

Detailed Poster Program

as of July 4, 2016

MONDAY, JULY 11, 2016 - 16:00 - 18:00 - Confederation I

Session A: 16:00 – 17:00

Session B: 17:00 – 18:00

Mo-PS1

Power and Energy - High Voltage/Current Power and Power Analysis

Chair: Jae Kap Jung, Korea Research Institute of Standards and Science

- 129233 - HOUTZAGER, Ernest | Reference setup for the calibration of power transformer loss measurement systems
- 129748 - HOUTZAGER, Ernest | Calibration systems for analogue non-conventional voltage and current transducers
- 130352 - HU, Yue | An Improved Partial Discharge Location Method in Substations: Error Reduction based on Monte-Carlo Simulation
- 130088 - DJOKIC, Branislav | Hydro-Generator Sudden Short-Circuit Testing Using Rogowski Coils
- 127341 - KIM, Kyu-Tae | Modified Step-Up Technique for the DC High Voltage Traceability
- 129057 - PROCHAZKA, Radek | Use of a Nanocrystalline Core for a Precise Non-invasive AC Current Measurement
- 128742 - STYBLÍKOVÁ, Renata | International Comparison of Instrument Current Transformers up to 10 kA at 50 Hz Frequency
- 129757 - PAN, Xianlin | Comparison of the Phase Angle Errors between RVD and IVD

Mo-PS2

Quantum Standards

Chair: Franz Ahlers, PTB

- 128111 - CHAE, Dong-Hun | Precision Measurements of Quantum Hall Resistance Plateau in Doping-Controlled Graphene Device
- 126256 - GÖTZ, Martin | Operation of a Cryogenic Current Comparator in Presence of Mechanical Vibrations
- 126437 - GÖTZ, Martin | Performance of the Binary Compensation Unit for Cryogenic Current Comparators
- 127060 - JEANNERET, Blaise | Characterization of HMDS treated CVD Graphene
- 128259 - KÜRTEN IHLENFELD, Waldemar Guilherme | Development of a PJVS Based Primary AC Power Standard
- 127148 - WANG, Xueshen | Development of the single quantum Hall devices for the resistance standard in NIM
- 125888 - ZENG, Tao | Evaluation of the Alignment Errors in Joule Balance Caused by Horizontal Forces and Torques

Mo-PS3

Radio Frequency / Microwave - Power, Noise, and Network-Parameters

Chair: Rolf Judaschke, PTB

Radio Frequency / Microwave - Power, Noise, and Network-Parameters

- 127262 - CELEP, Murat | New Effective Coaxial Twin-Load Microcalorimeter system
- 127312 - CUI, Xiaohai | International Comparison of WR15 (50 to 75 GHz) Power Measurements among NIST, NIM, PTB and NMC
- 125945 - EIØ, Christopher | Measurement Comparison up to 65 GHz in Coaxial 1.85 mm Line
- 126942 - HOFFMANN, Johannes | Considerations for Using Waveguide Extenders
- 127641 - HOFFMANN, Johannes | Effects of Connectors and Improper Mounting of Air Lines in TRL Calibration
- 127278 - YAN, Aaron Y.K. | VRC Measurement for 3.5 mm Coaxial System Using Network Analyzer Fitted with Type K Connector
- 127713 - ZEIER, Markus | Verification concepts in S-parameter measurements

Mo-PS4

Impedance

Chair: Javier Diaz De Aguilar, Centro Español de Metrología (CEM)

127063 - EKLUND, Gunnar | A Low Frequency Josephson Impedance Bridge

126789 - FUNCK, Torsten | Bilateral International Inductance Comparison Using Traveling Standards in Thermoregulated Enclosures

126369 - MORENO HERNANDEZ, Jose Angel | SIM Key Comparison of 10 mH Inductance Standards

127128 - MORENO HERNANDEZ, Jose Angel | Determination and Use of Temperature Coefficients of Inductance Standards

127606 - PACHECO ESTRADA, Aleph | Development of Calculable Resistors at CENAM

Page 2 of 7 Mo-PS5

Resistance - Graphene-Based Electrical Metrology

Chair: Randolph Elmquist, National Inst. Of Standards And Technology

128268 - BERGSTEN, Tobias | Comparison between GaAs and graphene QHR standards for resistance realisation at SP

128201 - FLETCHER, Nick | Carrier Concentration Adjustment in Epitaxial Graphene QHR Devices

128709 - HE, Hans | Fabrication of graphene quantum Hall resistance standard in a cryogen-free table-top system

127145 - WANG, Xueshen | Improvement of Chemical Vapor Deposition Graphene for Quantum Hall Resistance Standard device

128564 - KALMBACH, Cay-Christian | Dissipation Factor and Frequency Dependence of Graphene Quantum Hall Devices

Mo-PS6

Time and Frequency - Photonics and Optical Metrology

Chair: Gordon Shaw, U.S. National Institute of Standards and Technology (NIST)

125750 - BAI, Yang | Six-axis Heterodyne Interferometer System for Joule Balance

130001 - KOLBE, Michael | Fundamental parameter determination to improve spectroscopical methods

127139 - KOKUYAMA, Wataru | Time-domain Phase Noise Measurement in the Optical Frequency Region

Mo-PS7

Magnetics

Chair: Haiming Shao, National Institute of Metrology(NIM), P.R.China

127925 - YANG, Yan | Error Estimation of Magnetic Flux Measurement of the Permanent Magnet in Open Magnetic Circuit

127212 - ISTRATE, Daniela | Determination of the Verdet Constant of Low Birefringence Single-Mode Optical Fiber

127167 - PARK, Po Gyu | Geomagnetic Measurement and Analysis of Cheongyang Observatory

Mo-PS8

Novel Sensors and Measurements

Chair: Ian Robinson, National Physical Laboratory

127359 - ÇELİK, Mehmet | Nanoradian Angle Measurements Using Differential Fabry-Perot Interferometer

130193 - MARTIN, Ramon | Improved NMR magnetometer for weak fields

127535 - SZYMAŃSKI, Krzysztof | Precise measurement of inhomogeneity of two dimensional system by six point method

129463 - WANG, Yicheng | Nonlinearity Testing of Capacitance Bridges Using Programmable Capacitors

Mo-PS9

Voltage

Chair: Waldemar Guilherme Kürten Ihlenfeld, INMETRO

129565 - FUJIKI, Hiroyuki, HF | An Evaluation Method for Wideband Voltage Dividers Using Two Phase-locked Signal Generators

126974 - GERONYMO, Gean | Design of a Thermal Converter with Frequency Output

127414 - KAMPIK, Marian | About the Use of Ellipse Fitting Algorithm in Sampling Measurements of Complex Ratio of AC Voltages

127419 - KAMPIK, Marian | Trilateral Comparison of a Planar Thin-Film Thermal AC Voltage Standard up to 1 MHz

129749 - PAN, Xianlin | Design and Self-calibration of Cascaded Inductive Voltage Divider with Ratio of 2n:1

Tu-PS1

Power and Energy

Chair: Anders Bergman, *SP Technical Research Institute of Sweden*

126716 - GUBLER, Gleb | Making Low Level AC Voltage Measurements with DVM

129850 - JOVANOVIĆ, Ljubiša | A Novel TDM-Based High Precision Wattmeter

128608 - JUNG, Jae Kap | An Absolute Method for Determining the Dissipation Factor of Capacitors at Voltages up to 1 kV

127257 - NELSON, Thomas | Error Correction: a Proposal for a Standard

127564 - LI, You | Experiments for Calibrate Differential Phase Measurement System

129852 - MOHNS, Enrico | An AC Power Amplifier for Testing Instrument Transformer Test Equipment

129059 - JIA, Zhengsen | Evaluation of Digital Energy Meter Error by Monte Carlo Method

Tu-PS2

Quantum Standards - Development and Fabrication of Josephson Voltage Standards

Chair: Blaise Jeanneret, *METAS*

129860 - BARDALEN, Eivind | Packaging of fiber-coupled module for Josephson Junction Array voltage standards

129169 - KOHLMANN, Johannes | Series arrays of NbSi barrier Josephson junctions for AC voltage standards

129121 - SOSSO, Andrea AS | Tests on waveform synthesis in a new cryocooler setup

126529 - LI, Zhengkun | Stepwise waveform generation using Josephson voltage standards for joule balance

Tu-PS3

Radio Frequency / Microwave

Chair: Djamel Allal, *LNE*

126483 - BRUNETTI, Luciano | Material Measurements Using the Vector Network Analyzer

127270 - KANG, Tae-Weon | Free-Space Measurement of the Complex Permittivity of Liquid Materials at Millimeter-wave Region

127058 - KATO, Yuto | Permittivity measurement using a long fixture to eliminate reflection effect at fixture ends

129582 - KON, Seitaro | Dynamic Measurements of Moisture Content using Microwave Signal and its Verification

130009 - O'KEEFE, Brian | High Precision Slotted Cavity Measurement of a Novel Ceramic State Polymer Electrolyte

130290 - ZIADÉ, François | Traceable type N calibration kit: DC to 1 GHz

Tu-PS4

Current

Chair: Daniela Istrate, *LNE*

129327 - JIAYUN, Song | Research on Current Calibration System with High Stability

127028 - KRAUSE, Christian | Cable Noise Investigations for High-Accuracy Measurements of Small Direct Currents

127543 - SCHERER, Hansjoerg | Improved Calibration of Instruments for Small Direct Currents

127819 - ZHAO, Wei | Fiber-Optic Current Sensor Utilized for DC High Current Calibration

128242 - PAN, Xianlin | Design of the Current Comparator for Measuring the Current Shunts at Common Ground

Tu-PS5

Watt Balances and Avogadro

Chair: Ali Eichenberger, *METAS*

126025 - BIELSA, Franck | The new interferometer of the BIPM watt balance

126875 - LI, Zhengkun | Concentricity Alignment between Electromagnet Yoke and Suspended Coil in NIM-2

129625 - KWON, Taeg Yong | Progress of an Atomic Gravimeter at KRISS

127933 - PIQUEMAL, François | Static Phase Improvements in the LNE watt balance

126913 - XU, Jinxin | A Magnetic Damping Device for Watt and Joule Balances

126915 - XU, Jinxin | An Analytical Model for Designing Permanent Magnet Systems in Watt and Joule Balances

129010 - WASEDA, Atsushi | Homogeneity Characterization of Lattice Spacing of ²⁸Si Single Crystals

Tu-PS6

Impedance - Bridges and Thompson Lampard Capacitors

Chair: *Yicheng Wang, NIST*

- 127585 - KÜRTEN IHLENFELD, Waldemar Guilherme | Comparison Among Three Impedance Bridges for Capacitance Measurements at the nF Range
- 127068 - EKLUND, Gunnar | A Comparison of the Josephson Impedance Bridges of PTB and SP
- 128216 - HAGEN, Thomas | Comparison of the Frequency Dependence of Capacitance Ratios between LNE and PTB
- 125694 - HUANG, Lu | Improvement on Alignment of Fabry-Perot Interferometer in Calculable Capacitor
- 127305 - HUANG, Lu | Method of Displacement Determination in Calculable Capacitor at NIM
- 127057 - MAŠLÁŇ, Stanislav | Four Terminal Pair Digital Sampling Impedance Bridge
- 129279 - MAŠLÁŇ, Stanislav | Digital Sampling Setup for Measurement of Complex Voltage Ratio
- 128592 - YANG, Yan | A Digital Impedance Bridge with Auto-balancing Source Ratio

Tu-PS7

Resistance

Chair: *Dean Jarrett, National Institute of Standards and Technology*

- 128995 - FUKUYAMA, Yasuhiro | Study of Contact Resistance with Physical Simulating using Nano-fabrication
- 130269 - HUANG, Shiping | The Enhanced Performance of the DCC Current Comparator using AccuBridge™ Technology
- 130106 - KUČERA, Jan | On Aspects of Calibration of DC Resistance Ratio Bridges
- 127125 - SATRAPINSKI, Alexandre | Testing the New Generation of Low-Frequency Current Comparators

Tu-PS8

Voltage

Chair: *Bjørnar Karlsen, Justervesenet*

- 125554 - FUNCK, Torsten | Automated Setup for Calibration of Calibrators at Alternating Voltage and Alternating Current
- 129161 - LAPUH, Rado | Quasi coherent overlapping procedure to improve harmonics suppression
- 129136 - LAPUH, Rado | Keysight 3458A noise performance
- 128015 - MELENDEZ, Roger | Zener DC Voltage Standard Pressure Coefficient Measurement
- 127313 - ŠÍRA, Martin | QWTB – Software Toolbox for Sampling Measurements
- 127767 - KAMPIK, Marian | Calculable Thermal AC Voltage Standards for 10 kHz - 1 MHz Frequency Range

WEDNESDAY, JULY 13, 2016 - 16:00 - 18:00 - Confederation I

Session A: 16:00 – 17:00

Session B: 17:00 – 18:00

We-PS1

Power and Energy - Smart Grid and Phase Measurement Unit

Chair: *Gert Rietveld, VSL*

- 129766 - MESTER, Christian | Requirements for an Advanced PMU Calibrator
- 126696 - DJOKIC, Branislav | Development of a System for the Calibration of Digital Bridges for Non-Conventional Transformers
- 129058 - KOKALJ, Miha | Behaviour of different PMU algorithms under static and dynamic conditions
- 130304 - CARRANZA LOPEZ PADILLA, René David | Algorithm for measuring amplitude and frequency deviations intended for PMU
- 129221 - ŠÍRA, Martin | Modelling of PMU Uncertainty by Means of Monte Carlo Method
- 127213 - RITZMANN, Deborah | Synchrophasor-based Transmission Line Impedance Measurement
- 127144 - GEORGAKOPOULOS, Dimitrios | Precision Measurement System for the Calibration of Phasor Measurement Units
- 129496 - MAK, Sioe | Advanced Applications of AMR Data to Generate Functions for Enhancing SMART GRID Operation

We-PS2

Quantum Standards - Development and Fabrication of Josephson Voltage Standards

Chair: *Luis Palafox-Gámir, PTB*

- 127474 - BEHR, Ralph | Portable Josephson Voltage Reference Standard
- 126580 - CHEN, Shih-Fang | Differential Sampling Measurements of Low-Frequency Sinusoidal Waveforms Using AC-PJVS
- 127497 - VAN DEN BROM, Helko | Voltage Lead Errors in an AC Josephson Voltage Standard: Explanation in Terms of Standing Waves
- 127162 - LI, Honghui | Research on Differential Sampling Method with Josephson Voltage Standard

We-PS3

Radio Frequency / Microwave

Chair: Christopher Eriksen, NPL

- 127349 - ALLAL, Djamel | S parameters measurement of antennas under thermal stress
- 127018 - CHO, Chihyun | Calibration of Sample-Time Error in a Sampling Oscilloscope and Uncertainty Analysis
- 129017 - IIDA, Hitoshi | Study on Calibration of Terahertz Attenuators Haiming Shao, National Institute of Metrology
- 130359 - KANG, Tae-Weon | Uncertainty Improvement of Monopole Antenna Calibration Using ECSM
- 129004 - KINOSHITA, Moto | Measurement of microwave magnetic field in free space using the Rabi frequency

We-PS4

Current

Chair: Torsten Funck, Physikalisch-Technische Bundesanstalt

- 129831 - ARIFOVIC, Mehedin | Extending AC-DC Current Transfer to 100 A, 100 kHz in UME
- 129839 - NOVÁKOVÁ ZACHOVALOVÁ, Věra | Development of Primary Standard for AC-DC Current Transfer Difference
- 126920 - SONG, Kwangjae | The Establishment of mA CT Calibration System at KTL and Comparison with NRC
- 129782 - POGLIANO, Umberto | AC-DC Current Transfer Difference Estimation of Thin-Film Multijunction TCs up to 1 MHz
- 129616 - SHAO, Haiming | A High Current Nanosecond Pulse Generator for Calibrating Current Shunts
- 129921 - WANG, Shuqiang | Analysis on Double-layer Squirrel-cage Shunt for Large Pulse Current with High Frequency

We-PS5

Watt Balances, Gravity, and Avogadro

Chair: Stephan Schlamminger, National Institute of Standards and Technology

- 130422 - COŞKUN ÖZTÜRK, Tezgül | Feasibility Study of Electrical Measurements of Oscillating – Magnet Watt Balance
- 127822 - CHOI, In-Mook | Gravity Measurements for the KRISS Watt Balance
- 129909 - FAN, Isaac | Frequency Estimation of a Damped Sinusoidal Signal and Comparison to Theoretical Lower Bound
- 127455 - LU, Yunfeng | Plane mirror based method for laser beam alignment
- 130120 - HADDAD, Darine | Monitoring Gravity for the NIST-4 Watt Balance
- 129569 - SUTTON, Christopher | The feasibility of a watt balance based on twin pressure balances
- 130357 - LI, Zhengkun | Preliminary result of accurate gravimetry at NIM Joule Balance site
- 129834 - LI, Zhengkun | A preliminary magnet nonlinear research on the joule balance
- 129592 - ZHANG, Lulu | Thickness measurements of oxide and carbonaceous layer on a ²⁸Si sphere by using XPS

We-PS6

Impedance

Chair: Olivier Thévenot, Laboratoire National de Métrologie et d'Essai (LNE)

- 129066 - GOURNAY, Pierre | A New CCEM-K4 Comparison of Capacitance at 10 pF
- 128927 - HOMKLINTIAN, Monthol | Measurement of Frequency Dependence of Standard Capacitors in the Frequency range 10 kHz to 1 MHz
- 129284 - MAŠLÁŇ, Stanislav | Simple Resistance Standard with Calculable Time Constant
- 129853 - RASO, Félix | Towards an Impedance Bridge Based on a Single Programmable Josephson Voltage Standard
- 129858 - RASO, Félix | Method of Calibration of Lock In Amplifiers in Linearity
- 129916 - VOJÁČKOVÁ, Lucie | Calculation of High Frequency 4-TP Impedance Standards
- 130328 - WALTRIP, Bryan | A Programmable Capacitor for Inductance Measurements

We-PS7

Time and Frequency - Atomic Fountains and Clocks

Chair: Thomas Legero, Physikalisch-Technische Bundesanstalt

- 130123 - BEATTIE, Scott | Status of the Cs Fountain Clock at the National Research Council of Canada
- 129818 - HEO, Myoung-Sun | Drift-compensated Low-noise Frequency Synthesis Based on a CryoCSO for the KRISS-F1(Cs)
- 129814 - KUMAGAI, Motohiro | Recent Improvements of NICT atomic fountains CsF1 & CsF2
- 129778 - KWON, Taeg Yong | Operating Atomic Fountain Clock using Robust DBR Laser System
- 128629 - MERIMAA, Mikko | Pre-stabilization of a Distributed Feedback Diode Laser for Locking to a High-Finesse Cavity
- 126669 - HUANG, Yi-Jiun | A New Scheme of TWSTFT Receiver for Multiple Access Interference Suppression
- 128499 - XU, Yuan | Development of GNSS-based High Reliable Time Transfer System

THURSDAY, JULY 14, 2016 - 14:00 - 16:00 - Confederation I

Session A: 14:00 – 15:00

Session B: 15:00 – 16:00

Th-PS1

Power and Energy - Power Analysis

Chair: Gleb Gubler, D.I.Mendeleyev Institute for Metrology (VNIIM)

128232 - BERGSTEN, Tobias | An electrical power reference system up to 1 MHz

128602 - YAN, Aaron Y.K. | High Accuracy and Traceable Power Quality Instrument Calibration

128244 - PAN, Xianlin | Using Inductive Voltage Divider to Calibrate Linearity of Wideband Digitizer

129746 - PAN, Xianlin | Self-Calibration of the Current Comparator with Common Ground

129637 - HUANG, Hongtao | Dynamical Waveforms and the Dynamical Source for Electricity Meter Dynamical Experiment

129878 - LEHTONEN, Tapio | A Three-Phase Calibration and Field Measurement Setup Based on a Custom Digitizer

128231 - LAPUH, Rado | Measurement and estimation of arbitrary signal power using a window technique

129393 - TIMMONS, Richard | Asynchronous 3-Phase Power Measurements

Th-PS2

Power and Energy - Harmonic Power

Chair: Peter Davis, National Physical Laboratory

128752 - TRIGO, Leonardo | Resistor Dividers for Power Quality Meters

128718 - ARISTOY, Gonzalo | Measuring System for Calibrating High Voltage Instrument Transformers at Distorted Waveforms

129965 - POGLIANO, Umberto | Dynamic algorithms for PMUs – methods for improving the signal processing effectiveness

126513 - ESPINOSA, Carlos | A Two-Channel Digital Sampling System for Estimating Harmonic Parameters at Low Frequencies

Th-PS3

Quantum Voltage Standards

Chair: Uwe Siegner, PTB

128302 - KYRIAZIS, Gregory | Improvements in the Inmetro Zener Calibration Uncertainty Budgets Using CJVS and PJVS

128276 - BEHR, Ralf | Towards a Quantum Sampling System

129815 - RASO, Félix I. | Proposal for a New Quantum Voltage Standard based in Optical Frequency measurements

129885 - KIM, Mun-Seog | Voltage Linearity Evaluation for a High-Speed Digitizer adopted to a Quantum Sampling Voltmeter

Th-PS4

Radio Frequency / Microwave - Power, Noise, and Network-Parameters

Chair: Markus Zeier, METAS

129530 - ALLAL, Djamel | Vector Network Analyzer Comparison up to 110 GHz in 1 mm Coaxial Line

128579 - CUI, Xiaohai | Uncertainty Analysis and Evaluation of a WR-28 (26.5 to 40 GHz) Millimeter-Wave Power Standard

128946 - HORIBE, Masahiro | Primary Standard and Calibration of Scattering Parameter up to 12 GHz for Type N, 75 ohms connector

129662 - HORIBE, Masahiro | Uncertainty Estimation for Gallium Nitride Diode Model based on VNA Measurement at 5.8 GHz

129080 - MENG, Yu Song | Bilateral Comparison of RF Power Measurements with 2.4 mm Connectors between SCL and NMC, A*STAR

129039 - NAKAMURA, Shintaro | Metrological Connector Conversion Technique for Scattering Parameter Calibration

129392 - SUREK, Jack | Development of a NIST WR10 Radiometer

Th-PS5

Current

Chair: Thomas Lipe, NIST

126692 - DJOKIC, Branislav | A Comparison of Two Current Transformer Calibration Systems at NRC Canada

125553 - FUNCK, Torsten | AC-DC Disk Resistors Made of Surface-Mount Components

126130 - FUNCK, Torsten | AC-DC Current Transfer Standards Suitable for Use Below 1 mA and up to 1 MHz

129750 - LI, Zhengkun | A 10-A Wideband Transconductance Amplifier

Th-PS6

Resistance

Chair: Ernest Houtzager, VSL Dutch Metrology Institute

127202 - CASTRO, Blanca I | Fabrication of High Value Standard Resistors for ICE-LMVE

127149 - DOMAE, Atsushi | Evaluation of a Resistive Voltage Divider Based on a Quantized Hall Resistance Voltage Divider

126922 - KRAWCZYK, Krystian | Double Path System for Resistance Unit Transfer from QHR Primary Std to 100T Ω Std

127189 - MELCHER, Juergen | Measurement of Conductivity of Materials at PTB

126448 - QIAN, Lushuai | A Low Thermal EMF Relay-based Scanner for Precision Resistor Load Coefficient Calibration System

127337 - GERONYMO, Gean | Inmetro's Coaxial Calculable Resistance Project

Th-PS7

Voltage

Chair: Nobu-Hisa Kaneko, NMIJ/AIST

126482 - JEANNERET, Blaise | Josephson-Based Characterization of Analog-to-Digital Converters

129037 - JIA, Zhengsen | An Improved Sinc Function Compensation Algorithm in AC Programmable Josephson Voltage Standard

129038 - JIA, Zhengsen | The Accuracy Research of AC Waveform in Differential Sampling Method

129168 - LAPUH, Rado | Uncertainty of the signal parameter measurement due to their estimation from sampled data

127642 - KÜRTEH IHLENFELD, Waldemar Guilherme | The AC-AC Transfer Technique with Subsampling

Th-PS8

Quantum Hall, CCC, and SET

Chair: Wilfrid Poirier, LNE

129936 - KUČERA, Jan | Realization of Quantum Hall Effect in Closed Cycle Refrigerators

126440 - GÖTZ, Martin | Application of Robust Control to a Cryogenic Current Comparator

128576 - KIM, Nam | 'Cutoff Frequency' of Quantum-Dot Pump

127183 - WANG, Xueshen | Development of 10k Ω Quantum Hall Array Resistor