the Director of the State of Minnesota Weights and Measures Laboratory will serve her well in her new endeavor.

Sally Bruce has been named the new Chief of the NVLAP program. She was previously a member of the NVLAP calibration laboratory accreditation team, as well as a metrologist with the Optical Technology Division. Sally is our NCSLI liaison for CORM.

## NCSLI MEASURE Magazine

By now each of you should have received your first issue of MEASURE magazine. I have to say that this publication has exceeded all of the Board of Directors' expectations! The second issue mailed in June, and you can expect more excellent technical articles, product information, and metrology news.

## NIST/NCSLI Meeting

In March of 2006, I had the privilege of leading the NCSLI leadership delegation to our annual meeting with NIST leadership staff. Jack Ferris, our Executive Vice President, Harry Moody, Past President and I had a very productive day of meetings. During our visit we presented Dr. Hi Yua Tang with a letter of appreciation for his assistance in conducting the latest NCSLI ILC for the 10-Volt Josephson Array. We also discussed partnering with NIST to support other ILC's in areas where commercial programs do not exist.

During our visit, we were able to attend a colloquium by Jan Hall, one of the winners of the 2005 Nobel Prize in Physics. Our day wrapped up with a meeting with Dr. Bill Jeffrey, Director of NIST. Dr. Jeffrey shared with us that President Bush is proposing a 24% increase in NIST's budget for next year and for doubling the present budget over the next 10 years. This kind of budgetary support for NIST is long overdue, and I sincerely hope that each member will communicate their support for the President's budget to their local congressperson.

Jeff C. Gust  
President

# NC SL I N T E R N A T I O N A L W O R K S H O P & S Y M P O S I U M



## *Metrology's Impact on Society*

N A S H V I L L E , T E N N E S S E E

A U G U S T 6 - 1 0 , 2 0 0 6



### Keynote Address

**Jim Sylvester**, Verizon Systems Integration and Testing VP, is responsible for an ISO 9001 registered laboratory that both tests new products and services prior to placement in Verizon's commercial network and assures the safety and reliability compliance of supplier equipment. Prior assignments with Bell Atlantic, ATT, and Bell Telephone Laboratories include: Managing the development of

technical requirements for new products and services; Testing of voice, data, and video systems; Representing Bell Atlantic in Czechoslovakia on regulatory reform; Ten years in External Affairs managing technical regulatory and privacy issues before the FCC and U.S. Congress; Representing the telephone industry on Senator Leahy's 1991 Privacy and Technology Task Force, and Writing Verizon's Consumer Privacy Policy.

A NASCAR race can be won or lost due to minor variations in tire pressure or to fractions of an inch in vehicle height. A Nashville musician depends on the quality of sound in his electric guitar that is built from parts with exacting specifications.

Industrial metrology laboratories calibrate equipment used to determine whether a product is shipped to a customer or it must be returned for re-work. Legal Metrology programs ensure that the measurements associated with commerce are accurate and reliable.

All of these examples require a sound and cohesive metrology and quality system to be in place. Metrology practiced anywhere in the traceability chain, from the National Metrology Institute to a customer's location, affects critical decisions and improves the quality of life for everyone.

The conference will cover the following topics:

#### Theoretical

- New or Improved Standards and Capabilities
- Measurement Uncertainties (GUM; Bayesian)
- Intrinsic Standards
- Advances in Measurement Disciplines
- Traceability Issues
- Standards & Calibrations at National Metrology Institutes

#### Applied

- Laboratory Automation
- Calibration Processes or Procedures
- Improvements or New Trends in Instrumentation
- Interlaboratory Comparisons
- Metrology applications in industry, government, Telecommunications, automotive, chemistry, space, and other specialized disciplines

#### Management / Quality

- ISO & ANSI Standards (ISO 900x, ISO/IEC 17025, ISO 17011, Z540-1, Z540-2, etc.)
- Metrology Management Information Systems
- Equipment Management
- Laboratory Accreditation and Quality Processes
- Metrology Education and Training
- National & Regional Measurement Systems

Register Now!

[www.ncsli.org/conference/](http://www.ncsli.org/conference/)

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# METROLOGY CALENDAR

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## **NCSLI MEETINGS**

August 6-10, 2006  
NCSLI Workshop & Symposium  
Nashville Convention Center, Nashville, TN  
CONTACT: NCSL Business Office, (303) 440-3339  
Fax: (303) 440-3384  
e-mail: <info@ncsli.org>  
website: <www.ncsli.org/conference>

## **INDUSTRY MEETINGS**

September 17-22, 2006  
16th IMEKO World Congress  
Rio de Janeiro, Brazil  
CONTACT: Chester Franklin, (951) 313-3866  
Fax: (951) 736-7390  
e-mail: <cfranklin@cscnorco.com>

October 25-27, 2006  
Symposium of Metrology  
CENAM, Santiago de Queretaro, Qro., Mexico  
CONTACT: website: <www.cenam.mx>

November 14-16, 2006  
16th Intl. Conference of the Israel Society for Quality  
David Inter-Continental Hotel, Tel Aviv, Israel  
CONTACT: ISAS International Seminars, 972-2-6520574  
Fax: 972-2-6520558  
e-mail: <register@isas.co.il>

## **REGION/SECTION MEETINGS**

### **SOUTH CENTRAL US REGION**

**South Texas Section Meeting**  
July 27, 2006  
Holiday Inn & Suites, San Antonio, TX  
CONTACT: Keith Scoggins, (361) 972-7742  
(361) 972-8368  
e-mail: <dkscoggins@stpegs.com>

**CHECK WEBSITE FOR UPDATES**  
<[www.ncsli.org/events/](http://www.ncsli.org/events/)>

**You can submit information on your upcoming Region/Section meeting, Committee meeting, or other Metrology-related event on the web! Just click on "Calendar" then "Submit an upcoming event".  
Get listed and increase awareness and attendance!**

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# REPORTS FROM THE BOARD

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## ILAC/NACLA REPORT

Anthony Anderson

### International Laboratory Accreditation Cooperation (ILAC) Laboratory Committee (LC)

I attended the ILAC Arrangement Committee (ARC) and ILAC Executive meetings in Tel Aviv in February.

Discussions about complaint-handling procedures continue within ILAC because ISO/IEC 17011:2004 does not provide effective guidance on complaint handling. Any harmonization can only be realized at the ILAC and Regional level due to national legal requirements. The process has to be generic and not conflict with local laws.

There was little consensus within the ARC but it was agreed that the ILAC procedure, already tested once, should be the basis for achieving regional harmony. At least the Regions accept that their complaints handling procedures need to be made effective and evaluators need to be trained to look for adequate procedures. It was suggested that the procedures laid out in ISO 10012 should be used as a way forward.

A guidance document on ISO/IEC 17011 is still considered by most ILAC members to be unnecessary. However, with the continuing philosophy to do things jointly with IAF, ILAC is going along with the work for a guidance document, which is now in its 9th revision.

A preliminary survey on the economic impact of the ILAC Arrangement carried out by an ARC task group estimated that the reduction in cost for conformity assessment costs is 0.77% of the cost of all exported products. It is estimated that the potential reduction in cost could be \$50 Billion per year.

It was reported at the meeting that the ILAC Arrangement is being revised to include other than the accreditation of laboratories by ABs, and to include PT providers and Reference Material providers. This action is in anticipation of the accreditation of such bodies.

A proposal for the ILAC/IAF MLMRA on Inspection was submitted in Tel Aviv. Unlike Laboratory Accreditation, Inspection Body accreditation requires country by country regulatory requirements for inspection. It is more like a formal designation requirement. During the Peer Review process 100% witnessing is required of the Inspector for a specific product type inspection, for a designated regulated area. e.g. a boiler for the nuclear industry. The person signing the inspection report has to be 100% witnessed. The process comes very close to personal certification, rather than accreditation of the inspection body. The work will continue in the joint working group for inspection.

Revision of P8; *"ILAC Mutual Recognition Arrangement: Supplementary Requirements and Guidelines for the Use of Accreditation Symbols and for Claims of Accreditation Status by Accredited Laboratories."*

There has been considerable discussion in ILAC about the word "should" versus "shall" for insisting that testing laboratories and ISO 9001 manufacturing facilities establish their traceability by using accredited calibration certificates. The accreditation mark is the way assessors know such measurements are traceable.

ILAC will have further discussions with IAF to persuade their certification bodies to insist on asking for accredited calibration certificates. For the moment, "should" will remain because some NMI's issue non-accredited certificates through which calibration laboratories establish their traceability. The issue of certification marks has come up with regard to test and calibration certificates. ILAC should insist that only accreditation marks appear on test and calibration certificates and no certification marks should be allowed. A reference to the joint ISO/ILAC/IAF communiqué will be included in P8.

ILAC acknowledges that the evaluation process is taking a long time. The results of the NACLA survey findings on this issue were shared with the ARC. Most members present concurred with the NACLA time line of a minimum of 2 to 3 years. A discussion paper is being prepared on this topic, so that new AB applicants will know how long the process will take.

The issue of Scopes of Recognition continues to be debated in ILAC. Many feel that the broad categories of being recognized for Calibration, Inspection or Testing should be delineated. Because of the difficulty and enormous cost for an evaluation team to cover very wide scopes, one solution may be for ABs to self-declare. The debate continues.

*A revised G21 "Cross Frontier Accreditation - Principles for Avoiding Duplication"* is being debated within ILAC. There was intense discussion in the ARC and no real consensus was achieved, particularly in Europe. One country in EA declared that it was illegal in his country for a foreign AB to accredit. G21 is a guidance document and although it tries to discourage cross border activities, the decision is still up to laboratories as to which AB they choose for their accreditation. It is also a violation of the World Trade Organization (WTO) trade rules to prevent competition across borders. The majority opinion in ILAC is to end competition one day, but for now it is still voluntary and up to the individual AB's as to whether they take business outside their own domestic market following the ILAC guidelines.

A Draft of an MOU between ILAC and OIML has been prepared for discussion by the ILAC Executive and will be submitted to the membership for comment.

The ILAC Secretariat has submitted a proposal to ISO/CASCO for a new work item. As was resolved at the Auckland ILAC General Assembly, there should be a revision of the existing ISO/IEC Guide 43:1997, Part 1: Development and operation of proficiency testing schemes and ISO/IEC Guide 43:1997, Part 2: Selection and use of proficiency testing schemes by laboratory accreditation bodies.

During the Executive meeting I made a presentation on behalf of the NACLA Board regarding NACLA being eventually recognized by ILAC as the coordinating body and point of contact for the U.S. Accreditation System and becoming a signatory to the ILAC Arrangement following a peer review. The issue has come up before and has been emphatically rejected in the past. This time there was a realization by key members of the Executive, that the "U.S. problem" is not going to go away and a way forward has to be found. There will be more discussion between ILAC and NACLA leaders including a meeting between the ILAC Chair and the NACLA President sometime in the summer.

### **National Cooperation for Laboratory Accreditation (NACLA)**

I attended the NACLA Forum, AGM and Board meeting in Columbia, MD at the end of March. The Annual Forum serves as a opportunity for NACLA to update those in the US interested in laboratory accreditation. At this year's Fifth Annual Laboratory Accreditation Forum speakers representing Government, industry and major laboratory associations voiced strong support for NACLA and its mission.

The news that NACLA is seeking international recognition either directly with ILAC or through the soon-to-be-recognized regional body, IAAC, was met with overwhelming support.

Other items covered at the Forum included a status report on other components of the global accreditation system presented by representatives of the InterAmerican, Asia-Pacific, and Worldwide accreditation cooperations. An update and an early evaluation of the challenges to accreditation posed by the new international standard with which they must comply; ISO/IEC 17011, was another well-received topic.

An interesting look behind the scenes at real-world crime laboratories, provided by officials of two bodies that accredit them, put to rest some of the myths associated with the popular Crime Scene Investigation (CSI) TV shows. There was a candid discussion by a panel of laboratory and accreditation body representatives of how each group views the other's performance. William Tistone, 2006 NACLA President, gave a report on NACLA's progress in 2005 and plans for 2006. Despite the recent setbacks regarding the withdrawal of two AB's from the NACLA MRA, he was confident NACLA will achieve its goals and asked that everyone get behind the initiative to acquire International recognition.

A new document, PT-1, which explains the requirements and processes for NACLA inter-laboratory comparisons and the responsibilities for their organization and conduct, has been adopted by the NACLA Board and has been posted on the website inviting comments. NACLA will shortly be offering its first sponsored PT program for Rockwell Hardness in cooperation with Quametec, an accredited PT provider.

A revised Suspension and Revocation Procedure (Revision B) was adopted by the Board. The publication of this document follows a considerable amount of debate but has been accepted by the Acceptance Panel members and Recognition Committee. Its implementation is effective immediately.

Under its new Webmaster, and now located on its own server, the NACLA Website has taken on a new look. The next NACLA Board meeting will be just prior to the NCSLI Workshop and Symposium.

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### **REPORT FROM INMS AND CLAS**

*Jean LaFortune, NRC, Canada*

The INMS Director General has made the accreditation of the INMS Calibration and Measurement Services an institute priority. The Quality System at INMS has seen substantive progress in the last year. Many groups have completed the SCC assessment process; others have had appropriate peer evaluations. Photometry and Radiometry Standards, Acoustical Standards, Electrical Power Measurements, Dimensional Metrology, and Mass Standards are listed in Appendix C of the CIPM MRA.

These results, therefore, give Canadians and other users reliable quantitative information on the comparability of national metrology services and provides the technical basis for wider agreements negotiated for international trade, commerce and regulatory affairs. The Chemical Metrology, Thermometry, Electrical Standards and Time and Frequency laboratories completed their quality systems and had successful internal audits, in preparation for assessments and peer evaluation.

The role of CLAS (Calibration Laboratory Assessment Service) remains to provide management system and technical assessment services, and to certify specific measurement capabilities of public and private calibration laboratories seeking accreditation to ISO/IEC 17025 by the Standards Council of Canada (SCC). This collaboration is essential to Canadian industry and provides great value to Canada.

The number of CLAS/SCC accredited calibration laboratories increased by 12% last year in Canada. Approximately 150,000 calibrations are provided annually to Canadians by private and public sector CLAS/SCC accredited laboratories. Several improvements to the operation of the CLAS programme were made over the last year and two new modules for the web-based CLAS Management Information Database are planned to improve CLAS' ability to provide and track laboratories proficiency testing activities. CLAS remains active in coordinating the participation of CLAS/SCC accredited calibration laboratories in regular proficiency testing activities, which is essential to maintain confidence in the Canadian calibration system and its infrastructure.

In 2006, CLAS provided a team member for the IAAC peer evaluation of the Chilean national accreditation system. Representatives from ILAC witnessed the evaluation as part of their role in overseeing the credibility of the IAAC peer evaluation process so that the region could be recognized at the international level. The CLAS team member's work was reviewed favourably by the ILAC representatives. Also in support of continued cooperation, CLAS collaborated with the SCC and A2LA in organizing and hosting an APLAC/IAAC peer evaluation training course on the new standard ISO 17011: Conformity assessment - General requirements for accreditation bodies accrediting conformity assessment bodies at INMS in Ottawa, Ontario, Canada.

## EUROLAB UPDATE

Horst Czichos



At the EUROLAB General Assembly 2006 in Borås, Sweden: Jeff Gust, NCSLI president (c) together with Steve Sidney (NLA) and Gordon Clark (Euromet)

### Flexible Scope of Accreditation - Experience and Future Prospects

Under this title, a joint workshop of EUROLAB and EA (European Cooperation for Accreditation) took place on 15 May in Borås, Sweden in connection with the EUROLAB General Assembly 2006. The focus of the workshop was on the flexible approach to defining the accreditation scope.

Flexibility of the scope is felt essential by both conformity assessment bodies (CABs) and their customers in order to quickly react to market needs and to allow for innovation. The experiences show that increasingly, accreditation bodies reply to this need by applying flexible scopes. However, in some countries barriers for CABs, in order to gain a flexible description of their scopes, are rather high. It was one of the main conclusions of the workshop that in order to allow for all the advantages of flexible scopes to come into place, barriers need to be lowered by the accreditation bodies in some countries, as it is currently being performed in Denmark as a positive example.

Approximately 80 participants from over 20 countries attended the workshop from conformity bodies, as well as from accreditation bodies, enabling fruitful discussions with the goal of making the tool of accreditation more efficient and customer friendly.

### EUROLAB General Assembly

The EUROLAB General Assembly 2006 took place in Borås, Sweden on 16 May, 2006. Representatives from national EUROLAB organisations from 20 different countries attended the meeting. Jeff Gust, current president of NCSLI, participated and gave a presentation on the activities and aims of NCSLI.

The current acting EUROLAB President and Vice President, Bent Larsen, Denmark, and Guy Jacques, Belgium, were confirmed as EUROLAB President and Vice President respectively. As new members to the EUROLAB Board of Administrators, Jan Basten (The Netherlands), Jiri Sobola (Czech Republic), Santos Duarte (Portugal), Jean-Luc Laurent (France) and Ivan Temniskov (Bulgaria) were elected. The newly elected delegates are all mem-

bers of the EUROLAB Board for the first time, indicating a change of generation for EUROLAB.

### New international member

Interlab, Ukraine, was welcomed and approved as new EUROLAB member during the EUROLAB General Assembly on 16 May 2006. Besides organisations e.g. from Turkey, South Africa and the USA, Interlab from the Ukraine is now another EUROLAB International Affiliate Member.

### New EUROLAB technical documents approved as aid for laboratories

The EUROLAB Technical Report on Measurement Uncertainty for the experienced user was approved by the EUROLAB General Assembly 2006 which was elaborated on the basis of a guideline of BAM (Federal Institute for Materials Research and Testing, Germany). Also the "Guideline for the use of computers and software in laboratories with reference to ISO 17025" was approved, in which Greg Gogates from the U.S. has also been involved. Both publications will now undergo only minor amendments and will be published on the EUROLAB website under <www.eurolab.org> soon.

\*\*\*\*\*

## EUROMET (EUROPEAN COOPERATION IN METROLOGY)

Seton Bennett, EUROMET Representative to the Board

### EUROMET General Assembly takes important step towards incorporation



Vienna's St. Stephens Cathedral

The EUROMET General Assembly met in Vienna on 1-2 June, and it was once again a pleasure to welcome NCSLI President Jeff Gust who updated the European audience on developments in NCSLI and preparations for this year's Conference. The international track at the NCSLI Conference will

include a EUROMET session, concentrating on the iMERA project and prospects for a European Metrology Research Programme. These topics dominated discussion in Vienna.

I provided an account of the iMERA project in the January Newsletter. Since then a lot of progress has been made with the various work-packages in iMERA, with the completion of 46 roadmaps setting out the technical and societal challenges foreseen in the next fifteen years with proposals for the metrological applications which need to be developed to meet them.

Progress towards a coordinated research programme (the EMRP) has been rapid this year, although no decision has yet been taken on European Commission funding. Working on the assumption that the Commission will support a seven-year programme from 2007, with matching funding from the NMI partners, we have been concentrating on the mechanisms needed to deliver the EMRP. This will involve the creation of a legal entity, provisionally an association of

Continued on page 22

## REMEMBERING DAVE MITCHELL



*J. David Mitchell  
April 3, 1932 - July 27, 2005*

Dave Mitchell, a key contributor to the early NCSLI organization and growth in the 1970s, died last July, 2005, in Grand Junction, CO, following a battle with a rare lung disease. Dave was NCSLI President in 1974-75, and later received the Wildhack Award in 1980. Dave had retired with his wife Yvonne to their Colorado hometown in the late 1990s, following a long successful career with Rockwell International. He was born in Silt, CO, was active in school sports, and enlisted in the USAF (Staff Sergeant) during the Korean conflict. Upon his discharge in 1953, he earned an Associate of Science degree at Mesa College.

Mitchell received his BS in Electrical Engineering at the University of Colorado. During that time he interned at NBS, Boulder, which probably gave him his metrology interests for life. In 1959, he joined the Litton Industries, and coincidentally reported there to another of our early NCSLI Board members, Dean Brungart. His work involved metrology engineering, and led to a 1965 job offer as QA Manager at the Fluke Corp in Seattle. Dean recalls that Dave encouraged 7 other engineers from Litton to come to Fluke—a rather devastating event for Litton. In 1968, he returned to the Los Angeles area, joining the Autonetics Division of Rockwell, to manage their metrology laboratories in Anaheim. He then advanced to Director, Advanced Programs and Manufacturing Technology, Rockwell International, Pittsburgh, PA.

In the Autonetics years, Dave was an enthusiastic supporter for NCSLI, serving on the Board for 5 years, and then as President. He strongly encouraged many of his engineers to participate in all the various regional and committee work, people like George Rice, Rolf Schumacher, Bob Couture, Roland Vavken, and many more. He also graduated from the Executive Development Program at the University of California at Irvine. His expertise in manufacturing technologies led him to be called to make direct testimony to the U.S. Congress on automation, after George Rice testified for NCSLI supporting NIST budgets.

Dave's industrial volunteering was legendary. He served on numerous professional bodies, including the Precision Measurements Association, Society of Manufacturing Engineers, Institute of Industrial Engineers, Product Data Exchange Using Step, Robotics Institute of America, and Coalition for Intelligent Manufacturing Systems. He authored over 50 papers and articles covering a broad range of technical and management subjects in those fields. He also provided leadership and support for many other government, industry, university and science advisory committees.

During that period, Dave was recruited to lead a "Blue Ribbon" Calibration Review study of the Army-wide calibration and maintenance programs. The study led to significant changes and prepared the Army program for future changes in technology. The committee included several NCSLI members, Dean Brungart and Mike Suraci. Mike recalls that after a tedious all-day meeting at the Lexington Army Depot, the committee went to the race track for the evening, and he bet on a nag with long-shot odds. When he won, Dave made him buy dinner for 7 people.

Dave and Yvonne leave 3 children and 3 living grandchildren.

*Editor's Note: Dave Mitchell was one of my metrology heroes. When I joined NCSLI activities for Hewlett-Packard in 1972, it was Dave who induced me to become regional coordinator for the Bay Area, which is the way a lot of you readers started your own NCSLI work. He moved me through several vice presidencies, ending up as President in 1978. Amazing. I remember Dave's work at Autonetics in particular because of his management strategies. Those were the years of the intercontinental missile race, and the USAF Minuteman program. With such a complex program, and the management issues that those technologies involved, Dave made sure that for every missile interface committee dealing with all the missile's technical sub-systems, that one of his metrology people sat on the committee to assure that measurement assurance would happen between project teams.*

*In that not-so-subtle way, Dave came to the attention of top management at Rockwell, and ended up being promoted to their Corporate offices in Pittsburgh, working on automation and robotics strategies for 13 years. He was influential in Rockwell's strategies for automation in their principal business which was as merchant supplier to the automotive industry.*



*Mike Suraci and his wife, Andrea, visited Dave (c) at his new home in Grand Junction, circa 2004. Dave and his wife Yvonne had retired and built their brand new home to his specifications, but regretfully Yvonne died soon after. He prided himself in the design, and Mike reported that his office held many NCSLI and metrology mementos. He continued to proudly follow our NCSLI activities till the end.*

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# EDUCATOR'S CORNER

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## THE METROLOGY JOB DESCRIPTION (MJD) INITIATIVE HAS BEEN COMPLETED!

*Christopher L. Grachanen*

Results of the MJD Initiative survey were compiled and summarized by Professional Examination Services (PES) and used as the basis for creating draft job descriptions for Calibration Technician, Calibration Engineer and Metrologists. Readers may remember that we had over 600 Metrology professionals take the on-line survey focusing on job expectations, training and education. These drafts were commented, revised and approved by the MJD Initiative core team comprised of:

Jay Bucher	Promega Corporation
Christopher L. Grachanen	Hewlett-Packard Inc.
Shawn B Mason	St. Jude Medical
Gloria J Neely	US Navy Naval Surface Warfare Ctr.
Graeme C. Payne	GK Systems, Inc.
Don Ruth	US Army TMDE
Howard Zion	Transcat

The following job descriptions were submitted to the U.S. Department of Labor, Bureau of Labor Statistics (the department responsible for Standard Occupation Classification (SOC) system)

### Calibration Technician

Apply knowledge of measurement science, mathematics, physics, and electronics to calibrate inspection, measurement, and test equipment (IM&TE) in the electrical, dimensional, optical, physical, mechanical, environmental, and/or chemical disciplines to ensure measurement accuracy. Identify and utilize appropriate measurement procedures. Perform corrective actions to address identified measurement problems. Adapt equipment, standards, and procedures to accomplish unique measurements. Maintain calibration standards. Perform laboratory and/or departmental housekeeping.

### Calibration Engineer

Apply measurement science, mathematics, physics, and engineering to design and develop systems, equipment, and methods for calibrating electrical, dimensional, optical, physical, mechanical, environmental, and/or chemical inspection, measurement, and test equipment (IM&TE). Analyze and solve calibration problems using advanced mathematical and engineering knowledge. Use statistics to analyze measurement standards and processes. May develop software to assist in calibration laboratory and/or departmental processes. Recommend calibration standards and IM&TE. Maintain calibration laboratory and/or quality systems. Perform laboratory and/or departmental administration and management.

### Metrologist

Apply measurement science, mathematics, and physics to develop, document, and maintain calibration systems, procedures, and methods for electrical, dimensional, optical, physical, mechanical, environmental, and/or chemical inspection, measurement, and test equip-

ment (IM&TE) based on analysis of measurement problems, and accuracy and precision requirements. Evaluate new calibration methods and procedures. Use statistics to analyze measurement standards and processes. Recommend calibration standards and IM&TE. Maintain calibration laboratory and/or departmental accreditation, and quality systems. Perform laboratory and/or departmental administration and management.

On 04 Apr 2006 I received the following e-mail acknowledgement from the SOC:

"Your email request and fax was received by <SOC@bls.gov> Your suggestions have been added to a list of suggestions that other individuals and organizations have made. Once the Federal Register Notice (FRN) is posted and the comments to the FRN are received, all of the suggestions will be given to the SOC revision workgroups. Please feel free to email us at <soc@bls.gov> with any further questions. Thank you for your interest in the SOC."

On 16 May 2006 I received an e-mail from the SOC regarding the posting of the Federal Register Notice (FRN) for SOC changes:

"The FRN is soliciting comments on (1) SOC Classification Principles, (2) corrections to the 2000 SOC Manual, (3) the intention to retain the current SOC Major Group structure, (4) changes to the existing detailed occupations, and (5) new detailed occupations to be added to the 2010 SOC. Please see the Federal Register Notice for more details. All comments must be received by July 17, 2006."

The FRN may be viewed at:

<[http://frwebgate.access.gpo.gov/cgi-bin/getpage.cgi?dbname=2006\\_register&position=all&page=28536](http://frwebgate.access.gpo.gov/cgi-bin/getpage.cgi?dbname=2006_register&position=all&page=28536)>

Needless to say I will be closely monitoring the progress of the SOC workgroups to make sure the MJD Initiative job descriptions are included in the new SOC revision.

I would like to take this opportunity to thank the hundreds of individuals who got involved on the MJD Initiative core team, submitting job descriptions and taking the MJD Initiative survey. Without your involvement, I know changing the SOC to include Metrology/Calibration job descriptions would still be in the wishful stage. Thanks for making a difference.

# TRAINING INFORMATION

## MEASUREMENT UNCERTAINTY CLASS

Quametec Institute  
Karen Moor, (810) 225-8588  
info@quametec.com  
www.quametec.com

**2006: July 17-19** Mississauga, ON  
**August 23-25** Seattle, WA  
**September 13-15** Harrisburg, PA  
**October 23-25** Detroit, MI  
**November 28-30** Detroit, MI

**\$1595** per student. Attendees will receive 3 days of hands-on Measurement Uncertainty training based on the GUM Method, plus a copy of our book, "Measurement Uncertainty Analysis Fundamentals" and a licensed copy of our software, "Uncertainty Toolbox for Microsoft Excel" developed by Quametec. See our website at [www.quametec.com](http://www.quametec.com) for additional information, course outline and our unique class guarantee.

## TROUBLESHOOTING ELECTRONIC INSTRUMENTATION

J&G Technology  
Gary C. Meyer, (952) 935-1108  
gmeyer@mn.it.com  
www.jg-technology.com  
**July 24-25, 2006** Minnetonka, MN

**\$695** per student. This two-day seminar covers general analog and digital trouble-shooting techniques that are demonstrated with applications in linear power supplies, switching power supplies, voltage amplifiers, voltage comparators, multi-meters, frequency counter-timers, and oscilloscopes. The course will be useful for the new electronic repair and calibration techniques as well as a good review for the seasoned troubleshooting veteran.

## MEASUREMENT UNCERTAINTY FOR MANAGERS

J&G Technology  
Gary C. Meyer, (952) 935-1108  
gmeyer@mn.it.com  
www.jg-technology.com  
**August 21, 2006** Bloomington, MN

**\$495** per student. This one-day seminar provides an overview of measurement uncertainty for the user of uncertainty budgets. It includes applied statistical principles, measurement applications, types of distributions, type A & B errors, individual error components, basic development of an uncertainty budget, calculations for combined uncertainty, expanded uncertainty, and reporting uncertainty. Uncertainty budgets will be analyzed in class exercises.

## AUDITING TO ISO 17025

Quametec Institute  
Karen Moor, (810) 225-8588  
info@quametec.com  
www.quametec.com  
**August 21-22, 2006** Seattle, WA

**\$895** per student. Become qualified to be an internal Auditor for

ISO 17025 compliance by taking the same course that we teach to Laboratory Accreditation Assessors. This 2-day course covers the full standard as well as provides tools and guidance on how to perform and document your Internal Audits. Get it right the first time with professional training on your side. Includes a CD loaded with tools and forms to simplify the required documentation of your internal audit.

## BASIC DIMENSIONAL METROLOGY

J&G Technology  
Gary C. Meyer, (952) 935-1108  
gmeyer@mn.it.com

[www.jg-technology.com](http://www.jg-technology.com)

**August 28-30, 2006** Bloomington, MN

**\$995** per student. This course covers the basics of dimensional measurements, length standards, mathematics, data, scientific and engineering notation, linear measurements, rules, scales, tapes, reference planes, datums, gage blocks, vernier instruments, calipers, height gages, micrometers, dial indicators, electronic comparators, thread measurements, angle measurements, optical measurements, optical flats, laser interferometers, microscopes, and calibration procedures. Presentation is in a lecture format with in-class written exercises and some hands-on exercises.

## PRINCIPLES OF METROLOGY

Fluke Corporation  
(425) 446-6330 FAX(425) 446-5992  
caltraining@fluke.com  
**September 18-22, 2006** Boulder, CO

**\$2495** per student. This is a 5-day workshop covering electrical/electronic measurements and calibration. Participants will receive extensive hands-on time with a wide range of measurement instructions. This course covers all aspects of dc/low frequency calibration.

## UNCERTAINTY/SPC ANALYSIS

Integrated Sciences Group  
1-800-400-7866  
training@isgmax.com  
Registration: [www.isgmax.com](http://www.isgmax.com)  
**September 11-14, 2006** Portsmouth, NH

**\$1895** per person. This 4-day course provides straightforward and easy-to-understand principles of measurement uncertainty analysis for direct and multivariate measurements and measurement systems. Concepts and methods are consistent with those found in the "U.S. Guide to the Expression of Uncertainty in Measurement." Advanced measurement uncertainty analysis topics that extend these methods and concepts are also presented. Hands-on analyses using ISG's Uncertainty Analyzer software provide practical application of important concepts to the development of uncertainty estimates for direct measurements, multivariate measurements and measurement systems. Applying uncertainty estimates to control measurement processes, establish calibration intervals, and minimize decision risk is also discussed.

## CERTIFIED CALIBRATION TECHNICIAN PREPARATION

J&G Technology  
Gary C. Meyer, (952) 935-1108  
gmeyer@mn.it.com  
www.jg-technology.com  
**October 9-11, 2006** Bloomington, MN

**\$995** per student. This 3-day seminar prepares participants working in the metrology/quality field to take the ASQ certification exam for Certified Calibration Technician (CCT). The body of knowledge listed on the ASQ website, <http://www.asq.org/certification/calibration-technician/bok.html>, will be covered. Additional study beyond this course may be required to pass the exam.

## HART SCIENTIFIC TEMPERATURE METROLOGY COURSE

Hart Scientific, (801) 763-1600  
info@hartscientific.com  
www.hartscientific.com  
**October 9-11, 2006** American Fork, UT

**\$1495** per student. The Temperature Metrology course is designed for those seeking low uncertainties through comparison calibrations. Whether you work in the lab, the "field" or both, you'll find the theory and "hands-on" experience given in this course to be extremely valuable.

# SCENES FROM THE BOULDER BOARD MEETING



*Malcolm Smith, Roger Burton and Dick Pettit, still hard at work, during the coffee break.*



*It's hard to beat the beauty of Boulder in the springtime. There's still some snow on the Rockies and a brisk high mountain air about the place. Makes you want to get up and go when you wake in the morning.*



*Terry Conder and Lonnie Spires deal with some Board business.*



*Tom Wunsch, Jack Ferris and Dave Agy find issues to discuss. Jack is Executive V.P. and will succeed to the presidency next year. Dave obviously didn't get enough NCSLI service to suit him, so when his three-year sequence of presidential service ended, he came back as Treasurer. We congratulate Fluke Corp for continuing to support his service to NCSLI.*



*Carol Hockert and Belinda Collins converse at the Board meeting. Since Carol's promotion and move to NIST, to manage their Weights and Measures program, both she and Belinda now work at the same NIST campus in Gaithersburg.*



*Dick Pettit (left) talks with Carrol Brickenkamp and Ernest Garner. Ernest retired from NIST and is now doing metrology consulting with Sherrill Dittmann and Carrol. Ernest and Carrol made a presentation to the Board about opportunities in metrology education. He won our Wildhack Award in 2000.*

# REPORTS FROM THE REGIONS



April 20, 2006  
USAF Primary Standards  
Laboratory  
Heath, Ohio  
Matthew S. Knight  
Southern Ohio/Kentucky Section  
Coordinator

The spring meeting of the Southern Ohio/Kentucky Section 1132 of NCSLI was held on April 20, 2006, at the Granville Inn, in Granville, OH. The meeting was attended by 21 participants, representing 7 companies and the United States Air Force. Following a continental breakfast, Scott Knight, the Section Coordinator, welcomed everyone and introduced Ben Fullen, the Air Force Primary Standards Laboratory Program Manager, for opening remarks.

**Mr. Dilip Shah**, President, E=mc<sup>3</sup> Solutions. Dilip gave an update on the "ASQ Measurement Quality Division and NCSLI Job Description Survey" started in 2005. He explained that there were no occupation titles for calibration technicians, calibration engineers, or metrologists in the Standard Occupational Classification (SOC) system used by the Department of Labor. Educators use the SOC along with Bureau of Labor Statistics Occupational Outlook Handbook to provide students with career guidance information. Without adequate occupational titles and job descriptions, prospective candidates may not be steered into the metrology field by educators. This brought about the Metrology Job Descriptions Initiative to provide a solution for this issue.

The purpose of the initiative was:

- Develop and administer a job description survey sent out to NCSLI and ASQ constituents to solicit their inputs.
- Compile and summarize the results and submit it to the U.S. Department of Labor and Bureau of Labor Statistics on behalf of the metrology community.

ASQ MQD funded the survey and contracted with Professional Examination Services to develop, administer and summarize the survey results. This resulted in job titles and descriptions for calibration technician, calibration engineer and metrologist that were given to the Department of Labor and Bureau of Labor Statistics.

Dilip then gave a briefing on "Analysis of Quality Control Data for Laboratory Technicians and Managers." His informative briefing explained ways to measure and chart quality data to show trends and improve processes. This is especially important when complying with ISO 17025. ISO 17025: 2005, paragraph 5.9.2, states, "Quality control data shall be analyzed and, where they are found to be outside pre-defined criteria, planned action shall be taken to correct the problem and to prevent incorrect results from being reported." He showed various control charts and explained their use in the calibration and metrology environment. Some typical applications for using control charts are for check standards, stability studies, drift characterization, long term reproducibility, determination of realistic tolerances and determination of uncertainties.

**Mr. Mike Cadenhead**, AFPSL Quality Manager, The Bionetics Corporation, discussed "Preparing For An Inter-laboratory (ILC) Comparison." He explained that inter-laboratory comparison programs "provide organization, performance and evaluation of calibrations or tests on the same or similar items or materials by two or more laboratories in accordance with predetermined conditions." He used RP-15, NCSLI Recommended Practice for Inter-laboratory Comparisons as a reference for his presentation. Some highlights were:

Inter-laboratory comparisons are used to:

- Assist in developing a laboratory's uncertainties
- Cross-train laboratory personnel
- Establish correlation between labs
- Check individual testing performance of laboratory personnel
- Determine characteristics of a material to a particular degree of accuracy

A successful ILC requires organization, planning, day-to-day management, and a commitment from all participants.

**Mr. Mike White**, Sales/Engineering Manager, Western Environmental Corporation, briefed us on "Planning and Design of Environmental Systems for Laboratories." His informative briefing explained the planning and design requirements for a laboratory environmental system. Some of the topics he covered were:

Planning / Pre-Construction

- Location within Plant / Facility
- Equipment Layout
- Design Parameter
- Traffic Flow / Material Flow
- Life / Safety

Design

- Size of Laboratory
- Doors
- Windows
- Receptacles
- Internal Equipment Power/Utilities
- Communication / Data Ports
- Fire Protection
- Controller Location
- Slab Isolation / Vibration

Installation

Start-up / Testing

**Mr. Doug Scheck**, AFPSL Temperature Laboratory Technician, The Bionetics Corporation, discussed "Determination of Uncertainties for Temperature Fixed Points and Their ITS-90 Subranges." He has submitted a paper to be presented at the NCSLI Conference. He was asked to give a short briefing in preparation for the conference in Nashville.

## Reports from the Region

Doug explained the International Temperature Scale of 1990 (ITS-90) over the range of -259.3467 to 961.78 °C and how it defines temperature values at fourteen fixed points. A Standard Platinum Resistance Thermometer (SPRT) is used as an interpolation device for temperatures between the fixed points.

Since the SPRT is an interpolation device an uncertainty propagation analysis must be performed which includes:

- The uncertainty of the fixed points in use
- The uncertainty of the measurement process
- The non-uniqueness of the SPRT
- The ITS-90

He explained the uncertainties of fixed points at the triple point of water, argon, mercury, tin and zinc and showed how the data was used to perform an uncertainty propagation analysis.

**Mr. Larry Paul**, AFPSL Engineer, The Bionetics Corporation, discussed "*An Approximation Method for Finding Emissivity and Temperature of a Blackbody.*" He has submitted a paper to be presented at the NCSLI Conference. He was asked to give a short briefing in preparation for the conference in Nashville.

Larry easily explained the approximation method he used and the algorithm he derived for determining the emissivity and temperature of a blackbody. A short outline of his very interesting briefing covered:

- Introductory information
- Set up minimization problem as motivation
- Introduce three approximations
- Derive algorithm for a non-iterative solution to the minimization problem
- Two examples are completed

### Results and conclusions

- The exact method requires iteration of a number of steps that depends on
  1. Method used
  2. Initial guess
- Approximation method has four advantages
  1. No iteration
  2. Small errors
  3. Calculations are relatively straightforward
  4. Scalable to a large data set
- If exact results are required,
  1. Use approximate result as a good initial guess
  2. Reduces steps required for exact method

Prior to adjourning, Scott requested topics that attendees might like to suggest for future meetings. He also informed the group about the new magazine now published by NCSLI called *Measure* and invited everyone to attend the NCSLI conference in Nashville, TN. Names were drawn for door prizes, provided by NCSLI and Bionetics. The meeting was closed with thanks to the guest speakers and those attending.



*Our speakers gather for a group shot.*



*Wouldn't you think that metrologists should follow instructions precisely, "All tall people in the rear row."*

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May 16, 2006  
Eagan Community Center  
Eagan, MN  
Bruce Adams  
Twin Cities Section Coordinator

The Twin Cities Sectional held its spring meeting Tuesday May 16, 2006 at the Eagan Community Center in Eagan, Minnesota. The day's host for the meeting was Martin Calibration Inc. of Burnsville, Minnesota. The meeting was attended by 76 local members and guests. Meeting attendance has been slowly climbing back to our previous meeting size of 80 to 90 people after a few years of staff down sizing and company attrition in the area.

Rick Brion provided the group with a brief history of Martin Calibration Inc. Martin Calibration of Burnsville provides a wide band of calibration services to companies across the upper Midwest. Through their service section they provide both site-based calibration services and home-office-based calibration services. In addition to the services they offer they have developed a relationship with other calibration service providers when they need to sub-contract, to provide a full-service calibration to the customer.

Martin also sells instrumentation and standards measurement devices to provide additional one-stop shopping for its costumers. Martin staff members were on hand to meet with those attending

and share information on the company. Thank you again to Martin Calibration for providing a meeting site and refreshments and snacks for the day.

Our first presentation was by Alex Tabenkin speaking on *"Surface Finish, Form and Location Measurements."* Alex is with Mahr Federal Inc in Providence, RI and also provides consultant services. Alex brings a lengthy background in the dimensional measurement area and has authored a number of technical papers. Alex is a member of the ASME B46 Standards Committee, and also shares his time with the ISO TC 213 Committee on Dimensional Measurements.

When one does not have first-hand knowledge of a speaker, and makes most arrangements by e-mail or phone, your expectations have a wide uncertainty. Alex not only provided the group with an informative Power-Point covering a range of form and surface finish measurements and the equipment types used, but did it in an enjoyable mode. Alex brings a sense of humor and reality to his presentation that makes it beneficial to all.

The next presentation was by Kevin Rust speaking and demonstrating *"Control Charting Calibration Standards and Measurement Processes."* Kevin has more than a decade of experience at MTS in Eden Prairie, MN and when first out of Ridgewater College went West to work at Hughes Aircraft. Kevin is a member of the Twin Cites sectional steering committee so we get the benefit of his assistance in many ways. Kevin's presentation provided the motivation for building control charts and choice of methods for building the system of charts using available software.

Kevin's talk guided the group through collection of data, frequency of update and interpretation of the charts. He shared with the group the value to the lab and company of the charting system, on a recent on-site accreditation audit. The ability to monitor processes and standards on a quick basis is of great importance to a company such as MTS who has field service staff with field standards spread worldwide.

Completing the morning we had the first ever presentation at a Twin Cites sectional meeting which incorporated an on-line Internet demonstration of the GIDEP web site. Karen Jackson, in one of the many roles she fills for GIDEP, provided the group with an overview of GIDEP, and was patient while she finally got her internet connection to demonstrate a real-time use of some of the GIDEP web site features. Karen has a relaxed presentation style which put everyone at ease even if they had never visited the site. We appreciate that Karen was able to stay for the full meeting day and interact with our sectional members.

For the afternoon Gary Meyer of J & G Technology further explained the ASQ "Certified Calibration Technician" (CCT) program which we have discussed in previous meetings. Gary worked through a portion of a multi-day training class that can be taken to prepare for the CCT exam. In his presentation Gary provided information on the sectional breakdown of the exam, some examples of question types, timing information, and potential references that can be used. Gary has been an active member of the Twin Cites Sectional and is a regular attendee at our meetings. He has a long history in the calibration field in both calibration and calibration equipment sales and service. His depth of knowledge and pleasant manner make his presentations both informative and enjoyable.

To close out the program for the day there was a panel discussion of the "CCT." Gary moderated the panel and we again called on some of our local sectional members who have taken the exam to sit on the panel. Gary had prepared some starter questions and the panel was able to address those issues, provide some of their own insights, and take questions from the group. I appreciated the candor of the panel members in expressing motivation for taking the exam and the many ways they approached it.

Terry Conder gave a brief report from the NSCLI BOD, talked about the upcoming conference in Nashville, and gave us some information on World Metrology Day.

In celebration of World Metrology Day, cakes were provided by Chuck Ellis of NAPT and Bruce Adams. Everyone was reminded to wish their friends a Happy World Metrology Day on the 20th.



*Gary Meyer reviews the ASQ CCT program.*



*Looks like our friends in Minnesota are taking World Metrology Day pretty seriously.*



*Now THIS is a serious class of students. Not one is looking out the window in Spring time, which must be pretty welcome to citizens of Minnesota.*

## Reports from the Region

Liimatta, Steve	3M Center Metrology Lab
McDonald, Mike	3M Center Metrology Lab
Conder, Terry	3M Corporate Metrology Lab
Nelson, Ross	3M Corporate Metrology Lab
Otto, Cory	3M Corporate Metrology Lab
Ashburn, Dave	3M Hutchinson
Meza, Soby	Alliant Techsystems
Killian, Jay	Andersen Corporation
Anderson, Mark	Boston Scientific
Negley, Sharon	Boston Scientific
Schneider, Tom	Boston Scientific
Spinks, Harry	Boston Scientific
Kruta, Kevin	Calmetrics
Urban, Greg	Computype Inc
Fudally, Dave	Donaldson
Johnson, Mitch	Donaldson
Erickson, Doug	General Dynamics Adv Info Sys
Saxowsky, Teresa	General Dynamics Adv Info Sys
Jackson, Karen	GIDEP
Laust, Dan	Goodrich - Sensor Systems Div
Malone, James	Honeywell
Johnson, Mike	Hutchinson Technology
Peterson, Ryan	IBM Corporation
Thompson, Art	IBM Corporation
Meyer, Gary	J & G Technology
Brandenburg, Ralph	Kato Engineering
Cotton, Glenn	Kato Engineering
Herdine, Scott	Lockheed Martin
Schepers, Jim	Lockheed Martin
Tabenkin, Alex	Mahr Federal Inc
Brion, Rick	Martin Calibration Inc
Garbers, Corey	Martin Calibration Inc
Hirsch, Mark	Martin Calibration Inc
Rikke, Ryan	Martin Calibration Inc
Singer, Jason	Martin Calibration Inc
Forcier, Troy	Medtronic
Hentz, Derrick	Medtronic
Ludwig, Dave	Medtronic
Mjoen, Greg	Medtronic
Morgan, Jeanne	Medtronic
Nowocin, Walter	Medtronic
Scheible, Curtis	Medtronic
Korkowski, Brandon	Mentor Corp
Larson, Sam	Minnesota Rubber
Adams, Bruce	MN Dept Of Commerce
Grangroth, Julie	MTS Systems
Moser, Bill	MTS Systems
Plath, Tiia	MTS Systems
Reigal, David	MTS Systems
Remer, Bob	MTS Systems
Rust, Kevin	MTS Systems
Schroeder, Erik	MTS Systems
Kittleson, Jeanette	Northern Balance & Scale Inc
Damiano, Joe	Northwest Airlines
Brady, Dennis	Palen Kimball Company
Evink, Doug	Palen Kimball Company
Mcdougall, Jane	Precision Repair & Calibration
Benning, Doug	Productivity Quality
Tobias, Mark	Productivity Quality
Tremmel, Tom	Productivity Quality
Wetterstrom, Ed	Rosemount Inc - Emerson Process
Duret, Jeff	Simco Electronics
Radke, Scott	Smiths Medical Md Inc
Bidon, Phil	St Jude Medical
Czech, Mike	St Jude Medical
Marcotte, Kris	St Jude Medical
Martz, Gary	St Jude Medical
Voelk, Bill	St Jude Medical
Kendall, Walt	Trane Company
Shepard, Ivan	Trane Company
Stremcha, Terry	Trane Company
Jensen, Cindy	Truth Hardware
Dolezal, Jim	United Standards
Driver, Judy	Wenger Corporation
Hanssen, Paul	Workplace Training
Canfield, Jim	
Kysycyzyn, David	

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April 21, 2006  
Fluke Service Center  
Carrollton, TX  
Gregg Shuman  
North Texas/Oklahoma  
Section Coordinator

ed extremely useful and timely information.

Clarissa Parrish, from Verizon, was our first presenter. She gave a very entertaining presentation on some of the basic concepts and strategies to use in customer surveys. She highlighted the need to get feedback from the customers on the metrological services they receive in an effort to meet ISO 9000 requirements. Underlying this need to meet ISO requirements is the need to improve customer relations in order to grow and retain valuable customer sets.

She explained that while many people associate surveys with external customers, there exist a real and tangible need to also survey internal customers. She explained that if internal customers are not extremely satisfied with their internal services, outsourcing could be a real threat to the longevity of the laboratory. In typical Texas charm, she had most of the attendees rolling in the aisle and quite literally, one attendee fell out of their chair (it was the chair's fault of course).

Wayne Cummings was our next presenter and gave an overview of Fluke's replacement for 3336A/B Signal Generators.

Gregg Shuman gave part one of a presentation, introducing the group to the basics of measurement uncertainty.

Fluke provided lunch which was catered by the Corner Bakery. Open discussions on the implementation of measurement uncertainty ensued and some very entertaining dialogue was exchanged.

Gregg then gave part two of the presentation on measurement uncertainty which explained the need for laboratories to develop a documented process for conduction measurement uncertainties.

After a short break for pictures and refreshments, the group was entertained by presentations from both Rhode & Swartz and Yokogawa. After the presentations, we made almost two complete laps with the number of door prizes that included items ranging from a putter to a new DMM donated by Fluke.

#### Attendees:

Brain James	Acudata
Aaron Aldinger	Aldinger Company
Maria May	Bell Helicopter
Eddie Dooly	Bell Helicopter
Gene Little	Celerity
Wayne Cummings	Fluke
Al Todd	Fluke
Terry McGee	HP
Clyde Bardwell	STPNOC
John Griffin	STPNOC
Keith Scoggins	STPNOC
Larry Milligan	Testech
Jim Dulac	TRS Rentelco
Warren Gilcrest	TXU
Joseph Ting	Yokogawa
Gregg Shuman	Verizon



*Just another grand weather day in Paradise (Central Texas) for Gregg Shuman's group.*

Our monthly meeting, hosted by Wayne Cummings from the Fluke Service Center in Carrollton, Texas, was an extremely interesting and fun event. All the presenters were very entertaining and present-



1422 May 3, 2006  
 Southern California Edison  
 Westminster, CA  
 Marj Heron  
 Orange County/LA Section  
 Coordinator

The LA/Orange County Section, in cooperation with Southern California Edison, held a one-day technical symposium on Wednesday, May 3, 2006 at the Southern California Edison facility in Westminster, California. The sponsors were Edison/ESI Metrology, Fluke Corporation, Yokagawa Corporation of America, and Tektronix Instruments.

Edison/ESI Site Director and VP, Paul Griegaux welcomed everyone to the facility.

Dana Leaman, A2LA presented the Lab Accreditation process, defined the difference between Registration and Lab accreditation, the difference between conformity and competence. She defined specific accreditation body requirements and discussed the accreditation cost based on size and the annual fee, and the accreditation time period before recertification. She discussed the accreditation process as it relates to 17025, the additional requirements if Z540 accreditation is needed, and she emphasized that labs should look for the scope of accreditation when they send work to someone who states they are A2LA accredited.

Paul Nelson, Raytheon and Z540 Working Group member gave an overview of the new Z540.3 Calibration system document. He stated that Section 6 of the document is new and covers Calibration system assessment and improvement with elements such as system audit, system monitoring, customer assessment, verification and feedback and corrective and preventive action. The NCSLI Committee 171 - Calibration Systems Resources Committee is working on the Z540.3 handbook and Z540.3 is currently at ANSI for final approval and expected release in fall 2006.

The last morning session was a panel discussion on Southwest Regional training needs. The panel moderator was Marj Heron-Boeing and panelists were Emil Hazarian-Navy, Randy Farmer-VWR, Bernice Holtsclaw-Parker Hannifin and Jennifer Smith-Edison/ESI. The panelists discussed the personnel and training needs for their respective industry and activities that could support future needs.

Emil Hazarian-Navy and NCSLI Committee member provided an overview of the NCSLI 163 Committee on Personnel Training Requirements and the work they are doing with the Metrology Job Description Initiative. He also discusses the proposed NCSLI recommended practice on Documenting Metrology Training. He reviewed Georgia Harris committee's activity in collecting data to get the Metrology/calibration classification added to the Government Labor classifications.

The afternoon consisted of two training sessions. John Bowman-Fluke, gave a presentation on electric measurement safety and the importance of using the correct meter to make measurements to avoid injury.

The last session was an overview of temperature measurements by Jim Smith-Boeing. He gave an overview of the types of equipment that could be used to make temperature measurements whether you were making a measurement utilizing thermocouple wires or more accurate measurements. He emphasized the importance of accounting for all system elements when doing the measurement system uncertainty analysis.

There was an optional tour of the Edison/ESI Metrology Labs at the Westminster facility. The feedback from the seminar participants was that they would like to have more training on measurement uncertainty, optical metrology and hands on workshops.

Special thanks to So. California Edison for hosting and to sponsors Fluke Corporation, Yokagawa Corporation of America, Tektronix Instruments and Edison/ESI Metrology.



*A fine turnout for Marjory Heron's technical workshop at Edison/ESI Metrology. Don't all these conference rooms look the same? I can recall "waking up" during discussions at one conference room or another, and wondering where I was. Understand that I am NOT AT ALL implying that Marjory's day was anything but stimulating, just reminiscing of my time in T&M.*

**Attendees:**

Kenneth Asis	A-Cal
Richard Brenia	So. Cal Edison
John Bowman	Fluke
Greg Cenker	So. Cal Edison
Steve Doty	NSWC Corona
Mike Duggins	Boeing
Randy Farmer	VWR
Tom Feichtmann	Parker Aerospace
Gary Gartman	Yokogawa
Stu Gibson	Ward/Davis
Chuck Greiner	Interstate Elec. Corp.
Emil Hazarian	Navy Corona
Marj Heron	Boeing
Bernice Holtsclaw	Parker Aerospace
Brian Hubert	Boeing
Bill Jimbo	Boeing
Dana Leaman	A2LA
Thomas Maginnis	Celerity
Paul Nelson	Raytheon
Larry Nielsen	Edison
Art Packard	Electro Rent
Bao Pham	Edwards
Rob Pischke	Tektronix
Rhonda Reeve	Test Equity
Anthony Ricotta	Electro Rent
Tracy Rodriguez	Parker Aerospace
Robert Sever	Endevco
Donn Silberman	Metro Laser
Jennifer Smith	So. Cal Edison
Jim Smith	Boeing
Tamara Stapleton	Test Equity
Bruce Swanson	Spektra
David Sylvia	A-Cal
Doug Tognazzini	Endevco
Raul Troncoso	Amgen
Thu Vu	Celerity
Dave Weathers	



1424 April 18-19, 2006  
Arizona State Universities  
Polytechnic  
Mesa, Arizona  
Rob Parchinski  
Phoenix/Tucson Section  
Coordinator

The Phoenix Tucson section 1424 of the Southwest Region kicked off their two day Measurement Technology Symposium at Arizona State Universities Polytechnic campus in Mesa, Arizona. We started with registration promptly at 7AM, followed by a continental breakfast, compliments of Gary Gartman and the YOKOGAWA Corporation.

Dr Lakshmi Munukutla, Dean of the College of Technology and Applied Science, introduced Campus Provost, Dr. Gerald Jakubowski, who delivered the opening greeting. As Provost, Dr. Jakubowski has overseen ASU's Polytechnic campus and led the transition of the campus on the former Williams Air Force Base to a polytechnic institution with an anticipated enrollment growth to 15,000 by 2020. Hosting the regional meeting is consistent with his vision of working with organizations like NCSLI to build partnerships with the community and industry.

Charlie Motzko, former NCSLI president, long time member of the NCSLI BOD and cornerstone member of the 1424 regional planning team, followed Dr. Jakubowski with an overview of the NCSLI organization. He reviewed its part in industry as well as the latest developments and highlights from the recent Board of Directors meeting. Charlie also graced us by presenting the closing paper on day two on the implementation of a 17025 compliant quality system.

The technical presentations then began with Michael Wusterbarth from Flow Dynamics with a presentation on the calibration and characterization of flowmeters. Following Mike was Gary Gartman from Yokogawa and a paper on test equipment networking in an automated environment which was well received by the attendees, many of them from the microchip manufacturing community in the region. We concluded the morning sessions with Wayne Benda, a member of the regional 1424 team and retired section leader with Raytheon in Tucson, getting everyone out in front of the fountain by the Student Union for group pictures.

After lunch in the student union cafeteria, a meal which was better than most of us remembered from college life, the afternoon session began with Ken Soleyn from GE Sensing. Ken spoke on humidity measurement and calibration. Ken took us from a definition of humidity and the impact of humidity on air quality to different types of humidity measurements and sensors to all types of humidity standards and calibrations. The irony wasn't lost on the audience that the humidity talk was taking place in the Arizona Sonoran Desert on a less than 15% RH afternoon.

After the afternoon break we were fortunate to have Val Miller from NIST Weights and Measures Division who spoke on the traceability of mass, volume and force calibrations and the associated uncertainty. Val had everyone's attention when he questioned whether a laboratory can claim "traceability" if they've not performed uncertainty analysis on their standards, eyebrows were jerking and pencils were wagging! While there was no immediate debate, Val made himself available to the attendees afterwards, answering any and all questions.

Day two began again with continental breakfast, this time hosted by the Fluke Corporation. The technical session was opened by Rich Guin Director of Test for Boeing Rotorcraft. Rich, a former x-pilot himself, is now responsible for flight operations, experimental flight testing, structural testing, and avionics integration laboratory testing for all rotorcraft programs, both Philadelphia, PA and Mesa Arizona. Rich presented test data and film on the landing flight characteristics of a twin engine helicopter before and after the loss of an engine. It was a real eye opener for attendees, connecting the work done in the lab with the customers or end users of our services, reminding us of why we were there as measurement professionals.

After Mr. Guin, Roxanne Robinson with A2LA addressed the symposium. Roxanne just arrived in country from a whirlwind business trip to China spoke first on the latest ISO 17025 amendments and then gave an overview on accreditation for calibration and testing labs. Fluke's Jim Wookey wrapped up the morning session of the second day with a paper on single sourcing requirements for spectrum analyzer calibrations and the future possibilities of reducing support cost for this type of service.

The highlight of the second day was following lunch; Dr Harold Parks with Sandia National Laboratories flew in to speak on the latest developments on the measurement of BIG-G. Dr. Parks covered the subject from the historical beginnings of the Cavendish experiments with the first torsion balance through to his post doctoral work with BIPM in France to the latest developments to characterize BIG-G. It was quite a treat and honor to have Dr. Parks come and address the ASU students and attendees.

To end this two day event David Folts Director of the Arizona State Universities Micro Electronics Teaching Factory right there on the Polytechnic campus gave a tour of facility. All who attended were amazed at what the students are exposed to technically, most students leave the university with positions secured with some of the preeminent microchip manufacturing firms from around the world before even graduating.

The symposium was a big successes and a partnership between ASU and NCSLI has been established with tentative dates scheduled every six months beginning this fall in the first week of November for follow-on events. Potential speakers are welcome to contact me directly

The event could not have happened with out some very special people, I'd like to thank Richard Newman, Julie Zehring and Rose Murrieta with ASU. They worked hard to accommodate us and ensure our success and the effort was greatly appreciated, THANK YOU!

Very special thanks from myself, NCSLI and the section 1424 team needs to be extended to Rose Motzko! Words which describe Rose's contribution to this effort are diligence, tirelessness and committed; She made NCSLI and the section 1424 team look great.



*I'm not sure where Rob found a camera to shoot this unusual picture format? It definitely is better than 4 rows of people with many hidden behind other heads.*

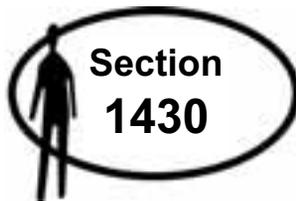


*Rich Guin, Director of Test for Boeing Rotorcraft, an ex-test pilot, opened the second day with a user's viewpoint of the crucial importance of metrology quality.*



*Tamara Branch of SWFPAC, brings work to lunch and uses the time productively.*

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May 18, 2006  
 Naval Undersea Museum  
 Keyport, WA  
 Carolyn Johansen,  
 Northwest Region Coordinator

The Northwest region held their spring meeting on May 18th, at the Naval Undersea Museum, Keyport WA. John Lange, from SWFPAC, hosted the event.

This facility is just outside the gates of the Bangor Naval Station. Tamara Branch was the facilities coordinator and she did a great job. Our meeting was very well attended with 78 people signing the registry pages.

Shawn Mason spoke on the changes in ISO 17025:2005.

Ken Parsons spoke on the subject of Accreditation from the NVLAP Perspective.

Jesse Morse gave us an update on the writing of the new Z540.

Dave Deaver gave us a look at the Calibration and Use of Thermocouple Simulators.

David Larson spoke to us about the progress of the writing committee on the new RP3 Calibration Procedures document.

Derek Porter gave us a quick overview of NCSLI and brought us up to date on what the Board has been doing. Since the weather was near perfect, a group photo was taken before we headed out to lunch at a nearby restaurant.

The feedback was very good; people enjoyed the meeting, but asked for more technically-oriented speakers in the future. Some even volunteered themselves or others to speak in the future. We will be looking towards October for our fall meeting.



*Carolyn always seems to turn out huge crowds for her meetings. Congrats and 5 Attaboys-Well, Attawomans doesn't quite sound right, does it?*



*The Naval Undersea Museum looks like a grand place to learn of the US Navy technologies like the Sea Lab and I think I noticed an actual submarine in one of her pictures.*

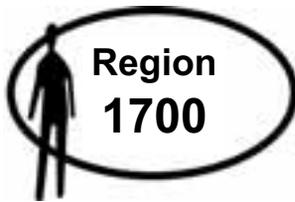
Attendees:

- |                   |                    |
|-------------------|--------------------|
| Philip Dennis     | Accu-Tec           |
| Sheryl Beck       | Boeing             |
| Steven Cart       | Boeing             |
| Bret Corey        | Boeing             |
| Vicki Dunlop      | Boeing             |
| Tom Flynn         | Boeing             |
| Tom Kerr          | Boeing             |
| Jason Koehn       | Boeing             |
| Dave Larson       | Boeing             |
| Mike Lowery       | Boeing             |
| Bob Osrowske      | Boeing             |
| Derek Porter      | Boeing             |
| William Schasteen | Boeing             |
| Shawn Snell       | Boeing             |
| Dave Trengove     | Boeing             |
| Jim Whitley       | Boeing             |
| Dave Woodward     | Boeing             |
| Shawn Mason       | BSCI               |
| Dennis Kringer    | Cascade Eng. Svcs. |
| Keith Cable       | Davis Inotek       |
| Greg Powell       | Davis Inotek       |
| John Huntwork     | DoN - NSSC         |
| Lepa Dahlke       | DoN - PSNS         |
| Frank Hnatovic    | DoN - PSNS         |
| Marvin Messer     | DoN - PSNS         |
| Tim Myers         | DoN - PSNS         |
| Kim Raymond       | DoN - PSNS         |
| Mike Adkins       | DoN - SWFPAC       |
| Atalie Barber     | DoN - SWFPAC       |
| Tammy Branch      | DoN - SWFPAC       |
| Alison Eoff       | DoN - SWFPAC       |
| John Lange        | DoN - SWFPAC       |
| Sheri Maurer      | DoN - SWFPAC       |
| Bryan Stone       | DoN - SWFPAC       |
| Bruce Collver     | Fluke              |
| Dave Deaver       | Fluke              |
| Jesse Morse       | Fluke              |
| Pete Older        | Fluke              |
| Glenn Orebaugh    | Fluke              |
| Jack Somppi       | Fluke              |
| Michael Falcone   | ICOS Corp.         |
| Eric Simon        | ICOS Corp.         |
| Pete Zampardi     | ICOS Corp.         |
| Carol Johansen    | JJ Calibrations    |
| Jan Johansen      | JJ Calibrations    |
| Peter Bartlett    | Lockheed Martin    |

## Reports from the Region

Chris Blake	Lockheed Martin
Rick Boswell	Lockheed Martin
Christeen Burrett-Cox	Lockheed Martin
Ed Desjardin	Lockheed Martin
Jim Dower	Lockheed Martin
Kathy Duncan	Lockheed Martin
Ron Flock	Lockheed Martin
John Graham	Lockheed Martin
Beverly Hunter	Lockheed Martin
Eric Keeney	Lockheed Martin
Bob Kithau	Lockheed Martin
Mike Leslie	Lockheed Martin
Bill Mackley	Lockheed Martin
Steve McNally	Lockheed Martin
Mike O'Shaughnessy	Lockheed Martin
Ray Rogers	Lockheed Martin
Dave Sayers	Lockheed Martin
Ryan Weaver	Lockheed Martin
Schuyler Wiersum	Lockheed Martin
Jim Wrigley	Lockheed Martin
Scott Schafer	NSWC Corona
Ken Parsons	Speaker
Bill Hurd	UII
Jason Barnett	US Navy - IMF
Bryan Gorr	US Navy - IMF
Lee Marvin	US Navy - IMF
Joe Vigil	US Navy - NOPF
Jeffrey Lake	US Navy - SWFPAC
Ben Neuhold	US Navy - SWFPAC
Fred Perkins	US Navy - SWFPAC
Chris Harding	US Navy - USS John C Stennis
James Harvey	US Navy - USS John C Stennis

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April 20-21, 2006  
Hotel Mortagne  
Boucherville, Quebec  
Jim Mullins  
Canada Region Coordinator

### Canada Region Report, May 2006

A two-day Conference & Symposium was held at the Hotel Mortagne in Boucherville, Quebec for the Canadian Region NCSLI members on the 20th and 21st of April. There were approximately 75 attendees including 14 exhibitors who supported the meeting.

Having the 14 exhibitors at our conference turned out to be a record showing for our Canadian Region meetings. A Measurement Uncertainty Course, "*Measurement Uncertainty Made Easy*," was scheduled for April 19th at Institut de recherche d'Hydro-Québec (IREQ) facility and presented by Mike Ouellette of NRC/INMS. Many attendees took advantage of this opportunity.

We decided to have our meeting in Quebec this year and the Quebec Section Coordinator, Robert Armand, did a superb job of putting things together. His employer, Institut de recherche d'Hydro-Québec (IREQ), was our host and invested much time, energy, and financial support toward this event. A special thanks goes to Robert and IREQ. As in past events, a banquet was held on the first evening at one of the reception rooms in the Hotel. Great food, networking, meeting new people, and getting reacquainted with old friends were also an important part of this symposium.

The excellent tour of the Space Agency was a perfect way to wrap up the two-day event.

I welcomed everyone and opened the meeting with a brief overview of plans for the next two days. There were eleven presentations over the two-day conference with a wide range of topics. Our host, Marc Leclerc, Directeur Laboratoires for the Institut de recherche

d'Hydro-Québec, welcomed everyone and spoke of the importance of metrology in industry.

Jack Somppi of Fluke Corp was our first presenter and discussed "*Spectrum Analyzer Calibrations*," and how Fluke is looking at an integrated approach to this complex issue. Next, Mike Lawyer of Hart Scientific presented "*Common Errors associated with Using Dry-Well Calibrators*." Mike pointed out many of the factors influencing measurement uncertainty in Dry Wells and how to consider and minimise the effects.

After our first coffee break, Nick Allen and Mark Evans, of Guildline, co-presented "*Evaluation of a concept for high ohms transfers*." They discussed the results of an ongoing experiment that may offer a new approach to high resistance measurement. They promised to give us an update at the next meeting.

Before lunch we had Claude Demers of Hydro Quebec give a delightful presentation entitled "*Electricity in Quebec, Unique in terms of Generation, Transmission, and Use*." Claude was obviously an expert presenter and speaker who gave a very informative talk that captured the attention of the audience with interesting facts and well-placed injections of humour.

After lunch we had Ken Kochav of NRC give a presentation on "*Calibration of Ratio Transformers and Inductive Voltage Dividers*." Ken described the calibration of a ratio transformer that he does at the National Lab. The procedure is very detailed and meticulous to reduce and eliminate various sources of error. Next we had Graham Cameron of SCC give an update on Metrology Education. He discussed the focus at NCSLI on this issue and provided an update on some of the progress that had been made.

After the coffee break we had Dr. Peter Filipski of NRC present "*Measuring ac-dc transfer difference of current shunts*." He showed the group the many shunt designs, new designs that are being worked on and also gave some tips on making shunt measurements.

We wrapped up the day with some NCSLI business. We gathered some ideas about future topics, discussed the next venue, and presented a plan for establishing a scholarship in the name of the late Anthony Ulrich. It was also agreed while discussing these ideas that we would create a web site where all our members could access the conference presentations and pictures. In previous years a hard copy or CD was created. I am happy to inform everyone that this action has been implemented for these conference minutes and can be accessed at: <<http://64.26.171.241/presentation.html>>

We adjourned for the day and some people chose to go on a tour of the IREQ labs which was offered earlier in the day. At 6:00 PM, we all met for cocktails and a great supper.

The next morning we got started with a two-part presentation with the overall theme of "*The Challenge of High Voltage Power & Energy Measurements*." The first one entitled "*New DC Metering Project on the Québec-New England HVDC Transmission System*," was co-presented by Francois Brassard of Hydro-Québec and Dr. Patrick Picher of the Institut de recherche d'Hydro-Québec. Part two was presented by Dr. Eddy So of NRC - "*Traceability of H.V. Power & Energy Measurements*." Both talks focused on HV measurement techniques and how important accurate measurement is in the world of power distribution and cost-sharing determinations.

After break, Richard Simmonds of Guildline gave a brief tribute to the late Ted Tromanhauser. Ted was the past president of Guildline and passed away very suddenly in the Fall of 2005. He was remembered as a man of integrity with a special relationship with his employees and his company. Our last presenter was Mike Ouellette from NRC who spoke on "What's new for 17025." Mike summarised the changes and possible impacts to management systems that are needed to comply with the new ISO/IEC 17025:2005 standard.

Over the two-day period, special thanks were given to several people who had helped with the organizing of the meeting. Individuals from IREQ, NRC, and other companies were recognised for their contributions. They helped in variety of ways such as arranging the meeting place, assisting with meal selections, assisting with registration and managing the technical aspects of the meeting. Carlo Rea and Linda D'Amario of Technel Engineering Inc. were recognised for arranging the exhibitor portion of the meeting. All the presenters were, of course, recognised for their contributions.

After lunch, many attendees took the 20-minute bus ride to the Canadian Space Agency in St. Hubert. We were greeted there by Rémy Grenier and the tour was divided into two parts. The first, led by Remy, took us to the labs where they do many unique types of testing and we were also given a glimpse of the one of the payload modules scheduled for launch in 2008. The second part of the tour was the more traditional tour where we were given some history of the organisation and saw the Canada Arm, the astronaut training centre for using the arm, new prototypes for future space station use, and the backup control center for Houston ground control. It was all very interesting and gave us a good appreciation of the work done at this large facility. Special thanks to Rémy and the team at the Canadian Space agency.

All in all, it was a very successful two-day event.



*Robert Armand, of IREQ - Hydro Quebec, reviews the orders of the day. Robert did most of the organizing for our event, and his employer was a huge supporter, providing many resources - human and otherwise - to make the event successful. Wayne Sampson also assisted mightily.*



*Our technical papers were well attended, and the paper topics highly useful and informative.*



*Serious networking happens during the luncheon periods, with everyone contributing to the technical mix.*



*Receptions are another mix of relaxed conversations-some technical-and amidst equipment exhibits around the walls. We thank our equipment exhibitors for their financial support for the annual event.*

**Exhibitors:**

- |                     |                             |
|---------------------|-----------------------------|
| Julio De Pastena    | Alpha Controls              |
| Ken Roberts         | Cameron Instruments         |
| Pat Stuart          | Fluke Electronics           |
| Richard Timmons     | Guildline                   |
| Scott Sabourin      | Isotech North America       |
| John Raposo         | Jola Instruments            |
| Derek Gerritsen     | Measurement Int'l           |
| Georgette Macdonald | NRC                         |
| Joe Santo           | SRP Control Systems Ltd.    |
| Melanie Pepin       | Staveley Services           |
| Bill Ormerod        | Technel Engineering         |
| Mark Reid           | TechniCal Systems 2002 Inc. |
| Yves Lévesque       | Testforce                   |
| Ingrid Ulrich       | Ulrich Metrology            |

**Attendees:**

- |                  |                      |
|------------------|----------------------|
| Viken Torikian   | Bombardier Aerospace |
| Alain Arseneault | CMC Electronics      |
| Jean Gaudreau    | CMC Electronics      |
| Andre Theberge   | CMC Electronics      |

## Reports from the Region

Kevin McClure	Fluke Electronics
Cliff Chouinor	Guildline
Daniel Chretien	Hydro Quebec-IREQ
Diane Robitaille	Hydro Quebec-IREQ
Eric Perreault	Hydro Quebec-IREQ
Julie Turcotte	Hydro Quebec-IREQ
Pierre Jalbert	Hydro Quebec-IREQ
Pierre Ste Marie	Hydro Quebec-IREQ
Raymond Busatta	Hydro Quebec-IREQ
Raynald Martel	Hydro Quebec-IREQ
Real Boissonneault	Hydro Quebec-IREQ
Rene Erpelding	Hydro Quebec-IREQ
Robert Armand	Hydro Quebec-IREQ
Suzanne Racine	Hydro Quebec-IREQ
Sylvain Morin	Hydro Quebec-IREQ
Marcel Poirier	Industry Canada
Lambert Laliberte	IRSST
Herb Blythe	L-3 Communication Electronics Sys.
Alain Gagné	Measurement Canada
Claude Renaud	Measurement Canada
Duane Brown	Measurement Int'l
Gilbert Guertin	Nav Can
Guy Laurin	Nav Can
Carlos Maggi	NRC
George Matthews	NRC
Jean Lafortune	NRC
Kari Wendler	NRC
Xavier Guillaud	PPM Metrologie
Christian Lefroit	Primo Instruments
Pierre Tetrault	Primo Instruments
David Engel	Pulse Engineering
Trent Laycock	Pulse Engineering
Eric Viau	Pylon
Jim Mullins	Pylon
Wayne Sampson	Pylon
Allan Longley	QETE
John Roberts	Staveley Services Canada
Daniel Gagné	Testforce
David Llorens	Ulrich Metrology
Ronald Barry	Ulrich Metrology

### Speakers:

Jack Somppi	Fluke Electronics
Mike Lawyer	Fluke Electronics
Mark Evans	Guildline
Nick Allen	Guildline
Claude Demers	Hydro Quebec
François Brassard	Hydro Quebec
Marc Leclerc	Hydro Quebec-IREQ
Patrick Picher	Hydro Quebec-IREQ
Eddy So	NRC
Elizabeth Lambe	NRC
Ken Kochav	NRC
Mike Ouellette	NRC
Peter Filipiski	NRC
Graham Cameron	SCC

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## INTERNATIONAL REPORT

*Malcolm Smith, V.P.*

- Affirmed Harry Moody as European Deputy
- Affirmed Steve Stahley as SIM Deputy
- Appointed Jack Somppi as Asia Pacific Deputy
- Authorized Klaus Jaeger's attendance at CPEM, June this year in Italy.

I participated in reorganization of NCSLI/CENAM automotive seminars in Mexico, now postponed into 2007. However, Steve Stahley and Salvador Echevarria are contemplating a workshop for SIM members, perhaps connected with the SIM General Assembly which is immediately adjacent to the IMEKO Conference in Rio de Janeiro in September of this year. Steve and Salvador are also planning to give a paper at the IMEKO Conference.

Jack Somppi and I laid out a "first-steps" for raising our NCSLI participation and profile in the Asia Pacific region.

Charlie Motzko, Ilya Kuselman and I communicated with regard to support and participation for this year's Third International Conference on Metrology, November 14 - 16 in Tel Aviv. (See page 32)

I communicated with Steve Sidney regarding participation in this year's T&M Conference and Exhibition, October 23 - 25 in Johannesburg.

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## REPORTS FROM THE BOARD *(Continued from page 8)*

public utility established in Germany, which will contract with the Commission to deliver the programme, oversee the delivery and manage the financial arrangements.

The General Assembly unanimously endorsed a resolution supporting this objective and instructing the EUROMET Executive Committee to participate in the preparations for a legal entity to ensure that it could absorb all EUROMET's activities. Specifically, the resolution recognises the importance of the iMERA project, welcomes the proposal to establish a European Metrology Research Programme (EMRP), and instructs the Chairman of EUROMET and the EUROMET Executive Committee (EEC) to participate actively in the discussion of the formulation of the byelaws and the rules of procedure of the legal entity in order to protect the interests of all members.

The Chairman and the EEC will prepare a resolution for the 2007 General Assembly to implement such changes as may be required in the light of progress made towards the EMRP over the next year. The full text of this year's resolution will be published on the EUROMET website.

In addition, the General Assembly elected two new members, Heikki Isotalo (MIKES, Finland) and Ionel Urdea Marcus (INM, Romania), to the Executive Committee. Attilio Sacconi (INRIM, Italy) was confirmed as the new Chairman of the Interdisciplinary Metrology Technical Committee (INTMET), with Luc Erard (LNE, France) elected to replace Attilio as Chair of TC-Quality. This was my last meeting as EUROMET Chairman and Michael Kühne (PTB, Germany) takes over for the next two years with Wolfgang Schmid as Secretary. The next general Assembly will take place at the National Physical Laboratory in the UK next June.



*Consider the technological and organizational horsepower represented by this group of global metrology leaders. Over 36 NMIs were represented at the EUROMET General Assembly.*

## REMEMBERING HANK DANEMAN



*Hank Daneman  
1923 - 2006*

Herman L. "Hank" Daneman passed away April 8th at his home at Santa Fe, NM. Born in Mt. Vernon, NY in 1923, he graduated from The Cooper Union (Chemical Engineering), the U.S. Navy Electronics School and Lehigh University (Business Administration). He was employed by Leeds and Northrup in North Wales, PA for 28 years as a sales engineer and manager.

Hank's name shows up in early records, as one of the contributors to the industry meetings in 1960 that led to the founding of NCSLI. Hank's own words described the rather bad measurement assurance of the time, "At the first Boulder meeting which I attended, Curt Biggs (Sandia) and Charlie White (Avco), especially, deplored the fact that a large portion of instruments they were testing in incoming inspection were defective. White and Biggs wrote papers on this matter. White reported about 15% defectives. When I corresponded with him, the proportion was worse. I wrote a paper on the same subject. . . ."

After his L&N career, he headed his own firm where his metrology consulting work took him literally around the world to various continents. He worked on metrics and helped to design national measurement laboratories. Hank and his wife, Rose, moved to Santa Fe in 1980. He was a member of numerous professional societies and served on community and governmental boards in Santa Fe and for the State of New Mexico.

Hank was a compassionate activist for local civic affairs. He was a disabled World War II veteran, served with UNIDO in Mexico, Korea and Vietnam, and was a tireless advocate for veterans' affairs. He leaves his wife, Rose, and three children, Joanna, Leonard and Theresa.

*Editor's Note: Hank was THE pre-eminent letter writer I have known in my 75 years; for his veteran's affairs, for metrology ethics matters, for Santa Fe vs Los Alamos issues, and a regular contributor to the local newspapers, and the NCSLI Newsletter. He was direct and to the point, and did not suffer fools kindly. (Having communicated with Hank for decades, I might observe that he and I would have run a dead heat in a competition for curmudgeon of the year.)*

## REMEMBERING TED TROMANHAUSER



*E.A. (Ted) Tromanhauser  
President, Guildline Instruments Limited  
2000 - 2005*

Edwin A. Tromanhauser passed away unexpectedly on Sunday, September 25, 2005 at his home in Dunrobin, ON. He was President of Guildline Instruments Ltd., a long and faithful supporter of NCSLI, both as an exhibitor and as sponsor for Board members.

Tromanhauser earned his B. Sc. Physics and Chemistry at Royal Military College, graduating in 1954. He served as a pilot in the Royal Canadian Air Force from 1954 to 1957, then graduated from Queen's University in 1960 with his B. Sc. Electrical Engineering. After the Air Force Ted devoted his life to technology, involved in artificial intelligence, solar energy and metrology.

An experienced generalist in company management, engineering, operations, project management and marketing, he was involved with many well-known companies such as Magna International, Atomic Energy of Canada Limited (AECL), Computing Devices of Canada (now General Dynamics), Honeywell and Pratt and Whitney. Ted had an entrepreneurial spirit and he owned/managed several successful companies including Astropower Canada and Eidetic Systems Corp. and Guildline Instruments.

Ted and his business partner bought Guildline Instruments in May 2000. He wanted to take Guildline from its accomplished past to a new height, and he worked extremely hard at it. The positive changes he brought to Guildline and the many new products that were released under his management were perhaps his greatest contribution to the metrology industry. Perhaps his most important contribution was that he gave Guildline the new energy and the concept to strive in the ever-changing new world. Although Ted did not get to enjoy the full fruits of his hard work, Guildline is stronger and better as it approaches its 50th year in business.

He is survived by his wife Liana, a daughter in Halifax and a son in the UK. Employees and associates were deeply saddened by the sudden loss of a well-respected leader and gentleman.

*Editor's Note: NCSLI acknowledges and thanks Guildline, Ltd. for its decades-long financial and organizational support for our activities across the years.*

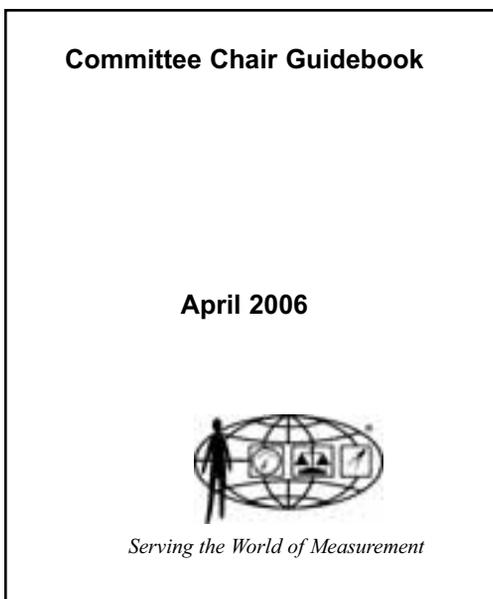
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# COMMITTEE NEWS

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## OPERATIONAL GUIDEBOOK FOR COMMITTEE WORK AVAILABLE

For all our many chairpersons, here is the theory and practice of managing your committee work. Approved and issued in May, you should have your copy by now.



## STANDARDS POLICY

*Doug Sugg, V.P.*

## U.S. MEASUREMENT REQUIREMENTS COMMITTEE (USMRC)

*Jeff Walden*

The USMRC met at MSC on March 2, and was reported in April. The role to be played by NCSLI, and others in the next phase of the USMS process is to review and verify that these are accurately stated needs.

The USMRC participation in the USMS initiative will be pursued via e-mail to the members and will be on the agenda for the August meeting. Members of the USMRC are also active with MSC and the committee will pursue participation with the 2007 MSC President.

## GLOSSARY COMMITTEE

*Emil Hazarian*

### Charter

Locate, obtain, evaluate, compile, and catalog listings of terms and their various definitions that are related to Measurements, Test, and Calibration. Publish and distribute a NCSLI Glossary of useful definitions.

### 2006 Goals and Objectives:

- Routinely revise and update existing NCSLI Glossary of Metrology-Related Terms.
- Update the NCSLI Glossary of Metrology-Related Terms and Acronym List on the Web site
- Analyse, select and validate new proposed terms, for submission.
- Create a validation process system

### 2007-2010 Goals and Objectives:

- Reconvene Committee each year to review, and update the Glossary and Acronym List if deemed necessary.
  - Amend Charter as needed to incorporate an NCSLI Dictionary if a dictionary is deemed necessary.
  - Work with the business office to maintain the NCSLI Internet site and control access as necessary.
  - Create a base of references (see appendix below), books, domestic and international standard documents and other documents for keeping up-to-date with current terms and definitions in the field of measurement, and measurement-related terms such as statistics, quality assurance, accreditation, standardization.
- Assure all NSCLI RP revisions are using only VIM terms and definitions when they exist, and/or specific terms and definitions from other recognized sources.
- Disseminate NCSLI glossary terms, definitions and acronyms by developing a suitable training lecture.
  - Resolve enquiries by providing useful information.

## LEGAL METROLOGY COMMITTEE

*Val Miller*

Plans for the upcoming meeting of Committee 134 at the 2006 NCLSI Workshop and Symposium in Nashville continue to be developed. Three papers on Legal Metrology will be presented during a session on Wednesday on the overall make-up and value of the Weights and Measures Programs of the three NAFTA signatories. Weights and Measures, and the part it plays in the economies of the signatories, is grossly under-appreciated.

This paper session and the discussion time during the Legal Metrology Committee meeting will hopefully be useful in making the general metrology community more aware of the value of the legal aspects of metrology. The committee meeting is scheduled for Wednesday evening after the presentations are made so that the presenters can participate without severely affecting their travel schedules.

Planning must also begin for the 2007 State Laboratory Program Workload Survey. The 2005 Survey was quite successful and it is hoped that the same process on the NCSLI website can be utilized for the 2007 Survey.

### Charter

- Serve as a forum for information exchange among calibration and testing laboratory managers and staff on Legal metrology issues at both the national and international level.

- Provide communication and information for member organizations with regard to Legal metrology on topics of measurement traceability, uncertainty analysis, standards availability, documentary standards development and distribution, accreditation needs and requirements, benchmarking criteria and schedules, and interlaboratory comparisons.
- Work in conjunction with the Measurement Assurance Program Committee developing and supporting NCSLI-sponsored Interlaboratory Comparisons (ILC's) suitable for Legal Metrology laboratory participation.
- Provide point-of-contact information for formation of working groups to assist in development of OIML and ASTM standards.

### 2006 Goals and Objectives

- Schedule training with International NCSLI members so that committee members can gain an understanding of the Legal Metrology systems of other economies.
- Maintain close contact with NIST personnel in measurement disciplines related to Legal Metrology, serving as intermediary for new measurement requirements between laboratory customers and NIST.
- Share information related to laboratory accreditation to ISO/IEC 17025.
- Begin planning process for 2007 State Laboratory Workload Survey, querying participants to identify how the data might be presented in a new format and new potential uses of the survey results.

### 2006 - 2010 Goals and Objectives

- Continue bi-annual State Laboratory Program Workload Survey.
- Maintain close contact with NIST personnel in measurement disciplines related to Legal Metrology, serving as intermediary for new measurement requirements between laboratory customers and NIST.
- Assist developing Legal Metrology Laboratory programs in establishing requirements for facilities, equipment, standards and procedures in support of a legal metrology program.
- Expand participation in the committee to include international participants interested in Legal Metrology issues.

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## MEASUREMENT SCIENCE & TECHNOLOGY

*Richard B. Pettit, V.P.*

Technical Program Chair Activities: 2006 NCSLI Conference

- Discussed improvements in the 2006 Pocket Guide for the Conference with Craig Gulka and Tom Huttemann.

Managing Editor Activities: MEASURE

- Currently we have the following articles in process for publication:
  1. Total of 18 papers in process.
  2. Total of 10 ready for publication; 7 will be in the June issue.
  3. Total of 6 completed reviews and being updated by the authors.
  4. Total of 2 still being reviewed.
- Requested papers from: (1) Sally Bruce, NIST, on NIST process for meeting quality requirements of CIPM MRA; (2) Dr. Rick

Wilson, CAEAL, on the status of international proficiency testing quality requirements; (3) J. Baldwin, MetroSage LLC, Application of Simulation Software to CMM Uncertainty Evaluation; (4) Dennis Destefan, High Current Technologies, Inc., Traceable and Accurate High Current Measurements; (5) Rich Davis, BIPM, a short Tech Tip on guidance in dealing with magnetization effects in mass measurements; and (6) Bill Tilstone, NACLA President, on the benefits of NACLA to NCSLI calibration laboratories.

### Committee Reports:

## AUTOMATIC TEST & CALIBRATION SYSTEMS

*David Seaver*

- Committee has a meeting schedule for the 2006 MSC Conference. In process of producing a NCSLI recommended practice (RP) dealing with the validation of software for automatic test and calibration systems (AT&CS). The time frame for the production of the document will be decided at the next meeting.
- The team will be working with the NCSLI Business Office to secure resources to store reference material produced by the group and set up a communication process for the RP development and future virtual meetings.

## MEASUREMENT COMPARISON PROGRAMS

*Jim Wheeler & Al Teruel*

- Jay Klevens, Process Instruments Inc., is developing a charter for the 1 GOhm Interlaboratory Comparison (ILC). When drafted, Jim Wheeler will review the charter. NIST, Gaithersburg, has agreed to provide opening and closing calibration data at a reasonable cost.
- Tom Larason, NIST, will be holding an organizational meeting at the 2006 NCSLI Conference to discuss the proposed UV Round Robin ILC.

## INTRINSIC & DERIVED STANDARDS

*David Deaver*

- Several documents are in process, including: Revision to the Catalogue of Intrinsic/ Derived Standards (D. Deaver); Argon Triple Point Cell RISP (S. Pond); Revision to the Dead Weight Pressure RISP (R. Salazar). Bob Harding, RH Systems, has finished developing an additional humidity uncertainty example and will send it to the committee members for their review. The document should be ready for NCSLI Board review in late 2006. He was supported in this activity by Thunder Scientific.
- Yi-hua Tang, NIST, delivered a "Certificate of Completion" to each participant summarizing their results. The group also met at the 2006 MSC Conference.
- Ruben Salazar and David Allen, Boeing, are chairing a working group that is in the process of revising the Dead Weight Pressure, RISP-4. The committee is developing an uncertainty analysis for performing a cross-float calibration and updating the uncertainty analysis associated with the mass standards by considering the proper way to handle correlated uncertainties. The group met at the 2006 MSC Conference.

## CHEMICAL METROLOGY

*Burt Sutherland*

- Klaus Jaeger has been working on increasing our contact with the chemical community in the US. To reach the chemical community and hopefully generate some interest in the two chemical tutorials scheduled for the 2006 Conference, he contacted the American Chemical Society (ACS). Linda Wang from the ACS promised to list the NCSLI conference and tutorial on their calendar with a hot link to the NCSLI conference. In addition, Marlene Moore (Tutorial #15) has contacted several people at the ACS without any feedback received by Klaus. Hopefully the current announcements will bear fruit.

## DIMENSIONAL METROLOGY

*Jim Salsbury*

- The Dimensional Metrology Committee has organized a panel session for the upcoming NCSLI annual conference in Nashville. The topic of the panel will be "The Calibration of Coordinate Measuring Machines (CMM)." The CMM is a dimensional measuring workhorse in many factories and laboratories in almost all industries, but the calibration of CMMs still remains a mystery to many people. The three-dimensional capability of the CMM, combined with software that allows almost any dimensional feature to be measured, creates unique problems that must be addressed. The panel session will begin with short presentations regarding various CMM calibration issues followed by an open discussion period.
- The panel members include Dr. Ed Morse, University of North Carolina at Charlotte, Shawn Mason, St. Jude Medical, and Dr. Jim Salsbury, Mitutoyo America Corporation. The panel moderator is Dr. Hy Tran, Sandia National Laboratories.
- The Dimensional Metrology Committee is also working on a recommended practice (RP) in the calibration of CMMs, and this panel will support the discussion of key issues that the RP is intended to address.
- The NCSLI Conference in Nashville, TN, USA will also feature two new dimensional metrology tutorials. Amosh Kumar and Jim Salsbury, both with Mitutoyo America, will present tutorials on the calibration of dimensional tools, gages, and instruments. The first tutorial will address smaller tools, and the second will address larger instruments.

New standards now available:

- ASME B89.4.22, "*Performance Evaluation of Articulating Arm CMMs*"

Important draft standards being voted upon:

- ISO 10360-2, "*Performance Evaluation of CMMs*"
- ASME B89.3.1, "*Measurement of Out-of-Roundness*"

Upcoming standards meetings:

- ISO TC213: September 6-14, in Torino, Italy
- ASME B89: October 4-6 in San Diego, CA, USA

## INDUSTRIAL PROGRAMS

*Roxanne Robinson, V.P.*

- Contacted Marlene Moore about testing laboratories' participation in writing the 17025 handbook
- Secured 153, 155, 156 and 158 Committee Chairmen for the Traceability Panel discussion at the NCSLI Conference.

## HEALTHCARE METROLOGY

*David Walters*

Re-write of RP 6 continues

## UTILITIES

*Peter Buzzard*

We met at MSC, and reported in April. The committee debated the need for a guidance document or possible RP addressing client/laboratory communications when placing work for the nuclear industry; our Chair will write first draft.

## AIRLINE METROLOGY

*Joe Cebulski*

### MSC meeting, March 2, 2006

Rick Ohlendorf (Schwein) presented his recommendations for a low-pressure round robin. Some suggestions were; enlist other airlines, possibly include military participation, an artifact, possibly two, could travel to each airline, where measurements would be taken, review results and share information among the labs. There should be a controlling lab, NIST, or Delta, for example. It would also be important to have the technicians instructed in the proper procedure and operation, and to have each management's commitment before starting. He stressed the importance of planning by a round robin committee before starting to collect data.

Rick offered to assist the planning committee. He will contact some of his sources to see if a few artifacts may be available for loan. Bradley Fine (King Nutronics) has offered to provide an ATDS for this exercise. His company would also be interested in participating as a member of the round robin. Joe will contact other airlines to encourage their involvement in this effort.

Joe discussed data collection and calibration record keeping, requirements on retaining these records. There was discussion about written procedures and calibration intervals. One group noted they have a target goal of 95% pass rate.

Other topics covered were TAM panel florescent penetrant inspection standards. There were some issues with these, and further discussion will follow at next meeting. Delta is planning to upgrade its calibration and tooling management software and is looking at several options.

Members described the software currently used at their airline. No member airline has an enterprise-level system, that supports all the groups within the operations.

Availability and schedules of measurement uncertainty classes for lab technicians will be explored. Leif Johnson was unable to attend, but he requested a review and discussion of FAA SAI 1.3.8,

"Control of Calibrated Tools and Test Equipment," at our next meeting.

Vic Cleland (United) presented concerns of torque multiplier issues, problems encountered by users, and calibration practices. It was agreed that a forum with Sweeney and the airlines would be valuable to reach a consensus on standardization.

Graeme Payne bid farewell to the committee. He said his contract at Delta was not renewed, so he will be on the open market starting April 1. We thanked Graeme for his valuable participation over the years.

The meeting concluded with the plan of getting more airline participation and involvement in the committee, our next scheduled meeting is the NCSLI workshop and symposium in August 2006 at Nashville, Tennessee.

#### Attendees:

Victor Cleland	United Airlines
Andrew Lozinski	United Airlines
Siraj Rajabali	United Airlines
Arif Suchedina	United Airlines
Graeme Payne	Delta Airlines
Joe Cebulski	Delta Airlines
Rick Ohlendorf	Schwie Engineering
Bradley Fine	King Nutronics

#### SMALL BUSINESS INITIATIVE

TBA

Still looking for new chair.

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#### EDUCATION AND TRAINING

Mark Lapinskes, acting V.P.

At the MSC, I held/attended committee meetings of 163, 164 and Georgia Harris's E&T session in her absence.

#### Operations Committees

#### PERSONNEL TRAINING REQUIREMENTS

Gloria Neely

We are currently working on a DRAFT of the RP on "On-the-Job Training" with projected completion for review during conference.

We're planning a session for 2007 to outline/discuss the capturing/maintaining of personnel training records from industry, government and private sectors' points of view. We hope to compare and analyze the results.

#### EDUCATION SYSTEMS LIAISON

Mark Lapinskes

- Scholarships for 2006 completed.
- Session for 2006 completed.
- Planning two sessions for 2007, including the International Educators Forum.

#### DOCUMENTARY STANDARDS APPLICATIONS

Larry E. Nielsen, V.P.

#### CALIBRATION SYSTEMS RESOURCES

Chet Franklin

This committee was renamed and its new charter was approved by the board of directors at the January meeting in San Antonio. The committee's first task will be to prepare a handbook for the new Z540.3 standard.

#### Report:

The Calibration Systems Resources Committee met at MSC on March 3, 2006. This was a kickoff meeting for this newly redefined committee.

The first two 2006 Goals and Objectives are:

- 1) Develop and publish a handbook providing guidance on the implementation of and application of the new standard, Z540.3; and
- 2) Evaluate requirements for the development and publication of a handbook for ANS/ISO/IEC 17025:2005.

The sixteen attendees at the committee meeting began immediate discussion of methods to approach Goal 1. In addition, several others who weren't able to attend have indicated their interest in Goal 1. Steve Doty of NSWC Corona has been selected as the Working Group leader to pursue that goal. The working group will be soliciting guidance from members of the Writing Committee, Working Group (174, WG 1) who authored the standard, as well as inputs regarding application and implementation from users, specifiers and other stakeholders.

I have optimistically set as our target, a draft of the handbook, to be ready for comment by the MSC 2007 conference. However, it will be a large undertaking with a lot of attentive listening, data gathering, analyzing, and editing to be done.

#### LABORATORY FACILITIES

Dr. David Braudaway

This committee was scheduled to meet at the 2006 Measurement Science conference. Work continues on a new RP on verification of laboratory environments (planned completion 2006).

#### METROLOGY PRACTICES

Dr. Howard Castrup

This committee was scheduled to meet at the 2006 Measurement Science conference. Work continues on revision or development of RPs for calibration interval analysis, measurement decision risk analysis, SPC and Bayesian methods, metrology decision support analysis, and uncertainty analysis.

#### WRITING COMMITTEE

Jesse Morse

The writing committee met at the 2006 MSC. Notification to committee members on the approval of FD 1.0 version of Z540.3, was provided by the ANSI secretariat (Craig Gulka) on April 17. A

change in title of this committee to Standards Writing committee is proposed.

**Report:**

Jesse Morse and Craig Gulka

Since the last report there has been much standards development activity. Also, Craig Gulka and I have worked with ANSI to complete our regular five-year audit to maintain our ANSI accreditation. I will report on both separately and in more detail below.

**Committee Meeting at Measurement Science Conference**

The committee met on March 1, 2006 at the Disneyland Hotel in Anaheim, CA.

Eighteen voting members (or their alternate) were needed to make up a quorum. Twenty-six members were present in person and on the conference phone.

Some minor membership changes were voted on. All were approved.

The recording of the meeting is available on the committee website, and the written minutes should be available by the time this report is published. Go to:

<<http://www.ncsli.org/committees/174/index.cfm>> for more detail.

**Standards Development Activity**

FD 1.0 Z540.3: Requirements for the Calibration of Measuring and Test Equipment

Below is the final tally of the recirculation ballot for approval NCSLI FD Z540.3.

Interest Category	YEA	NAY	Abstention	Total
Accreditation Body	1	1		2
Commercial Co.	9	1		10
Consultant	4	1	1	6
Govt. Agency	5	2		7
Govt. Contractor	8			8
<b>TOTALS</b>	<b>27</b>	<b>5</b>	<b>1</b>	<b>33</b>

According our operating procedure, approval of a new standard requires "...approval by at least a majority of the membership and at least two-thirds of those voting, excluding abstentions."

At the time of the vote the committee roster was populated by 36 members. Approximately 92% of the committee roster voted, exceeding the required two-thirds. Approximately 84% of those voting (excludes the Abstention) were yeas. Therefore, the document, NCSLI FD Z540.3, is approved to be processed under ANSI's rule and policies to become an American National Standard.

It has been determined that a handbook on this standard will be needed. The activity required to develop it has been "out-sourced" by the 174 committee to the 171 committee which will be chaired by Chet Franklin (Computer Sciences Corp.). Chet is forming the membership for that work, and intends to meet in Nashville during the NCSLI Conference. Anyone interested in working on the document should contact Chet at <[cfranklin@cscnoro.com](mailto:cfranklin@cscnoro.com)>. The document

(Handbook) produced by the 171 committee will be offered to the 174 committee for approval by consensus vote before publication.

**Z540.3 Panel Discussion Session at MSC**

Because we wanted to start making people aware of the potential new standard, I formed a panel session at MSC to present the salient points of the document and to collect input from potential users. The panel chaired by me, and was staffed by:

- Del Caldwell .....Consultant Sector
- Doug Faison .....Accreditation Body Sector
- Bob Fritzsche .....Government Agency Sector
- Brian Lee .....Commercial Company Sector
- Paul Nelson .....Government Contractor Sector

Although I don't have the number of people who attended the session, I estimate 35-40. The PowerPoint presentations made by each panelist are located on the committee website. Please go to <<http://www.ncsli.org/committees/174/index.cfm>> for more information.

**Periodic ANSI Audit**

The committee is audited every five years to insure it is following ANSI rules and its own operating procedures and policy. That audit began in December and is not done as of the first of April. The audit this time is looking at the reaffirmation of Z540.1, and the reaffirmation of Z540.2. As a result of this audit, we are required to revise our Operating Procedure to be in alignment with new ANSI rules. Bob Fritzsche is heading up the effort to produce that document for committee approval.

**ACCREDITATION RESOURCES**

*Dana Leaman*

Dana Leaman, calibration program manager for the American Association for Laboratory Accreditation (A2LA), and Mid-Atlantic regional coordinator was appointed as chair of this committee on March 10. The committee's first task under the new chair will be to develop an information paper on resources and activities related to accreditation for posting on the NCSLI website (planned completion 2006).

**CALIBRATION PROCEDURES**

*Dale Varner*

This committee was scheduled to meet at the 2006 MSC. Work continues on the draft revision to RP-3, Calibration Procedures. (planned completion 2006).

## MARKETING

*Jesse Morse, V.P.*

I participated, along with Jim Smith (Boeing) and Tim Mason (So Cal Edison), in the first NCSLI Tutorial at MSC. I believe this sort of educational program should be made an integral part of the NCSLI Conference each year, and the MSC. I suggest that the "Program" should be to train people on the various (most popular) Recommended Practices, thus highlighting them and adding value.

Along with the help of Tom Wunsch and Craig Gulka, I have produced a proposed new membership structure to be discussed at the BOD meeting in Boulder this quarter.

The 180 committee will be paying for some market research in Q2 to determine current market demographics related to association memberships and attractions. Membership still is the leading issue to be addressed in 2006. At the end of Q1, membership renewals are far behind the normal curve.

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## CONFERENCE MANAGEMENT

*Carol Hockert, V.P.*

### Conference plans

The 2006 conference site is the Nashville Convention Center. Registration is open on-line and reservations can be made at the Renaissance Hotel either on-line or by phone. Registrations for the conference are coming in at a record pace.

Our Keynote speaker is Jim Sylvester, Vice President of Verizon Systems Integration and Testing.

There will be 26 tutorials before and after the conference. Complete course descriptions and instructor bios are available on the NCSLI website.

Over 160 exhibit spaces have been sold and a few are still available for purchase.

The technical program has an excellent variety of papers submitted. There will be a plenary session on Tuesday, Wednesday and Thursday afternoon. There will be five tracks this year, rather than the six that were held last year. We've added poster sessions in the exhibit hall, for papers that were not selected to be in the technical program.

The Member Delegate meeting will be held during the lunch on Tuesday. This will be a business meeting for member delegates, and will be chaired by the President of the organization. All other lunches will have entertainment following the meal.

The Wildhack Award will be presented at the onset of the conference, Monday morning. All other awards will be given out at lunches during the week.

Guest tours will be offered on Monday through Wednesday, and the Jack Daniels tour will be repeated on Friday.

The International Event will be held at the Wildhorse Saloon, which is one of the largest saloons in the country. There will be food, drink, country music and dancing. It will be a stompin' good time.

Banquet entertainment on Tuesday evening is music by The Buckingham, who had four top-ten hits during their heyday.

The 2007 Conference will be in St. Paul and Harry Spinks is the conference director. We are beginning to sell exhibit booth spaces for this event. There is a new pricing structure for booths in 2007. Member organizations will pay \$1700 for a basic booth space and non-members will pay \$2100. There will still be a discount for early payment.

The 2008 Conference will be in Orlando. Conference Director for 2008 is Tony Anderson, of Gulf Calibration Services.

**2006 Conference Director** - Ed Pritchard has been an active participant in the conference planning process and continues to keep the committee on track.

**Meeting Planner Report** - Tom Huttemann  
**Registration/Exhibits/Sponsors** - Craig Gulka  
**Technical Program** - Karen Semer  
**Tutorials** - Klaus Jaeger  
**Publicity** - Jesse Morse  
**Finance** - Dave Agy  
**Best Paper** - Doug Sugg  
**Conference Evaluation** - Terry Conder  
**Entertainment** - Barbara Belzer  
**Door Prizes** - Steve Doty  
**Site Selection Chair** - Tony Anderson  
**Logistics** - Chet Franklin  
**Photography** - TBA  
**Awards** - Jack Somppi

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# NEWS FROM THE NMIs

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*Editor's Note: With the launch of the new NCSLI MEASURE Magazine, in March, Editor Dick Pettit and I have agreed that his publication will take over publication of technical news from NIST and other global NMIs that are members and affiliates of our organization.*

*On the other hand, NIST publishes plenty of business- and standards- and organizationally-oriented stories of interest to you readers of this newsletter, which I will cover. Comments?*

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## GUTIERREZ ANNOUNCES NEW NANOTECH CENTER

U.S. Secretary of Commerce Carlos M. Gutierrez recently announced the launch of a state-of-the-art center for collaborative nanotechnology research at the National Institute of Standards and Technology (NIST), where scientists from U.S. companies, universities, and government will focus on overcoming major technical obstacles to cost-effective manufacturing of products made with components the size of atoms and molecules.

To learn more about NIST's new Center for Nanoscale Science and Technology go to [http://www.nist.gov/public\\_affairs/releases/cnst.htm](http://www.nist.gov/public_affairs/releases/cnst.htm).

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## MATERIALS DECLARATION FORMS HELP MEET EUROPEAN RULES

A new standard form and process are available for describing and quantifying hazardous materials in electronics to help companies selling equipment in the European Union meet environmental regulations that take effect July 1. The standard is considered critical in simplifying efforts to comply with the new rules, which could restrict future U.S. electronics exports.

The Materials Declaration Management Standard (IPC-1752) provides a process for tracking and disclosing the amounts of six hazardous materials in electrical and electronic equipment. The standard was developed by IPC, a trade association, with help from the NIST, the International Electronics Manufacturing Initiative (iNEMI), RosettaNet, and others.

NIST's contributions included hosting a workshop to gather requirements, modeling the scope of the problem, and developing a process enabling users to submit data in PDF format and export it to a computer readable (XML) form so it can be exchanged with others in the supply chain.

The Restriction of Hazardous Substances, finalized by the European Union in 2003, restricts imports of new electrical and electronic equipment containing lead, mercury, hexavalent chromium, brominated flame retardants, PBBs (polybrominated biphenyls), PBDEs (polybrominated diphenyl ethers) and cadmium. Covered equipment includes household appliances, telecommunication and lighting

equipment, tools, toys and sport equipment, and automatic dispensing machines.

IPC-1752 is available for free download at <http://www.ipc.org/ipc-175x>.

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## BYTES BY THE QUINTILLION FOR TODAY AND TOMORROW

Engineers and information specialists from government, industry and academia agreed this month at a NIST workshop\* that immediate action is needed to keep vast amounts of digital knowledge from disappearing into cyberspace or becoming in 200, or even 20 years, as incomprehensible as the markings on Babylonian cuneiform tablets.

According to estimates offered at the conference, the world churns out new digital information equivalent to the entire collection of the U.S. Library of Congress every 15 minutes. Such a proliferation of information in digital format, occurring almost 100 times a day, adds up to approximately five exabytes (five quintillion bytes or five billion gigabytes) a year. Unlike information stored on paper, however, this digital information can disappear almost instantaneously. Major historical artifacts such as original homepages of breakthrough e-commerce sites are already gone. Photographic records, stored digitally on disks, are in jeopardy of decay in as short a time as five years. At the same time, the rapid pace of technological change, itself, makes it difficult to understand documents preserved in earlier formats.

Participants agreed on the need to build a business case to offer companies in areas such as manufacturing, health care, life sciences, law and defense an incentive to invest in digital archiving. Such a study would demonstrate how access to archived information is critical to trace design rationale in cases of failure, document engineering changes, support product life-cycle use, investigate accidents, defend against patent infringement, compare new works with earlier versions, facilitate mergers and acquisitions.

Arguments for archiving everything from engineering discussions, e-mails, and CAD models to design and production logs and manufacturing process plans would be presented. The study would also explore the cost of not archiving such information by estimating avoidable expenses for errors, recreating the data or reverse engineering, retesting, training, education and lost business.

The workshop reviewed current digital archival techniques as well as prospects for future software and standards in the area. The conference participants also discussed the possibility of collaboration on future digital archiving research projects. A report of the workshop is expected in late spring.

*\*"Long Term Knowledge Retention Workshop," 2006 Interoperability Week at NIST.*  
Contact: John Blair, [john.blair@nist.gov](mailto:john.blair@nist.gov)

## INTEROPERABILITY STANDARDS EVENT HELD IN MARCH

Too many software standards can be just as bad as no standards at all, especially if those standards don't address the issue of "interoperability," the ability to communicate across different formats. That's the concern of NIST experts who worry that incompatible standards can have the same effect as proprietary software in impeding data exchange between researchers or industrial partners. To help address the issue, NIST organized an "interoperability week" as a forum for a variety of independent workshops, each addressing some aspect of interoperability.

Workshop participants discussed interoperability or harmonization prospects for (1) XML standards used in electronic commerce to exchange supply chain data information, quotes and contract requirements; (2) Open Information and Communication Technology (ICT) standards used in the global economy for manufacturing engineering and health care data records; (3) sensor standards used in rescue efforts or to detect biological, radiological, chemical or nuclear threats; (4) advanced semantic languages (also called "upper ontologies") used in fields such as biomedical research and computer-guided manufacturing processes; and (5) knowledge representation and archival methods designed to allow future researchers to access digital data perhaps hundreds of years from now.

A "collaboration expedition workshop" for federal officials, IT researchers and developers reviewed emerging information technologies under the Government's "Federal Enterprise Architecture" and e-government initiatives as well as offering suggestions on how focus groups on specific standards can be formed. A subsequent XML Community of Practice meeting during the week will offer participants an example of how organizations and individuals with common interests share information and leverage activities to achieve interoperability objectives. Interoperability speakers at the March 14 plenary session will include private-sector representatives and congressional policy officials.

The agenda of "Interoperability Week is available at <http://www.mel.nist.gov/div826/msid/sima/interopweek/meetings.htm>.

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## HELPING SMALL MANUFACTURERS DO BUSINESS WITH GOVERNMENT

A new Memorandum of Understanding aimed at helping small manufacturers better understand how to do business with federal, state and local governments was signed on Feb. 13, 2006, by Roger Kilmer, director of the NIST's Hollings Manufacturing Extension Partnership (MEP), and Rebecca Peterson, president of the Association for Procurement Technical Assistance Centers (APTAC).

As part of the agreement, MEP centers nationwide will have the opportunity to refer interested clients to the local Procurement Technical Assistance Center (PTAC) for training and counseling on government contracting, including bid and proposal preparation and government procurement policies, and PTAC will have the opportunity to refer manufacturing customers to MEP centers for technical assistance.

Administered by the Defense Department's Defense Logistics Agency, the nationwide network of 93 PTACs provide a wide range of assistance covering all phases of government contracting. MEP is a nationwide network of resources helping manufacturers to compete globally, supporting greater supply chain integration, and providing access to technology for improved productivity. For more information on MEP and PTACs, see [www.mep.nist.gov](http://www.mep.nist.gov) and [www.aptac-us.org/new](http://www.aptac-us.org/new).

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## KAYSER IS NEW HEAD OF NIST MATERIALS LAB

Richard Kayser, a chemist with diverse technical and managerial experience, has been named director of the Materials Science and Engineering Laboratory (MSEL) at the NIST. Kayser will be remembered by NCSLI members as the NIST Delegate to our Board of Directors for a number of years.

Kayser succeeds Leslie Smith, who retired from NIST in November. Kayser had been serving as the laboratory's acting director. With an appropriation of nearly \$65 million in 2006, MSEL has major programs in metals, polymers, ceramics and materials reliability. It also manages the NIST Center for Neutron Research, a world-class user facility for studies in materials and many other fields.

To learn about MSEL, go to <http://www.msel.nist.gov>.

*Editor's Note: Kayser was previously the NIST delegate to the NCSLI Board.*

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## NEW NVLAP CHIEF

Sally Bruce has been selected as the new Chief of NVLAP. Sally brings a wealth of experience to the position and will lead NVLAP to even greater heights in terms of quality of service and international recognition.

*Editor's Note. Sally is Liaison Delegate to our organization from CORM.*

Sally joined NVLAP in November of 2003, initially working full-time to support the implementation of the NIST quality system. With the departure of Steve Doty, Sally took on responsibilities as a member of the calibration accreditation team, while continuing her excellent work with the Measurement Services Advisory Group and NIST laboratories on the NIST quality system in support of NIST measurement services.

Sally joined NBS in September 1983. In 1990, Sally joined the Radiometric Physics Division which after a series of reorganizations became the Optical Technology Division in the Physics Laboratory.

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## NVLAP WITHDRAWS FROM THE NACLA MRA

Effective April 15, 2006, NVLAP will no longer be a signatory to the National Cooperation for Laboratory Accreditation (NACLA) Mutual Recognition Arrangement (MRA). The reasons for NVLAP's decision to withdraw from the MRA are explained in this bulletin.

NVLAP is a fee-supported program and, as such, has been forced to look closely at resources available compared to expenses incurred, both in effort and in dollars. Of primary focus must be the return on the investment made by NVLAP's accredited laboratories. Broad recognition of the test and calibration results generated by the accredited laboratories is currently achieved through NVLAP's signatory status in the International Laboratory Accreditation Cooperation (ILAC) MRA and in the Asia Pacific Laboratory Accreditation Cooperation (APLAC) MRA.

NVLAP has also participated in the NACLA MRA in order to comply with the NIST requirement that designated conformity assessment bodies (CABs) supporting trade agreements for telecommunications and information technology products be accredited by a NACLA MRA signatory. Outside of this requirement, there has been little interest expressed by the NVLAP-accredited laboratories that NVLAP maintain signatory status in the NACLA MRA.

In order to support continued manufacturer access to a broad base of designated CABs, NIST has broadened its recognition of qualified accreditation cooperations. In addition to NACLA, NIST recognizes other laboratory accreditation cooperations that are in full conformance with the standards of the International Organization for Standardization (ISO) and the International Electrotechnical Commission (IEC), including ISO/IEC 17025 and ISO/IEC 17011, and that verify conformance to these standards by evaluation and assessment of peer accreditation bodies. Both ILAC and APLAC meet these requirements for NIST recognition.

NVLAP must look to increase efficiencies and reduce redundancy in its participation in laboratory accreditation cooperations in order to minimize the burden on its accredited laboratories and on NVLAP staff. Under current conditions, NVLAP can no longer justify the costs of continued NACLA MRA participation.

Annex B of NIST Handbook 150, NVLAP Procedures and General Requirements, states that all NVLAP-accredited laboratories must demonstrate traceability of measurement results directly through a national metrology institute (NMI) or through an accredited calibration laboratory. An accredited calibration laboratory is defined as one that has been accredited by NVLAP or an accreditation body (AB) with which NVLAP has a mutual recognition arrangement.

Beginning April 15, 2006, results from laboratories accredited only by those ABs that have signed the International Laboratory Accreditation Cooperation (ILAC) MRA will be acceptable for the purpose of traceability of measurement results. Please note that ABs that are signatories to the Asia Pacific Laboratory Accreditation Cooperation (APLAC), the European Laboratory Accreditation Cooperation (EA), or another recognized regional organization MRA have also signed the ILAC MRA. To date, NACLA is not a recognized regional organization and its signatory members have not been invited to sign the ILAC arrangement.

Given the deadline noted in the previous paragraph, results previously accepted from a calibration laboratory accredited by a non-ILAC signatory AB will remain acceptable until the current calibration cycle expires. This means, for example, that it is not necessary to have instruments recalibrated by a laboratory accredited by an ILAC MRA signatory AB until that instrument is due. At that time calibration services must be procured from an NMI or from a calibration laboratory that has been accredited by an ILAC signatory AB.

Where accredited calibration services are not available, paragraph B.3.4 of Annex B of NIST Handbook 150:2006 (paragraph B.2.4 of the 2001 edition) applies with no change. Assessors will review this requirement during the next on-site assessment of your laboratory. Please contact your NVLAP Program Manager should you have any questions. NIST continues to be a member of NACLA and honors the NIST/NACLA MRA.

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## **NVLAP RELEASES NIST HANDBOOK 150: 2006**

The National Voluntary Laboratory Accreditation Program (NVLAP) recently released the 2006 edition of NIST Handbook 150, *NVLAP Procedures and General Requirements*. The new edition, which supersedes and replaces the 2001 edition, incorporates changes resulting from the release of ISO/IEC 17025:2005, General Requirements for the Competence of Testing and Calibration Laboratories, and ISO/IEC 17011:2004, Conformity Assessment- General requirements for Accreditation Bodies Accrediting Conformity Assessment Bodies.

NVLAP accredits testing and calibration laboratories that are found competent to perform specific tests or calibrations, or types of tests or calibrations. The program operates in accordance with ISO/IEC 17011, which requires that the competence of applicant laboratories be assessed against the accreditation criteria set out in ISO/IEC 17025. NIST Handbook 150, which includes those accreditation criteria, is for use by laboratories in developing their management system for quality, administrative, and technical operations. Laboratory customers, regulatory authorities, and other accreditation bodies also may use it in confirming or recognizing the competence of laboratories.

NVLAP has entered into mutual recognition arrangements (MRAs) with equivalent accreditation bodies that comply with ISO/IEC 17011 and applicable MRA documents. Through MRAs, NVLAP actively promotes the worldwide acceptance of test reports and calibration certificates from NVLAP-accredited laboratories. The use of NIST Handbook 150 furthers cooperation between laboratories and other bodies, and assists in the exchange of information and experience and in the harmonization of standards and procedures. NVLAP currently has 750 accredited laboratories in 13 countries, representing 19 fields of accreditation.

The new handbook is available for downloading on the NVLAP web site <[www.nist.gov/nvlap](http://www.nist.gov/nvlap)> and will be published in paper format in the near future.

Contact: C. Douglas Faison, <[faisond@nist.gov](mailto:faisond@nist.gov)>.

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# NCSLI NEWSNOTES

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## THIRD INTERNATIONAL CONFERENCE ON METROLOGY (ISRAEL)

David International Hotel  
Tel Aviv, Israel  
Nov 14-16, 2006



### Theme: "Trends and Applications in Calibration and Testing Laboratories"

The 3rd International Conference on Metrology is organized, as were the previous two (May 2000 in Jerusalem and November 2003 in Eilat), by the National Conference of Standard Laboratories International (NCSLI), Cooperation on International Traceability in Analytical Chemistry (CITAC) and the Israeli Metrological Society (IMS).

The International Measurement Confederation (IMEKO), the Israel Society for Quality (ISQ), the Israel Society for Analytical Chemistry (IASC) and the National Physical Laboratory of Israel (INPL) are the conference co-sponsors.

The Conference will be held in conjunction with the 16th International Conference of the Israel Society for Quality. Since the Society's biannual international conferences are very popular and generally attract 1500-2000 participants, both specialists in metrology (measurement, calibration and testing including chemical analysis) and quality professionals will have a unique opportunity to network with each other, interact with senior management and learn how to bring "the message" to as many people as possible.

It is my pleasure and privilege to invite you to take part in the 3rd International Conference on Metrology in Israel, to be an active partner in a challenging and fruitful endeavor and to contribute to its success.

Dr. Ilya Kuselman, Conference Chair

### Topics

- Trends in metrology
- Metrology as a business
- Measurement methods and their validation
- Measuring instruments and their qualification
- Measurement standards (etalons) and reference materials (RMs)
- Uncertainty estimation in measurement and testing/chemical analysis
- Traceability
- Inter-laboratory comparisons and proficiency testing (PT)
- Conformity assessment
- Accreditation of calibration and testing/analytical laboratories
- Accreditation of RM producers and PT providers
- Legal metrology
- Metrology in chemistry, petrochemistry, pharmaceuticals and environmental & clinical analysis
- Metrology for utilities
- Ethical problems in metrology
- Education

Registration Fee: The registration fee of \$395 for participants includes participation in all technical sessions, conference kit, program and proceedings, lunches and coffee breaks, welcoming reception and gala banquet and folklore evening.

Language: English.

Exhibition: A commercial exhibition will take place within the framework of the conference.

### Full-Day Tours:

- Tour #1: Old and New City of Jerusalem
- Tour #2: Nazareth, Tiberias, Capernaum
- Tour #3: Caesarea, Haifa, Acre
- Tour #4: Massada, Dead Sea

### Contact:

Conference Secretariat  
ISAS Intl Seminars  
PO Box 34001  
Jerusalem 91340, Israel  
+972 2 6520574  
<congress@isas.co.il>  
<www.isas.co.il/metrology2006>

## **SYMPOSIUM OF METROLOGY 2006**

Oct 25, 26, 27, 2006

Santiago de Queretaro, Qro., Mexico

The National Metrology Institute of México (CENAM) invites you to the Symposium of Metrology 2006. Our Symposium has continuously drawn a large attendance from the Mexican metrology community, as well as members from several National Metrology Institutes.

During the event there will be an industrial products exhibition related to metrology, which will give us an opportunity to increase awareness of nowadays most relevant measuring instruments and related products in the market. For the aforementioned, we will count with the main trademarks of instruments and industrial measuring laboratories, as well as instruments for chemical analysis, firms of specialized software and others.

Your presence at the Symposium is a great opportunity for the enrichment of this event with the contributions of the NCSL members and to share your knowledge and your experience with the metrology community of Mexico and to promote your products during the Symposium. During the Symposium we will have simultaneous translation.

For more information, please visit our Web page that is in English and in Spanish: <<http://www.cenam.mx/simposio2006>>.

The NCSLI Board of Directors will meet at the hosting hotel just before the Symposium.

### General Subjects

- The metrology in Mexico, challenges and perspectives
- Measuring instruments, design, use and calibration
- Methods of measurement, application, improvement and validation
- The metrology in the industry
- Development of measuring standards and systems of measurement
- Chemical Metrology and its applications
- Accreditation of calibration and testing laboratories (including chemical analyses)
- Comparisons and proficiency testing
- Estimation of the uncertainty in measurements, chemical tests and analyses
- Statistical tools applied to the metrology

## **INTERNATIONAL MEASUREMENT CONFEDERATION (IMEKO)**

IMEKO 16th World Congress

Rio de Janeiro, Brazil

September 17-22, 2006

Theme: METROLOGY FOR A SUSTAINABLE DEVELOPMENT

IMEKO, in connection with the Brazilian Congress of Metrology, and organized by the Brazilian Society of Metrology will meet in Rio in September. The technical program structure of the Congress will be based on the subject-themes of the various IMEKO Technical Committees.

Congress Websites: <[www.metrologia2006.org.br](http://www.metrologia2006.org.br)> or <[www.imeko.org](http://www.imeko.org)>

The 19th IMEKO WORLD CONGRESS will be in Paris in 2009.

# NEW NCSLI MEMBERS

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Moreno Valley, CA 92555  
Member Delegate:  
Chester Franklin  
(951) 247-7558

## 2006 NCSL INTERNATIONAL WORKSHOP & SYMPOSIUM August 6-10, 2005 Nashville, TN

VP/Conference Management	Carol Hockert	(651) 215-5823	FAX (651) 639-4014
2006 Conference Director	Edward Pritchard	(865) 574-4261	FAX (865) 574-2802
Minutes	Lynn Matthews	(425) 446-5530	FAX (425) 446-5992
Meeting Planner	Tom Huttemann	(252) 255-1690	FAX (252) 255-1927
Exhibits	Craig Gulka	(303) 440-3339	FAX (303) 440-3384
Registration	Joan Wilshire	(303) 440-3339	FAX (303) 440-3384
	Craig Gulka	(303) 440-3339	FAX (303) 440-3384
Technical Program	Karen Semer	(740) 788-5150	FAX (740) 788-5021
Tutorials Program	Klaus Jaeger	(408) 867-1743	FAX (408) 867-3705
Guest Program	Tom Huttemann	(252) 763-1600	FAX (252) 255-1927
Publicity/Marketing	Jesse Morse	(425) 446-5468	FAX (425) 446-5992
	Jim Smith	(714) 896-1670	FAX (714) 896-5534
Finance	Dave Agy	(425) 446-5471	FAX (425) 446-5992
Best Paper Selection	Doug Sugg	(909) 273-5380	FAX (909) 273-5500
	Jack Somppi	(425) 446-5469	FAX (425) 446-5992
Conference Evaluation	Terry Conder	(651) 736-4331	FAX (651) 736-7325
Entertainment	Carol Hockert	(651) 215-5823	FAX (651) 639-4014
Door Prizes	Steve Doty	(951) 273-5221	FAX (951) 273-5175
Site Selection	Tony Anderson	(407) 333-3327	FAX (407) 333-3309
VP Operations	Tom Wunsch	(505) 844-4359	FAX (505) 844-7699
VP Education & Training	Georgia Harris	(301) 975-4014	FAX (301) 926-0647

# NCSL International

2995 Wilderness Place, Suite 107 • Boulder, Colorado 80301-5404  
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## 2006 Application for Membership in NCSL International

**NCSL International is a nonprofit association of laboratories or organizations that maintain or have an interest related to measurement standards and calibration facilities. Each Member Organization appoints a "Member Delegate" who has the responsibility of representing the member company or organization in NCSL International.**

Member Company or Organization (Enter name above as it is to appear on membership certificate and wall plaque)

**Member Delegate information:**

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E-mail address \_\_\_\_\_

Signature of Appointing Officer \_\_\_\_\_

Date \_\_\_\_\_

**\*The Appointing Officer is the individual from the above company who is appointing the Member Delegate, and is usually the Member Delegate's supervisor.**

New Corporate Member Fee (Jan-Dec 2006) .....\$400

New Educational Institution Member Fee (Jan-Dec 2006) .....\$400

**New Membership above plus annual dues renewal (Advance payment is guaranteed at \$325 per year. No refund for advance payment.)**

New Member \$400 + 2007 dues \$325 = \$725

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# NCSL International

## PUBLICATIONS PRICE LIST

Prices effective January 2006

	Members	Non-Members
<b>ANSI and ISO Standards:</b>		
ANSI/NCSL Z540-1-1994 (R2002) (Calibration & Measurement & Test Equip. General Requirements)	50.00	90.00
ANSI/NCSL Z540-2-1997 (R2002) (U.S. Guide to the Expression of Uncertainty in Measurement)	85.00	110.00
ANS/ISO/IEC 17025: 2005 (General Requirements for the Competence of Testing and Cal Labs)	85.00	110.00
ISO 10012:2003 (Measurement Management Systems - Requirements for Measurement Processes and Measuring Equipment)	85.00	110.00
<b>NCSLI Recommended Practices:</b>		
RP-1 "Establishment & Adjustment of Calibration Intervals"	25.00	50.00
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RP-6 "Calibration Control Systems for the Biomedical and Pharmaceutical Industry"	25.00	50.00
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RP-8 "An Individual Equipment Evaluation Guide"	25.00	50.00
RP-9 "Calibration Laboratory Capabilities Documentation Guidelines"	25.00	50.00
RP-10 "Establishment & Operation of Electrical Utility Metrology Laboratory"	25.00	50.00
RP-12 "Determining & Reporting Measurement Uncertainties"	25.00	50.00
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RP-14 "Guide to Selecting Standards-Laboratory Environments"	25.00	50.00
RP-15 "Guide for Interlaboratory Comparisons"	25.00	50.00
<b>NCSLI Recommended Intrinsic/Derived Standards Practices:</b>		
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RISP-3 "Quantized Hall Resistance"	25.00	50.00
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Catalog of Intrinsic and Derived Standards	25.00	50.00
<b>Laboratory Management Publications:</b>		
LM-1 Acronym and Abbreviations List	25.00	50.00
LM-2 NCSLI Glossary of Metrology-Related Terms	25.00	50.00
LM-3 Guide to Achieving Laboratory Accreditation	25.00	50.00
LM-4 Calibration Laboratory Manager's Guidebook	25.00	50.00
LM-5 Companion Volume to Guide to Achieving Lab. Accred.	75.00	150.00
LM-6 Guide to Measurement Uncertainty for Calibration Laboratories - DRAFT	25.00	50.00
LM-7 Comparison Between ANSI/NCSL Z540-1-1994 (R2002) & ANS/ISO/IEC 17025: 2005	25.00	45.00
LM-8 Comparison of ANS/ISO/IEC 17025:2000 to ANS/ISO/IEC 17025:2005	25.00	45.00
LM-9 ANSI/NCSL Z540-1-1994 Handbook	80.00	160.00
LM-10 1999, 2001, 2003, or 2005 Benchmarking Survey	25.00	50.00
<b>Metrology Reference and Textbooks</b>		
Calibration: Philosophy in Practice (2nd Ed.)	60.00	70.00
The Metrology Handbook	85.00	95.00
Managing the Metrology System (3rd Ed.)	32.00	35.00
The Uncertainty of Measurements: Physical and Chemical Metrology Impact and Analysis	59.00	65.00
<b>NCSLI Workshop &amp; Symposium Proceedings:</b>		
2005 (CD-ROM only)	250.00	400.00
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## BOARD OF DIRECTORS' MEETING DATES

August 6, 11-12, 2006  
Renaissance Nashville  
(in conjunction with the NCSL International  
Workshop & Symposium, August 6-10, 2006)

October, 2006  
CENAM  
Queretaro, Mexico

## NEWSLETTER EDITORIAL SCHEDULE FOR 2006-07

Issue Date	In Mail	To Printer	Last Editorial to Editor
Oct. 06	10 Oct. 06	15 Sep. 06	1 Sep. 06
Jan 07	10 Jan. 07	15 Dec. 06	1 Dec. 06
Apr 07	10 Apr. 07	15 Mar 07	1 Mar. 07
Jul. 07	10 Jul. 07	15 Jun. 07	1 Jun. 07

### EDITOR'S NOTE:

This schedule is for guidance for anyone who needs to submit material for publication in the Newsletter.

## FUTURE CONFERENCES

2006 NCSL International Workshop & Symposium  
August 6-10, 2006  
Nashville, TN

2007 NCSL International Workshop & Symposium  
July 29-August 2, 2007  
St. Paul, MN

2008 NCSL International Workshop & Symposium  
August 3-7, 2008  
Orlando, FL

Abstracts are required for Workshops, Panels, and Papers. For more information contact:  
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**NCSLI Newsletter**  
**NCSL International**  
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**The NCSLI Vision**

Promote competitiveness and success of NCSL International members by improving the quality of products and services through excellence in calibration, testing, and metrology education and training.

**The NCSLI Mission**

NCSL International (NCSLI) is a continuing, nonprofit corporation, oriented toward organizations involved in Metrology and related activities.

The mission of NCSL International is to advance technical and managerial excellence in the field of Metrology, Measurement Standards, Conformity Assessment, Instrument Calibration, as well as Test and Measurement, through voluntary activities aimed at improving product and service quality, productivity, and the competitiveness of member Organizations in the international marketplace.

**Come to Nashville, TN  
For the 2006 NCSLI Annual  
Workshop and Symposium  
August 6-10, 2006**

