

SI2 IMPROVEMENT IN ELECTRICAL STANDARDS

Chairman: Luc ERARD - LNE (France)

- 9:00 ■ Progress on the Thompson-Lampard calculate capacitor project at BIPM
Mr GOURNAY, Mr FLETCHER, Mr ROBERTSSON, Mr STOCK - BIPM / France
- 9:25 ■ Evaluation of measurement uncertainty for measurement of piezoelectric properties using the resonance method
Mr WEAVER - NPL / United Kingdom
- 9:50 ■ Calibration of the static and dynamic performances of PMUs
Mr BRAUN - METAS / Switzerland
- 10:15 ■ Improvement of the measurement chain linking the Farad to the Ohm
Mr SINDJUI - LNE / France & all
- 10:40 ■ Efficient and effective configuration and calibration of smart instruments and management of smart instrument data
Mr MAXFIELD, Mr BOUBAY - Beamex / France

11:05  11:35

SI3 TRENDS IN COORDINATE MEASUREMENT

Chairman: Alain GUERDAT - Montres Rolex (Switzerland)



- 9:00 ■ Application of lean manufacturing concepts in the metrology room of an engine manufacturing workshop
Mr BONZON - PSA / France
- 9:25 ■ Typology and design of coordinate measuring machines: updating the bibliography
Mr COOREVITS, Mr RYELANDT - Art et Métiers Paris Tech, Mr HENNEBELLE - University of Bourgogne / France
- 9:50 ■ Metrological characterisation of 3D imaging systems: progress report on standards developments
Mr BERALDIN - NRC / Canada
- 10:15 ■ Traceable profile and roughness measurements inside sonic nozzles with the ProfilsScanner
Mrs XU, Mr KIRCHHOFF, Mr BRAND, Mr MICKAN - PTB / Germany
- 10:40 ■ Characterisation and measurement to the sub-micron scale of a reference wire position
Mr SANZ - CERN / Switzerland

11:05  11:35

AGRIFOOD: METROLOGICAL ADVANTAGE

9:00 ■ Metrology in agrifood industry is an **essentiel winning tool** for security, quality and profitability of the company. In complement to its regulatory requirements, the **metrology function is proactive** to prevent the products marketing unfit for consumption or harmful to the company's image. The product quality is also optimised by an appropriate control of manufacturing process.

Debates about key questions:

- The improvement of manufacturing processes
- The packaging and product evolution
- The control of contaminations

Animation: Mrs BLUM - EA / France and Mr HENNEBELLE - University of Bourgogne / France

With: Mr DEVIN - CEMAFROID / France, Mr LEBLOIS - COMMA CONSULTING / France, Mr SITARAS - ESYD / Greece,

11:00 ■ Mr VOGEL - LNE / France

11:05  11:35



SI4 NANOTECHNOLOGY: MEASUREMENT AND CHARACTERISATION

Chairmen: Emilie LANGLOIS-BERTRAND - AFNOR (France) and François PIQUEMAL - LNE (France)

- 13:45** ■ Metrology for graphene and 2-D materials
Mr POLLARD - NPL / United Kingdom
- 14:05** ■ Toward the harmonisation of physical-chemical protocols for nanomedicine characterisation: size measurements
Mrs VARENNE, Mr BOTTON, Mrs MERLET, Mrs VAUTHIER - University Paris Sud / France
- 14:25** ■ Towards the standardisation of fullerene nanofibers using Raman spectroscopy
Mr FERREIRA - Inmetro / Brazil
- 14:45** ■ Hybrid metrology of surface roughness combining SEM and AFM measurements
Mr CONSTANTOUDIS - Institute of Nanosciences and Nanotechnologies / Greece
- 15:05** ■ Thermal conductivity measurements of candidate materials for the calibration of scanning thermal microscopes
Mr HAY, Mr ALLARD, Mrs RAMIANDRISOA, Mr DAVEE - LNE, Mrs GOMES - University of Lyon / France
- 15:25** ■ Advances in measurement of interfacial chemical activity
Mr WAIN - NPL / United Kingdom



SI5 THERMAL SHOW

Chairwomen: Eduarda FILIPE - IPQ (Portugal) and Miruna DOBRE - SP ECONOMIE (Belgique)

- 13:45** ■ HiTeMS: High Temperature Measurement Solutions for industry
Mr MACHIN - NPL / United Kingdom
- 14:05** ■ Experimental assessment of methods of dissemination of the thermodynamic temperature at the highest temperatures
Mr SADLI - LCM LNE-CNAM / France & all
- 14:25** ■ Testing the reliability of humidity sensors through prolonged measurements traceable to calibration standards
Mrs NAIR - University of South Wales / United Kingdom
- 14:45** ■ METefnet: developments in metrology for moisture in materials
Mrs BELL - NPL / United Kingdom
- 15:05** ■ Improve radiation thermometry measurement uncertainty through implementing a primary scale in an industrial laboratory
Mr WILLMOTT - University of Sheffield, Mr LOWE - NPL, Mr BROUGHTON - Land Instruments International / United Kingdom
- 15:25** ■ Performance tests of cold chain temperature indicators and time/temperature integrators: tests methodology of NF E 18-100 standard and results
Mr DEVIN, Mr CAVALIER, Mrs LECOQC - Cemafruid / France

RISK MANAGEMENT AND CONTROL: NEW APPROACH FOR ISO 9001

13:45 ■ Measurements are vital to enable companies to take the right decisions. Consequently the quality of these **measurements has a direct impact on the decisions taken and the risks incurred.** The new **ISO 9001:2015 standard** introduces the notion of risk in relation to the systems to be put in place, as well as the **ISO/IEC Guide 98-4**. How can the risk be placed at the heart of metrology while achieving a «lean metrology»? Will these standards open up new performance horizons for business?

Debates about key questions:

- How can corporate risks be expressed in terms of metrology?
- How can metrologists be actors in decision-making and metrology a profit centre?
- How can risks be quantified, and operations be reduced to the minimum necessary?

Animation: Mr DAUBENFELD - PSA Automobiles / France

With: Mrs AMAROUCHE - LNE / France, Mr IBANEZ - SYRAConseil / France, Mr LEBLOIS - COMMA

15:50 ■ CONSULTING / France, Mr LE BRIS - RENAULT / France



CLOSING SESSION

15:50 ■ ■ **16:30**

Talk of Mr COHEN TANNODJI, Nobel Prize in Physics

Synthesis, projects and slideshow of best moments

Best oral and poster presentations prizegiving

Mr FILTZ - LNE (France) and Mrs FILIPE - IPQ (Portugal)

CLOSING DRINK ON THE EXHIBITION SPACE

POSTER - 11:15 to 12:45 DIMENSIONAL

- Reliability and measurement uncertainty estimation of CMM according to GUM approach and Monte Carlo simulation
Mr. GROUS - CEGEP / Canada, Mr. MIROUH, Mr. KARAALI - University of Constantine / Algeria
- Behavior simulation of a deformable part during the measurement
Mr RAYNAUD, Mr DINH - INSA, Mr WOLFF - University of Lyon, Mr PAREJA - Renault / France
- Error evaluation in reverse engineering of aspherical lenses
Mr PIRATELLI-FILHO - University of Brazilia, Mrs VALDES ARENCIBIA - University of Uberlandia / Brazil, Mr ANWER, Mr SOUZANI - ENS Cachan / France, Mr DEVEDZIC - University of Kragujevac / Serbia
- Performance of articulated arm CMM using virtual spheres gauge and geometry deviation analysis
Mr FERREIRA, Mr PIRATELLI-FILHO - University of Brazilia / Brazil
- Validation of an ultra-precision optical coordinate measuring machine for the measurement of free form objects in industrial processes
Mr DUPLESSY - Syhate / France, Mr MAUL - REDLUX / United Kingdom
- Error mapping of a rotary table based on automated cross calibration technique
Mrs CHAO, Mr KOWALSKI, Mr LENG TAN - National Metrology Centre / Singapore
- Measurement uncertainty evaluation of the null detector method using Monte Carlo
Mr COSTA, Mrs GOMES, Mr BALDNER - Inmetro, Mrs LETA - University Fluminense / Brazil
- CHRocodile CLS: chromatic line sensor for high speed and high resolution metrology
Mr DUPRAZ - Precitec / France
- Strategy to measure the cutting edge preparation of precision cutting tools by using a white light chromatic sensor
Mr CORTES-RODRIGUEZ - National University of Colombia / Colombia
- Fast checking of CMM geometry with a new tool
Mr MANLAY - CEA / France
- DMD-based calibration of flatness systematic errors of micro-translation stages for surface roughness metrology
Mr LE GOIC, Mr HENNEBELLE - University of Bourgogne, Mr FAVRELIÈRE, Mr PILLET - University of Savoie, Mr SAMPER - University of Rennes / France
- Angle metrology at INRIM in the framework of the EMRP Project SIB58
Mr PISANI, Mrs ASTRUA - INRIM / Italy
- Characterization of the effects of the turbulence on the propagation of a laser beam in air
Mr ZUCCO, Mr PISANI, Mrs ASTRUA - INRIM / Italy
- **Inline Robotic Inspection Solution**
Mr LEMOINE - Metrologic Group / France

NANOTECHNOLOGY...

- Thermal characterisation of thin as a function of temperature by modulated photothermal radiometry
Mrs FLEURENCE, Mr HAY, Mrs FOULON - LNE / France
- Toward the harmonisation of physical-chemical protocols for nanomedicine characterisation: Zeta potential measurements
Mrs VARENNE, Mr BOTTON, Mrs MERLET, Mrs VAUTHIER - University Paris Sud / France

POSTER - 11:45 to 12:45

... **NANOTECHNOLOGY**

- Estimation of the measurement uncertainty of LNE's metrological atomic force microscope using virtual instrument modeling and Monte Carlo method
Mr CERIA - LNE / France
- Last advances in the development of the LNE metrological atomic force microscope
Mr DUCOURTIEUX, Mr BOUKELLAL - LNE / France
- Integration of a new position sensor based on four quadrant fiber optic bundle to measure the cantilever deflections in atomic force microscopy head
Mr BOUKELLAL - LNE / France
- Metrological characterisation of the size distribution of airborne nanoparticles generated from nanomaterials
Mrs MACE - LNE / France

ELECTRICITY

- Traceable power measurement of LTE signals for the non-ionising radiation
Mr SOUMYA, Mr PYTHOUD - METAS, Mr LEUCHTMANN, Mr LEUTHOLD - ETHZ / Switzerland
- Automatic uncertainty propagation: application to vector network analyser self-calibration techniques
Mr ALLAL, Mrs VINCENT-DROUART, Mr LITWIN - LNE / France, Mr HALL - MSL / New-Zealand
- A transportable selectable-value, high dc voltage standard
Mr GALLIANA, Mr CAPRA, Mr GASPAROTTO - INRiM / Italy
Programmable source for DC voltage ratio calibration of DVMs
- Mr CERRI, Mr SOSSO, Mr CAPRA, Mr RONCA GLIONE - INRiM / Italy
High level comparison on a high performance multifunction calibrator between INRiM and an accredited electrical calibration laboratory
Mr CAPRA, Mr GALLIANA, Mr LANZILOTTI, Mr LA PAGLIA - INRiM, Mr MOTA - ARO FLUKE / Italy
Measurement of antenna parameters under a controlled temperature
- Mr LE SAGE, Mr LERAT - LNE / France
Traceability of line impedance stabilisation network
- Mr ZIADÉ, Mr POLÉTAEFF - LNE / France, Mr KOKALJ, Mr PINTER - SIQ / Slovenia

THERMAL...

- Moisture determination for food quality assessment
Mrs ROLLE, Mr BEL TRAMINO, Mr FERNICOLA, Mrs SEGA, Mr VERDOJA - INRiM / Italy
- Good practices for the implementation of surface temperature measurements
Mr FAVREAU, Mr GEORGIN, Mr SAVANIER - CETIAT / France

POSTER - 11:15 to 12:45

... THERMAL

- First steps in development of a new transfer standard, for moisture measurement, based on radio-frequency wave and micro-wave
Mr GEORGIN, Mr ROCHAS - CETIAT, Mr SABOUROUX - University Aix Marseille / France
- Implementation of qualification benches according to NFX 15-113
Mr GEORGIN, Mr FAVREAU - CETIAT / France
- Emissivity and spectral band related errors in the calibration of industrial pyrometers using transfer blackbody sources
Mrs KOZLOVA - LCM LNE-CNAM / France & all
- PID control parameters optimisation for temperature calibration laboratory
Mr VOLDAN, Mr STRNAD - CMI / Czech Republic
- Traceable radiation thermometer calibration to ITS-90 above the silver point at the NPL
Mr LOWE, Mr MACHIN - NPL / United Kingdom
- Reduction of uncertainties of calibration in the air using a case of thermal equalisation
Mr REIFENBERG, Mr RIOUT, Mr LEROY - EFS Pyrénées-Méditerranée / France
- Aspects regarding the realisation of the triple point of Argon
Mr DINU, Mr NEAGU - National Institute of Metrology / Romania
- Metrology for humidity at high temperatures and transient conditions
Mr HEINONEN - MIKES / Finland & all
- Development of new traceable European capabilities in thermal metrology
Mr FILTZ - LNE / France & all

TIME / FREQUENCY

- Precision quantum devices of generation, modulation and detection of the laser radiation
Mr NEYZHMAKOV, Mr KRAVCHENKO - National Scientific Centre / Ukraine
- Link between local time scale UTC(OP) by GPS TAIP3 common-views
Mr ROVERA, Mr CHUPIN, Mr ABGRALL, Mr UHRICH - LNE-SYRTE / France
- FIRST-TF: a cluster of excellence in Time & Frequency metrology
Mr DIMARCO - LNE-SYRTE / France & all
- Oscillator stability of an artifact applied to interlaboratory comparisons SIBRATEC-TIC
Mrs FOIATTO, Mr PINTO, Mr AVILA, Mr MIAMES - LABELO PUCRS / Brazil