EDITOR'S MESSAGE--

Harvey Lance, NCSLI Visionary

Contrary to some opinion, it was not William Wildhack who, in 1960, saw the need for a national metrology-oriented organization of companies and organizations. It was Harvey Lance, also of NIST, who delivered the key paper at a conference on easurements in Boulder. The American National Measurement System was a mess.

Harvey described his vision of an interconnected system of NBS, manufacturers, users, and a hierarchy of calibration labs with the traceable link of calibration. That paper led to a conference-wide meeting, and a year later to NCSL. Wildhack, thankfully, who was an executive at NBS, agreed to be our group's sponsor, and furnish an NBS, Boulder, facility for our NCSL Secretariat. Harvey's obituary is on page 23.

Old Editors never rewrite, they just fade away.

It was 1976. Jimmy Carter was President. I had just come off my year as NCSL President in 1976-77. We had taken the NCSL membership from about 200 to 300, and we thought we were pretty hot stuff.

(Continued on page 6)
PRESIDENT’S MESSAGE

Whew! Another Successful Conference complete

We had another very successful NCSLI International Workshop and Symposium in St. Paul Minnesota this year. All of the feedback that I and others received indicates that this was one of our most successful conferences to date. All of us that attended owe Terry Conder, our Vice President of Conference Management, Harry Spinks the 2007 Conference Director, and their dedicated team a big and sincere WELL DONE!

I would also like to personally thank the Twin Cities Section conference coordinating team for their outstanding efforts at making the conference successful. One of the areas that the Twin Cities section helped the most was in selecting the entertainment for the luncheons and the banquet. Who would ever have guessed that a band called the "Dweebs" would provide such a terrific evening of entertainment at the banquet? Thanks to the team and to our entertainment chair, Barbara Belzer.

Often we measure our success by the numbers that are generated. By any measure the St. Paul Conference was a resounding success. We had 1103 attendees (about a five percent increase over the last two conferences.) Our tutorial attendance grew to 567 attendees this year. That is a new record! Thanks to Dr. Klaus Jeager for his outstanding effort at organizing the tutorials.

The heart of our conference is the technical paper presentations. This year we had 154 papers presented. The technical paper program is the centerpoint of our entire conference, and credit goes to Karen Semer who has now run this successful program for several years. Thank you, Karen, for your hard work. A new educational track was added this year as a result of the efforts of Georgia Harris, our VP of Education and Training, Mark Lapinskes, chair of the Education Systems Liaison Committee (164), and their energetic team. If you were not able to attend this year's conference, you may purchase individual papers through the NCSLI website.

The exhibits are always one of the great opportunities presented each year. This year we had 135 exhibitors presenting their products and services in the exhibit hall. Again this is the largest number of exhibitors that have participated in our workshop and symposium.

Again this year our international attendance grew with 159 representatives from 36 countries attending. I also had the great pleasure of co-hosting the National Measurement Institute (NMI) directors in their meeting with NIST. We had over 30 participants this year representing National Measurement Institutes and regional metrology organizations from around the world. This meeting was inaugurated at the 2005 Washington conference and will become a regular meeting at future conferences. It provides a unique forum for discussion amongst the NMIs where issues of common interest can be discussed.

The most prestigious award presented by NCSLI is the William Wildhack Award. This award is presented annually to recognize outstanding contributions to the field of metrology and measurement science. This years’ recipient was Dr Chuck Ehrlrich. An article devoted to the award and outlining Chuck’s many contributions to the metrology community follows. I would like to add my congratulations to Chuck and to thank him for his outstanding service to our profession and the metrology community.

A new award was given this year to recognize outstanding contributions to the field of metrology through education and training activities. This year’s recipient was Dr. Klaus Jeager. Klaus has been the driving force behind the establishment of the tutorials that are offered at each year’s workshop and symposium. His outstanding effort and determination have resulted in tutorial offerings that are of great value to the attendees. Congratulations Klaus, your efforts have made a significant difference to many of our colleagues and to the metrology profession.

Several actions took place at the Board of Directors meeting that was held in conjunction with the conference. Dave Agy was appointed to serve another two years as treasurer of NCSLI. Dave has done a very good job as treasurer for the last two years and we look forward to working with him in the future. Several new administrative procedures and guidelines were adopted, one new recommended practice (RP) was adopted for the documenting of metrology education and training and on the job training. This RP was prepared by the Personnel Training Requirements committee under Gloria Neely.

A revised RP-3 for Calibration Procedures was also approved. This RP was revised by the Calibration / Certification Procedures commit- tee led by Dale Varner. I was pleased to introduce Randy Van Wie of Tektronix to the board. Randy has consented to become our representative to the ILAC Laboratory committee. He will be attending his first meeting in Sydney, Australia, in October. He will be working closely with Tony Anderson who has done an excellent job of representing NCSLI on the committee over the past several years. This action will strengthen the U.S. presence on the committee with Randy representing NCSLI and Tony representing NACLA.

The next Board of Directors meeting will be held in Providence, Rhode Island, October 22 through 25. We have a very full agenda for this meeting as we prepare to wrap up 2007. As always the meetings are open for attendance by member representatives, region and section coordinators, committee chairs and interested parties. Attendance at board meetings will give you the opportunity to become familiar with the elected leaders of NCSLI and to see how the organization operates. A meeting listing is included in the newsletter and detailed information is available from the meeting planner.

I would like to take this opportunity to recognize John Minck, our NCSLI Newsletter Editor. John is a Past President of NCSLI. Shortly after his term of office he took over the reins as editor of the NCSLI Newsletter. That was 29 years ago. During that 29 years John has kept a steady hand at the helm and has produced a consistently fine product that is of value to our membership. With the introduction of the new worldwide metrology news publication, Metrologist, coming in January, the current newsletter will cease publication with this issue. John has also decided to retire from active participation after this issue. I would like to personally thank John for his many years of hard work and dedication to this publication. I have enjoyed working with and knowing John for the last several years. He has done a wonderful job and will be missed. Please join me in wishing John well in his future endeavors.

Jack Ferris,
NCSLI President
2007 WILDHACK AWARD

Dr. Charles D. Ehrlich, NIST, 2007 Wildhack Award Winner

Dr. Charles Ehrlich of NIST, Director of the Office of Legal Metrology, has received the 2007 William Wildhack Award from NCSL International. It is presented annually to recognize outstanding contributions to the field of metrology and measurement science, consistent with the goals of NCSLI. The award was presented July 31, 2007 at the organization's annual Workshop and Symposium in St. Paul, MN, by Past President Jeff Gust, who chaired the selection committee.

The Wildhack Award was established in 1970, in honor and recognition of William Wildhack, Sr., a long-time employee of the U.S. National Bureau of Standards, now the National Institute of Standards and Technology. Wildhack was not only very instrumental in the founding of the NCSLI but also, through his wisdom, his leadership, his dedication and foresight, helped shape the organization during its early formative years. He chaired the committee which developed the NCSL Bylaws, the original committee structure and secured the initial NBS sponsorship that helped to establish the thriving organization we have today. The award carries an honorarium of $2,500 and a medallion bearing the likeness of Mr. Wildhack. This year's recipient is the 31st individual to be so honored.

Ehrlich's award was based on his global contributions to Legal Metrology, his leadership in key international organizations for weights and measures, and concurrent service to NCSLI. He is our Liaison Delegate to the OIML. Ehrlich started at NIST in November 1984. He began his career at NIST in the vacuum group, and established a Leak Standards Calibration Service, for which he was awarded a Department of Commerce Bronze Medal. In 1987 he became Group Leader of the NIST Pressure Group. For the past eleven years, he has spent most of his time working on international legal metrology issues, first as Deputy Chief and then Chief of the NIST Technical Standards Activities Program, and later as the Group Leader for the International Legal Metrology Group. He has authored or co-authored over 45 technical publications, and he has presented over 65 talks during his career. He received the Woodington Award from the Measurement Science Conference in 1999.

Dr. Ehrlich was able to share this recognition with his wife, Susan Morris, although that is a story in itself. V.P. Carol Hockert was alerted to the winner early, and made secret arrangements with Morris to attend the conference award event. But for some reason, she missed the specific date of the award luncheon, so there was a last-minute scramble for Carol and Tom Huttemann to find her and get her there to participate in this significant award.

THE WILDHACK 2007 CITATION
Jeff Gust, Selection Chairman

Even though it is a well-understood responsibility of the NCSLI past president to bestow the annual Wildhack award, I still feel very privileged to make this presentation.

The Wildhack award is presented annually to recognize outstanding contributions to the field of metrology and measurement science, consistent with the goals of NCSL International. This is the highest award of our organization and is given to an individual or group of individuals for outstanding contributions to the field of metrology. These contributions may be in any appropriate form including oral presentation, conference papers, technical or administrative innovations or accomplishments, and outstanding leadership to NCSLI.

The award was established in 1970 in honor and recognition of William Wildhack, a long-time employee of the U.S. National Bureau of Standards, now known as NIST. Mr. Wildhack was not only instrumental in founding of the NCSL, but also, through his wisdom, leadership, dedication and foresight, he helped to shape the organization during its early formative years. The award carries an honorarium of $2,500 and a medallion bearing the likeness of Mr. Wildhack.

This honoree was the eldest of three children, and worked in the family business as a youth. His grandmother and great-grandmother lived with the family for a number of years, so he grew up in a large, multi-generational family where everyone looked out for everyone else, and work and play pretty much blended together.

He spent a lot of time outdoors as a kid and enjoyed team sports, especially baseball. In high school he was also on the junior varsity football team, which meant he took a beating by the bigger varsity players all week long in practice after school. Maybe that's one of the things that make him so resilient today. Academically, he took plenty of advanced math and science courses in high school, including the math class where he met his wife. His wife is quoted as saying that the course was difficult for her, but she has never regretted taking it!

His parents worked together running a ladies' shoe store in Miami, which explains a lot about his knowledge of pumps, sandals and the importance of matching handbags. His mother was born on the Fourth of July, and every year the family throws a big birthday party for her in Florida. This is one of the highlights of the year for him.

After the University of Miami, he earned a doctorate in physics from the University of Pennsylvania. He had teaching offers from a couple of well-known colleges, but he wanted to go into industry, so he entered a job with Varian Extrion in Gloucester, Massachusetts, where he worked in the Semiconductor Equipment Group doing research on ion implantation systems. He moved to NIST in November 1984.

He began his career at NIST in the vacuum group, and established a Leak Standards Calibration Service, for which he was awarded a Department of Commerce Bronze Medal. In 1987, he became Group Leader of the NIST Pressure Group. For the past eleven years, he has spent most of his time working on international legal metrology issues, first as Deputy Chief and then Chief of the NIST Technical Standards Activities Program, and later as the Group Leader for the International Legal Metrology Group.

For over seven years he has served on behalf of the U.S. Department of State as the U.S. member of the International Committee on Legal Metrology, which is the oversight body of the International Organization of Legal Metrology (OIML). He currently serves on the OIML Presidential Council, representing U.S. stakeholder interests.

He was instrumental in the development and acceptance of the OIML Mutual Acceptance Arrangement (MAA), which provides a framework within which OIML member countries can confidently accept test data from other OIML member countries' laboratories when approving new devices for regulatory applications.

An historic moment occurred in July 2006, when the U.S. representative signed a Declaration of Mutual Confidence, officially becoming a participant in the MAA. The significance of the MAA is that, for the first time, manufacturers of regulated weighing and measuring instruments will be able to apply for recognition in one country, and use the test data from that application to receive recognition in one or more other countries that are signatories to the MAA. In short, the MAA provides the manufacturer's objective of "one test, accepted worldwide."

Other international work includes his long time membership on the International Bureau of Weights and Measures (BIPM's) Joint Committee on Guides for Metrology Working Group 2. That group is responsible for the International Vocabulary of Basic and General Terms in Metrology (VIM). You may know him for his perseverance and diligence in the recent development of the 3rd edition of the VIM. The Director of the BIPM, Andrew Wallard, wrote to the NIST Director this spring, praising the work of this NIST employee. In Wallard's words, he "did this by a mixture of impeccable technical rigour as well as by the force of his personality and an ability to get on with all concerned." Today's recipient is also a member of the JCGM Working Group 1, which is responsible for the Guide to the Expression of Uncertainty in Measurement (GUM).
2007 Wildhack Award

He has been a long time participant in NCSLI activities, including co-chairing the Recommended Practices Committee on Deadweight Pressure Gauges for ten years, and serving as the Liaison Delegate to OIML for the past 8 years. He has reported regularly to the membership of NCSLI on the status of both the VIM and the GUM, and he won Best Paper Awards in 1997 and in 2006.

He has authored or co-authored over 45 technical publications, and he has presented over 65 talks during his career. He received the Woodington Award from the Measurement Science Conference in 1999.

In addition to his professional career, this person serves on the board of directors of his local homeowners' association, which in unincorporated Montgomery County Maryland is really the local government. That's the closest thing he has to a hobby, but he does play racquetball twice a week and enjoys taking care of the lawn and garden.

He has promoted respect for women and always encourages young women to try for challenging careers. His daughter is an electrical engineer as a result. His son has just completed his first year of a doctoral program in economics at the University of Michigan.

This year's recipient goes to enormous trouble for people and manages to be both competitive and kind, all at the same time. Whether it is work or relaxation, he brings enthusiasm and energy to everything he does, and he always projects a sense of great confidence, abundance, and joy in life.

I am pleased to announce the recipient of the 2007 Wildhack Award, Dr. Chuck Ehrlich.

Editor’s Message (continued from page 2)

Mike Suraci had been NCSL Newsletter Editor just before he assumed the Presidency in 1975-76. At that time, he turned the job over to Wilbur Anson, whose day job was Press Officer for the NBS, Boulder facility. By the time I finished my Past-Presidency duties in the middle of 1978, the Measurement Services Group at NBS, Boulder, was in some organizational turmoil. Wilbur needed to hand off his editorship of the NCSL Newsletter. At the time, our organization was still being sponsored by NBS, and our Secretariat was still located at NBS, Boulder, in the Measurement Services Dept. So I stepped up and volunteered, taking over from Wilbur. This is my first issue, December, 1978. By that time, Ron Kidd was President.

It is hard to imagine how unsophisticated we were in those days. We were just starting to use something called Wordstar text-managing software to generate all the text copy. I used one of our HP Marketing reproduction-typists, Mary Hurd, to type the master pages on upsize 11x17 inch repro paper. That's the process we used to produce instrument instruction manuals. Where there were to be photos, she cut in orange blocks, which, when photographed to film (negatives), would come out as a clear transparent "window" over which they could tape half tone photos which were processed separately. All that went to make the lithograph printing plates.

We did everything by mail and FEDEX and FAX, and occasional phone. There was no Internet yet, nor PCs at everyone's desk. But that was the printing technology of the day, and it worked. We plunged into expanding and improving NCSLI. Year after year, decade after decade, we got better, gained more member companies, went International. And, candidly, we got a LOT better at what we were doing. The Newsletter grew with our operations, many new committees, many new regions and sections, more reports and more activity to report and keep abreast of.

In 2007, we are a pre-eminent and global organization, with an amazing reach of activities. Our member organizations include not just most of the NMIs of the world, but most of the Accreditation organizations and Calibration Process and Legal Metrology activities. We took a leap into setting actual industry standards using our association with ANSI and the 540Z series of process standards. Finally, we recognized that quality progress with our 40th Anniversary commemoration, and 4-color covers for the newsletter.

But progress happens. In 2005, our NCSLI technology publication, MEASURE, was launched, with Dick Pettit creating the terrific editorial content, and Craig's Business Office handling paid advertising for the first time. It has been a resounding success, both in the technical papers and in the revenue which was generated by the paid ads. I confess that I had resisted the call for paid ads in the newsletter going back probably to 1990. But now, the financial success was right there for all to see.

(Continued on page 22)
Measuring the Impact of Metrology and Standards

Dr. William Jeffrey, Director
NIST

Keynoter Dr. Bob Watters, Chief of the Measurement Services Division at NIST, volunteered to stand in for Dr. William Jeffrey at the last minute. Dr. Jeffrey recently announced his decision to leave NIST in September.

CONFERENCE KEYNOTE 2007

Measurement Barriers to innovation

Examples:
- Biomarkers – early cancer diagnosis requires detection of proteins at levels a trillion times lower than common blood components.
- Molecular Nanoelectronics – $200 billion microprocessor industry needs better evaluation of molecular component performance to continue to shrink circuits.
- Advanced Concrete – better & accelerated durability measures needed, costs for repairing conventional concrete proposed at $10 trillion over next 20 years.

Measurements Have “Impact”

Train wreck in Paris, France, 1895
September 30, 1895
Likely Cause of derailment found
“…The peer review preliminary findings indicate that one train used English units (e.g., inches, feet and pounds) while the other used metric units for a key spacecraft operation.”

Measurement Barriers to innovation

Examples:
- Biomarkers – early cancer diagnosis requires detection of proteins at levels a trillion times lower than common blood components.
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- Advanced Concrete – better & accelerated durability measures needed, costs for repairing conventional concrete proposed at $10 trillion over next 20 years.
Measurement Barriers to innovation:

Examples:
- Biomarkers – early cancer diagnosis requires detection of proteins at levels a million times lower than common blood components.
- Molecular Nanoelectronics – $200 billion microprocessor industry needs better evaluation of molecular component performance to continue to shrink circuits.
- Advanced Concrete – better & accelerated durability measures needed, costs for repairing conventional concrete projected at $10 trillion over next 20 years.

Measurements Have “Impact”

Train wreck in Paris, France, 1895

September 30, 1895
Likely Cause of October Lows Found
- The peer review preliminary findings indicate that one beam used English units (e.g., inches, feet and pounds) while the other used metric units for a key spacecraft operation.

Possible Crash Site
**BEST PAPER AWARDS**

**Winner - Allen V. Astin Award**  
OVERALL BEST Paper of 2007 NCSLI Conference

Dr. Barry Wood  
NRC Canada

"Proposed Changes to the SI and Their Impact on Electrical Metrology"  
(International Track)

Session 6A

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**Theoretical Metrology**

Steven Dwyer  
NSWC Corona

"k=2 and the Normality Assumption of Test Equipment: Empirical Evidence"

Session 4C

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**Applied Metrology**

Charles Burroughs  
NIST

"Error and Transient Analysis of Stepwise Approximated Sinewaves generated by SNS Programmable Josephson Voltage Standards"

Session 5F

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**Invited Paper**

No picture available

Leslie Pendrill  
SP Technical Research Institute of Sweden

"Comparing and Contrasting Studies of Metrology Education & Training in Europe and North America"

Session 8A

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**Management and Quality**

Brian Parry (I)  
Boeing Company

"An Overview of Recently Published ASME B89 Standards with an Emphasis on B89.4.22"

Session 1B
Welcome and Keynote

NCSLI President Jack Ferris kicked off the Conference with a welcome and some early announcements. Then he introduced the Keynote Speaker Dr. Bob Watters of NIST, who was standing in for the announced Keynoter, Dr. William Jeffrey, Director of NIST. Dr. Watters is Director of Measurement Services at NIST, therefore a crucial manager for our metrology community needs. See page 7 for the Keynote address slides.

When all our attendees from the global metrology community gather for the conference opening, it is an impressive crowd. During the opening ceremonies, NCSLI President Jack Ferris and EURAMET Director Michael Kuhne signed a new letter of intent for cooperation between NCSLI and EURAMET. The letter replaces one signed by Charlie Motzko with EUROMET in 2002. These two variations in spelling reflect their change in the name of their organization.

President’s Reception

The Monday night President’s Reception was held at the Landmark Building, again sponsored by the Fluke Corp, for which we express our appreciation. These informal gatherings bring metrologists and their spouses together with others from around the world. The Landmark is an old courthouse where it is mentioned that Al Capone was charged with certain crimes.

Editor’s Note: This year as usual, I was able to choose from over 1000 photos to give all those readers who weren’t able to attend, a flavor and presence of the impact of our Annual Conference. However, for some photos, I was not able to get them identified to the specific conference event, such as the Member Delegate meeting. So some of the pictures tend to be more “generic.” Some are missing the people’s names in the captions, etc. But I did pick examples of important events or interesting goings-on.
Luncheons

The typical luncheon period is used for networking as well as various entertaining and informative speakers.

At the Thursday luncheon, Georgia Harris and husband Randy Motz presented a fascinating report of their 2175-mile trek down the spine of the Appalachian Mountains last year. The talk was complete with a slideshow and all the trip statistics and logistics. I wonder if they convinced anyone else in that luncheon crowd to pursue their own life dreams?

It goes without saying that our attendees eat well during this week. Buffets and luncheon menus are not chosen to keep people awake in the afternoon technical sessions.

One of the luncheon speakers was a member of University of Minnesota Raptor Center. The talk became energized with a live owl.

At the Monday Lunch, the attendees were treated to a performance by the Minnesota Scandanavian Ensemble.

Conference Banquet

The dance floor at the Tuesday night banquet was a popular place.
We have some pretty photogenic metrologists in our organization. Harry Spinks spins around the dance floor with his wife, Debbie, at the banquet.

It’s impressive to see one of our banquet guests in formal USAF dress uniform. It reminds me of a technical conference I attended years ago, where the banquet dress was announced as formal. When my associate and I showed up, and looked down on the banquet floor from the balcony, there were 3000 guests there with women in gorgeous formals, military men in dress uniforms, civilians in tuxedos, and the two of us in brown suits.

Can you say, "Rock till you Drop?" I think I detect several of our Board members on the floor; Tom Hutteman, Tony Anderson, Carol Hockert, and Ed Pritchard. They were doing a pretty good job of keeping up with the classic music “Y-M-C-A.”

Banquet entertainment was provided by “The Dweebs.”

The Dweebs, “Sonny and Cher.”

I’d say it is pretty impressive that one of V.P. Roxanne Robinson’s committees, Utilities in this case, was still carrying on business at the Banquet. At least they tried to convince me that they were.
International Dinner

It has been rumored that games of chance might have been available during the International Dinner, at one of the conference venues, a place known as "The Wabasha Street Caves." And it is further suspected that drinks might have contained alcohol. It appeared to be a wicked den of iniquity, with gamblers and bootleggers, mobsters and their molls hanging out... There were no Revenuers in sight.

Technical Program

Karen Semer of the USAF Metrology Center at Newark, OH, has been co-managing the Technical Program for the last several conferences with Dick Pettit. This year she was flying on her own. Here, she addresses a breakfast briefing for the authors and speakers of the day. What a HUGE job that is, and one which merits our sincere thanks. She had the job of lining up all the technical tracks and papers, not to mention filling in the gaps left by speakers who could not come due to international issues, business, or air-transportation problems.

Tutorials

A very popular venue for our Annual Conference is the Tutorial section days, organized by Klaus Jaeger (r.). All these gentlemen had a hand in its 2007 success: Terry Conder, Malcolm Smith, Mike Tovey, Dave Deaver, and the Tutorial Commander, Klaus. We thank you for the instructive successes. There were 567 registered attendees.

Conference General

"Romantic" isn't the first word that springs to mind for St. Paul in the evening. But this view of the river at night might be enough to change my mind. Sorry Carol.

In the middle of our conference week, as I watched the devastation shown on our San Francisco TV of the collapse of the I-35 bridge, I said to myself, for that time of day, with all our hundreds of attendee spouses and tours, there is a reasonable chance that some of our people were on that ill-fated bridge. But Carol Hockert had done a quick inquiry and assured to our relief that all our conference attendees and families were safe. What a horrible event! Several of our prior conferences had minor hotel fires, but they were trivial compared to this.

The Business Office staff of NCSLI works for months getting ready for this big show. Advertising and promotion, mailed brochures, registrations, reservations, arrangements, coordination of all the dozen volunteer leaders, you name it. Kudos to them all. Back row: Tom Huttemann, Craig Gulk, Larry Johnson, Doris Schaffner, Dave Nebel. Front: Linda Stone and Jerah Walter. Tom and Dave are not employees but assist with the show management.
Ah, the hustle and bustle of a technical conference. The crowds, old friends we haven’t seen for a year, new speakers and experts, new equipment at the exhibits. And a new city to explore and experience.

Leading to this unexplained picture, which must relate to some pre-historic finds in the area around St. Paul? Carol Hockert reports, "Saint Paul has a tradition (for the past ten years maybe) of celebrating summer by having some type of statue painting contest. For a number of years, it was the Peanuts characters, Snoopy, Charlie Brown, Linus, Lucy, in honor of Charles Schultz, who originated from the area. Various businesses or organizations bought and decorated a statue, which were then displayed and ultimately auctioned off to raise money for some charity each year. I’m betting this year’s money was for the Science Museum. You can find various statues all over the city in lobbies and in yards."

A tip of our hat to the memories of the past. All of our past presidents who came to St. Paul get their picture taken for posterity.

Exhibits

All the organizations that join our Conference with product and services exhibits show us the loyalty and support that is needed to bring our annual operating budget into balance. NCSLI recognizes and appreciates their confidence and continued cooperation.

By strategically placing the reception eating tables right in the middle of the exhibit floor, our loyal exhibitors get a chance for some share of mind of the attendees as they meet friends and enjoy some conviviality. They might even wander around the booths and buy something. Or at least make a mental note to come back during exhibit viewing hours.

Some of you will remember Armstrong, the hypoglycemic detecting assistance dog that I featured in the photos of the July, 2006 Anniversary issue. He is the companion of Mark Ruefenacht of Heusser-Neweigh Company. From this exhibit backdrop, it looks like Armstrong has become the SpokesDog for their business, and at the same time, carries his own calibration certification tag.
Booth standers at the GIDEP booth are ready to sign up new users for this large data base of calibration procedures and other shared metrology documentation.

Awards

Many, many awards were made during the week of the conference. They were all well-deserved and important for our membership. There were far too many to cover in this photo essay. Sorry. You know who you are, and hopefully the attendees saw the importance we attach to each award. In a volunteer organization, it is all a labor of love.

Awarded to: RP-3 Committee;

... ... for significant contribution as a member of the NCSLI 176 Calibration Certification Committee, specifically in the revision of the Recommended Practice RP-3 Calibration Procedures:

"In the pursuit of the goal of uniformity in the field of instrumentation and measurement."

Dale Varner (Chair), Del Caldwell, Jim Carlton, Caroline Dixon, Ryan Fischer, Tom Flynn, Chris Grachanen, David Larson, Lori Loney, Daniel Martinez, Laurie Masiello, Gloria Neely, Larry Nielsen, Thu Ngo, Duke Playner, Mark Rudek, Mark Sanders, Jan Stenstron, Robert Williams, Terrelle Wilson.

Education Award: Education and Training V.P. Georgia Harris (L) presents the annual Education Award to Dr. Klaus Jaeger as his wife Maria participates in the honor. Dr. Maria Jaeger got her own award -- an updated NCSLI shirt for her years of contributions to the Tutorial Program.

The U.S. Army TMDE (Test & Measurement Diagnostic Equipment) division presented a Certificate of Appreciation award to Chris Grachanen of HP/Compaq for his exemplary work on the initiative for revising outdated calibration practitioner job descriptions administered by the U.S. Office of Personnel management (OPM). (L - R) Graham Cameron, Chris, Georgia Harris, Don Ruth.

Door prizes

One of the most popular events held at the end of the week is Steve Doty's door prize raffle. This year, Steve was unable to be present for his own event due to personal reasons. He was ably backed up by Harry Spinks of Boston Scientific and Barbara Belcer of NTLAP, who filled in admirably. We thank Steve and Harry and Barbara for their efforts to hold up the interest in the last part of the week.
A wide variety of door prizes were displayed before the event. Some of them are donated prizes so the odds of coming up with a winning ticket are pretty good.

Barbara Belzer presents a special copper platter to L. F. Eason of the North Carolina Dept. of Weights and Measures. It had been donated by the Egyptian delegation.

Board meeting

In concurrence with the Annual Conference, the Board of Directors always gets its best annual turnout.

NCSLI President Jack Ferris was honored for his birthday at the Thursday night Board reception following the conference closing.

NCSLI Board business is complex and wide-ranging. The last Board minutes ran to 47 pages. For the typical newsletter, I have 130+ correspondents, although, thankfully, not all contribute to every issue. Holding a Board meeting in conjunction with the Conference not only brings in most Board members, but also allows our regular member delegates to attend and see if they might want to volunteer for these “esteemed” positions.

Conference Committees

Terry Conder’s Conference Committee, as many as she could corral into one spot at one time, gather for a recognition photo. Just looking at the July Newsletter listing of the Conference assignments showed 21 different volunteers involved, and those were just the group leaders. We thank them all.

2007 Conference Statistics

1103 Paid registrations
567 Tutorial registrations
36 Countries
159 International attendees
154 Technical papers
135 Exhibitors
REPORTS FROM THE BOARD

EURAMET NEWS
Seton Bennett

Report from the European Association of NMIs (EURAMET)

The first General Assembly of EURAMET e.V. took place at NPL on Friday 1 June. EURAMET was established as an "eingetragener Verein" (Association of Public Utility) in Germany on 11 January and has now replaced EUROMET as the European Regional Metrology Organisation (RMO). All the EUROMET NMIs have joined EURAMET with the exception of Cyprus, which will join within a year.

The secretariat of EURAMET has been set up at PTB in Braunschweig, with Wolfgang Schmid as its first Secretary, and Michael Kühne will be Chairman for the first two years. The two Vice-Chairs are Arnold Leitner (BEV, Austria) and Luc Erard (LNE, France). The General Assembly elected the following to the Board of Directors:

Joseph Bartolo (MSA - Malta)
Seton Bennett (NPL - UK)
Janko Drnovšek (MIRS - Slovenia)
Paul Hetherington (NML - Ireland)
Heikki Isotalo (MIKES - Finland)
Pavel Klenovský (CMI - Czech Republic).

The main reason for creating a new body was the need for a legal entity which could represent the European National Metrology Institutes (NMIs) and enter into contracts with the European Commission and other partners. In the first instance, EURAMET will undertake the direction and management of the European Metrology Research Programme (EMRP), the first stage of which has just been launched with a total budget of €63M. A third of this amount (€21M) will come from Brussels. This initial stage, run by NPL’s International Office, will fund joint research projects under four themes:

- Research related to the redefinition of the fundamental constants and the SI;
- Metrology underpinning "health", including relevant clinical analysis and health related ionising radiation;
- Research in dimensional/length metrology;
- Research in electromagnetic metrology.

Ninety-eight responses were received in response to a call for expressions of interest by the 6 July deadline and these have already been evaluated by teams of NMI experts in order to identify a programme of Joint Research Projects. These will be fully formulated and costed in time to launch the EMRP by the end of this year.

Two new bodies have been established within EURAMET to oversee the EMRP: the EMRP Committee and the Research Council. The EMRP Committee will direct the Programme, determining annual budgets and taking decisions on funding for projects. The Research Council, composed of external institutional and personal members, will provide independent advice to EURAMET in matters relating to the EMRP.

To avoid having two RMOs in Europe, the EUROMET General Assembly decided to transfer all EUROMET’s responsibilities and activities to EURAMET, which has become the Regional Metrology Organisation for Europe. A new set of EURAMET Technical Committees has been set up to continue the work of their EUROMET predecessors. With the transfer of responsibilities complete, EUROMET disappeared at the end of June, just a couple of months short of the twentieth anniversary of the signing of the original EUROMET Memorandum of Understanding.

EUROMET is dead - long live EURAMET!

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REPORT FROM THE BIPM
Andrew Wallard, Director

CIPM MRA

The CIPM MRA continues to grow in strength as more new or revised calibration and measurement capabilities (CMCs) are entered into the key comparison data base (KCDB). The KCDB itself has also been enhanced so as to make it easier to search for data, to use a semantic search facility and to interpret text-based inquiries. These facilities will make it easier for assessors of accredited laboratories to check the details of their traceability to national realizations of the SI and to access the graphs of equivalence. The BIPM is taking every opportunity to promote the new facility through presentations, live demonstrations and the KCDB newsletter.

A revised CMC definition was agreed to by the Joint Committee for the BIPM and the Regional Metrology Organisations (JCRB) and was proposed to the Accreditation Issues Committee of ILAC. The AIC will recommend the new definition to the ILAC membership. The next steps are for additional notes to be agreed upon during a meeting of the BIPM/ILAC working group during the NCSLI. After final approval, it will be promoted to the relevant communities and there will be a joint statement by ILAC and the BIPM.

Discussions continue with the World Meteorological Organisation about becoming a Signatory.

VIM and GUM

A major achievement of the year was the finalization of the 3rd edition of the VIM- the International Vocabulary of Metrology - Basic and General Concepts and Associated Terms. This edition changes the treatment of measurement uncertainty from an Error Approach (sometimes called Traditional Approach or True Value Approach) to an Uncertainty Approach and therefore necessitated reconsideration of some of the related concepts appearing in the 2nd edition of the VIM.

It also took the opportunity of including more terms which were of value to the chemical community. The "VIM3" has been approved by all eight partner bodies. The BIPM will adopt the agreed upon text. The Working Group on the Guide to Uncertainty in
Measurement, the GUM, also finalizes its work on a supplement to the GUM which deals with Monte Carlo methods. This has also been approved by all partner bodies.

The VIM3 and the Supplement 1 to the GUM on Monte Carlo Methods have been sent to the ISO. They will be published by ISO in hard copy and available on the BIPM web site as pdf documents.

**BIPM and OIML**

The two bodies have agreed to a joint leaflet which describes their activities and a new metrology portal is ready for launch.

**The General Conference on Weights and Measures (CGPM)**

The 23rd CGPM in November 2007 will be presented with a draft programme of work for the BIPM for the period 2009-2012. We have adopted a different style from previous draft programmes of work and present a structured approach to the justification and impact of the programme, together with a clear statement of need for new activities and projects.

The programme of work was presented to NMI Directors at their meeting in October 2006, and was then discussed by the CIPM in October 2006. The International Committee for Weights and Measures (CIPM) endorsed a programme of work which would require an increase in the BIPM donation of 15% from 1 January 2009.

The key elements in the programme of work will enable the BIPM to continue its current programme of work, to make faster progress with its Watt Balance and on work in relation to the realization of the proposed redefinition of the kilogram. The programme of work also reflects the increased importance of "optical clocks" to TAI, and proposes work in support of key comparisons in chemical metrology.

The CIPM also discussed the BIPM's proposal, strongly endorsed by the Consultative Committee for Ionizing Radiation (CCRI), for a new project to address the needs of the dosimetry community based on high-energy photons generated by linear accelerators. However, the CIPM took the view that the CGPM would be asked to support the start-up work for this project during 2009-2012 but that implementation would be deferred until the subsequent period.

The Convocation of the General Conference contains twelve draft resolutions which cover global trends in metrology, work in relation to the proposed changes to definitions of some SI units and a number of policy issues in relation to the operation of the Metre Convention. The Convocation was sent to Member States in January 2007.

**The SI**

During the past few months there have been several scientific developments and meetings on possible redefinitions of base units of the SI, stimulated by the progress on a number of experiments which could lead to a redefinition of the kilogram. New results from the watt balance experiments and encouraging progress on the International Avogadro Coordination project now seem likely to provide an opportunity for the General Conference on Weights and Measures to take decisions on a redefinition of the kilogram in 2011.

Stimulated by, and directly linked to the kilogram redefinition, there is also likely to be a simultaneous redefinition of the base units for electricity, and amount of substance. A redefinition of the kelvin is also likely, based on a fixed value of the Boltzmann Constant kB. The CIPM has encouraged Consultative Committees (CCs) to consider the effects of these redefinitions and a number of CCs have set up specific working groups to discuss these issues and to develop a strategy for their implementation.

As the redefinitions place more of the base units of the SI on fixed values of the fundamental constants of physics, there will be a need to realize them in a practical sense. The example being followed is that of the redefinition of the metre in 1983 based on a fixed value for the speed of light in vacuum. The approach adopted in this case was the creation of a *Mise en pratique* or set of instructions and recommendations for a practical and universally followed way of realizing the definition. The *Mise en pratique* for the metre has stood the test of time and has been modified with the advent of new measurements, notably of laser-based measurement standards.

The various CCs are following this approach and are preparing drafts to be finalized in the coming few years. As part of this process, the CC for Mass held a special meeting with representatives of the electrical community in February 2007. This made considerable progress towards a common position which would allow the kilogram to be redefined and for the current realizations of the volt and ohm to be firmly based on fundamental constants and to be a genuine SI representation rather than to be based on conventional values.

Several communities came together at the CC for Units (CCU) meeting in June 2007 and came to the conclusion that a kilogram redefinition based on the Planck constant, h, was to be preferred to one based on the Avogadro constant, NA. The CCU agreed with the CC for Electricity and Magnetism (CCEM) that a definition of the ampere should be based on a fixed value of the elementary charge, e.

It is highly unlikely that these redefinitions will influence the vast majority of measurements made for industrial or scientific purposes; they will enhance the SI and bring benefits to metrologists and to the fundamental constant community through, in general, a reduction in uncertainties associated with the CODATA values. The CIPM and the CCs nevertheless believe that there needs to be an awareness campaign in the scientific and the industrial measurement community in order to alert them to these changes and their implications. Much of this effort will fall to NMIs at a national level.

A new working group has been created to study the issue of physiological and biological units and their relation with the SI.

**World Metrology Day, WMD.**

The BIPM Director's message on 20 May, the anniversary of the signing of the Metre Convention in 1875, proved to be more successful than ever before. The theme, "Measurements in our Environment," attracted a huge degree of attention from NMIs and other international bodies. Some 85 national events to mark WMD were held in 63 Member States, Associates as well as in States which have, as yet, no formal links with the BIPM. In partnership with the PTB and the NMISA for the basic version, and in collaboration with other NMIs, some 32 versions, in 18 languages, of a WMD poster were produced.
Reports from the Board

International Commission on Illumination (CIE).

An Agreement was signed between the CIPM and the International Commission on Illumination (CIE) which recognised the responsibilities and roles of the two bodies and set up formal coordination mechanisms. These relate in particular to the need to ensure the SI traceability of data from the CIE’s work on measurements of light, optical radiation, colour, optical properties of materials, photobiological and photochemical quantities.

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SIM REPORT
Dianne Lalla-Rodrigues

SIM is the regional metrology organization for the Americas.

The SIM Council met during the NCSLI 2006. A number of decisions were made with respect to the operation of SIM and the submission of the request for a Metrology for the Americas Project for the period 2006-2008. OAS Project: "Implementation of metrology Infrastructures of the Americas to Support Free Trade and Quality of Life" (Execution Period: 2006-2008).

General Objective: To provide tools and mechanisms to improve measurement capabilities within the Americas, through capacity building and sustainability of the Interamerican Metrology System (SIM).

Ignacio Hernandez Gutierrez, CENAM, Mexico was appointed as Chairman, Professional Development Committee (PDC) in August 2006. Dr Yoshito Mitani, CENAM, Mexico resigned as PDC Chairman. The Council thanked him profusely for over ten years of dedicated service.

The SIM GA was held in Rio de Janeiro, Brazil, in September 2006. Prof. Humberto Siqueira Brandi, Director of the Scientific and Industrial Metrology Division of INMETRO-Brazil, was elected President for the period Sept 2006-Sept 2008, and the Kenya Bureau of Standards was formally accepted as an Associate Member of SIM. Dianne Lalla-Rodrigues was elected as SIM Representative to NCSLI Board of Directors

The International Measurement Confederation - IMEKO -- in cooperation with INMETRO - National Institute of Metrology, Standardization and Industrial Quality and SBM - Brazilian Society of Metrology organised the XVIII IMEKO World Congress Metrology for a Sustainable Development in Rio de Janeiro, 17-22 September 2006 in conjunction with SIM GA 2006. The Congress was a great scientific and social event for metrologists from all around the world. Authors from 43 countries presented.

SIM QSTF has also decided to issue certificates for the NMIs that have their QMS approved.

During the SIM Council Meeting of March 12-13, 2007, the Council received Dr Chung of KRISS. The discussions focused on particular areas for collaboration between APMP and SIM. She then proposed that APMP and SIM work together to promote two joint workshops: One on a Senior Metrologist Approval Program (SMAP) and another on Measurement Uncertainty.

The first one was envisaged in a context in which Quality Systems assessments are becoming more and more important. The aim of the workshop, therefore, is to investigate qualifications for an assessor, which are based on RMO’s and Accreditation Body requirements and to obtain an agreement among qualifications so that it is recognized across the Board.

SIM Rules of Procedure

During 2007, SIM, through the Document Working Group, reviewed and updated the Rules of Procedure to improve the efficiency and effectiveness of changeover of the Presidency.

SIM will continue in its quest to build the Metrology Infrastructure of the Americas in an effort to foster economic development, market access, environmental protection and improved quality of life for all.

In Conclusion

SIM will continue to conduct activities aimed at achieving its Mission to build the metrology infrastructure in the Americas focused mainly on enhancing inter-regional trade and reducing barriers to trade arising from measurement issues. The work done over the years has seen increased capacity in measurement capability in the region. Of significant note is the increase in the number of signatory members of the MRA, especially by smaller members: Costa Rica, Panama and Jamaica. Of special note is the associate membership of CARICOM - an economic bloc of countries, eight of which are covered by Associate Membership. This is new territory for the MRA and the logistics of how it will operate are still being finalized between BIPM, CARIMET/CARICOM & SIM QSTF.

I wish to thank all those organizations and persons present who have in any way supported the activities of SIM in the past year and look forward to your continued support in the coming year.

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ILAC/NACLA REPORT
Anthony Anderson

International Laboratory Accreditation Cooperation (ILAC)

There has not been a meeting of the ILAC Laboratory Committee (LC) since the last Board meeting. However, the Chair of the committee did attend the June ILAC Executive Committee in Beijing and Joint Committee for Closer Cooperation (JCCC) between ILAC and IA meetings.

A merger between ILAC and IAF is once again under consideration. A document has been prepared by the two organizations’ Chairs with input from the regions and representatives of the unaffiliated ABs. At no stage in its development was LC input sought. It would appear that at this stage, it is confidential and will first be circulated to both executive committees for comment and only after comments are received will it be circulated to the LC members. The impression received by the LC Chair is that only views of certain persuasions were taken into consideration in the document. The LC has always been opposed to the merger of the two organizations because of the concern that laboratory accreditation and certification/registration would become even more confusing in the market place.
New ILAC member classifications include the Sri Lanka Accreditation Board for Conformity Assessment (SLAB), which has been granted associate status, as has the Laboratory Accreditation Bureau (LAB), USA.

The guidance document for ISO/IEC 17011, developed jointly between ILAC and IAF, will have to go out for yet another round of comments. IAF has a document category called "mandatory guidance" whereas ILAC considers guidance as guidance documents and mandatory requirements as policy documents. Such differences could be the cause of some of the substantive comments already submitted on this document.

A world accreditation day is being considered, possibly Nov. 2nd, and this suggestion will be put to the ILAC General Assembly in October. There is a day allocated to world standards and to world metrology.

In the recently published ISO 15195:2007, "Laboratory Medicine - Requirements for reference measurement laboratories," the scope has been changed to "medical testing" and not as in the previous edition "samples taken out of the human body." The expanded scope now covers topics such as MRI, etc. However, even though the 2007 version has just been published, a draft of a further revision was presented to the last meeting of ISO TC 212 and this draft has removed normative reference to ISO/IEC17025. This is of major concern and the ILAC liaison is working to rectify this omission.

At the ILAC Accreditation Committee (AIC) meeting in May in Vienna, there was considerable discussion regarding the ongoing debate over Calibration Measurement Capability (CMC) or Best Measurement Capability (BMC). BIPM requested that the unified term be BMC and after much discussion, the ILAC Members present agreed to the term as the best way forward. It was agreed that the term itself was not the issue but rather the 'Notes' and the explanation of its use. There was considerable debate about the proposed notes, which have been somewhat modified since the ones produced after the Nashville meeting at last years NCSLI Conference. It was decided that it would be necessary for the working group to get together to produce a version that could be presented to both the BIPM end-of-year meetings as well as at the AIC meeting of the ILAC GA. ILAC G13:2007 - Guidelines for the Requirement of Competence of Providers of Proficiency Testing Schemes, was accepted by the ILAC membership earlier this year and has been published.

The United Nations Industrial Development Organization (UNIDO) has asked the ILAC LC to inform its members that they are interested in contacting laboratories in the field of chemical, microbiological, textile/garment, leather testing and calibration and would like interested experts in these fields to submit their CVs for possible short-term UNIDO consultancies in developing countries. Anyone interested should contact: Dr. Goonatilake at UNIDO, <LGoonatilake@unido.org> and cc to me before mid August.

ILAC G13:2007 - Guidelines for the Requirement of Competence of Providers of Proficiency Testing Schemes, was accepted by the ILAC membership earlier this year and has been published.

Reports from the Board

EUROLAB REPORT
Horst Czichos

Laboratory services and the use of accreditation logos

A topical issue currently discussed in Europe among accreditors and conformity assessment bodies (CABs) is the question of the correct and appropriate use of accreditation logos, considering two cases:

(a) According to the rules of accreditation, a CAB can mark its test reports with an accreditation logo for all services, for which it holds accreditation.

(b) CABs may also offer - on request by a customer - reduced (lower-priced) "subsets of the explicitly accredited services".

As for case (b) it is not clear whether the necessary requirements (quality of results, ISO 17025) are fulfilled as in case (a), questions arise whether the services provided are really appropriate and whether this practice is transparent for the market. In order to identify the current practices and the views of the conformity assessment bodies, EUROLAB is performing a survey. The questionnaire has been distributed in some countries and first answers have been provided to the EUROLAB Secretariat in Paris already. The deadline for submission of the questionnaires will be in September 2007. The results will be discussed with EA later.

Flexible scope of accreditation

Flexibility of the accreditation scope in terms of a general description of the area of competence instead of an exhaustive list of all measurement and test procedures allows the laboratory to modify its procedures in a defined frame in order to quickly react to its customers' demands. Prerequisite is the demonstrated capability of the laboratory to validate new or modified procedures.

The accreditation body will check the modifications only at the next regular surveillance visit. Currently it is discussed to expand the model of flexible accreditation also to the fields of inspection and certification Europe-wide. One problem with regard to the flexibility of the scope is, however, that the concept is applied very differently in the different European countries. There is a strong need for harmonisation to secure fair competition. This topic is also subject of the EUROLAB survey.

Guidance to ISO/IEC 17011

ILAC and IAF are preparing a guidance document on ISO/IEC 17011. A draft version was distributed in February 2007 for a 60-day commenting period. The Joint EUROLAB and CEOC Committee for Product Testing and Certification (JTC PTC) has pointed especially to problems concerning accreditation of inspection bodies. For instance, for accreditation of inspection bodies it is not appropriate to visit all sites where key activities are performed, because this will be practically all sites as the inspector often makes decisions onsite.

National Cooperation for Laboratory Accreditation (NACLA)

The meeting of the NACLA Board was held on July 26 and 27, 2007 in St. Paul, MN, just prior to the NCSLI Conference. Since the last Board meeting, NACLA has been in discussion with ACIL regarding cooperation and has agreed in principle, to work with ACIL for the development of accreditation programs that will be recognized by NACLA. A MoU is being prepared between the two organizations.

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In addition, EUROLAB underlines the principle that the accreditation requirements for conformity assessment bodies are laid down in the respective standards (e.g. ISO/IEC 17020, 17021, 17024 und 17025). Accreditation bodies should not tighten them or create additional requirements.

**European product legislation and accreditation**

The European product legislation follows the so-called "New Approach", which is the flexible regulatory framework providing access to the common market and protecting essential public requirements. By affixing the CE-marking the manufacturer declares that the product is in conformity with the relevant EU Directives. Some Directives require the involvement of a third party - this has to be a "notified body."

Since 2004 the process of a review of the New Approach has been ongoing. In February, 2007, the EU Commission published drafts of a regulation on requirements for accreditation and market surveillance relating to the marketing of products and of a decision on a common framework for the marketing of products. Both documents are currently discussed within the EU Council and Parliament. The final voting / adoption of the pieces of legislation are expected for the beginning of 2008. The complete texts are available in the internet under <http://ec.europa.eu/enterprise/newapproach/review_en.htm>.

Important aspects for conformity assessment bodies are the involvement of accreditation as a tool to demonstrate competence to become a "notified body" and the mandating of the European Cooperation for Accreditation (EA). EUROLAB is following the developments in this field by providing comments to the respective drafts, voicing the view of the laboratory community.

**Forthcoming Workshop: Accreditation - a tool to develop competence (?)**

The joint EA, EUROLAB and EURACHEM Workshop "Accreditation - a tool to develop competence (?)" took place on 20 September 2007 at the Federal Institute for Materials Research and Testing (BAM) in Berlin. This workshop addressed the competence of staff and the accreditation procedure conceived as a learning process. Additionally the European development in the field of accreditation was discussed.

**Editor’s Message (continued from page 6)**

Recently, the NCSLI Board has decided that starting in January, 2008, there will be a change in the format and content and editorship of the NCSLI Newsletter. The new publication will be called "METROLOGIST," and it will be published out of the NCSLI Business Office.

Over all those three decades, I loved the job and the metrology community, and loved the smell of printer's ink, plus I liked to write. Over all those years, I always thought there might be a new volunteer editor, but none ever showed up. I had pretty much decided that I didn’t want to complicate my older years with a major change like that one proposed, so I have decided to resign the job as of this October, 2007 issue. That will make just 29 years of editing and publishing.

It has been edifying to have the privilege for all those decades to be the "spokesman in essence" for NCSLI and our metrology community. Honestly, the pleasure has been all mine. I loved the interaction with all you hundreds of practitioners of metrology and measurement assurance, worldwide. It has been a gratifying ride.

As I always tell my retiring friends, "Happy Trails," and it now becomes my role to listen to my own advice and ride off into the sunset.

John Minck
Editor
The Newsletter learned, belatedly, that Harvey Lance passed away late last year. He had been living in retirement in Tucson, AZ, active in favorite pursuits like bird watching. In recognition of his importance to the founding of NCSLI, the St. Paul Conference held a moment of silence for Harvey during their meeting in St. Paul. He was preceded in death by his wife, Evelyn Fuller Lance.

Harvey was born in Sparta, Tennessee, and was educated at Berea College, Berea, Kentucky, where he received a Bachelor's degree in Physics. He then went to Cornell University from 1939-1941 to do graduate work. He worked at the U.S. Naval Research Laboratory, and also a Naval engineering facility in Corona, CA. Harvey was employed for many years at the National Bureau of Standards in both Washington, DC and Boulder, Colorado, where he became chief of the calibration division.

A member of IEEE (Institute of Electronics and Electronic Engineers), he held the office of Chairman of the IEEE Information Theory society through 1961-62, and was President of the National Conference of Standards Laboratories in 1968-1969. After his retirement, he and his wife moved to Tucson. Both Harvey and Evelyn volunteered at Saguaro National Monument (now Saguaro National Park). Harvey was involved in the League of Women Voters in Tucson even in recent years, and also was an active member of Tucson Audubon. He was both a lover and defender of nature.

Although William Wildhack often gets most of the credit for the founding of NCSL, since he became the NBS sponsor figure, it was Harvey Lance who delivered the VISION for NCSL. His paper, presented in that well-reported measurement conference on June 22, 1960, created the immediate popular support for taking some sort of action. The response was so immediate, that the conference as a whole held a meeting the next day, affirming that the consensus was that action was needed. This resulted, a year later, in the establishment of our measurements-oriented organization. A full summary of excerpts from Lance's paper was published in the NCSLI Newsletter July 2006 Commemorative issue.

The paper title was "The Nation's Electronic Standards Program: Where do we Stand?" In the paper, recent progress in the nation's electronic standards program in the late 1950s was noted. Problems which had arisen in connection with the program were discussed, and suggestions made regarding the solution of these problems.

Its content dealt with "What Constitutes a Good Standards Laboratory?" He described the status of the nation's calibrations, from the NBS measurement services to the practices of all the other echelons of laboratories, including the aerospace and military labs. It was quite detailed in terms of what we now know as our National Measurement System, and very forward thinking.

Harvey Lance, the real Father of NCSLI.
METROLOGY CALENDAR

NCSLI MEETINGS
August 3-7, 2008
NCSLI Workshop & Symposium
Swan & Dolphin Hotel, Orlando, FL
CONTACT: NCSL Business Office, (303) 440-3339
Fax: (303) 440-3384
e-mail: <info@ncsli.org>
website: <www.ncsli.org/conference>

INDUSTRY MEETINGS
2nd International Metrology Conference
April 22-24, 2008
Tunisia
CONTACT: Secretariat
E-Mail: <secretariat@acmetrology.com>

REGION/SECTION MEETINGS
MID-ATLANTIC REGION
Virginia Section Meeting
October 23, 2007
TBD, Hampton Roads, VA
CONTACT: Tom Hettenhouser, (301) 975-2013
e-mail: <thomas.hettenhouser@nist.gov>

SOUTHWESTERN US REGION
Inland Empire Section Meeting
November 7-8, 2007
Naval Surface Warfare Center, Corona, CA
CONTACT: Steve Doty or Bill Thompson
stephen.doty@navy.mil or
william.e.thompson@navy.mil

CHECK WEBSITE FOR UPDATES
<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!
EDUCATOR’S CORNER

Chris Grachanen

In this installment of the Educator’s Corner we will be highlighting a Metrology program from upper Minnesota, Ridgewater Community College. Several professors from this exemplary program have helped in the development of the American Society for Quality (ASQ) Certified Calibration Technician (CCT) program’s body of knowledge as well as being active participants on NCSLI committees. This program’s job placement rates for students eligible for employment is nothing less than outstanding!

A Brief Description of the Ridgewater College Calibration Program

Formed in 1996 by the merger of the Hutchinson-Willmar Regional Technology Institute and Willmar Community College, Ridgewater College is a comprehensive community and technical college within the Minnesota State Colleges and Universities System. As a comprehensive college, students are able to pursue liberal arts degrees intended for transfer, like the associate in arts and associate in science, as well as diplomas and degrees designed to move graduates directly into the workforce. In addition to traditional credit-based education, Ridgewater partners with area businesses and individuals through its Center for Customized and Continuing Education.

Ridgewater campuses are located in the communities of Willmar and Hutchinson, Minnesota. Willmar is home to the larger of the two campuses, with about two-thirds of the institution’s approximately 3500 students. Situated about 100 miles west of Minneapolis, Willmar is a growing regional center with an economy based largely in agriculture and related technologies. Numerous lakes, parks, and trails combine with myriad shopping opportunities to make Willmar a destination for individuals throughout west central Minnesota.

Hutchinson is a city of roughly 13,000 people located about 60 miles west of the Twin Cities metro area. The economy of Hutchinson is anchored by technology and manufacturing giants 3M and Hutchinson Technology, Inc. Proudly using the slogan "Minnesota’s Hometown," Hutchinson values its rich history of arts and culture. The Hutchinson campus of Ridgewater College is home to the Calibration Engineering Technology program.

The Calibration Engineering Technology program was established in 1983. College administration started the program based on encouragement by both industry and the NCSL. Over the years, the program has had many names, including Metrology, Measurement Sciences, Industrial Manufacturing Technology and Engineering Technology (the last two of which were umbrella names to include various manufacturing-based programs). Once the electrical component (PMEL) was established, the program gradually expanded to include both dimensional and physical measurement.

The program is currently most closely affiliated with the Automated Systems Technology program. The two degree areas have a 24-credit common core of multidiscipline courses. Both areas include curriculum in mechanical, electrical, and computer systems. Automated Systems Technology focuses on automated equipment and processes, while Calibration Engineering Technology focuses on Calibration/Metrology. Allen Benusa is the primary instructor in the Automation Systems Technology program, and Herb O’Neil in the Calibration Engineering Technology program.

The future of the program looks bright, as we bring its "blended web courses" completely online. Online delivery of course content, such as entry-level measurement topics, can open the Ridgewater program up to virtually anyone in the world, using the SCORM - compliant software Desire-to-Learn (D2L).

The program offers both diploma and associate in applied science degree options, allowing students to complete coursework in two years (full time) and then move into the workforce. It also has 2 + 2 articulation agreements with baccalaureate-granting institutions so that graduates may continue their studies if desired. They may also take continued online course work at Domingus Hills, CA, in working toward a bachelor of science in quality with a metrology emphasis.

Enrollment in the program has often been challenging (currently 10-12 majors by headcount). Part of the problem is that prospective students and those that guide them - such as high school guidance counselors - do not know exactly what the program is all about. Those that do enroll in the program have not typically been traditional-aged students. Many of these individuals find their way into the program for the purposes of cross-training or preparation for a career change.

Statistics from the College’s Office of Institutional Research show that in the past five years of the program, 81% of the students are considered non-traditional in terms of age. This also means that many students attend part-time. The individualized instruction delivery method used within the program for many years has lent itself well to these part-time, non-traditional students who have the discipline to work within this framework.

In the five years from FY01 through FY05, there was an unduplicated headcount of 102 students in the Engineering Technologies area. This data includes both the Automated Systems and Calibration Engineering Technology programs, so is not exclusive to...
Calibration. The following statistics apply to those 102 students:

- Minority and ethnic populations: 7
- First generation college students: 54
- Students with disabilities: 1
- Non-traditional by gender: Female: 26, Male: 24, unknown: 2
- Non-traditional by age: Age 22 to 40: 54, Age 41+: 29

Job placement rates for students eligible for employment have been & continue to be at 100%. Most program graduates obtain their initial position in the Minneapolis-St. Paul metropolitan area. They typically work in an R&D or calibration lab environment, for a wide variety of manufacturers. Examples of companies where program graduates are employed include Hutchinson Technologies, Inc.: 3M; Boeing; Medtronic; Guidant; St. Jude Medical (medical device manufacturers); the Department of Defense; and many others.

Graduating from the program does not, in and of itself, result in any sort of industry-specific certification or license. However, students who graduate from the program may work for three years and then qualify to take the CCT exam offered by ASQ.

The Calibration Engineering Technology program at Ridgewater is unique to both the state and the region. There are only five complete programs in North America. Some programs in Machine Tool, for example, have incorporated metrology or calibration, but only as a component of a larger, more general curriculum. Specialized calibration programs are located in these North American cities:

- Hutchinson, MN
- Butler, PA
- Duluth, GA
- Domingus Hills, CA
- Sir Edmond Flemming, Canada
TRAINING INFORMATION

ISO 9001:2000 LEAD AUDITOR TRAINING
Georgia Tech Global Learning Center
Katie Takacs, Fax: (404) 894-1820
www.dlpe.gatech.edu/quality-association

2007: October 22-26 Atlanta, GA
$1595 per person. Learn how to approach ISO 9001:2000 registration from the professional auditor's point of view and focus on key audit skills that enhance auditing capability. This intensive 36-hour workshop covers key aspects of leading an audit team for your firm, another firm, or vendors/suppliers.

UNDERSTANDING MEASUREMENT UNCERTAINTY
IG Technology
Gary Meyer, (952) 935-1108
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gary.meyer@comcast.net
www.ig-technology.com

2007: December 4-5 Minneapolis, MN
$695 per student. This course provides the participant with an overview of measurement uncertainty including applied statistical principles, measurement applications, types of distributions, type A and type B errors, individual error components, development of an uncertainty budget, calculations for combined uncertainty, expanded uncertainty, and reporting uncertainty to customers. Uncertainty budgets will be analyzed in class exercises.

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

2007: October 8-10 Wixom, MI
2008: February 4-6 South San Francisco, CA
March 10-12 Wixom, MI
April 15-17 Columbia, MD (This class only limited to 10 students)
May 12-14 Boulder, CO
July 14-16 Wixom, MI
August 21-22 Wixom, MI
October 6-8 Wixom, MI
November 17-19 Wixom, MI

$1695 per student. The Complete Measurement Uncertainty Analysis Solution! ISO GUM Concepts, Hands-on Workshop, and features/techniques unique in the industry to QUAMETEC, such as; "Measurement Range Uncertainty" analysis for analyzing an entire measuring range, "Uncertainty Matrixing" for addressing the measurement uncertainties of an entire laboratory and "Uncertainty Toolbox™" software, reported to be the favorite measurement uncertainty analysis software of America's accredited laboratories and assessor's alike, due to it's ease of use and full calculation and reporting in Microsoft® Excel®, allowing users to provide their analysis work in digital form to their assessor. The developer/instructor is a trainer/technical advisor for several ISO/IEC17025 accreditation bodies. This assures the attendees receive up to date and appropriate guidance in meeting the accreditation requirements for uncertainty analysis. To ensure the attendee's learning objectives are met, each attendee receives FREE review of uncertainty budgets for 30 days.

ISO/IEC 17025 QUALITY MANAGEMENT SYSTEM AND INTERNAL AUDITING
Quametec Institute
Karen Moor, (810) 225-8588
info@quametec.com
www. quametec.com

2008: May 15-16 Boulder, CO
August 21-22 Wixom, MI

$895 per student. Learn how to develop and manage your quality system. Become qualified as an Internal Auditor for ISO/IEC 17025. This 2-day course provides a full understanding of the standard, provides tools and guidance on how to perform and document your Internal Audits, and prepares the attendee to be able to create a Quality Management System compliant to the standard. Get it right the first time with professional training on your side.

UV/VIS SPECTROPHOTOMETER CALIBRATION AND TRACEABILITY
Stranaska Scientific LLC, (970) 282-3840
Fax: (970) 282-7040
education@stranaska.com
www.stranaska.com

2007: November 5-6 Las Vegas, NV

$1215 per student. This comprehensive training workshop is intended for all individuals who have some degree of responsibility for ensuring the quality and acceptance of UV/VIS data and who are involved with the routine quality control, performance evaluation, and/or regulatory qualification of UV/VIS absorption spectrophotometers. Tutorial instruction explains the principles and applications of UV/VIS absorption spectrophotometry including definitions, relevant mathematical relationships and applied statistics, Beer's Law, and metrological considerations (measurement traceability chain pathway, timeline, and uncertainty budget); optical designs, configurations, sampling accessories, and instrument specifications for commercial UV/VIS spectrophotometers; fundamental scales and parameters of spectrophotometers; validation tests for spectral resolution, stray radiant energy (stray light), wavelength accuracy, photometric accuracy and linearity; and interactive calibration and traceability scenarios. An overview of relevant primary NIST artifacts, secondary NIST-traceable artifacts, and ASTM documentary standards intended for UV/VIS spectrophotometer evaluation, metrological calibration, traceability, and quality assurance of analytical measurement data is provided. Value-added expert guidance and helpful laboratory tips for science-based UV/VIS calibrations are also provided.

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Training Information

ISO 17025 COMPLIANCE
Workplace Training, Inc.
Paul Hanssen, (952) 471-8554
phanssen@wptraining.com
www.wptraining.com
2007: Oct. 15-18 Boulder, CO
$1895 per person. Uncertainty Management section covers specifications, tolerances, accuracy, and uncertainty ratios, and guardbanding. Introduction to ISO/IEC 17025 for Technicians section will cover the requirements of the standard, how it is applied to calibration and test laboratories, and what a technician who works for an accredited lab needs to know. Assessment to the Requirements of ISO/IEC 17025 section will cover the details and interpretations of the requirements of the standard as it is applied to calibration and test laboratories. It explains how to plan and organize an assessment, how to conduct one, and how to report the results.

MAKING ACCURATE LOW LEVEL MEASUREMENTS
Keithley Instruments, Inc.
(800) 552-1115
info@keithley.com
www.keithley.com
2007: Oct. 16-17 Cleveland, OH
$990 per person. This course provides users with a detailed understanding of how to make accurate low-level electrical measurements. Users will learn what constitutes a low-level measurement, the limitations of these measurements, sources of measurement error, and techniques to eliminate these errors. Additional topics include selecting the proper product for a desired measurement and understanding the basics of how to communicate with an instrument from a PC. The session consists of lectures, demonstrations, and hands-on labs. The course is designed for engineers, scientists, and technicians who need to make low-level electrical measurements.

INSTRUMENTAL ANALYSIS: INTRODUCTION TO OPTICAL SPECTROSCOPIC TECHNIQUES
Stranaska Scientific LLC, (970) 282-3840
Fax: (970) 282-7040
education@stranaska.com
www.stranaska.com
2007: October 24-26 Fort Collins, CO
$1215 per student. This comprehensive training workshop is intended for all individuals who have some degree of responsibility for ensuring the quality and acceptance of analytical spectroscopic data and who are involved with the routine quality control, performance evaluation, and/or regulatory qualification of laboratory and process spectroscopic systems. Tutorial instruction provides a basic introduction and unique insight into the principles, concepts, and means for establishing and documenting science-based calibration and measurement traceability for many of the common laboratory spectroscopic techniques. An overview of relevant primary NIST artifacts, secondary NIST-traceable artifacts, and ASTM documentary standards intended for laboratory and process spectroscopic evaluation, metrological calibration, traceability, and quality assurance of analytical measurement data is provided. Tutorial discussions will cover the following analytical spectroscopic technologies: atomic spectrometry (absorption, emission, fluorescence), UV/VIS absorption, FT-IR, Raman, molecular luminescence, photoacoustic, lasers, and more.

INTRODUCTION TO UNCERTAINTY ANALYSIS
Integrated Sciences Group
Howard Castrup, (800) 400-7866
training@isgmax.com
www.isgmax.com/training.asp
2007: October 24-26 San Francisco, CA
$1195 per student (software included). This 2-1/2 day course provides a straightforward and easy-to-understand introduction to the principles of measurement uncertainty analysis as found in the ISO Guide to the Expression of Uncertainty in Measurement (the ISO GUM). Type A and Type B methods of estimating measurement process uncertainties are discussed and multivariate analysis is outlined.

This course is designed for calibration managers, supervisors and technical personnel responsible for implementing uncertainty analysis methods and procedures for ISO 17025 compliance. Instruction involves minimal statistics with hands-on use of ISG’s Uncertainty Sidekick Pro software to illustrate concepts for a variety of direct and multivariate measurement scenarios. The role that uncertainty estimates play in developing laboratory capability statements and risk management is also discussed.

CERTIFIED CALIBRATION TECHNICIAN PREP
IG Technology
Gary Meyer, (952) 935-1108
Fax: (952) 935-1108
gary.meyer@comcast.net
www.ig-technology.com
2007: November 7-9 Minneapolis, MN
$995 per student. This course prepares individuals working in the metrology field to take the ASQ (American Society for Quality) certification exam to become a Certified Calibration Technician (CCT). The body of knowledge defined on the ASQ website will be covered.
SE LABORATORIES, SANTA CLARA, CA
Tour Guide: Galen Beck

Company Overview

We’re pleased to provide this tour of our company facilities, and review some of our operating principles and strategies. We believe that the Calibration Service business sector has to be particularly sensitive to the pressures of business change and technology advances. We have tried at all times to offer our customers the highest quality services and latest technologies. In addition, we feel that we have innovated in some unique test setups and procedures, which offer customers wider test capability.

Editor’s Note: I have always tried to encourage our Cal Lab tour guides to feature equipment and procedures that are unique to their industry or service, and SE seems to have a number of interesting and useful test capabilities.

SE Laboratories is a leading independent calibration services provider in Silicon Valley. Serving technology companies with the highest levels of calibration, repair and maintenance in the industry, SE Laboratories attempts to differentiate itself through customer service innovations as well as a broad scope of unique technological capabilities.

SE Laboratories President and CEO, Anil Singh, founded the company in 1978 with an objective to provide the highest-quality calibration and repair with unparalleled customer service. Among SE Laboratories’ key offerings are: the largest scope of ISO 17025 accreditation of any independent lab on the West Coast; account management through a single point of contact; and quick turnaround time: typically, 24 hours for electronic equipment and 72 hours for mechanical.

Innovations in Customer Service

Requirements for Successful Calibration: Responsiveness, Ethics and Quality

SE Laboratories is committed to providing the most accurate calibration and repair service in the industry. The company lives up to this commitment by operating according to some hard and fast principles, its "REQ for successful calibration:"

**Responsiveness** - achieve the fastest turn-around time in the industry, with three shifts of technicians enabling the company to provide overnight service;

**Ethics** - a strict adherence to the calibration standards and procedures put forth by instrument manufacturers; and

**Quality** - rigorous internal quality control, calibration grades to meet customers’ exact requirements, and a promise to spend the time required to get each unit back to the customer and ready for work promptly.

"Customers need their equipment back on site and working flawlessly as soon as possible," said Singh. "When their equipment is in our hands, we take every step necessary to ensure it is in perfect working order before returning it to them. We take no shortcuts, so we know that every job is executed correctly."

Calibration Management

SE Laboratories offers large customers a dedicated onsite account representative who serves as a single point of contact and can customize and coordinate SE Laboratories’ services to meet specific customer requirements.

In addition, SE Laboratories provides customers a powerful tool to assist in managing their calibration programs - an online ERP (enterprise resource planning) system called "e3."

**e3** is a custom enterprise application that gives customers the ability to schedule instrument pickups, track and recall units, access calibration certificates and account information, and generate reports 24/7.

While many calibration labs use off-the-shelf software to manage the workflow, data, and certificates they generate, SE Laboratories developed e3 in direct response to customer needs. The company deployed e3 in September 2000, with a major upgrade in November 2005. The system runs on Linux using the GemStone Facets object database. There are approximately 750 custom-designed screens in the system, which provides both an Intranet application for employees and Extranet application for customers, with customers and employees working from the same database simultaneously.

The SE Laboratories team outside their headquarters in Santa Clara, CA.
Unique Technological Capabilities

SE Laboratories' capabilities include electronic calibration, mechanical calibration, environmental testing and ESD services. Employing specialists in RF, microwave, and telecommunications electronics, SE Laboratories also offers field service, including accredited calibrations at customer locations.

SE Laboratories recently expanded its scope of accreditation by more than 20 percent, reflecting a commitment to new capabilities.

Conformance Testing of EMC Analyzers per CISPR 16-1-1

One example of our technology development is that SE Laboratories developed the capability to test EMC Analyzers for conformance to the CISPR 16-1-1 standard.

Some OEMs manufacture CISPR 16-1-1 compliant spectrum analyzers without providing an independent calibration procedure that ensures that the requirements of each and every section of the CISPR 16-1-1 standard are met by the instrument. SE Laboratories' independent test provides auditors with the assurance that a customer's analyzer used for compliance testing is indeed compliant with the various sections of CISPR 16-1-1. This is typically performed in addition to the regular manufacturer's calibration procedure for the EMC Analyzer.

SE Laboratories primarily uses a Schwarzbeck CISPR-compliant pulse generator to generate the necessary pulse with the requisite amount of energy. All tests are performed within the scope of the lab's accreditation with A2LA.

Calibration of ESD Guns per IEC 61000-4-2

SE Laboratories has engineered a custom station for the calibration of ESD discharge guns, becoming accredited for this test with A2LA in early 2006. The company's test allows accredited product testing labs to be confident that their guns are providing a waveform within the limits of the IEC 61000-4-2 standard - and to demonstrate this to external assessment auditors.

The custom station uses a brass Pellegrini target embedded in a large vertical ground plane. This ground plane measures 1.5 meters by 1.5 meters. The large ground plane effectively isolates the measuring oscilloscope from the very strong RF current radiated by the cable and ESD gun tip during discharge. This prevents false triggers and enhances repeatability. Additionally, the large ground plane actually reduces noise pickup when compared with the traditional method of enclosing the oscilloscope in a Faraday cage.

To provide the lowest resistance to ground, a brass plate surrounds the Pellegrini target, and the ground cable of the ESD gun is connected to the plate. The Pellegrini target is connected to the oscilloscope with a semi-rigid cable. The use of a single star connection near the Pellegrini target minimizes "ground loops" during discharge.

SE Laboratories technicians re-verify the Pellegrini target before use; this ensures that the high currents involved in testing have not caused breakdown of the precision resistors within the target.

One of the additional tests required by the IEC standard is to measure the static voltage of the gun as provided by an air discharge tip. SE Laboratories uses a precision electrostatic voltmeter to conduct this test. This voltmeter provides very high impedance (approximately $1 \times 10^{15}$ Ohms, or 1000 Tera Ohms) so that it does not load down the voltage provided by the gun. The static voltage measurement is conducted with approximately one percent measurement uncertainty at full-scale values.

Calibration of Air Velocity Measurement Sensors

SE Laboratories built its own variable speed wind tunnel for the calibration of air velocity sensors. The wind tunnel is 210 cm long, with a cross sectional area at the inlet of 2500 cm$^2$ narrowing to 225 cm$^2$ in the center of the tunnel to prevent vortex effects. A bank of switched fans controls the air flow rate within the tunnel, adjustable between 15 feet/min and 6000 feet/min. The wind tunnel uses a muffler to achieve the lowest air-flow rates.

The device also uses a pitot tube and high-sensitivity Setra manometers with a precision DVM, as well as a relative humidity meter and barometer, to determine the value of flow within the tunnel. A cross section of the measuring chamber is profiled to assure the flow uniformity.
Other Mechanical Calibrations

Another unique calibration performed by the mechanical lab is the calibration of vacuum standards such as the Hastings DB-20 reference tube, accomplished with a setup of precision voltmeters. The lab also has the capability to calibrate high-end optical instrumentation such as polygons, theodolites, stage micrometers, and optical squares. Other unique capabilities include the calibration of mass flow meters and calibrators.

Combining Technology and Service to Meet Customer Needs

SE Laboratories stays on the cutting edge of metrology developments - continuously offering both state-of-the-art equipment and procedures - by listening and responding to customer requirements and trends in the metrology industry. This dedication to providing for customers' changing needs is a foundational operating value for the company. "Our focus is doing all we can to keep our customers' production moving smoothly and efficiently," said Singh. "We want to be an extension of our customers' quality process. That's our formula for success."

About SE Laboratories

Since 1978, SE Laboratories has been the calibration, repair and maintenance service vendor of choice for many leading California, Massachusetts and Texas-based technology companies. SE Laboratories is constantly setting a higher standard, providing customers with ultimate quality and prompt turn-around at a competitive price.

Headquartered in Silicon Valley, SE Laboratories and its employees also have a long history of service in the local community. SE Laboratories' executives serve on nonprofit boards, including the United Way of Silicon Valley and MESA (Math Engineering and Science Achievement), and the company is a regular donor to Santa Clara University.
The summer meeting of Section 1131 was held at Keithley Instruments in Cleveland, Ohio.

John Yochum and Joel Avrunin of Tektronix gave an excellent hands-on presentation about oscilloscopes; "The World Beyond Autoset." Members in attendance had the opportunity to use Tektronix MSO-4000 series Mixed-Signal oscilloscopes in a series of labs designed to familiarize the user with the advanced features of modern oscilloscopes. Bandwidth requirements, triggering methods and getting maximum vertical accuracy were discussed, as well as some of the logic analysis functions available on mixed-signal units. Another important but often overlooked topic - proper probe selection - was also discussed. All the attendees were quite impressed with the features offered on these modern instruments, including the ability to decode serial RS-232 data.

After a lunch break, Dilip Shah of E=mc3 Solutions gave a presentation on Risk Analysis which was quite informative. This should help us all make better decisions about whether a measurement is out of tolerance or not.

Following Dilip's presentation, the group engaged in an open forum on the topic of whether to adjust or not. Some believe that making calibration adjustments can actually cause more errors than simply reporting the measurement data. Others required those adjustments to put the instrument back to nominal. A visual demonstration of Deming's "funnel" experiment illustrated the potential pitfalls of adjusting instruments at each calibration interval. Drift data and trend analysis, as well as the use of correction charts were discussed by both calibration providers and calibration customers. Based on the amount of member input, it seems this much debated topic may be discussed again at future meetings.

The meeting was then adjourned, and, to the disappointment of those in attendance, no one got to keep the nice new Tek 'scopes (but we'll all be requisitioning new scopes soon, I'm sure)!
On the 21st of June the Inland Empire Section 1426 held its first sectional meeting. 63 people were in attendance.

The meeting opened with a welcome from Arman Hovakemian, the Measurement Science Director. We had 8 presentations over the course of the day. Presentations ranged from documentary standards, to best practices in electrical measurements, to uncertainty and risk assessment.

The meeting was a huge success and we have sponsors wanting to assist with our upcoming two-day event, November 7 and 8. This sectional meeting will be focused on uncertainty of measurements.

**Presentations:**

"Measurement Risk Analysis Methods as Applied to Guard Banding"
- Dr. Dennis Jackson: NSWC

"Z540.3 - What it is and is not"
- Chet Franklin: CSC

"Z540.3 Handbook Update"
- Steve Doty: NSWC

"Interval Analysis"
- Greg Cenker: Edison/ ESI

"Reducing Voltage Noise and Error in Challenging Measurements"
- Jane Sabitsana-Nakao / Keithley Instruments

"ABCs of Meter Safety/IEC Codes"
- John Bowman: Fluke Corp.

"Capabilities and Mission of the NSWC Corona Gage and Standards Laboratory"
- Michael Wheeler: NSWC

*This picture is not intuitive, since the Inland Empire of California has a whole lot of desert, not water.*
STANDARDS POLICY

Doug Sugg, V.P.

U.S. MEASUREMENT REQUIREMENTS COMMITTEE (USMRC)

Jeff Walden

The USMRC has used surveys to ascertain measurement needs since 1983. On April 14 of this year, the 2007 USMRC Survey was e-mailed from the NCSLI office to over 3500 recipients. By mid-morning of the following day, over 600 people had opened the e-mail, and over 100 had gone to the survey site. Survey responses started coming in to the committee on the same day. Responses are being routed to appropriate measurement experts for resolution. Current statistics on the survey responses are not available for this report due to server issues at the NCSLI office, but will be available by the board meeting date. Results of the survey, and other sources of measurement requirements, will be published in a report later this year.

The USMRC participated in a panel discussion, "Identifying And Meeting Measurement Requirements In The Twenty-First Century" at the conference. Doug Sugg, V.P. of NCSLI Standards Policy, hosted the panel. Principal speakers were Clare Allocca, NIST, new Chief of the NIST U.S. Measurement System Program, and Jeff Walden, Chair of the USMRC.

Members of the USMRC also participated in an Industry Day event organized by the Program Manager of the Navy Metrology R&D Program during the AUTOTESTCON convention in September, and will have a session titled "Military Metrology: What's Ahead?" at the MSC 2008 conference.

GLOSSARY AND ACRONYMS COMMITTEE

Emil Hazarian

During the last three months, the Glossary Committee was looking at improving the uniform vocabulary used by other NCSLI committees when revising RP's or introducing the new ones. A uniform vocabulary will help communication and improve efficiency for the benefit of industry, and other private and government organizations.

- In addition, as recommended at the previous meeting, we are looking at developing guidelines for introducing new terms into the glossary.
- The publication of the new revised VIM is expected soon, and our glossary will follow up.
- Glossary Committee met at the Convention.
- The publication of the new revised VIM is expected soon, and our glossary will follow up.

Here are the guidelines:

Guidelines for new entries in the NSCLI Glossary & Acronyms (draft)


The process of comparing intended terminology for an existing NSCLI document in revision and/or a new NSCLI document in development, is meant to gradually introduce a uniform vocabulary in the NSCLI documents. This ultimately will increase the efficiency through better understanding between NSCLI members and will expand to the metrology-quality assurance-standardization community.

Selection Criteria

Tracking word usage

To decide which words to include in the glossary and to determine what they mean, the glossary committee studies the language as it is used and carefully monitors which words people use most often and how they use them.

The glossary committee members are in search of new words, new meanings and usages of existing words, alternate spellings, anything that might help in deciding if a word belongs in the glossary, understanding what it means, and determining typical usage. Any word of interest is marked along with surrounding context that offers insight into its form and use.

Records

The marked passages are then input into a computer system and stored both in machine-readable form and on 3" x 5" slips of paper to create records.

Each record has the following elements:

- the word itself
- an example of the word used in context
- bibliographic information about the sources from which the word and example were taken.

From record to entry

The process begins with glossary committee members reviewing groups of records. They are looking at records covering a small category or a segment of the alphabet along with the entries from the glossary being re-edited that are included within that alphabetical section. Their job will be to determine which existing entries can remain essentially unchanged, which entries need to be revised, which entries can be dropped, and which new entries should be added. In each case, the committee member decides on the best course of action by reading through the records and using the evidence in them to adjust entries or create new ones.
Before a new word can be added to the dictionary, it must have enough records to show that it is widely used. Having a lot of records is not enough; in fact, a large number of records might even make a word more difficult to define, because many records show too little about the meaning of a word to be helpful. A word may be rejected for entry into a general dictionary if all of its records come from a single source. To be included in the glossary, a word must be used in a substantial number of records that come from a range of publications over a considerable period of time. Specifically, the word must have enough records to allow accurate judgments about its establishment, currency, and meaning.

The number and range of records needed to add a word to the dictionary varies. In rare cases, a word jumps onto the scene and is both instantly prevalent and likely to last, as was the case with "measurement uncertainty". In such a situation, the glossary committee may determine that the word has become firmly established in a relatively short time and should be entered in the glossary, even though its records may not span the wide range of years exhibited by other words.

The proposed terms are compared with the most relevant domestic and international vocabulary sources including NCSLI Glossary, VIM, VIML and others.

Here are additional guidelines (subject to refinement) to decide a new entry:

- enter only specific terms that are not defined in relevant documents,
- if an intended-to-be-used term is defined in VIM, VIML or other relevant documents, and you still want to enter it, their definition takes priority,
- always indicate the source for each entered definition; if the body of definition is for example from VIM and your notes are from another document, or is ad-hoc created, indicate both sources.

Please send any comments to Emil Hazarian at <emil.hazarian@navy.mil>.

NCSLI LEGAL METROLOGY COMMITTEE REPORT
Val Miller

The 2007 NCSLI State Laboratory Workload Survey has been completed, the data analyzed and the report generated. Elizabeth Gentry presented the report to the general NCSLI membership in a session on August 2. A copy is also being provided to the NCSLI Board of Directors and the report will be made available to the public through the <www.nist.gov/labmetrology> web site.

The Legal Metrology Committee meeting was held on Sunday, July 29, at the Conference where the results of the 2007 State Laboratory Workload Survey were presented to the members of the Legal Metrology Committee prior to the Conference opening. Following the discussion, items in the Technical Sessions and Exhibit Hall of interest to the committee members were reviewed. Invitations were sent to garner increased participation of International NCSLI membership in the Committee as we attempt to expand committee participation to fill the committee charter.

The committee commends the NCSLI Technical Program planners for the increasing number of papers presented on topics related to Legal Metrology at the 2007 NCSLI Conference and encourages continued development of topics relating to every day applications of metrology.

The publication of the new revised VIM is expected soon, and our glossary will follow up.

MEASUREMENT SCIENCE & TECHNOLOGY
Thomas F. Wisch, V.P.

AUTOMATIC TEST & CALIBRATION SYSTEMS
David Seaver

MEASUREMENT COMPARISON PROGRAMS
Jim Wheeler & Al Teruel

The Committee met on Tuesday, July 31 at the NCSLI Conference in St. Paul. Jim Wheeler (chair) and Al Teruel (co-chair) were not able to attend the conference. Ron Ginley, NIST, agreed to fill in for Jim and Al and hosted the committee meeting.

Jim’s Letter of Goodbye

I have decided to resign my position as Co-Chair of the NCSLI Measurement Comparison Program (MCP) Committee, since I have retired from my long career at NPSL, San Diego. I wish the new Chair, Mike Cadenhead, all the best in his new role.

I have truly enjoyed the 15 years I have served NCSLI and the people that are and have been associated with the organization. The publication and later revision of RP-15 stands out as our committee’s best achievement.

I want to thank all the individuals who volunteered for committee work during my chairmanship especially Ron Ginley, Larry Tarr, Norm Belecki and Georgia Harris. They were also all part of the RP committee and I enjoyed working with them over the years.

I also want to thank Ron for chairing the committee meeting at NCSLI 2007. Finally, I want to especially thank my co-chair Al Teruel for assisting over the years with the committee. And of course, the Navy Primary Standards Lab at North Island, and all the managers and supervisors who supported my work with NCSLI over the years. Patty Leyva was my most recent manager, and with her approval, we published the NPSL laboratory profile in the July 2007 Newsletter.

James Wheeler

Josephson Voltage System ILC

The Josephson Voltage System ILC Committee held a meeting August 1, 2007 at the Annual Workshop and Symposium. The meeting was chaired by Dr. Harold Parks, Sandia National Laboratories and attended by:

Curt Kiser, MARCC
Kristopher Onderko
Alain Rufencarit
Larry Tarr
Mike Sears
Yi-Hua Tang
Barry Wood
Paul Reese
David Deaver
Charlie Burroughs
Dick Pettit

Navy Norfolk
AFMETCAL
NIST
Army Primary Standards Lab
Idaho National Labs
NIST
NRC
Wyle-Kennedy Space Center
NIST
NCSLI
Committee News

Formation of the organizing committee for the 2008 round robin was discussed and a call for volunteers was made. The committee has not been finalized.

It was agreed that the ILC will follow a protocol similar to the 2003 ILC. With four Zeners shipped in several loops from the pivot lab to several participant labs and back to the pivot lab with each participant having the Zeners for a week. Bill Miller of Lockheed Denver has volunteered to be the pivot lab and Yi-Hua Tang of NIST will do an on site comparison with Lockheed Denver.

It was pointed out that eight measurements on each of the four Zeners is about optimal. The same four Zeners will be used as have been used in the past several ILC’s. They are currently at NIST, and Yi-Hua has been making periodic measurements on them since the last ILC. The protocol from the 2005 ILC with sub-pivot labs that made an on-site comparison with NIST greatly reduced the uncertainty for the sub-pivot labs but made little difference to the uncertainty of the other labs. The time and money is not presently available to make multiple on-site comparisons with NIST for this ILC.

The starting date for the ILC was discussed. An exact date was not decided, but it will be some time in early 2008. Factors to consider include the humidity increase as summer starts and the fact that the battery performance in the Zeners is adversely affected by cold temperatures.

It was asked how NIST felt about using a method for the ILC that does not hold the prospect of a big improvement over past ILC’s. Yi-Hua indicated that this is not a problem, and that an improvement is that NIST will be directly connect the two arrays when making the comparison with the pivot labs as opposed to going through the Zeners as in the past. Beyond that, the uncertainty is dominated by noise in the Zeners, and this cannot be easily improved.

The issue of a several hundred dollar fee for participation in the round robin was discussed in order to fund the NIST comparison with the pivot lab. It was generally agreed that this was reasonable. However, Yi-Hua Tang will discuss with his management how much, if any, will be required to fund the participation of NIST. (After the meeting NCSLI also indicated that it may be able to contribute.)

UV Round Robin
Tom Larason

INTRINSIC & DERIVED STANDARDS
David Deaver

The Intrinsic & Derived Standards Committee held a meeting at the conference.

Attendees:
Dave Deaver (Chair)          Fluke
Mike Stears                  INEL
Chuck Ehrlich                INEL
Hal Glick                    Navy - Corona
Andy Brush                   Tegam
Stan Pond                    Pond Engineering
Ron Gingley                  NIST
Jim Allred                   NIST
Barry Wood                   NRC
Yi-hua Tang                  NIST
Richard Pettit              Sandia (ret.) / NCSLI

RISP 4 Deadweight Pressure Group
Reuben Salazar

Reuben Salazar (Boeing was at the conference) and chaired the sub-committee meeting.

RISP 5 Two-temperature Two-Pressure Humidity Generator
Bob Hardy

Bob Hardy is working on the appendix for dew point and frost point. The writing is nearly complete. It is written in Word and is linked to an Excel spreadsheet. Review is underway and will be complete by October 1. An issue to be resolved is how to provide access to the spreadsheet. Proposed were to provide a disk (floppy or CD) with the RISP as is currently done for RISP-1 or a website provided where the spreadsheet could be accessed. The website could be hosted by a company or, perhaps the NCSLI website could be used. Dave will check on the NCSLI website availability. For a website, we would have to ensure the path to the file would be maintained for the life of the RISP. Dave will confirm who is the current technical editor and the guidelines and formats to be used.

Triple Point of Argon
Stan Pond

The uncertainty analysis is complete and has been reviewed by Greg Strauss (NIST). Writing of the RISP is underway. A draft of the text-to-date will be submitted to the chair by October 1.

Catalog of Intrinsic and Derived Standards
Dave Deaver

The VIM3 definition of Intrinsic Standard has been supplied by Charles Ehrlich and will be attached to these minutes for review. Dave will draft a proposed change to the definition of derived standard for review by the IDSC members by Oct. 1. The updates to the descriptions that have been submitted will be compiled and volunteers will be secured for the remaining ones that need to be updated by Nov. 1.

Josephson Array Intercomparison Working Group
Harold Parks

Planning for the 2008 ILC is underway. Lockheed Martin will most likely be the pivot lab. The 2002 protocol (single pivot lab) will be used. A participation fee of several hundred dollars will be used to defray some of NIST’s expenses. The minutes of the subcommittee meeting are found in the 142.03 report, published in the current issue of the newsletter.

Andy Brush brought up the topic that there is a lack of good standards and traceability for RF Power measurements in the 50-180 GHz regions, especially at the higher frequencies. Barry and Ron discussed the traceability for RF Power; that the SI unit connection is with DC Voltage and that Eff is a calibration parameter relating the AC and DC voltages at particular frequencies. The primary standards are micro calorimeters.

Ron Ginley noted that IEEE is working on a guide for the measurement of Scattering Parameters for VNA calibrations. There has not been fast progress but RF and Microwave Magazine published a special article on the subject.
Barry Wood reported the D220 committee is working on a lattice based mass standard; the Avagadro project.

It was noted that John Ball had suggested a RISP on a Gold Pt thermometer for interpolating between the temperature fixed points may be in order. Perhaps it would make sense to include it in the catalog with references to existing standards if they are reviewed and found to be adequate.

Dick Pettit suggested the use of lasers for dimensional metrology may warrant consideration for a RISP.

CHEMICAL METROLOGY  
*Michael Bishop*

The Chemical Metrology Committee (CMC) held a meeting at the conference.

**Attendees:**  
- Mike Bishop, Naval Surface Warfare Center  
- Susan Dykshoorn, USDA  
- Mary Graupmann, Naval Surface Warfare Center  
- Dana Leaman, A2LA  
- Marlene Moore, Advanced Systems Inc.  
- Richard Pettit, Sandia (Retired)  
- Sara Prins, NMISA, South Africa  
- Klaus-Dieter Sommer, PTB, Germany  
- Shen Zhu, US Army TMDE

Mike Bishop welcomed the attendees and provided an introduction; individual introductions from each of the attendees followed. The committee charter and prior goals and objectives were reviewed, as listed below.

**Charter:**

Serve as a forum for information exchange among calibration and testing laboratory managers and staff on chemical metrology issues at both the national and international level. Provide communication and information for member organizations with regard to chemical measurement traceability, uncertainty analysis, standards availability, documentary standards development and distribution, accreditation needs and requirements, benchmarking criteria and schedule, and interlaboratory comparisons.

Other scheduled CMC meetings took place at the Measurement Science Conference (MSC) in Long Beach, CA on January 24, 2007 and at PittCon in Chicago, IL on February 28, 2007. Unfortunately these meetings did not produce any attendees. This was anticipated at the MSC conference as we only received negative responses from committee members; however there were several positive responses regarding PittCon.

Conference activities at NCSLI 2007 included two tutorials and one technical session. The two scheduled tutorials were 'Chemical and Biological Measurement Traceability' by Marlene Moore and 'Evaluating Measurement Uncertainty in Chemical Laboratories' by Wolfgang Richter and Klaus-Dieter Sommer. Mr. Sommer informed us that his tutorial was cancelled due to low registration. There is some concern that the chemical community does not seem to attend NCSLI. The other concern pertained to the scheduled technical session on Chemical Metrology. The topics of this session did not seem to portray the idea of Chemical Metrology sufficiently.

DIMENSIONAL METROLOGY  
*Jim Salsbury*

The Dimensional Metrology Committee met on Tuesday, July 31 at the NCSLI Conference in St. Paul.

**Attendees:**  
- Jim Salsbury, Mitutoyo America Corporation (chair)  
- Hy Tran, Sandia National Lab  
- Wayne Logee, Pratt and Whitney  
- Ed Morse, UNC Charlotte  
- Ryan Fisher, Laboratory Accreditation Bureau  
- Shawn Mason, Boston Scientific  
- Richard Pettit, Sandia (retired)  
- Ed Pritchard, Modus Metrology  
- Steven Stahley, Cummins  
- Gerold Blossey, Metrology Consultant  
- Ted Doiron, NIST  
- Floris van der Walt, NMI of South Africa  
- Meghan Shilling, Sandia National Lab  
- Jack Stone, NIST  
- Tom Charlton, Mahr Federal  
- Shane Woody, Institutec  
- Brian Parry, Boeing  
- Kos Doychinov, NRC INMS

Chairman Salsbury turned out a good-sized committee meeting

The Committee organized five technical sessions in dimensional metrology. Overall, the sessions had excellent papers and turnout with an average of 60 to 75 in each session. There were over 100 people in one of the dimensional sessions.

**Andre Claudet speaks to a packed house (Session 3B)**
Committee News

A Dimensional Metrology Guide was sent out prior to the conference highlighting the dimensional metrology sessions. Special thanks to the subcommittee for organizing the dimensional metrology sessions: Hy Tran, Ryan Fisher, Meghan Shilling, Ed Morse, Shawn Mason, and Jim Salsbury.

Brian Parry, Boeing, who spoke in Dimensional Session 1B won a Best Paper award in the Management and Quality category for his paper: An Overview of Recently Published ASME B89 Standards with an Emphasis on B89.4.22.

Update on committee objectives for the 2007 NCSLI Workshop and Symposium:

a. Have two dimensional metrology tutorials. Accomplished.
   Average attendance: 17.
b. Increase number of technical sessions in dimensional metrology. Goal of 5 sessions. Accomplished. Five excellent sessions!

Kos Doytchinov reported on the ACMC - the existing "CMM Club" of Canada. There are plans to extend this organization into an international, North American, group.

Jim Salsbury reported on some recently published standards of interest:

a. ASME B89.7.3.2 - dimensional measurement uncertainty.
b. ASME B89.4.22 - articulating arm CMMs.
c. ASME B89.4.19 - laser trackers.
d. ASME B89.7.5 - traceability (technical report).
e. ASME B89.7.4.1 - risk analysis (technical report).
f. ISO/TS 23165 - CMM test uncertainty (for use with ISO 10360-2)

There was much discussion regarding plans for technical sessions for the 2008 NCSLI workshop and symposium. The conference session subcommittee will consider all the suggestions and work together to help form a solid dimensional track for next year. Some of the thoughts during the meeting included:

a. Panel discussion on accreditation in dimensional metrology.
b. Fundamentals of dimensional metrology (calibration case studies)

The CMM calibration recommended practice (RP) was discussed. The second major draft is almost complete and will be circulated for public review in September 2007. We plan a two-month review process.

Next meeting: this Committee will meet at the 2008 NCSLI annual workshop and symposium. Subcommittees will continue to work and communicate via email.

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INDUSTRIAL PROGRAMS
Roxanne Robinson, V.P.

We held a 150 Committee Chair meeting at the Conference on Sunday afternoon. Plans for the Traceability Panel were discussed as well as changes to their long range plans. There was lively discussion about issues surrounding traceability in the respective industries.

HEALTHCARE METROLOGY
Marcus McNeely

Our committee continues to focus on continued improvement of RP 6. Our new Chairman is Marcus McNeely and he participated on the Traceability Panel at 2007 Conference. He has secured an FDA liaison and is looking to establish liaisons with other organizations important to this committee. One of our goals is to educate third party auditors and contractors within the healthcare industry about the ability to achieve traceability of measurement to the SI through other sources besides NIST and to describe objective evidence to request in order to confirm measurement traceability.

UTILITIES
Bill Hinton

Our new committee chairman, Bill Hinton, has drafted a monthly Utilities Committee newsletter for posting on the NCSLI website. Pete Buzzard represented the Utilities industry on the Traceability Panel at the 2007 Conference.

As part of the Utilities Committee's well-attended meetings during the conference, the following was discussed: a temperature ILC is scheduled to begin and a 100-amp shunt ILC is beginning. Peer reviews of the utilities are on going.

Dr. Fitzpatrick gave an update on NIST services. NRC extra requirements are not always being met by the accredited calibration labs (Note: Per 175 Accreditation Resources' Committee meeting: Accreditation bodies will employ a checklist to ensure that these requirements are assessed and referenced in the scopes of accreditation.)

A representative from NACLA described the details of that program. The nuclear plants are offering educational tours and programs to classrooms of children at the plants. More education and training is being encouraged. The individual NRC licensing departments for each plant are not consistent in their interpretation of the ISO 17025 accreditation requirements.

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TEST EQUIPMENT ASSET MGT
Jim "Smitty" Smith, was Rob Parchinski

The committee met at the conference and work has started on an RP for shipping of test equipment and another is under consideration for delayed dating of calibration intervals. Jim "Smitty" Smith represented TEAM on the Traceability Panel at 2007 Conference and he is replacing Rob Parchinski as Chairman of this committee.

The 155.1 subcommittee on equipment specifications is establishing the ground rules to begin work on RP 5 for presentation, selection and employment of M&TE specifications. They have completed the table of content for this RP and have made assignments for the other sections.
EQUIPMENT SPECIFICATIONS

Charlie Motzko

Our RP-5 Committee publishes a periodic newsletter, available on the NCSLI website.

We held two 155.1 Committee Meetings that were open to attendee's review and comment.

- Discussion, agreement and adaptation of the committee charter (shown in next column)
- Initial identification of each writing team leader, by Chapter

Committee Charter

Background

Manufacturer measuring and test equipment (MTE) specifications are an important element of cost and quality control for testing, calibration and other measurement processes. They are used for equipment selection or establishing equipment substitutions for a given measurement application. In addition, manufacturer-specified tolerances are used to compute test uncertainty ratios and estimate bias uncertainties.

Ideally, MTE are calibrated periodically to determine if they are performing within manufacturer-specified tolerance limits. In fact, the elapsed-time or interval between calibrations is often based on in-tolerance and out-of-tolerance data. Therefore, it is important that manufacturer specifications are properly developed, reported, interpreted and used.

Purpose & Scope

The primary purpose is to provide a replacement for the discontinued NCSLI RP-5 "Preparation of Specifications." The new RP-5 document, titled "Measuring and Testing Equipment Specifications," will present recommended practices relevant to MTE manufacturing, supply, testing and calibration, and end-use.

This document will also provide necessary MTE recommended practices to support other NCSLI RP's such as RP-1 "Establishment & Adjustment of Calibration Intervals," RP-3 "Preparation of Calibration Procedures," RP-8 "An Individual Equipment Evaluation Guide," and RP-12 "Determining and Reporting Measurement Uncertainty."

AIRLINE METROLOGY

Joe Cebulski

Graeme Payne represented the Airline Metrology Committee on the Traceability Panel.

Report from the Conference:

Doug Reynolds

The Airline Metrology Committee met at the NCSLI Conference in St. Paul on Monday, July 30th. The first order of business was a discussion on calibrating optical flats and how each airline establishes the calibration intervals for these devices.

The committee discussed the topic of the FAA Advisory Circular AC145-9. There were several questions surrounding the term "trace-ability" and how it is applied in the context of the Advisory Circular. Another area of concern was the process of data collection and what the requirements were for recording data. Vic Cleland (United Airlines) reminded the Committee of a previous study that was conducted by the NCSLI which compared the FAR145 requirements to the requirements of ISO standard 17025. Vic indicated that he would follow up with the author of the study and relay the information to all the Committee attendees.

The next discussion focused on measurement uncertainty and where the Airline and Calibration industry was going with their uncertainty measurement requirements. Ruben Salazar (Boeing) indicated that he would look into identifying a way to provide web-based uncertainty training for the group.

The final item on the agenda was a discussion on the value of in-house calibration capabilities within the Airline Industry and the Organizational structures of calibration departments within the Airline Industry.

At the conclusion of the meeting, Doug Reynolds (Delta) presented Vic Cleland with a plaque of recognition for Vic's commitment and dedication to the Airline Metrology Committee. Vic is a charter member of the committee and has been a vital member of the committee serving as the Chairman from 2003 to 2005. The Airline Metrology Committee wishes Vic a happy and well earned retirement in September.

Editor's Note: We wish Vic a happy and fruitful retirement. He joined United Airlines in 1967, and his associations and contribution to aviation metrology span over 32 years. The United metrology operations have been centered at their Maintenance Facility at San Francisco, for decades, so we would often meet at our local NCSLI region meetings. He was always a friendly, active participant in the local meetings. Over my decades with Hewlett-Packard, we had many professional contacts with the metrology departments at United, concerning test equipment and measurements, especially in RF and microwave. His leadership of those metrology operations in recent years reflects on his genuine love of our metrology business, both technologically and operationally.

AUTOMOTIVE METROLOGY:

Patrick Butler

Tim Osborne represented the automotive metrology industry on the Traceability Panel. The committee met and agreed to begin work on a guidance document for auditors who audit automotive calibration and testing laboratories.

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Committee News

TESTING LABORATORIES
Marlene Moore
This committee is discussing definitions of verification, standardization and calibration (with the Chemical Metrology committee), and the distinction between calibrations using CMMs and dimensional testing using CMMs. Discussion on a road show for testing and calibration issues continues and there was good support for this initiative at the Traceability Panel. The committee did not meet at the conference but the chairman has resolved to have quarterly teleconferences.

SMALL BUSINESS INITIATIVE:
Jan Johansen
No committee activity to report. The Chairman did not attend the Conference (The National Guard beckoned).

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EDUCATION & TRAINING
Georgia Harris, V.P.

Activities:
• Mark Lapinskes did a great job spearheading the development of the 2007 E&T Tracks which were well attended. We assessed the 2007 E&T Track during the final 160 meeting and gathered feedback for what worked well and what could be improved for the 2008 plans. One comment is that if we are able to sustain an E&T track, we should consider modifications to the best paper awards to specifically recognize education and training papers.

• We will continue efforts related to Marketing: Dilip Shah is the marketing liaison from Education and Training and will chair a working group under the reorganized 164 committee in 2008. We also want to begin some Executive Outreach efforts.

TRAINING RESOURCES
Helga Alexander

• Helga Alexander presented the Regional Training concept and draft guidelines at the Sunday Region/Section Training session at the conference. She also held a well-attended committee meeting with a lot of active discussion on the Regional Training concept and plans for the guidelines.

• We are planning to automate the CEU and training certificate process and training registration this Fall as well in preparation for IACET assessment in 2008.

Financial Resources
• We are considering some new scholarship ideas.

PERSONNEL TRAINING & QUALIFICATIONS
Gloria Neely

• Gloria Neely held a well-attended meeting at the conference and led some good discussions about a new proposed Recommended Practice on "Developing Training and Succession Plans." A session on this topic is being planned for the 2008 Conference.

• An HR package will be developed to include the recently published job descriptions and the recently published Benchmarking salary data.

• We received the formatted version of this new RP this week. It was sent to the Board on 7/12. A new RP "Recommended Practice for Documenting Metrology Education, Training, and On-the-Job Training," was approved for publication.

JOB DESCRIPTION WORKING GROUP
Chris Grachanen

• Chris Grachanen held the final meeting of this working group at the conference. The remaining tasks will roll up to the 163 committee.

• The Army TMDE activity presented a certificate of appreciation to Chris Grachanen for his efforts to update the job descriptions and submit to the U.S. Office of Personnel Management to address U.S. federal metrology job descriptions. The certificate was signed by Richard Turner, Executive Director, US Army TMDE Activity.

• The citation to Chris reads: "for his leadership as chair of the National Conference of Standards Laboratories International (NCSLI) and the American Society for Quality Measurement Quality Division (MQD) joint Standard Occupational Classification Working Group, and his efforts in encouraging the US Office of Personnel Management to revise the obsolete job classification standard for Electronic Measurement Equipment Mechanics. This standard is used to classify hundreds of US Army Test, Measurement, and Diagnostic Equipment Activity calibration technician jobs. The support of NCSLI and MQD has strengthened our case for revision of this standard, and is greatly appreciated."

EDUCATION LIAISON
Mark Lapinskes

• Scholarships for 2007 were presented during the Tuesday 7/31 luncheon to 4 of our 6 scholarship recipients. Five were scheduled to be there and Butler County Community College (BC3) lost one of their instructors (Lynn Thompson) and David Schiebel had to cancel his attendance to the conference to fill their internal requirements. Lynn Thompson, a Metrology Professor with BC3 for the past 25 years, passed away last Thursday (July 19, 2007) after a long battle with cancer. Lynn was a valuable colleague and a dear friend. All of us here at BC3 held onto the hope that she would win the battle against that terrible disease. See page 26. See: <http://www.post-gazette.com/pg/07207/804273-54.stm>

• Emil Hazarian filled the BC3 slot on the agenda in the U.S. Metrology University program session with a presentation about the California State University, Dominguez Hills, Quality Assurance Masters Program, Measurement Option.

OUTREACH
Phil Smith

• Phil presented outreach ideas to the region/section coordinators and conducted a Panel session during the conference. He also held a successful committee meeting at the conference.

• Michelle Foncannon was able to fill in for one of the cancelled E&T speakers and presented the draft Outreach "Introduction to Metrology" presentation and gathered feedback from the participants.
Feedback on the new student programs for membership and conference attendance was received. Primary issues are related to 1) timing and 2) the technical level of the organization (i.e., we don’t have a “technician track” of content and papers at NCSLI Conferences.)

Nomination for 2007 E&T Award for Klaus Jaeger

Dr. Jaeger has provided outstanding contributions to the field of metrology education and training. Klaus has worked in the field of metrology for over 20 years, developing and improving primary standards using the latest discoveries in atomic and quantum physics. He was the co-author of two NCSLI Recommended Intrinsic Standards Practices (RISPs) and has contributed to numerous NCSLI recommended Practice (RP) documents. Klaus has presented papers on applying intrinsic atomic and quantum calibration standards to industrial calibration laboratories at the Conference for Precision Electromagnetic Measurements (CPEM) in 1988, 1990, and 1996.

Klaus has been an active volunteer in the NCSLI for over 24 years, supporting training and educational activities through positions of committee chair, vice president, and President of NCSL International. In addition to the Klaus’s NCSLI Activities, he is active in the American Physical Society, serving as the chair of the topical group for instrument and measurement science, and President of the Industrial Physics group. Klaus has also served as a member of the review panel for the National Research Council of the National Academy of Sciences, Board of Assessment for the National Institute of Standards and Technology, Physics Laboratory.

Klaus’s largest contribution to metrology education and training has been in the development of the Tutorials held at the NCSLI annual conference. Klaus has designed, developed and organized all aspects of the NCSLI tutorials, serving as the conference tutorial chair since its inception in 1999. Through the guidance of Dr. Jaeger, in the time period of 2000 though 2006, over 2,100 tutorial attendees have been able to receive training and education through the NCSLI tutorial process. The NCSLI tutorial sessions that Klaus has developed are among the most significant metrology education and training activities in North America.

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DOCUMENTARY STANDARDS APPLICATIONS
Derek Porter, V.P.

CALIBRATION SYSTEM RESOURCES.
Chet Franklin

The Handbook for the Application of Z540.3. The Working Group (WG) continues to meet by web/teleconference every other week. The WG is progressing methodically through all requirements of the Standard. The WG conducted a three-day working session from June 6-8 at the Naval Surface Warfare Center, Corona Division. The objective of this three-day working meeting was to prepare for the upcoming NCSLI Conference in July and possibly provide a "Draft" Handbook at that time.

LABORATORY FACILITIES
Doug Cooper, David Braudaway

The Recommended Practice "Verification of Laboratory Environments" updated draft was received from Publications Oversight.

METROLOGY PRACTICES
Howard Castrup

CALIBRATION INTERVALS
Mark Kuster

RP1 on intervals revision final draft due Jan 2008

MEASUREMENT DECISION RISK ANALYSIS
Greg Cenker

New RP on risk final draft due Jan 2008

MEASUREMENT UNCERTAINTY ANALYSIS
Suzanne Castrup

RP12 on uncertainty revision final draft due Jan 2008

ACCREDITED STANDARDS COMMITTEE
Bob Fritzsche


The Z540.3 handbook has been under development within the 171 Calibration Systems Resources Committee to help provide guidance to those who will impose and use Z540.3. The handbook is nearing completion. The 174 Committee met during the 2007 NCSLI Conference in St. Paul, MN to discuss the details of Z540.3 and its rollout into our community.

ACCREDITATION RESOURCES
Barbara Belzer

We are pulling together the materials for an RP on Traceability - What it is and what it is not (working title). There will be a list of resources, examples and discussion of the topic. Input has been sought from committee members and the forum on the NCSLI site. But there has been little action from the site. We hope to have a working draft by the close of the meeting in St. Paul and a final draft for circulation well before MSC 2008.

CALIBRATION/CERTIFICATION
Dale Varner

Calibration RP-3 - updated draft received from Publications Oversight Committee. A recognition award was scheduled for summer conference at St. Paul. (See the conference pictures.)
MARKETING
Jesse Morse, V.P.

Here is a recap of recent NCSLI marketing activities.

1. The team prioritized International regions to target for future membership expansion projects with emphasis on current activity and potential for success.

2. The team has much enthusiasm and vitality being channeled into a more focused approach for development of new products and services for members, and in supporting NCSLI's role in metrology education and training promotion.

3. The first ever NCSLI Annual Report to membership was finished and mailed to members and was available at the conference.

4. The Benchmark Survey committee, led by Wade Keith, did a remarkable job of getting the newly formatted survey out on time and formatting the data in time for presentation at this year's conference.

5. A well thought-out promotion plan was developed at an MSC meeting last January, and the team did an outstanding job of executing it. Thanks, to all that were involved. What makes this even better news is that although membership is low compared to past years, this year's response sets a new record. Wade presented the results at the Conference.

6. Region/Section meetings continue to grow in popularity and attendance. This is due in part to regular promotional communication programs created out of the Marketing Team and operated by the business office.

7. A new "Inland Empire" section in the SW, Southern CA has been established with their first meeting on 6-21-07 and was a success with over 60 attendees. The Marketing team, in this case led by Jim Smith, was key in identifying and coordinating this campaign as an opportunity to grow the visibility of NCSLI.

8. An audit of all membership records is complete. The result of this effort will allow the Marketing Team to understand trends, and to track results of future promotions. Jarad and the business office personnel are to be commended for their exceptionally hard effort to audit historical files relating to membership, and in establishing a new process for managing the data base in the future.

9. Promotion tools for "World Metrology Day" were provided. A handout in the form of a 3D Ruler (metric, of course) has been designed and is going to be in each conference attendee's bag.

10. The 2008 Conference Poster was mailed July 28th to kick-off the promotion campaign for the conference in Orlando. It will also be strategically displayed at the St. Paul show to get people thinking of next year.

11. The new NCSLI booth was used at St. Paul, along with new graphics.

12. Regular marketing related telephone meetings are occurring with the team.

13. We have been working with Lonnie Spires, Craig Gulka, and Linda Stone on the production of the worldwide news document - METROLOGIST.

I want to thank all the marketing team (Craig Gulka, Jim Smith, Derek Porter, Malcolm Smith, Dave Agy, Jack Somppi, and Dilip Shah) for their efforts in helping move the organization into the 21st century. They have contributed with eagerness, and some at personal expense. I also thank Georgia Harris and her entire team for their active involvement and help. I hope the board will join me in saying how their effort is very much appreciated.

Team Members
Jack Ferris NCSLI President
Jesse Morse VP Marketing
Craig Gulka Business Mgr.
Jack Somppi Membership Chair
Jim Smith Publicity Chair
Derek Porter VP Documentary Standards
Malcolm Smith VP International Affairs
Dave Agy NCSLI Treasurer
NIST

SOME NEWS ITEMS FROM NIST
Belinda Collins

Changes in NIST Management

William Jeffrey, NIST Director, has announced that he will be leaving NIST in September. Dr. James Turner assumed responsibility as Acting Director of NIST. His leadership credentials and managerial experience are extensive.

Rich Kayser of the Materials Science and Engineering Laboratory (MSEL) has agreed to assume responsibilities as the NIST Deputy Director on an acting basis (again!). Rich brings considerable experience to the position from his prior detail in this position as well as from his 30+ years working at NIST. He will be a great asset to Dr. Turner and the Institute during this time.

Editor’s Note: NCSLI people will recall that Rich Kayser served as our NIST Representative to the Board several years ago.

Eric Amis, MSEL’s Deputy Director, will take on the responsibilities as MSEL’s Acting Director. He has done a terrific job as MSEL’s Deputy and will be following in excellent footsteps. Dr. Hratch Semerjian is retiring as NIST Chief Scientist and will be assuming the position of President and Executive Director of the Council for Chemical Research in Washington, D.C.; Clare M. Allocca of MSEL, has just been appointed Chief of the United States Measurement System Office in Technology Services.

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NOTICE OF NEW CALIBRATION SERVICES

The Building Environment Division (863) proposes to offer calibration services listed below. The calibration services will take place in the NIST 1016 mm Guarded-Hot-Plate Laboratory located in Building 226.

The proposed services provide steady-state thermal resistance measurements for thermal insulation materials from 280 K to 330 K and a temperature difference of 20 K to 30 K across the specimen. All tests are conducted at atmospheric pressure (nominally 100 kPa ± 20 kPa). Calibration reports are issued giving the thermal resistance of the insulation specimen at a given temperature and temperature difference.

- Calibration Transfer Specimen (25 mm, 280 K to 330 K, 1 point)
- Calibration Transfer Specimen (75 mm, 280 K to 330 K, 1 point)
- Calibration Transfer Specimen (150 mm, 280 K to 330 K, 1 point)
- Special Tests of Thermal Insulation (280 K to 330 K)

Quality manuals and SP250s in support of these proposed new services are being developed. An assessment team for the Building Environment Division Quality System is being organized.

Contact: Robert Zarr, 301-975-6436, <robert.zarr@nist.gov>.

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NIST DELIVER OPTICAL TRANSFER STANDARD TO NATIONAL INSTITUTE OF METROLOGY

EEEL researcher John Lehman and collaborators delivered an optical transfer standard to the Optical and Laser Division of the National Institute of Metrology (NIM), Beijing, P.R. China. Researchers at NIM intend to evaluate this detector in a variety of optical radiation measurement schemes. It is expected that this detector will be used as a transfer standard for optical power measurements and international comparisons. This detector is described in "Optical trap detector for calibration of optical fiber power meters: coupling efficiency," Appl. Opt., 31, 6531-6536 (2002).

The nature of the work is intended to be collaborative and mutually beneficial to NIST and NIM China. The NIM detector is similar to that produced in the past at NIST for Department of Defense Standards Laboratories as well as other National Measurement Institutes; the detector is not commercially available anywhere in the world. At NIST we have the expertise, materials, and equipment resources to fabricate the detectors in house. A calibration certificate for optical fiber power responsivity at 1310 nm and 1550 nm was provided.

Contact: John Lehman, 303-497-3654, <john.lehman@nist.gov>.

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EEEL RESEARCHERS COMPLETE QUANTUM-BASED VOLTAGE SOURCE FOR AC POWER METROLOGY

Researchers in the Quantum Electrical Metrology Division have developed a stepwise programmable quantum-based ac voltage source for improving metrology and calibrations for the U.S. power industry. It is the only system in the world that has demonstrated quantum-accurate ac waveforms at voltages greater than 1 V. It will be integrated into a new power calibration system that will directly improve the specifications of commercial power meters produced by U.S. companies.

The source, called an AC programmable Josephson voltage standard or ACPJVS, uses superconducting Josephson arrays as a multi-bit digital-to-analog converter to synthesize stepwise-approximated 60 Hz sine waves at voltages up to 2.5 V. Josephson junctions are used because they generate perfectly quantized voltages based on the flux quantum. However, hundreds of thousands of junctions must be connected in series to increase the output to practical voltages above 1 V.

The Measurement Services Division will need to make the appropriate changes to the Calibration Services web page, the Calibration Services SP250 Users Guide and the Fee Schedule.

Contact: Robert Zarr, 301-975-6436, <robert.zarr@nist.gov>.

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NEWS FROM THE NMIs
News from the NMIs

Our goal for the complete power calibration system is to reduce all error sources so that the NIST measurement uncertainty can be decreased at least ten-fold, from its present uncertainty of 20 microW/W for 60 Hz ac power to 2 microW/W. The ACPJVS is just one component of the calibration system. From sampling comparisons of two ACPJVS systems the NIST researchers demonstrated that two 60 Hz (each with 64 samples) synthesized sine waves consistently agreed to better than 100 nV/V (k=2).

For smaller numbers of samples, lower frequencies, and for dc signals, the synthesized waveforms agreed to better than 10 nV/V. One of these ACPJVS systems was installed in the NIST power calibration laboratory in July. It is being integrated with newly developed amplifiers and scaling devices for both voltage and current in order to make comparisons with the 120 V and 5 A outputs that are needed for measuring the commercial meters.

Contact: Sam Benz, 303-497-5258 or <samuel.benz@nist.gov>.

EEEL RESEARCHERS PROVIDE FIRST QUANTUM-BASED AC VOLTAGE CALIBRATION TO US INDUSTRY

Researchers in EEEL's Quantum Electrical Metrology Division (QEM) have completed the world's first quantum-based ac voltage calibration and have delivered results with unprecedented accuracy to a major US manufacturer of calibration and test equipment. To make this calibration a thermal transfer standard was measured directly against a quantum ac source using pulse-programmable Josephson junction arrays. This ac Josephson Voltage Standard (ac JVS) is presently being developed into a calibration system by QEM researchers in Gaithersburg, MD, using technology developed by QEM personnel in Boulder, CO.

The customer's thermal transfer standard was calibrated directly against the ac JVS at voltages ranging from 2 mV to 100 mV at frequencies from 2.5 kHz to 20 kHz. Owing to the quantum-based accuracy of the ac JVS, the uncertainties associated with traditional range-to-range scaling techniques for thermal converters are excluded from the uncertainty analysis. For this particular calibration, the ac JVS enabled reductions in uncertainty of more than an order of magnitude at the lowest voltages, and reductions of more than 10 % at 100 mV. The measurement uncertainties at the lowest voltages are by far the smallest ever given for an ac measurement.

Although this calibration demonstrated the unprecedented performance of the ac JVS, it was a special test not generally available to calibration customers. QEM researchers in Gaithersburg are continuing to integrate the ac JVS into the calibration service for thermal transfer standards in order to bring quantum accuracy to the routine calibration service. In Boulder, QEM personnel have developed a next-generation quantum chip with 220 mV maximum output voltage (see accomplishment immediately following) which will enable the quantum standard to operate at voltages accessible by the QEM's multijunction thermal converter primary standards. These are already the world's most accurate ac metrology instruments in the voltage range from 200 mV to 2 V, and enable significant reductions in uncertainty from 2 V all the way down to 2 mV.

CONTACT: Thomas Lipe, 301-975-4251, <thomas.lipe@nist.gov>.

EEEL RESEARCHERS DOUBLE THE OUTPUT VOLTAGE FOR THE AC JOSEPHSON VOLTAGE STANDARD

Researchers in the Quantum Voltage Project of EEEL's Quantum Electrical Metrology Division have dramatically improved the performance of quantum-based pulse-driven Josephson-junction circuits for ac voltage metrology. The most significant improvement is a doubling of the rms output voltage from 100 mV to 220 mV. This higher voltage allows the NIST voltage calibration service to access the full 220 mV range of a thermal transfer standard, which is the key instrument used for many of the low-voltage calibrations. The ac Josephson Voltage Standard (ac JVS) performance improvement was accomplished by increasing the number of junctions in the circuit combined with improving the microwave distribution to the junctions. The on-chip microwave performance of the longer distributed arrays was improved through the use of tapered transmission lines, and the chip packaging was also improved using new coplanar-waveguide-based flexible microwave packaging. With these new results, a 220 mV chip package has been delivered to the NIST Voltage Calibration Laboratory and they have begun using the device for precision measurements up to 100 kHz. Research continues to further increase the output voltage to 250 mV and eventually to 1 V and to extend the frequency to 1 MHz.

CONTACT: Paul Dresselhaus, 303-497-5258, <paul.dresselhaus@nist.gov>.

EEEL RESEARCHERS APPLY THE PROGRAMMABLE JVS FOR THE DVM RATIO CALIBRATION TO IMPROVE UNCERTAINTY TO SUPPORT FORCE CALIBRATION

Use of NIST instrumentation to obtain the load cell responses during force calibrations mandates that the voltage ratio measurements be traceable to national electrical standards. The NIST DVM ratio service has provided ratio voltage measurements that are traceable to the Josephson Voltage Standard (JVS). Previously, the service was supported by NIST JVS systems using manual measurements. The NIST JVS uses a conventional Josephson junction array which often experiences a spontaneous step transition, caused by electromagnetic interference, during its operation. An adjustment is required to obtain a stable voltage step for the ratio calibration.

The programmable JVS (PJVS), developed in the last decade, uses an array with non-hysteretic steps to provide a stable voltage. The PJVS provides biased voltage steps with current margins 100 times higher when compared to the conventional Josephson array. The voltage generated by the PJVS can be highly stable and immune to electromagnetic interference. The PJVS has been implemented in the DVM ratio calibration service to improve the efficiency and reliability of the service. The new protocol can be executed automatically to reduce the labor cost of the calibration service. The uncertainty of the DVM ratio calibration can be improved by a factor of 2 or better compared to that using conventional JVS with automatic multiple measurements.

CONTACT: Yi-hua Tang, 301-975-4691, <yi-hua.tang@nist.gov>.
NIST/NATIONAL INSTITUTE OF METROLOGY
CHINA, COLLABORATIONS IN CHEMICAL AND PHYSICAL METROLOGY

During a recent visit to NIM, CSTL senior management discussed the possibility of collaborations in the area of chemical measurement standards and standards service delivery. There are several projects that are in the planning stage and generally fall into the visits to NIST or NIM and exchange of guest researchers, mostly NIM staff coming to NIST.

Several topics of interest were identified in both chemical and physical measurement areas including: materials analysis including CRMs for surface chemical analysis; CRMs for food safety; methods and CRMs for environmental protection; clinical standards development; basic metrology; tests and standards for biological sciences (DNA, forensics, etc); ozone monitoring; high purity gas analysis; low pressure standards (hydraulic primary standard); flow standards; acoustic thermometry, and noise thermometry. Based on this information the following actions have been planned.

"In late fall, Dr. Hong Lin (NIM) will begin a nine-month visit to NIST to work with CSTL researcher Mike Moldover on acoustic measurement methods for (1) measurement of the Boltzmann Constant and (2) advanced thermometry methods.

"In the spring of 2008, Ms. Yanhua Li (NIM) will come to NIST to work on primary pressure standards development focused on high accuracy manometry.

"Other visits of NIST staff to China are in the planning stage in the areas of flow and temperature along with other chemical measurement standards as cited above.

For more information on this evolving program contact: Willie E. May at <willie.may@nist.gov>

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NEW TOOLS TO HELP CONFIGURE SECURE OPERATING SYSTEMS

The National Institute of Standards and Technology (NIST) is making available "virtual machine images" of secure configurations of the Microsoft Windows XP and VISTA operating systems (OSs) to assist federal agencies in complying with computer security requirements mandated by the government's Office of Management and Budget (OMB). The OS images allow federal agencies to simulate what will happen, and how critical applications will perform, when they move from their current operating environment to either of the two Microsoft OSs using security configurations mandated under OMB's Federal Desktop Core Configuration (FDCC).

These images were created through a collaborative effort between Microsoft, OMB, NIST, the Department of Defense (DoD) and the Department of Homeland Security (DHS), and are available for download on a new Web site established by OMB. The images contain pre-configured security settings for agencies to use when testing and evaluating their applications to ensure they function effectively and securely during migration to these new operating systems.

"This resource facilitates agencies' efforts to implement common security configurations which will boost government's information security, improve system performance and decrease operating costs," said Karen Evans, administrator of OMB's Office of E-Government and Information Technology.

In addition, NIST's National Checklist Program is working with a number of information technology providers on standardizing security settings for a wide variety of products and environments. NIST maintains more than 120 common security configuration guides used by agencies.

Frequently asked questions about the Web site, the virtual machine images and other technical information for adopting the secure Windows XP and VISTA configurations may be found at: <http://csrc.nist.gov/fdcc>.


Media Contact: Michael E. Newman, <michael.newman@nist.gov>, (301) 975-3025.

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84 APPLY FOR NATION'S TOP HONOR FOR EXCELLENCE

Eighty-four organizations have started down the path they hope will lead to their being honored with the 2007 Malcolm Baldrige National Quality Award, the nation's highest recognition for excellence. Applicants include two manufacturers, four service companies, seven small businesses, 16 educational organizations, 42 health care organizations -- and in a category in which the Presidential award may be given for the first time-13 nonprofits/governmental organizations.

The 84 applicants will be evaluated rigorously by an independent board of examiners in seven areas: leadership; strategic planning; customer and market focus; measurement, analysis and knowledge management; workforce focus; process management; and results. Examiners provide each applicant with a wealth of feedback on strengths and opportunities for improvement.

The 2007 Baldrige award recipients are expected to be announced in November.

Named after Malcolm Baldrige, the 26th Secretary of Commerce, the Baldrige Award was established by Congress in 1987. The award promotes excellence in organizational performance, recognizes the achievements and results of U.S. organizations, and publicizes successful performance strategies. The award is not given for specific products or services. Since 1988, 70 organizations have received Baldrige Awards.

For more information on the Baldrige award program, see <http://baldrige.nist.gov>.

Media Contact: Michael E. Newman, <michael.newman@nist.gov>, (301) 975-3025
NEW NIST CALIBRATION SERVICE ‘ARMS’ PHASORS FOR MORE RELIABLE POWER GRIDS

While the new calibration service for phasor measurement units (PMUs) offered by the National Institute of Standards and Technology (NIST) sounds like it would appeal to Star Trek fans, it’s actually the operators of America’s electrical power grid—and all of us who value uninterrupted current—who benefit.

The new NIST service provides calibrations for the instruments that measure the magnitude and phase of voltage and current signals in a power system—a combined mathematical entity called a phasor—report the data in terms of Coordinated Universal Time (UTC), also known as “the official world atomic time”).

Use of absolute time enables measurements called phase angles taken at one location on a power grid to be comparable to others across different systems. Phase angles and their derivations allow grid managers to know the operating condition of their portion of the system and determine if action is needed to prevent a power blackout.

The new NIST calibration service has already yielded two additional benefits. First, a major PMU manufacturer reports that using the calibrations during the manufacture of its instruments has improved their accuracy by a factor of five. Secondly, some PMUs that have been calibrated using the NIST service have revealed incompatibilities in the message format they send out, leading to corrections that have improved interoperability between PMUs across power grids.

This project is partially funded by the U.S. Department of Energy (DoE), and is operated in conjunction with DoE and the North American Synchrophasor Initiative (NASPI). NASPI is a joint government and utility collaboration supporting the North American Electric Reliability Corporation’s efforts to improve the reliability of the nation’s power grids.

For more information on the NIST PMU calibration service, contact Jerry Stenbakken, <gerard.stenbakken@nist.gov>, (301) 975-2440.

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AMERICA COMPETES ACT BRINGS IMMEDIATE CHANGES TO NIST

On Aug. 9, the President signed the America COMPETES Act (Public Law Number 110-69), which authorizes funding for the National Institute of Standards and Technology (NIST) for the next three years. Several provisions have immediate consequences for NIST and related Department of Commerce agencies and programs.

The statute authorizes a NIST budget of $863 million for FY 2008. This includes funding for NIST’s portion of the President’s American Competitiveness Initiative, which puts NIST’s core programs (laboratories and facilities) and two other science and technology agencies on track to double their R&D budgets over 10 years. The FY 2007 budget for NIST was $676.9 million.

The act eliminates NIST’s Advanced Technology Program (ATP), but allows for continued support for previous and pending ATP awards. NIST plans to announce awards for the 2007 (and final) ATP competition by Sept. 30, 2007.

The same statute creates the Technology Innovation Program (TIP). NIST will work on details of implementing regulations for this new program.

The act also eliminates the Department of Commerce’s Technology Administration (TA).

The full title of the authorization bill is Public Law Number 110-69, The America Creating Opportunities to Meaningfully Promote Excellence in Technology, Education and Science Act (COMPETES).


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QUICK LINKS

New NIST Measurement Office Focuses on Innovation

National Institute of Standards and Technology (NIST) Director William Jeffrey has named Clare Allocca as the chief of NIST’s new United States Measurement System (USMS) Office. The creation of the office marks the start of the second phase of NIST’s USMS effort to ensure that the nation’s measurement infrastructure—a large, diverse collection of private and public-sector organizations—can sustain U.S. innovation at a world-leading pace.

Phase I of the USMS effort culminated in February 2007 with a wide-ranging NIST assessment of the state of the nation’s measurement system and its impact on innovation. The USMS report, including contributions from more than 1,000 people in industry, academia and government, surveyed measurement needs across 11 industrial sectors and technology areas to identify more than 700 measurement-related barriers to innovation.

NIST’s USMS Office will take the lead in the implementation of Phase II, which includes continual collection of measurement needs of U.S. industry, government and the scientific community; the periodic assessment of the health of the U.S. Measurement System, through identification of priority areas needing improvements; and the facilitation of these improvements via dissemination of needs to appropriate measurement providers, including NIST.

Allocca brings a wealth of experience to her new role as USMS Office Chief. Previously, she served as scientific advisor to the director of NIST’s Materials Science and Engineering Laboratory. Her NIST career also includes positions in the agency’s Industrial Liaison Office, Program Office, Director’s Office and the Advanced Technology Program. Before joining NIST, she was a senior materials engineer for Pratt & Whitney.

"NIST will lead the USMS effort," says Allocca, "but our success in addressing priority measurement needs will really depend on close collaboration with other measurement providers, standards development organizations and many others."

For more on the USMS, including access to the assessment report, go to <www.nist.gov/usms>.
INMS

INMS REPORT

Alan Steele

18th Meeting of the Consultative Committee of Units at BIPM, June 2007

Dr. Barry Wood has become recognized as a world leader in measurement science and has contributed significantly to his field of electrical measurements. He is one of Canada's most renowned measurement scientists and his reputation has leveraged NRC's stature in the world of physical sciences.

Editor's Note: Not surprisingly, Dr. Wood won the Best Papers Award at the recent NCSLI Conference in St. Paul, for the second straight year.

As chairman of the CCEM's working group on proposed changes to the SI (WGSI), and Chairman of the CODATA Task Group on Fundamental Constants, Dr. Wood was invited to the 18th meeting of the Consultative Committee of Units (CCU) at BIPM. The meeting was supplemented by 20 submitted documents, most detailing the positions of various groups concerning the recommendation (CI-2005) by the CIPM concerning preparative steps taken to implementing changes to the SI based on fixed values of the fundamental constants.

The meeting had presentations from groups that included CCEM, CCM, French Academy of Sciences, CCQM, CCPR, CCT, IUPAP, IUPAC, Prof. C Borde, Dr. M. Glaser, IEC/TC 25, and ISO/TC 12. At the conclusion of the presentations, the chairman summarized the consensus of the meeting:

- the CCU would support the fixing of k, NA, e and h for redefining the SI units.
- the subject of keeping or redefining the meaning of the base units would be delayed until the next meeting.
- the exact definitions of the base units could be re-examined at the next meeting.
- the proposed change in the SI would not be taken until there had been time to resolve the present discrepancy between the watt balance and Avogadro results.

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IDENTIFYING MEASUREMENT CAPACITY IN THE OTHER NRC INSTITUTES

Recognizing that metrology underpins trade, innovation and competitiveness across a number of sectors, the NRC Senior Executive Committee approved an INMS proposal to guide the development of an expanded portfolio of activities that will support advances in measurement standards. Jim McLaren, Director General of NRC-INMS is chairing a committee of Directors General from Institutes in all three NRC research portfolios - Life Sciences, Physical Sciences, and Engineering.

Underscoring the importance to the Canadian innovation system, the committee also includes the DG of the NRC Strategy and Development Branch and the DG of the NRC Industrial Research Assistance Program, which provides technical and business assistance to small- and medium-sized enterprises across the country.

Measurement standards are no longer solely associated with the physical sciences as they were when NRC received its original mandate. The need for measurement standards for chemistry and biology is well known. This trend is a natural consequence of the increasing interdisciplinary nature of all science and engineering activities and the existence of measurement barriers to innovation in all industry and technology sectors.

Under its new strategy, NRC is developing new ways to foster multidisciplinary research and convergence in science and technology including cross-institute and national programs.

The DG Committee will draft a framework for a future program on measurement science and standards at NRC, building the case for an expanded investment in measurement science by the federal government to support innovation, trade and improved quality of life.

Looking forward, their report will propose areas of fundamental and applied research at NRC that would inform the development of advanced methods of measurement, with a focus on identifying NRC sector strategies and national programs where a metrology approach can promote innovation and progress.

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INMS QUALITY MANAGEMENT SYSTEM

At year end, through a self-declaration process to Canada's Regional Metrology Organization for the Americas, SIM, the Calibration and Measurement Capabilities (CMCs) for all 11 INMS scopes were approved by SIM's Quality System Task Force and are now included in Appendix C of the CIPM MRA. This confirms NRC-INMS compliance with the terms of the MRA and the international standing and acceptance of our calibration and measurement capacities.

We are particularly pleased to report that the third party assessment process conducted by the Standards Council of Canada has resulted in formal accreditation status for our ISO 17025 Quality System in the areas of dimensional metrology, mass standards, acoustical standards, photometry and radiometry, thermometry, and optical frequency standards. The "wall of honor" at our main entrance in Building M36 now showcases these accreditation certificates. We are looking forward to receiving the accreditation for the ionizing radiation standards program later this summer, and anticipate that these certificates for electrical power measurements, chemical metrology, time dissemination, and electrical standards won't be far behind.

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TRANSFER OF KNOWLEDGE TO THE METROLOGY COMMUNITY

In Canada, the lack of metrology programs at Canadian universities means that the majority of metrologists are trained "on the job." This is particularly true for SMEs where investment in metrological specialization is difficult because of inefficiencies of scale. INMS responds to the challenge to provide education-based services directly to industry, stakeholder associations and other government departments by organizing and delivering courses and workshops concerning the measurement of basic physical quantities and the application of metrology.
Twelve years ago, staff in the Dimensional Metrology Program at NRC-INMS established the Association for Coordinate Metrology Canada to disseminate practical dimensional metrology knowledge for industrial applications, and enhance industrial metrology capacity. The ACMC brings together machine operators, inspectors, quality control engineers, production engineers, and equipment suppliers to share technical knowledge on the operation of coordinate measuring machines (CMMs) and on the implementation of related international measurement standards. ACMC Annual Workshops are historically held in centres of clustered manufacturers in Canada that use CMMs in their manufacturing processes. Attendees are predominantly from automobile and aerospace sectors and presenters are CMM experts from around the world, mainly from other NMIs and universities.

In 2007, the ACMC Organizing Committee was asked by colleagues from NIST and CENAM to bring their annual workshop to Rochester, New York to ascertain the interest of participants outside Canada. Three conclusions were drawn.

• The goal of the ACMC fits the similar needs of the metrologists and technical people from the NAFTA countries: Canada, USA and Mexico.
• The three National Institutes, NIST, NRC, CENAM are ready to support the activity of a common North American organization based on the ACMC.
• Meetings could be jointly organized and held on a rotating basis in the three countries.

The newly elected executive of this non-profit organization reflects this international interest:

Dr. Greg Hetland, IIIGDT, USA - Chairman
Dr. Steve Phillips, NIST, USA - Vice Chairman
Dr. Miguel Viliesid, CENAM, Mexico - Vice Chairman
Mr. Kostadin Doytchinov, NRC, Canada - Vice Chairman
Mr. Gary Vale, Technical Measures, Canada - Secretary
Mr. Ian Kirk, Durham College, Canada - Treasurer
PROFICIENCY TEST FOR ELECTROLYTIC CONDUCTIVITY  
Jeff Gust

This proficiency test has been developed to verify the measurement capability of the participating laboratory for the parameter of Electrolytic Conductivity measurement and/or dissemination. The artifacts are an YSI 3200 Conductivity meter with a Thorton 240-214 Conductivity Cell, and a Yokogawa SC72 Conductivity Meter and Cell.

The artifacts have had reference values established at 0.055 S/cm, 5 S/cm and 147 S/cm by the Physikalisch-Technische Bundesanstalt (PTB) the National Measurement Institute of Germany. The artifacts are measured by comparison to two other conductivity meters before and after each participant in order to verify artifact stability. The 0.055 S/cm test point is optional, as is a 2 S/cm test point that will also be available to the participants to measure.

Participating Laboratories can validate:

• Their ability to calibrate electrolytic conductivity meters and cells
• Their ability to measure and produce conductivity fluids

Cost to Participate in Test: The majority of cost for this proficiency test has been sponsored by Abbott Laboratories. The only costs associated with the participants are shipping/insurance for the artifact package when shipping back to Quametec for pivot measurements.

Typical time allotted for measurement of artifacts: 5 days

Scheduling: Contact Quametec, <gust@quametec.com>, for scheduling and participation details.

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METROLOGY CONTACTS WITH PRC CHINA METROLOGY  
John Minck

Any editor of any publication gets an amazing flow of information, some directly related to the job at hand-NCSLI Newsletter-some related to our generic life work, metrology everywhere.

Here is an unsolicited letter from an organization in China which is already working with some U.S. metrology activities, Workplace Training. But he seems anxious to develop other contacts as well.

Dear Sir

It is my pleasure to introduce my organization, the Chinese Metrology Association, or CMA. It was established in 1992 and was approved by Ministry of Civil Administration. CMA is a non-profit professional organization with an independent legal status. Under the General Administration of Quality Supervision Inspection and Quarantine of the People’s Republic of China, and focusing on the metrology field. Meanwhile, the Developing Countries Measurement Technology & Products Information Network <www.dcmtpin1.org> has been sponsored by CMA with NIM, China.

CMA has a cooperation about introducing training, "Precision Measurement Training" with Workplace Training (WPT) USA. It will be conducting this training from 2008 to 2010, and it will have 5000 audience every year, 15000 audiences in three year, and the audiences from institute, university and company in measurement field over of China.

For promoting the Chinese audiences to learn American products and technology, it will have some ads and some technical papers from USA side which will be included in the training material. I think that the training will provide a channel into the Chinese market and learn products and technology in American Enterprises in Measurement.

I am looking forward to hearing from you soon.

Regards

Peng Jingyue, Chief  
International Department  
China Metrology Association (CMA)  
U.S. contact: Paul Hanssen, <phanssen@wptraining.com>
LIAISON NEWS

ACCREDITATION BODY LIAISON
Hershal Brewer, Liaison Delegate

A2LA - American Association for Laboratory Accreditation

Revision of the A2LA Newsletter

In June 2007, the A2LA newsletter was issued in its newly revised format. A2LA Today is scheduled for publication once a quarter, which is typically March, June, September and December. Through this publication, A2LA will communicate upcoming activities, updates to various policies and requirements, as well as the outcome of any meetings attended by A2LA. The next edition is scheduled for release in September 2007.

Some articles that may be of interest in the June issue are: Activities of the ILAC Arrangement Committee regarding recent activities with the International Laboratory Accreditation Cooperation and Are All National Measurement Standards Equivalent? written by Dr. Pedro Espina from the Bureau International des Poids et Mesures (BIPM). The latter article outlines the concept of traceability from the SI to the National Metrology Institute to Accredited Laboratories. The information detailed in this article outlines the basis for the A2LA Traceability Policy.

A2LA Launches Information Technology Accreditation Program

A2LA has developed a new Information Technology (IT) field of testing within our accreditation programs. Addition of this new field of testing provides the IT industry with a new and viable way to determine the technical competence of laboratories that test any aspect of the hardware and/or software within electronic equipment, not just the encryption functions. This type of testing can be physical, logical, virtual, or analytical. Laboratories accredited in this program are required to meet the requirements of ISO/IEC 17025:2005 as well as additional requirements documented in the A2LA Specific Criteria for the Accreditation of Various Types of Information Technology Testing Laboratories.

For additional information regarding this program, please contact Steve Medellin at 301 644 3228 or <smedellin@a2la.org>.

IAS International Accreditation Service

IAS participated in the development of the personnel certification of Assessors for ISO/IEC 17025. The Scheme has been developed by RABQSA in liaison with the Mexican accreditation body Entidad Mexicana de Acreditacion (EM), the Canadian Association of Environmental Analytical Laboratories (CAEAL), the Institute for National Measurement Standards National Research Council of Canada and the American-based International Accreditation Service (IAS).

The National Cooperation for Laboratory Accreditation (NACLA) honored IAS Vice President Patrick McCullen with a special service award for a decade of service working toward establishing a national laboratory accreditation system. NACLA, a not-for-profit corporation established in 1998 by public and private-sector organization representatives, provides coordination and focus for laboratory accreditation programs in the United States. IAS, one of the founding members of NACLA, continues to maintain NACLA recognition. As a past member of the NACLA Board of Directors, McCullen was instrumental in defining the organization's mission to accredit U.S. laboratory accreditation bodies.

IAS hosted Roslan Alias, Assistant Director, Accreditation Division, Department of Standards Malaysia (DSM), Ministry of Science, Technology and Innovation, Government of Malaysia on attachment training. During his visit, Roslan studied the U.S. inspection agency accreditation process, and received training on the infrastructure requirements needed to operate an accreditation program under ISO/IEC Standard 17020 requirements. IAS Director of Accreditations Raj Nathan defined the many processes and policies governing the IAS inspection body accreditation program, and walked Alias through the IAS system. Alias also accompanied IAS Accreditation Officer Sandi McCracken and Dave Palfini of Testing Engineers, Inc., to observe the steel fabrication inspection process in Utah. Alias also accompanied IAS Accreditation Officer Hershal Brewer and an inspector from SGS US Testing Co., to an inspection of wood-based products in Oregon.

IAS Accreditation Officer Hershal C. Brewer, CCT, contributed to an article Certified “Safe”? published in the June 2007 issue of Quality Digest. Brewer is quoted in the article, and provided a significant amount of supporting information to the article's author during the interview; including information that may be useful for consumers seeking safe products, information for manufacturers that are seeking laboratories to have products tested for safety, information on some of the many types of testing conducted, and sources for additional information.

For additional information regarding IAS or IAS programs, please visit <http://www.iasonline.org> or e-mail <hbrewer@iasonline.org>.

NVLAP - National Voluntary Laboratory Accreditation Program

NVLAP Launches e-Newsletter

NVLAP recently launched its redesigned newsletter - NVLAP News - in an electronic format. The newsletter is distributed to NVLAP laboratories and assessors via e-mail, and is available on this web site at: <http://www.nist.gov/nvlap> One of NVLAP's objectives for quality is to communicate frequently with customers and stakeholders to determine their accreditation needs and requirements. The new e-Newsletter is one means for fulfilling this objective. We are anxious to hear how you like the newsletter and whether it meets your informational needs!
APLAC - Asia Pacific Laboratory Accreditation Cooperation

Serving International Trade For 15 Years

In 2007, the Asia Pacific Laboratory Accreditation Cooperation Inc, known usually as "APLAC", celebrates its 15th Anniversary. Since its inception in 1992 and especially since the inaugural signing of the APLAC Mutual Recognition Arrangement (MRA) in 1997, APLAC has helped to serve international trade by reducing trade barriers and facilitating recognition of test, measurement and inspection reports issued by accredited laboratories through the APLAC MRA.

The culmination of APLAC's celebration of its 15th Anniversary will be at its General Assembly and associated meetings from 2-7 December, in Kuala Lumpur, Malaysia. APLAC's membership consists of organizations in the Asia Pacific region responsible for accrediting calibration, testing and inspection facilities, and reference material producers.

APLAC now boasts the successful establishment of a fully operational Mutual Recognition Arrangement (MRA) linking 26 accreditation bodies in 17 economies across the Asia-Pacific region. The economies are: Australia; Canada; Peoples Republic of China; Hong Kong, China; India; Indonesia; Japan; Republic of Korea; Malaysia; Mexico; New Zealand; The Philippines; Singapore; Chinese Taipei; Thailand; United States of America; Vietnam.

In the US, four accreditation bodies are signatories to the APLAC MRA. These are Assured Calibration Laboratory Accreditation Select Services (ACCLASS) (for testing and calibration), American Association for Laboratory Accreditation (A2LA) (for testing, calibration and inspection), International Accreditation Service (IAS) (for testing, calibration and inspection) and the National Voluntary Laboratory Accreditation Program (NVLAP) (for testing and calibration).

Mutual recognition means that each MRA signatory accepts the accreditations granted by the other signatories as equivalent to its own. This facilitates endorsed test, measurement and inspection reports from the exporting economy to be accepted in the importing economy, avoiding the need for re-testing, re-calibration or re-inspection, thus saving time and money. Regulators worldwide increasingly use accreditation (and the APLAC MRA network) as evidence of competence to carry out testing, measurement and inspection for mandatory purposes. APLAC is recognized by Asia Pacific Economic Cooperation (APEC) member economies as a Specialist Regional Body (SRB).

APLAC's principal objectives are to foster the development of competent laboratories, inspection bodies, and reference material producers in member economies, to harmonize accreditation practices in the region and with other regions, and to facilitate mutual recognition of test, measurement and inspection reports through the APLAC Mutual Recognition Arrangement.

To learn more about APLAC, please visit <www.aplac.org>

INTERNATIONAL ORGANIZATION OF LEGAL METROLOGY (OIML)

Charles Ehrlich, Liaison Delegate

Learn more about OIML at the OIML website at <http://www.oiml.org> and the NIST website at <http://www.nist.gov/owm> on the Internet. Dr. Charles Ehrlich, Group Leader of the International Legal Metrology Group (ILMG) U.S. CIML member, can be contacted at <charles.ehrlich@nist.gov> or at 301-975-4834.

Highlights of Selected OIML Activities

TC3/SC1 Pattern Approval and Evaluation

The subcommittee has approved the U.S. proposal for a combined revision of OIML D19 and D20 into a single document "Principles of metrological control of measuring instruments: type approval and verification.

The revised documents will incorporate recent developments such as the OIML certificate system, D27 "Initial verification of measuring instruments utilizing the manufacturer’s quality management system," and the "Framework for a mutual acceptance arrangement (MAA) on OIML type evaluations." Consideration will be given to the appropriate conformity assessment options, including quality systems, product certification, and accreditation, as well as information technology and statistical methods to increase or decrease verification intervals. For more information on this activity, contact Dr. Ambler Thompson at 301-975-2333 or at <ambler@nist.gov>.

TC 8/SC 1 "Static Volume and Mass Measurement" (Austria and Germany)

The Secretariat submitted 2 CD revisions in January 2006 for OIML R 71 "Fixed Storage Tanks," R 80 "Road and Rail Tankers," and R 85 "Automatic Level Gages for Measuring the Level of Liquid in Fixed Storage Tanks." U.S. comments, including those of the American Petroleum Institute, on all three of these documents were sent in April 2006. The Secretariat circulated a 3 CD for R 80 in November 2006 and a 3 CD of R 85 in December 2006. The U.S. submitted a vote and comments on these documents in February 2007, and a subcommittee meeting was held in March 2007 in Vienna, Austria. The 3 CD of R 71 was sent by the secretariat in July 2007. The next drafts of R80 and R85 are expected later in 2007. Please contact Ralph Richter at (301) 975 3997 or at <ralph.richter@nist.gov> if you would like copies of the documents or to participate in these projects.

TC 8/SC 3 "Dynamic Volume and Mass Measurement for Liquids other than Water" (United States and Germany)

OIML R 117 "Measuring Instruments for Liquids other than Water" has undergone an extensive revision, incorporating new instrument technologies and merging 2 other OIML Recommendations. This is a high priority project for OIML, and the U.S. is working closely with Canada, Germany, and the Netherlands on this effort. In October 2006, the CIML approved the merger of TC 8/SC 3 and TC 8/SC 4; the United States and Germany are now the co-secretariats of the combined TC 8/SC 3. OIML member nations have voted on the Draft Recommendation (DR) of R 117 1 by postal ballot with over 90% approval of the 34 nations that voted. Full CIML approval on R 117 1 is expected at the CIML meeting in October 2007. Work on R 117-2 "Test Methods" and R 117-3 "Test Report Format" has begun. If you have any questions, would like a copy of the R 117 1 draft recommendation, or would like to participate in the next phases of this project, please contact Ralph Richter at (301) 975 3997 or <ralph.richter@nist.gov>.
Liaison News

**TC 9 “Instruments for Measuring Mass” (United States)**

Now that the revision of R 76 “Non-automatic Weighing Instruments” is complete, the United States will likely send an inquiry in 2007 to TC 9 members about revising R 60 “Load Cells”. If you would like to participate in the revision of R 60, please contact Dr. Ehrlich at <charles.ehrlich@nist.gov> or by fax at (301) 975 8091.

**TC 9/SC 1 “Nonautomatic Weighing Instruments” (Germany and France)**

The revision of R 76 “Non-automatic Weighing Instruments” is of major importance to U.S. interests because the Recommendation serves as the foundation for a majority of the laws and regulations that govern weighing instruments around the world. The US National Working Group is considering proposals to harmonize Handbook 44 and R 76. The DR of R 76 1 was approved by the CIML in October 2006. Most recently, the United States voted “yes” on the DR of R 76 2 “Test Report Format.” For more information on these efforts, please contact Steve Cook at (301) 975 4003 or <steven.cook@nist.gov>.

**TC 17/SC 1 “Humidity” (China)**

The Secretariat (China) is working closely with the United States and a small international working group to review OIML R 59 "Moisture Meters for Cereal Grains and Oilseeds." A 4 CD was circulated to the IWG in August 2006. U.S. comments on the 4 CD were returned to the Secretariat in November 2006. A TC17/SC1 meeting is being hosted by NIST in September 2007. Please contact Diane Lee at (301) 975 4405 or at <diane.lee@nist.gov> if you would like to participate in this work group.

**Mutual Acceptance Arrangement (MAA) on OIML Type Evaluations:**

The full National Conference on Weights and Measures (NCWM) Board decided to accept the recommendation of the NTEP Committee and sign the Declaration of Mutual Confidence (DoMC) for OIML R 60 "Load Cells" as a utilizing member. The NCWM Board indicated no interest at this time in being a utilizing participant for OIML R 76 “Non-automatic Weighing Instruments.” The intent is instead to investigate various alternatives and determine if a laboratory can be established that will allow the NCWM to be an issuing participant in the DoMC for OIML R 76. It was clearly stated that this laboratory would have to be “viable” and that the NCWM must fully understand the effect such a signing may have on NTEP, existing NTEP labs, and our standards development process in the NCWM.

OIML TC 3/SC 5 will start revising both publication B 101 (MAA) and publication B 3 “OIML Certificate System for Measuring Instruments,” based on issues that have arisen and been discussed in the CPR and CIML meetings. A number of these issues were discussed at the 2006 Cape Town CIML meeting, and several MAA-related resolutions were approved at that time since it was agreed that decisions were needed before the revision process could be completed. TC 3/SC 5 is also circulating to its members for comment and vote a Draft Guide for the application of ISO/IEC 17025 to legal metrology and a 2 CD of the OIML Guide for the application of ISO/IEC Guide 65 to legal metrology.

For further information on the MAA and its implementation, please contact Dr. Charles Ehrlich at <charles.ehrlich@nist.gov> or at (301) 975 4834 or by fax at (301) 975 8091.

**IEST - INSTITUTE OF ENVIRONMENTAL SCIENCES AND TECHNOLOGY**

Bob Mielke, Liaison Delegate

On August 1st, IEST moved to new headquarters in Arlington Heights, Illinois. The new address is:

IEST

Arlington Place One

2340 South Arlington Heights Road, Suite 100

Arlington Heights, Illinois 60005-4516

Their new phone number is: 847.981.0100. IEST can still be found at: <www.iest.org>

The following IEST Recommended Practices were published recently:

- IEST-RD-DTE012.2: Handbook for Dynamic Data Acquisition and Analysis
- IEST-RP-CC013.2: Calibration Procedures and Guidelines for Select Equipment Used in Testing Cleanrooms and Other Controlled Environments
- IEST-RP-CC014.1: Calibration and Characterization of Optical Airborne Particle Counters

A new working group, WG-CC042, on Liquid-borne Particle Measurement for the Semiconductor Industry, has been organized and has started work on a document. Another working group, WG-PR003, HALT and HASS (Highly Accelerated Life Testing and Highly Accelerated Stress Screening), has also begun work.

IEST involvement at the international level continues. IEST is the Secretariat for ANSI of ISO Technical Committee (TC) 209, Cleanrooms and associated controlled environments, and there are two recently published documents: ISO Standard 14644-6: Vocabulary and ISO Standard 14644-8: Classification of airborne molecular contamination. IEST also is the Administrator of the US TAG for the ISO/TC 209.

IEST is the Administrator of the US TAG for ISO/TC 142, Cleaning equipment for air and other gases. Recently ISO/TC 142 produced the document, ISO/DIS 21220 Particulate air filters for general ventilation-Determination of the filtration performance.

IEST is also involved with developing standards and pushing forward the nanotechnology initiative, which includes its involvement with ISO/TC 229.

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**GERMAN ASSOCIATION FOR MEASUREMENT AND AUTOMATIC CONTROL—GMA**

Klaus-Dieter Sommer, Liaison Delegate

GMA is the VDI/VDE Society for Measurement and Automatic Control. Dr. Klaus Dieter Sommer is the NCSLI Liaison to GMA, and Dr. Gerald Gerlach is the President of GMA. Dr. Gerald Gerlach, GMA President spoke first and gave an overview of GMA with presentation graphics:
GMA is a joint society of the VDI Verein Deutscher Ingenieure (Association of German Engineers) and VDE Verband der Elektrotechnik Elektronik Informationstechnik (Association of Electrical Engineering, Electronics and Information Technology.)

GMA is comprised of 13,000 members with 1000 active members in some 80 topical working groups in 33 regional working groups within Germany. Gerald reviewed the history of the organization beginning with workgroup on flowmeters founded in 1928.

An important part of the organization is the technical committee structure (TC). Three of these deal with measurements: Fundamentals and Methods (TC-1), Sensors and Measuring Systems for Process Technology (TC-2), and Sensors and Measuring Systems for Production Technology (TC-3).

GMA activities include knowledge exchange and transfer, technical guidelines, conferences and workshops, publications, public rations and education.

Three Guideline Handbooks on measurement and automatic control are: Process Technology, Production Technology and Automatic Control.

He mentioned several highlights:

- IMEKO World Congress 1982
- IFAC (International Federation of Automatic Control) World Congress 1987
- European Control Conference 1999
- 50th anniversary of the IFAC in 2007
- They will hold the EUROSENSORS conference in Germany in 2008.

International Cooperations:

- National Member Organization in IFAC and IMEKO
- Cooperation Agreements with ISA, ISPE, MATE
- Contacts to and joint projects with EUCA, IEE, IEE, ÖGMA
- NCSLI

Dr. Sommer then spoke and gave his quarterly liaison report:

- The 67th meeting of the GMA Advisory Board took place in Baden-Baden, Germany on June 11, 2007.
- Klaus-Dieter moved to PTB Braunschweig in April 2007. He and Dr. Robert Schmitt of the Fraunhoffer Institute of Integrated Production Technology have joined the GMA Advisory Board.
- The Annual General Meeting with about 400 attendees took place June 12 13, 2007 in Baden-Baden in conjunction with the meeting of the Advisory Board. The GMA report may be viewed at <www.vdi.de/gma>.

GMA runs two departments related to measurement:

- Dptm 2: Sensors and measuring systems for process technology
- Dptm 3: Sensors and measuring systems for production technology

A Sensors and Measuring Systems conference will be held March 11-12, 2008 in Ludwigsburg and conducted in German.

The EUROSENSORS Conference will be held September 7-10, 2008 in Dresden.

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ASTM E36 COMMITTEE FOR LABORATORY AND INSPECTION AGENCY ACCREDITATION
Roxanne Robinson, Liaison Delegate


The committee is discussing the proposed inclusion of a note to ASTM E329 that would indicate that at some point in the future, there would be a requirement that construction material laboratories be accredited to ISO/IEC 17025 and that inspection agencies be accredited to ISO/IEC 17020. Further, the accreditation bodies that accredit these organizations would have to be signatories to the International Laboratory Accreditation Cooperation (ILAC), or optionally and only for inspection accreditation, the International Accreditation Forum (IAF).

ASTM E1187 on conformity assessment terminology is being concurrently balloted. There is a sister document still in draft that contains definitions related specifically to personnel certification.

ASTM E2159 on assessor qualifications is under revision and ASTM E1580 on the surveillance of accredited laboratories is under consideration for revision.

There are two new work items. A task group has been formed to establish a guide for determining general and specific criteria as it relates to ASTM E36 standards, and a task group chairman has been identified to lead new work on a guide for certification of construction materials testing personnel, to harmonize the certification requirements now present in the different standards.

The slate of nominees for ASTM E36 officers in 2008 has been established as follows:

Chairman: Mike Clark
1st Vice Chair: Roxanne Robinson
2nd Vice Chair: Leo Titus
Secretary: Bob Lutz
Membership Secretary: Jay Ponce
Members at large: Howard Elbaum, Rock Vitale, Jeff Cannon, Chris Robinson

ASTM E36 will meet again in Tampa, Florida on December 3 and 4, 2007.

*******

ISA INTERNATIONAL
Mike Suraci, Liaison Delegate

I have continued to forward ISA announcements to interested NCSLI Board members. Most of these are related to Education & Training. I have added Phil Smith to my Training distribution.

Also, Jesse Morse has received promotional ideas I forwarded from an ISA mailing.

Further information can be provided upon request. I still find it interesting to see the similarities between the operations of ISA and NCSLI.
Liaison News

INTERNATIONAL MEASUREMENT CONFEDERATION-IMEKO
Chester Franklin, Liaison Delegate

Here are a number of symposia and conferences held or to come by IMEKO committees in 2007. For more information or registration, NCSLI members can go to <www.IMEKO.org>


September 19-21, 2007; Iasi, Romania: 15th Symposium on Novelties in Electrical Measurements and Instrumentation, 12th Workshop on ADC Modeling and Testing 1st Symposium on Environmental Instrumentation and Measurements

November 19-21; Tsukuba, Japan: HARDMEKO 2007 - Symposium on Recent Advancements in the Theory and Practice of Hardness Measurement

November 21-24, 2007; Chennai/Madras, India: 9th Symposium on Measurement and Quality Control in Manufacturing


AMERICAN SOCIETY FOR QUALITY (ASQ) MEASUREMENT QUALITY DIVISION (MQD)
Christopher L. Grachanen, Liaison Delegate

CCT Program Update

The American Society for Quality (ASQ) Measurement Quality Division (MQD) is pleased to announce that the Certified Calibration Technician (CCT) exam can be proctored on military bases having education offices that are authorized to administer Dantes tests (ASQ’s other certification exams may also be proctored). The steps to apply for taking an exam are as follows:

1. Active military personnel, government employees and civilian contractors interested in taking the CCT exam should first verify that their education office is authorized to administer Dantes tests.

2. (After verifying Step # 2) personnel should obtain the following contact information:
   - Name and location of the military base
   - Name of person to proctor the exam
   - Name of person requesting the exam
   - Phone numbers for above
   - Addresses for above
   - E-mails (as applicable) for above

3. Contact information and exam application (see below) should be sent to Betty File <bfile@asq.org> her phone number is 414-272-8575 ext 7748 (exam fee should also be sent at this time).

4. ASQ will contact the person that will be proctoring the exam and provide instructions and the exam.

Information on ASQ’s CCT program can be found at: <http://www.asq.org/certification/calibration-technician/index.html>

CCT exam application information may be found at: <http://www.asq.org/certification/calibration-technician/apply.html>

Information on other ASQ certification programs can be found at: <http://www.asq.org/store/training-certification/>

Note: If you are an active member of the U.S or Canadian military, you are eligible for a discounted exam fee. You must submit a copy of your military ID when you apply. ID cards should be faxed to 414-298-2500. Your application will be placed on hold until a copy of your ID card is received.

*********

JOINT TECHNICAL COORDINATING GROUP FOR CALIBRATION AND MEASUREMENT TECHNOLOGY (JTCG-CMT)
Arman Hovakemian, Liaison Delegate

The DOD established the Joint Technical Coordinating Group for Calibration and Measurement Technology (JTCG-CMT) over 30 years ago to improve interservice coordination and cost reduction/avoidance of measurement technology and calibration operations throughout the Services.

Work by the JTCG-CMT is progressing in the following areas.

1. Memorandum of Understanding (DoD-DoC).
   a. To accomplish the research and development of new calibration standards, the JTCG-CMT works closely with the National Institute of Standards and Technology (NIST) through a Memorandum of Understanding (MOU) signed between the Department of Defense (DoD) and the Department of Commerce (DoC). An update of the MOU has been signed by NIST (for the DoC) and sent to the Office of the Assistant Secretary of Defense for signature by the DoD. The MOU establishes an agreement between the DoD and the DoC (NIST) to define interagency working relationships on matters of liaison and technical cooperation and support.

2. JTCG-CMT coordinated projects at NIST.
   a. Pulsed power detector upgrade for 1.5 µm eye-safe laser systems to extend power range from 1 µj to 30µj @ 1% uncertainty. Expected to be completed this year.
   c. Spectral temperature measurement system was transferred from NIST to the Navy Primary Standards Laboratory. The transfer completed the effort by the Navy to shift primary black body calibration from a radiometric to a spectral methodology.

   a. Very short haul Multi-Mode (MM) Optical Time Domain Reflectometer (OTDR) passive calibrator for Fiber Optic (FO) avionic systems
   b. Medium haul MM & Single Mode OTDR passive calibrator for FO ship and land information systems (ref: IEC 61746 Calibration of Optical Time-Domain Reflectometers (OTDR))
   c. Dual wavelength radiometer for calibration of pulsed power sources at 1.06 µm and 1.5 µm.
NEW NCSLI MEMBERS

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Lansdale, PA 19446
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Steve DeSmedt
(610) 287-3433

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Lexington Park, MD 20653
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(301) 737-1909
IOT Systems, LLC
Williamsport, MD 21795
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Steven L. Teller
(240) 215-1200

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Alpharetta, GA 30005
Member Delegate:
Michael Alfred
(678) 965-4659

NORTH CENTRAL US REGION
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Member Delegate:
Peter McCullar
(763) 546-8575

CENTRAL CA/NV REGION
Equipment Management Technology
Las Vegas, NV 89119
Member Delegate:
Charles A. Motzko
(702) 459-1700

SOUTHWESTERN US REGION
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Irvine, CA 92618
Member Delegate:
Lawrence Winn
(949) 454-6603

INTERSTATE ELECTRICAL CORP.
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Member Delegate:
Chuck Greiner
(714) 758-3475

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Alaska Calibration, Inc.
Anchorage, AK 99517
Member Delegate:
Edward P. Young
(907) 677-1993

INTERNATIONAL REGIONS
CARIBBEAN
Trinidad & Tobago Bureau of Standards
Port of Spain, Trinidad & Tobago
Member Delegate:
Theodore Reddock
868-662-8827 x230
Their job is done. Admirably! But I wanted to publish this list one more time in recognition and appreciation for those conference committee volunteers and their fine accomplishments.

2007 NCSL INTERNATIONAL WORKSHOP & SYMPOSIUM
July 29 - August 2, 2007  St. Paul, MN

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<td>ANSI/NCSL Z540-1-1994 (R2002) (Calibration &amp; Measurement &amp; Test Equip. General Requirements)</td>
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<td>ANSI/NCSL Z540-2-1997 (R2002) (U.S. Guide to the Expression of Uncertainty in Measurement)</td>
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<td>RP-7 &quot;Laboratory Design&quot;</td>
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<td>RP-8 &quot;An Individual Equipment Evaluation Guide&quot;</td>
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<td>LM-2 Acronym and Abbreviations List</td>
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<td>LM-5 Benchmarking Survey 1999, 2001, 2003, or 2005</td>
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<td>T-02 The Metrology Handbook</td>
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<td>T-03 Managing the Metrology System (3rd Ed.)</td>
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<td>T-04 The Uncertainty of Measurements: Physical and Chemical Metrology Impact and Analysis</td>
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<td>2006 (CD-ROM only)</td>
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Purchase Orders: Refer to the NCSLI Publications list for pricing information. Your purchase order may be mailed or faxed to the NCSLI Business Office. Please be sure to include complete shipping and billing information. Non-Member Purchase Orders will have shipping cost added to the purchase order unless we are contacted for charge. No phone orders.

Payment by check: Please remit payment with order (in US funds only). Make checks payable to NCSL International.

Shipping: Member prices include shipping to US locations via US Mail or UPS Ground. Non-Member and Overseas orders are sent via US Mail, UPS Ground, or by using an alternate courier service. Contact the NCSLI Business Office for rates before placing order.

Credit Card Payment:  
Charge: _____ Visa _____ MasterCard _____ American Express

Full name of Card Holder as it appears on card: __________________________

Card Number: __________________________ Expiration Date: __________________________

Date: __________________________ Signature: __________________________

Credit Card Receipt:  
Please check one: _____ Enclose with shipment _____ Fax to: __________________________

NCSLI International Use Only:  
Check No. & Date: __________________________ Credit Card Approval No. & Date: __________________________

Date shipped: __________________________ Via: __________________________ Order filled by: __________________________
NEWSLETTER EDITORIAL SCHEDULE FOR 2008

This will be the last NCSLI Newsletter published with that name. The new “Metrologist” magazine will begin with the January 2008 issue. To submit articles or information for “Metrologist,” contact Linda Stone at the NCSLI Business Office (contact information at left).

FUTURE CONFERENCES

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

2009 NCSL International Workshop & Symposium
July 26-30, 2009
San Antonio, TX

2010 NCSL International Workshop & Symposium
July 25-29, 2010
Providence, RI

2012 NCSL International Workshop & Symposium
July 29-August 2, 2012
Sacramento, CA

2014 NCSL International Workshop & Symposium
August 3-7, 2014
Orlando, FL

BOARD OF DIRECTORS’ MEETING DATES

October 22-24, 2007
Providence, RI
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.

2007 Wildhack Award Winner

Dr. Charles Ehrlich, NIST (c)