

In cooperation with



**NCSL
INTERNATIONAL**
Serving the World of Measurement



The 4th International Conference on Metrology

Measurement and
Testing in the
Service of Society



The Israeli Metrological Society (IMS)

May 22-24, 2011
Ramada Hotel
Jerusalem, Israel

Second Announcement
and Program



www.isas.co.il/metrology2011

Dear Colleagues,

The 4th International Conference on Metrology, organized by the Israeli Metrological Society (IMS) in collaboration with NCSL International, CITAC and the Israel Analytical Chemistry Society, will take place in Jerusalem on May 23-24, 2011.

The goal of this international conference is to enable participants to share their experience and expertise in calibration, measurement and testing, develop fresh insights and meet colleagues from other countries. The conference is therefore being designed to facilitate fruitful interactions between laboratory managers, scientists who carry out calibrations and/or measurements, quality managers from industry including medical systems, policy makers and academicians. We are sure that such interaction will increase understanding between metrologists and their customers.

The conference theme is: "Measurement and Testing in the Service of Society." We will concentrate on the impact of measurements, calibrations and testing on all aspects of daily life, thus ensuring that the conference will have a strong practical focus.

It is my pleasure and privilege to invite you to take part in this 4th International Conference by submitting abstracts dealing with any area of metrology, to be an active partner in a challenging endeavor and to contribute to its success.

The conference will be held in Jerusalem, Israel's capital and heart of the world, the city that enchants and fascinates people of all religions and nationalities. Israel's unique atmosphere of a modern vibrant society living alongside the architecture, museums and sites of 3000 years of history since the time of King David is guaranteed to provide you with an unforgettable experience.

I look forward to welcoming you and your colleagues in Jerusalem in May.

Dr. Orna Dreazen

Chair, IMS and Conference

› **Organizing Committee**

Orna Dreazen, Nextar, Chair

Gila Elkobi, Isotop

Etty Feller, ISRAC - Israel

Laboratory Accreditation Authority

Berta Iosefzon, Teva

Boris Katz, Israel Electric Corp.

Ilya Kuselman, The National Physical

Laboratory of Israel (INPL)

Ilan Landesman, ISRAC - Israel

Laboratory Accreditation Authority

Alex Lepek, Newton Metrology

Sigalit Mudahi, Hadassah - Hebrew
University Medical Center

› **Topics**

- Trends in metrology
- Measurement methods and their validation
- Measurement and test (analytical) method transfer
- Use of measurement uncertainty by industry
- Uncertainty in electric measurements and testing
- Uncertainty arising from sampling - how to estimate
- Measurement uncertainty - discussing with the customer
- Metrological traceability
- Traceability of medical laboratories' results
- Issues raised between measuring and calibration laboratories
- Effect of quality results on the decision making process
- Conformity assessment
- Interlaboratory comparisons - what can be learned?
- Legal metrology

- Software for metrology
- Ethical problems in metrology
- Accreditation of measurement and calibration laboratories

› **Who Should Participate?**

- Laboratory managers and personnel
- Quality managers from industry and laboratories
- Electrical engineers and electrical test engineers
- Medical laboratory specialists
- Regulators
- Researchers

› **Fields**

- Medical
- Food
- Calibration
- Environmental quality
- Anti-doping
- Physics
- Agriculture
- Chemistry
- Microbiology
- Energetics, Electricity, Power Electronics

› **Abstracts**

Abstracts of 200-400 words are welcomed for oral and poster presentations. They should be submitted in WORD format to the secretariat before March 15, 2011 by email to: congress@isas.co.il and by fax to: +972-2-6520558 Presenters will be notified of acceptance of their abstract by March 31, 2011.

Program

Monday, May 23, 2011

08:30 Registration

09:00-10:15 Opening Plenary

Greetings

The Benefits to Industry and Society of Improved Uncertainties for Calibration Services

R. Davis, International Bureau of Weights and Measures (BIPM), France

Warning: False Sense of Certainty from the Illusion of Precision in Measurements

M. Brezis, Hadassah Medical Organization, Israel

About NCSL International

S. Sidney, NCSL International, South Africa

10:15-10:45 Coffee break

10:45-12:30 Parallel Sessions

Hall A

Physical Measurements

Chair: Dr. Alex Lepek, Newton Metrology, Israel

Buoyancy Effect and its Uncertainty

D. Louvel, B. Baute, C. Barbier, M.D. Blanchin, M.C. Bonenfant, X. Dua, R. Dybiak, C. Lebranchu, M. Vandenhende, STP Pharma Pratiques, France

Calculation of Expanded Uncertainties of Instrumental Neutron Activation Analysis Methods for the Measurement of Arsenic Levels in Shellfish

A. Chatt, R. Acharya, Dalhousie University, Canada

National Standard of Luminous Intensity of the Republic of Belarus. Colorimetric Facility

O.N. Lysenok, S.W. Nikonenko, D.V. Scums, O.B. Tarasova, Belorussian State Institute of Metrology, Belarus

How Depolarization and Incoherent Scattering Influence Results Obtained in Thin Film Metrology

J. Jaglarz, Institute of Physics Cracow University of Technology, Poland

Hall B

Measurement Quality Assurance

Chair: Dr. Dan Tholen, Dan Tholen Statistical Consulting, USA

Keynote Lecture: ISO/IEC 17043: Interpretation of Results and Their Use

D. Tholen, Dan Tholen Statistical Consulting, USA

Inter-laboratory Comparison Study of Stylus Instrument Calibration

J. Buajarern, T. Somthong, A. Phuaknoi, A. Tonmueanwai, National Institute of Metrology, Thailand

Consensus and Metrological Approaches in Proficiency Testing and a Problem of a Limited Number of Participants

I. Kuselman, The National Physical Laboratory of Israel (INPL), Israel, A. Fajgelj, International Atomic Energy Agency (IAEA), Austria

Interlaboratory Comparisons of Some of Transformer Oil Tests Between 19 Laboratories

M. Grisaru, Israel Electric Corp., Israel

12:30-13:30 Lunch

13:30-15:15 Parallel Sessions

Hall A

Legal Metrology

Chair: Dr. Alan Johnston, International Committee of Legal Metrology, Canada

Keynote Lecture: *Increasingly Important Role of Metrology in Road Safety Law Enforcement*

A. Johnston, International Committee of Legal Metrology, Canada

Traceability System for Breath-alcohol Measurements – A Review

M. Epstein, The National Physical Laboratory of Israel (INPL), Israel

Israeli Transport Regulation Regarding Alcohol Concentration by Breath Analyzes and Uncertainty Estimation

E. Sharon, ISRAC - Israel Laboratory Accreditation Authority, Israel

Legal Metrology

M.A. Mbunda, Weights and Measures Agency (WMA), F.C. Kahimba, Sokoine University of Agriculture, Tanzania

Calibration of Bulk Oil and Liquid Storage Tanks by Using Optical Reference Line Method

I.J. Kisamo, Tanzania Bureau of Standards (TBS), Tanzania

Hall B

Method Validation

Chair: Ety Feller, ISRAC - Israel Laboratory Accreditation Authority, Israel

Integration of Standard Microbiological and Molecular Methods Beyond Regulatory Requirements in PIF Screening for Cronobacter Species

S. Ohad, R. Breuer, Z. Dveyrin, E. Rorman, National Public Health Laboratory, Israel

Why Should Testing and Calibration Laboratories Talk to Each Other?

S. Sidney, National Laboratory Association, South Africa

Testing Evaluation of Uncertainty Values of The Results in an Accredited Analytical Laboratory

P. Kornhauser, B. Katz, P. K. Calibration & Consulting Labs, R. Sheinman, A. Lisenker, Public Health Laboratory, Israel

Strategy Choice in Control of Measurements Stability

V.I. Dvorkin, Russian Academy of Science, Russia

Some Metrological Aspects of the Comparison Between Two Ordinal Measuring Systems

E. Bashkansky, T. Gadrich, D. Knani, Ort Braude College, Israel

15:15-15:30 Coffee Break

15:30-16:30 Panel: Legal Metrology in Commemoration of Nir Gershoni and Amikam Levin

Chair: Dr. Orna Dreazen, Nextar Chempharma Solutions, Israel

Participants:

Alan Johnston, President, International Committee of Legal Metrology, Canada

David Kolker, Lawyer, David Kolker and Associates, Israel

Arie Neiger, Lawyer, Arie Neiger Law Offices, Israel

Yitzhak Kimchi, Ministry of Industry, Trade and Labor, Israel

Ety Feller, General Manager, ISRAC - Israel Laboratory Accreditation Authority, Israel

Steve Sidney, Director, National Laboratory Association, South Africa

Elazar Zadok, Former Director of Division of Identification and Forensic Science of Israeli Police, Israel

16:30-17:15 Plenary

How Legal Metrology Helps Countries Succeed in the Global Marketplace

A. Johnston, International Committee of Legal Metrology, Canada

Tuesday, May 24, 2011

08:30 Registration

09:00-10:00 Plenary

Metrological Concepts Required for Food Safety and Quality Testing

F. Ulberth, Institute for Reference Materials and Measurements of the European Commission
Joint Research Centre, Belgium

10:00-10:30 Coffee break

10:30-12:15 Parallel Sessions

Hall A

Calibration Measurement Uncertainty

Chair: Ilan Landesman, ISRAC - Israel
Laboratory Accreditation Authority, Israel

Extending Recalibration Interval Estimates Based on the Number of Uses

A. Lepek, Newton Metrology, Israel

Force Metrology at KEBS

J.O. Bangi, Kenya Bureau of Standards,
Kenya

Uncertainty at Comparison of the National Standard of Electric Capacitance

T. Sasnouskaya, Belorussian State Institute
of Metrology, Belarus

A Binary Balanced Bridge for Measuring Four-terminal Resistors

Z.I. Zelikovskiy, International Society of
Instrument Industry and Metrologists,
Russia

The Challenge of Implementing the GUM and its Supplements - The View from Inside an Industrial Laboratory

S. Sidney, National Laboratory Association,
South Africa

Hall B

Measurement Uncertainty in Testing

Chair: Dr. Ilya Kuselman, National Physical
Laboratory of Israel (INPL), Israel

Uncertainty Evaluation and in House Method Validation of the Herbicide Iodosulfuron-Methyl-sodium in Water Samples by Using HPLC Analysis

A. Drolc, A. Pintar, National Institute of
Chemistry, Slovenia

Wastewater Treatment: Ranking of Coagulants Using Partial Order Theory

E. Tzfati, M. Sein, A. Rubinov, A. Bick, Shenkar
College of Engineering and Design, E.H.
Cohen, Bar-Ilan University, Israel

Evaluation of Measurement Uncertainty in the Determination of Trace Levels of Uranium by Radiochemical Neutron Activation Analysis

L. Benedik, Jožef Stefan Institute,
U. Repinc, Municipality of Idrija, Slovenia

Losses of Cr Content in Plant Samples Using Digestion Procedures with Acids

R. Jačimović, Jožef Stefan Institute, Slovenia,
M.A.B.C. Menezes, CDTN/CNEN, Laboratory for
Neutron Activation Analysis, Brazil, G.
Kennedy, Ecole Polytechnique, Canada, P.
Vermaercke, SCK-CEN, Belgian Nuclear
Research Centre, Belgium

Substantiated Quantitative Criteria for a Measurement Uncertainty Evaluation

D. Kisets, The National Physical Laboratory of
Israel (INPL), Israel

12:15-12:45 Poster Session

12:45-13:45 Lunch

13:30-13:45 General Assembly of the Israeli Metrological Society (IMS)

13:45-15:30 Parallel Sessions

Hall A

Validation of Calibration

Chair: Dr. Orna Dreazen, Nextar Chempharma Solutions, Israel

Validation of Calibration Methods

What is Sufficient and Necessary?

A. Lepek, Newton Metrology, O. Dreazen, Nextar Chempharma Solutions, Israel

Validation of Calibration Methods

D. Kruh, RAFAEL - Advanced Defense Systems, Israel

Validation of Calibration Procedures in Accredited Laboratory

P. Kornhauser, B. Katz, P. K. Calibration & Consulting Labs, Israel

Expanding the Capability of the Metering Laboratory

M. Shalomygin, I. Gueta, Israel Electric Corp., Israel

ISRAC Policy on Validation of Calibration Methods

I. Landesman, S. Jacobson, ISRAC - Israel Laboratory Accreditation Authority, Israel

Hall B

Measurement Quality: Effect on Decision Making

Chair: Dr. Hilla Ben David, ISRAC - Israel Laboratory Accreditation Authority, Israel

The Importance of INPL Time and Frequency Standard for Industry

N. Goldovsky, The National Physical Laboratory of Israel (INPL), Israel

Qualitative QC for Molecular Epidemiology Methods in the Mycobacterium Reference Lab

P. J. Freidlin, D. Goldblatt, H. Kaidar-Shwartz, National Mycobacterium Reference Laboratory, Z. Dveyrin, E. Rorman, National Public Health Laboratory, Israel

Out-of-specification Test Results in Evaluation of Long-term Stability Data of Drug Products

I. Kuselman, National Physical Laboratory of Israel (INPL), I. Schumacher, IDF, Israel, F. Pennechi, National Institute of Metrological Research (INRIM), P. de Zorzi, National Environmental Protection Institute, Italy, C. Burns, Food and Drug Administration (FDA), USA, A. Fajgelj, International Atomic Energy Agency (IAEA), Austria

15:30-15:45 Coffee Break

15:45-16:45 Plenary

Proposed Changes to the International System of Units (SI): Motivations and Consequences

R. Davis, International Bureau of Weights and Measures (BIPM), France

Posters

Some Metrological Aspects of Ordinal Data Treatment

E. Bashkansky, T. Gadrich, Ort Braude College, Israel

Some Metrological Aspects of Ordinal Measurements

E. Bashkansky, T. Gadrich, Ort Braude College, Israel

Basic Physical Units, Their Derivative Values and Calibration-Mathematical and Metrological Aspects

O. Ben Lulu, Ort Braude College, B. Katz, P. K. Calibration & Consulting Labs

Calibration of Length Parameters in Accredited Laboratory

Z. Ben Shmuel, Ort Braude College, B. Katz, P. K. Calibration & Consulting Labs, Israel

Ethanol as Internal Standard for Determination of Volatile Compounds in Spirit Drinks by Gas Chromatography

S.V. Charapitsa, S.M. Bychkov, A.N. Kavalenka, N.V. Kulevich, N.M. Makoed, A.L. Mazanik, Research Institute for Nuclear Problems of Belarusian State University, Belarus, I. Jarmalaite, R. Golubevas, National Food and Veterinary Risk Assessment Institute, Lithuania

A Monte Carlo Approach for Estimating Measurement Uncertainty Using Standard Spreadsheet Software

G. Chew, T. Walczyk, National University of Singapore (NUS), Singapore

A Modelling Approach to the Estimation of Analytical Measurement Uncertainty for Determination of Acetate in Vinegar by Using Ion Chromatography

A. Drolc, A. Pintar, National Institute of Chemistry, Slovenia

Calibration and Measurement Capabilities of the INPL Reference Standards of pH Value and Electrolytic Conductivity

E. Kardash, The National Physical Laboratory of Israel (INPL), Israel

Calibration and Measurement Capabilities of INPL in the Field of Mass Measurement

E. Kiselgoof, I. Paperno, I. Victorov, System Advanced Laboratories, Israel

Scarce Measurement Traceability in the Calibration of Length Standards, And the Way of Problem Solving

D. Kisés, G. Tsirulnikov, The National Physical Laboratory of Israel (INPL), Israel

Synthesis and Characterization of "Naked" Gold Nanoparticles

G. Merga, N. Saucedo, Andrews University, L.C. Cass, J. Puthussery, D. Meisel, University of Notre Dame, USA

A new Surface Plasmon Resonance Technique for Precision Measurements of Impurity Concentration and Thickness in Optically Transparent Thin Films

O. Popov, System Advanced Laboratories, Israel

Conformity Assessment in Radioactivity Measurements

D. Riekstina, J. Berzins, O. Veveris, University of Latvia, Latvia

Evidence Based Laboratory Medicine

Do Doctors Use laboratory Results Prior to Treatment of Patients?

A. Wekesa, Kenya Bureau of Standards, Kenya

Improvement of Quality Infrastructure (QI) for Agricultural Products With Emphasis on Strengthening the Competency of Pesticide Residue Testing Laboratories

C. Yafa, C. Cherdchu, P. Totarong, National Institute of Metrology (Thailand) (NIMT), Thailand

➤ **Pre Conference Workshop Interpreting PT Results** May 22, 2011

Daniel William Tholen

Price: \$150

Goal: provide laboratories with tools to help them use PT for self assessment and improvement.

Topics

- Using our lab's results
- Using information contained in PT reports
- Cautions about interpretations:
 - Traceability of assigned values
 - Matrix Performance specifications - fitness for what purpose
- What PT cannot do:
 - Basis of uncertainty estimates
 - Assure ongoing quality

Workshop structure

Brief presentation based on actual PT studies with group discussions on basic topics:

- Assigned values: reference or consensus?
- Performance criteria: fit-for-purpose or consensus?
- Statistical methods (fundamental - individual, robust, outliers)

We will use examples from current PT, APLAC, IRMM studies

Participants will be invited to present studies they have been in, or to review how their laboratories use PT data.

Schedule

Session I

Introduction

Lecture on data analysis fundamentals:

- Determining assigned value
- Performance statistics
- Performance evaluation

Basic tools

I. Use your lab's PT results to:

- Assess bias
- Assess performance of my measurement procedure
- Assess performance of my measurement method
- Verify uncertainty estimates
- Track my performance, and assure acceptable performance in future PT

II. Use information in PT reports to:

- Compare methods
- Verify performance claims for methods (reproducibility, repeatability, trueness)
- Establish or investigate metrological traceability

Examples from current studies

Discussion

Session II

4 sample reports distributed to participants (different fields of measurement), to practice the basic tools

Group discussion and presentation

Session III

Choosing an appropriate PT scheme

Creating a PT plan

Comments and discussion

› Plenum Lectures

- The Benefits to Industry and Society of Improved Uncertainties for Calibration Services
- Proposed Changes to the International System of Units (SI): Motivations and Consequences

Richard Davis, International Bureau of Weights and Measures (BIPM), France



Richard Davis was educated in the United States, receiving his Bachelor's degree in Physics from Brown University in 1967 and his Ph.D. in Solid State Physics from the University of Maryland in 1972. He went to the National Institute of Standards and Technology (NIST) as an NRC post-doc, where he joined a team that produced what remains the most accurate direct determination of the Faraday constant, the fundamental constant of electrochemistry. In due course he joined the mass group at NIST. He was NIST delegate to the Consultative Committee for Mass and Related Quantities (CCM). Before leaving NIST in 1990 to take a post at the International Bureau of Weights and Measures (BIPM), he worked with Mike Moldover's team in a measurement of Boltzmann's constant to unprecedented accuracy.

At the BIPM, he eventually became Director of the Mass Department and Executive Secretary of the CCM. He retired in 2010 but maintains close ties to the BIPM as a consultant. He has authored or co-authored many articles on various aspects of mass metrology and fundamental constants. He was elected a Fellow of the American Physical Society in 1992.

Legal Metrology

Alan Johnston, President, International Committee of Legal Metrology, Canada



Mr. Alan Johnston has over 35 years of Canadian federal government experience where he has held various and increasing senior managerial positions in areas as diverse as Statistics Canada and Consumer and Corporate Affairs Canada.

In April 1994, Mr. Johnston was appointed President of Measurement Canada, the federal agency responsible for the accuracy of trade measurement in Canada.

Measurement Canada administers both the *Weights and Measures Act* and the *Electricity and Gas Inspection Act*.

Mr. Johnston has represented Canada on the Comité Internationale de Métrologie Légale (CIML) since 1994 and has been a member of the Organisation Internationale de Métrologie Légale (OIML) Presidential Council since 2001. In 2005, Mr. Johnston began his six year term as President of the CIML. He is the first non-European to hold this position since its inception over fifty years ago.

Food Safety and Metrology

Prof. Franz Ulberth, Institute for Reference Materials and Measurements of the European Commission Joint Research Centre, Belgium



Franz Ulberth received his Ph.D. in Food Science and Biotechnology from the University of Applied Life Sciences in Vienna, Austria. In 1994 he was appointed professor in Food Chemistry at the same university. He has more than twenty years' experience in food safety related research and the application of metrological principles in chemistry. He joined the European Commission in 2002 to take up responsibility for the development of food and environmental reference materials at the JRC Institute for Reference Materials and Measurements (IRMM) in Geel, Belgium. In 2007 he was appointed Head of the Food Safety and Quality Unit at the IRMM. He serves as a member of the TC 275 (Food Analysis) of CEN, the Organic Analysis Working Group of the CIPM Consultative Committee for Amount of Substance - Metrology in Chemistry and convenor of the Organic Analysis Sub-Committee of EURAMET-METCHEM. Prof. Ulberth has authored more than 100 technical and review articles published in international journals as well as several contributions to books. He is editor of the international journals *European Journal of Lipid Science* and *Technology and Food Chemistry*.



Daniel William Tholen

Consultant and owner, Dan Tholen Statistical Consulting, USA

Daniel Tholen has had 30 years experience as a biostatistician, working for the US Centers for Disease Control and Prevention, the College of American Pathologists and the National Institute for Burn Medicine, now for his own company.

He is also a Technical Consultant, Lead Assessor, and Trainer, for the American Association for Laboratory Accreditation (A2LA) regarding Proficiency Testing Providers (ISO/IEC 17043) and for Reference Material Producers (ISO Guide 34), and statistical methods; a consultant for various governmental and private organizations involved with proficiency testing, reference material production, development of measurement methods, and laboratory accreditation; and a trainer in technical standards for PT, RM: statistical techniques, and measurement uncertainty.

Mr. Tholen also holds appointments as a Liaison from the International Laboratory Accreditation Cooperation (ILAC) to ISO Technical Committee 69 (Application of Statistical Methods) and a convener, ISO TC69/SC6/WG9 on the revision of ISO 13528: Statistical methods for Proficiency testing by inter laboratory comparison.

His standards development activity includes work for the:

- Asia Pacific Laboratory Accreditation Cooperation (APLAC) - Chairman, Proficiency Testing Committee, 2009-2010.
- ISO - Convener, CASCO Working Group 28 on Proficiency Testing for the revision of ISO/IEC Guide 43-1 and 43-2 as ISO/IEC 17043 Conformity Assessment - general requirements for proficiency testing, completed 2010.
- Clinical and Laboratory Standards Institute (CLSI, formerly NCCLS) Member, Advisor, Chairman of various committees for development of consensus standards for medical laboratories, in the areas of method evaluation protocols and quality management systems.
- American Society for Testing and Materials (ASTM) – standards for statistical techniques and method evaluation and conformity assessment
- CITAC – Member, admitted 2010.

מחירי השתתפות לכינוס/סמינר:

המחירים לעיל כוללים: כניסה למושב, חומר הכינוס, ארוחת צהריים והפסקות קפה.	3 ימים	יומיים	יום	תשלום עד 1.5.11
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ת"ד 34001, ירושלים 91340

טל: 02-6520574; פקס: 02-6520558

דואר אלקטרוני: register@isas.co.il

שם משפחה שם פרטי

מקום עבודה

נא למלא את הפרטים הבאים באנגלית:

Family Name

First Name

Email

Workplace

Mailing Address home work:

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Postal Code

Tel

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אשתף ב: 23.5 24.5 22.5 סמינר

פירוט לתשלום:

דמי הרשמה

מצ"ב המחאה לפקודת איסס ארגון כנסים

נא לחייב את כרטיס האשראי

תוקף

מספר

תאריך

חתימה