

Conference Program

(as at 2 May 2021)

Day 2: Tuesday, 4 May 2021

Plenary Talks	
Chair:	G. Gerlach, Technische Universität Dresden, Dresden (Germany), K. D. Sommer, Technische Universität Ilmenau, Ilmenau (Germany)
08:45	Welcome General Chairs SMSI Conference
08:50	Greeting
	IMEKO - International Measurement Confederation, President Eit F. Härtig, IMEKO, Budapest (Hungary) / Physikalisch-Technische Bundesanstalt, Braunschweig (Germany)
09:00	Plenary Talk 2:
	From Sensors to Standards: How NIST on a Chip is Transforming International Metrology B. Goldstein, NIST - National Institute of Standards and Technology, Gaithersburg (USA)
09:45	Plenary Talk 3:
	On Model-based and Data-driven Algorithms - Towards Mature AI-enabled Systems W. Koch, Fraunhofer FKIE / University of Bonn (Germany)
10:30	Plenary Talk 4:
	Progress in Realising the Redefined Kelvin G. Machin, J. Pearce, National Physical Laboratory, Teddington (United Kingdom), M. Sadii, LNE-CNAM, Saint-Denis (France), J. Engert, Physikalisch-Technische Bundesanstalt, Berlin (Germany), R. M. Gavioso, Istituto Nazionale di Ricerca Metrologica, Torino (Italy)
11:15	Break

Color Index

Sensors and Instrumentation

IRS² Satellite Conference

Measurement Science

System of Units and Metrological Infrastructure

Day 2: Tuesday, 4 May 2021

Session A1 Piezoelectric High-temperature Sensors I (Special Session)		Session B1 Gas Sensors I		Session C1 IRS' Satellite Conference: Infrared Sensors		Session D1 Future Topics in Metrology (Special Session)					
Chair: Y. Suhak, Clausthal University of Technology, Goslar (Germany)		Chair: A. Schütze, Saarland University, Saarbrücken (Germany)		Chair: E. Manske, Technische Universität Ilmenau, Ilmenau (Germany)		Chair: S. Eichstädt, Physikalisch-Technische Bundesanstalt (PTB), Berlin (Germany)					
A1.1	11:30	Catangasite: piezoelectric single crystal for sensor applications at harsh conditions H. Schmidt, A. Sotnikov, R. Weser, Leibniz IFW Dresden, Dresden (Germany), B. Sorokin, Technological Institute for Superhard and Novel Carbon Materials, Moscow (Russia), Y. Suhak, H. Fritze, Clausthal University of Technology, Goslar (Germany)	B1.1	11:30	Innovative Hydrogen Sensors for Fuel Cell Vehicles O. Kiesewetter, A. Kraußner, N. Kiesewetter, J. Müller, M. Bose, M. May, Umweltsensortechnik GmbH, Geratal OT Geschwenda (Germany)	C1.1	11:30	Spatial Homogeneity of the Radiance of a Large-diameter Integrating Sphere in the SWIR Measured with an InGaAs Camera S. König, B. Gutschwager, I. Müller, R. Taubert, Physikalisch-Technische Bundesanstalt, Berlin (Germany)	D1.1	11:30	GUM2ALA – Uncertainty Propagation Algorithm for the Adaptive Linear Approximation According to the GUM T. Dorst, T. Schneider, A. Schütze, ZeMA – Center for Mechatronics and Automation Technology gGmbH, Saarbrücken (Germany), S. Eichstädt, Physikalisch-Technische Bundesanstalt, Berlin (Germany)
A1.2	11:50	Oxygen Partial Pressure Dependent Electrical Conductivity of LiNb _{1-x} Ta _x O ₃ Solid Solutions A. Kabir, Y. Suhak, H. Fritze, Clausthal University of Technology, Goslar (Germany), D. Roshchupkin, B. Red'kin, Russian Academy of Science, Moscow (Russia), S. Ganschow, Leibniz-Institut für Kristallzüchtung, Berlin (Germany)	B1.2	11:50	Failure Analysis of Overloaded Coulometric Hydrogen Sensor A. Graff, W. Munchgesang, F. Altmann, Fraunhofer Institute IMWS, Halle (Germany), C. Hincinschi, T. Köhler, Technische Universität Bergakademie Freiberg, Freiberg (Germany), P. Sood, J. Zosel, M. Mertig, Kurt-Schwabe-Institut für Mess- und Sensortechnik Meinsberg e.V., Waldheim (Germany)	C1.2	11:50	Thermopile Arrays for IR Imaging and Body Temperature Screening Applications J. Schieferdecker, M. Schnorr, B. Forg, F. Herrmann, C. Schmidt, W. Leneke, M. Simon, Heimann Sensor GmbH, Dresden (Germany)	D1.2	11:50	Representing Semantic Information in Sensor Networks M. Gruber, S. Eichstädt, Physikalisch-Technische Bundesanstalt, Berlin (Germany)
A1.3	12:10	Obtaining and Investigation of the LiNbO ₃ , LiNbO ₃ :Mg, LiTaO ₃ Nanopowders Doped with Pr ions J. Yakhnevych, L. Vasylechko, S. Hurskyj, O. Buryi, D. Sugak, Y. Zhydashkevsky, Lviv Polytechnic National University, Lviv (Ukraine), V. Sydoruk, A. Lakshmi, NASU, Kyiv (Ukraine), I. Svyrotka, Scientific Research Company 'Electron-Carat', Lviv (Ukraine), A. Suchocki, Institute of Physics PAS, Warsaw (Poland), Y. Suhak, H. Fritze, Clausthal University of Technology, Goslar (Germany)	B1.3	12:10	Long-Term Monitoring of Gaseous Ammonia with a Semi-automatic Measuring Device K. Gawlitza, S. Johann, M. Mansurova, H. Kohlhoff, C. Tiebe, J. Bell, M. Bartholmai, K. Rurack, Bundesanstalt für Materialforschung und -prüfung BAM, Berlin (Germany)	C1.3	12:10	A Novel Approach to Model the Thermal-electrical Behavior of Pyroelectric Infrared Sensors R. Lehmkau, InfraTec GmbH, Dresden (Germany), J. Lienig, Technische Universität Dresden, Dresden (Germany)	D1.3	12:10	Ensemble Learning for Computational Optical Form Measurement L. Hoffmann, I. Fortmeier, C. Elster, Physikalisch-Technische Bundesanstalt, Braunschweig/Berlin (Germany)
A1.4	12:30	Electrical and Electromechanical Properties of Single Crystalline Li(Nb,Ta)O ₃ Solid Solutions up to 700 °C Y. Suhak, B. Jerliu, H. Fritze, Clausthal University of Technology, Goslar (Germany), S. Ganschow, Leibniz-Institut für Kristallzüchtung, Berlin (Germany), D. Roshchupkin, B. Red'kin, Russian Academy of Science, Moscow (Russia), S. Sanna, Justus Liebig University Gießen, Gießen (Germany)	B1.4	12:30	A Humidity-independent Photoacoustic Sensor E. Ambra, G. A. Pang, C. Haisch, Technical University of Munich, Munich (Germany)	C1.4	12:30	Mobile Near Infrared Spectrometer with a MEMS-FPI Sensor A. Ivanov, A. Kulinna, Landshut University of Applied Sciences, Landshut (Germany)	D1.4	12:30	Dynamic Calibration of Sensors with Exclusive Digital Output B. Seeger, T. Bruns, Physikalisch-Technische Bundesanstalt, Berlin (Germany)
	12:50	Break									

Day 2: Tuesday, 4 May 2021

Session A2 Piezoelectric High-Temperature Sensors II (Special Session)		Session B2 Gas Sensors II		Session C2 IRS ² Satellite Conference: Thermal Imaging and Thermography		Session D2 Measurement Foundations I	
Chair: Y. Suhak, Clausthal University of Technology, Goslar (Germany)		Chair: A. Lloyd Spetz, University of Linköping, Linköping (Sweden)		Chair: T. Fröhlich, TU Ilmenau, Ilmenau (Germany)		Chair: E. Benoit, Université Savoie Mont Blanc, Chambéry (France)	
A2.1	13:30	B2.1	13:30	C2.1	13:30	D2.1	13:30
<p>Mechanisms of Anelastic Loss in Langanite at Temperatures from 113 K to 1324 K W. Johnson, National Institute of Standards and Technology, Boulder (USA), Y. Suhak, H. Fritze, Clausthal University of Technology, Goslar (Germany)</p>		<p>Multiple Gas Detection by Dynamic Electrochemical Methods A. Ruchets, J. Zosel, Kurt-Schwabe-Institut für Mess- und Sensortechnik Meinsberg e.V., Waldheim (Germany), N. Donker, D. Schönauer-Kamin, R. Moos, University of Bayreuth, Bayreuth (Germany), U. Guth, M. Mertig, Technische Universität Dresden, Dresden (Germany)</p>		<p>Laser Excited Super Resolution Thermal Imaging for Nondestructive Testing S. Ahmadi, J. Lecomagnon, P. Hirsch, M. Ziegler, Bundesanstalt für Materialforschung und -prüfung, Berlin (Germany), P. Burgholzer, RECENDT Research Center for Non-Destructive Testing, Linz (Austria), P. Jung, G. Caire, Technical University of Berlin, Berlin (Germany)</p>		<p>Electric Field Meters – Application of the GUM C. Schierding, M. Thedens, M. Beyer, Physikalisch-Technische Bundesanstalt, Braunschweig (Germany)</p>	
A2.2	13:50	B2.2	13:50	C2.2	13:50	D2.2	13:50
<p>Housed Temperature Sensors Based on Piezoelectric Resonators for High-Temperature Applications M. Schulz, H. Fritze, Clausthal University of Technology, Goslar (Germany), F. Kohler, J. Wilde, University of Freiburg, Freiburg (Germany)</p>		<p>Pulsed polarization on Au YSZ NO_x-sensors with and without catalytic layer N. Donker, D. Schönauer-Kamin, R. Moos, University of Bayreuth, Bayreuth (Germany), A. Ruchets, J. Zosel, Kurt-Schwabe-Institut für Mess- und Sensortechnik Meinsberg e.V., Waldheim (Germany), U. Guth, Dresden University of Technology, Dresden (Germany)</p>		<p>2D-Photothermal Super Resolution with Sparse Matrix Stacking J. Lecomagnon, S. Ahmadi, P. Hirsch, M. Ziegler, Bundesanstalt für Materialforschung und -prüfung, Berlin (Germany)</p>		<p>Uncertainty-Aware Sensor Fusion in Sensor Networks M. Gruber, S. Eichstädt, Physikalisch-Technische Bundesanstalt, Berlin (Germany), W. Pilar von Pilchau, J. Hähner, University of Augsburg, Augsburg (Germany), V. Gowtham, A. Willner, Fraunhofer FOKUS, Berlin (Germany), N. Koutrakis, J. Polte, Fraunhofer Institute IPK, Berlin (Germany), M. Riedl, Ifak, Magdeburg (Germany)</p>	
A2.3	14:10	B2.3	14:10	C2.3	14:10	D2.3	14:10
<p>CTGS Based Sensor for In-Situ Gas Detection in Heat Treatment Processes S. Schroeder, H. Fritze, Clausthal University of Technology, Goslar (Germany), A. Strauß, P. Quadbeck, Fraunhofer Institute for Manufacturing Technology and Advanced Materials, Dresden (Germany)</p>		<p>Impedimetric NO_x Sensor for Exhaust Applications with Internal Lambda Correction J. Herrmann, G. Hagen, J. Kita, R. Moos, University of Bayreuth, Bayreuth (Germany), F. Noack, D. Bleicker, CPK Automotive GmbH&Co. KG, Münster (Germany)</p>		<p>Thermographic Method to Locate Concealed Defects in Exterior Wall Insulation Panels of Prefabricated Houses V. Putz, R. Schmidt, C. Kastl, Linz Center of Mechatronics GmbH, Linz (Austria), S. Haunschmid, Synthesa Chemie Gesellschaft m.b.H., Perg (Austria)</p>		<p>Spectrometry of Pulsed Photon Radiation R. Behrens, H. Zutz, J. Busse, Physikalisch-Technische Bundesanstalt, Braunschweig (Germany)</p>	
A2.4	14:30	B2.4	14:30	C2.4	14:30	D2.4	14:30
<p>Acoustic Loss Contributions in Aluminium Nitride Piezoelectric Resonators up to 900°C I. Kogut, H. Fritze, Clausthal University of Technology, Goslar (Germany), I. Gamov, K. Immscher, M. Bickermann, Leibniz-Institut für Kristallzüchtung, Berlin (Germany)</p>		<p>Wireless Low-power Warning System for the Detection of Flammable Gases B. Bierer, O. Yurchenko, L. Engel, H. Pernau, Fraunhofer Institute IPM, Freiburg (Germany), D. Grgic, J. Wollenstein, University of Freiburg, Freiburg (Germany)</p>		<p>3D Thermography for the Measurement of Surface Heat Dissipation R. Schmolli, S. Schramm, T. Breitenstein, A. Kroll, University of Kassel, Kassel (Germany)</p>		<p>Evaluation of Precision of Measurement Results in Medical Laboratory A. Tumilovich, A. Chunovkina, D.I. Mendeleev Institute for Metrology, St. Petersburg (Russia), T. Martynova, Academician I.P. Pavlov First St. Petersburg State Medical University, St. Petersburg (Russia)</p>	
	14:50	Break					

Conference Program

(as at 2 May 2021)

Day 2: Tuesday, 4 May 2021

Session A3 Load and Force Measurement			Session B3 Gas Sensors III			Session C3 IRS' Satellite Conference: Spectroscopy, Thermometry			Session D3 Measurement Foundations II		
Chair: E. Starke, SICK Engineering GmbH, Ottendorf-Okrilla (Germany)			Chair: A. Lieberzeit, University of Vienna, Vienna (Austria)			Chair: V. Schauer, HENSOLDT Optronics GmbH, Oberkochen (Germany)			Chair: R. Morawski, Warsaw University of Technology, Warsaw (Poland)		
A3.1	15:20	Adjustment Concept for Compensating Stiffness and Tilt Sensitivity of a Novel Monolithic EMFC Weighing Cell M. Pabst, T. Fröhlich, M. Darnieder, R. Theska, Technische Universität Ilmenau, Ilmenau (Germany)	B3.1	15:20	Planar Bragg Grating Sensors Functionalized with Cyclodextrins for Trichlorofluoromethane Sensing S. Belle, S. Kefer, R. Hellmann, Aschaffenburg University of Applied Sciences, Aschaffenburg (Germany), S. Waldvogel, Johannes Gutenberg University Mainz, Mainz (Germany)	C3.1	15:20	Mid-infrared Dual-comb Spectroscopy as Sensor: Fast and Precise Quantification of Multiple Gases L. Nitzsche, J. Goldschmidt, J. Kießling, S. Wolf, F. Kühnemann, Fraunhofer Institute IPM, Freiburg (Germany), J. Wöllenstein, University of Freiburg, Freiburg (Germany)	D3.1	15:20	IoT-middleware Requirements for Context-sensitive Processing of Data to Enable Predictive Maintenance through Augmented Reality M. Jensen, University of Applied Sciences, Stuttgart (Germany)
A3.2	15:40	Model Based Evaluation of Integrated DLC Based Sensor System for Load Measurement on Linear Guides D. Krampert, S. Unsleber, Bosch Rexroth AG, Schweinfurt (Germany), L. Reindl, Albert-Ludwigs-University Freiburg, Freiburg (Germany)	B3.2	15:40	Compensating the Quantitative Signal of Metal Oxide Semiconductor Gas Sensors in Temperature Cycled Operation under the Influence of Siloxane Poisoning C. Schultealbert, T. Baur, T. Sauerwald, A. Schütze, Saarland University, Saarbrücken (Germany)	C3.2	15:40	Detection of Stable Isotopes of CO2 using Quantum Cascade Laser based Absorption Spectroscopy P. Nitzsche, C. Dinc, J. Wöllenstein, University of Freiburg, Freiburg (Germany), K. Schmitt, Fraunhofer Institute IPM, Freiburg (Germany)	D3.2	15:40	Simultaneous Signal Acquisition by Synchronous Detection of Orthogonal Frequency Components M. Baer, B. Schmauss, Erlangen Graduate School for Advanced Optical Technologies, Erlangen (Germany), P. Demosthenous, Cyprus Research & Innovation Center Ltd., Nicosia (Cyprus)
A3.3	16:00	Development of a Traceable Cantilever Calibration Device O. Dannberg, T. Fröhlich, Technische Universität Ilmenau, Ilmenau (Germany), M. Kühnel, SIOS Meßtechnik GmbH, Ilmenau (Germany),	B3.3	16:00	Monitoring Food Aging in a Refrigerator with GC/MS and Gas Sensor Systems J. Joppich, M. S. Marschibois, T. Baur, O. Brieger, C. Schultealbert, A. Schütze, Saarland University, Saarbrücken, (Germany), M. Leidinger, T. Conrad, 3S GmbH, Saarbrücken (Germany)	C3.3	16:00	Single Photon LIDAR Technology for Gas Imaging P. Droegmoeller, AMETEK Land, Dronfield (Great Britain), M Reed, QLM Technology Ltd., Bristol (Great Britain)	D3.3	16:00	Approximate Sequential Bayesian Filtering to Estimate Rn-222 Emanation from Ra-226 Sources from Spectra F. Mertes, S. Röttger, A. Röttger, Physikalisch-Technische Bundesanstalt, Braunschweig (Germany)
A3.4	16:20	A Control Concept of a Compensation Load Cell in Terms of Calibration a Cantilever V. Cherkasova, O. Dannberg, T. Fröhlich, Technische Universität Ilmenau, Ilmenau (Germany)	B3.4	16:20	Impact of cobalt oxide morphology on the thermal response to methane examined by thermal analysis O. Yurchenko, H. Pernau, L. Engel, B. Bierer, M. Jäggle, Fraunhofer Institute IPM, Freiburg (Germany), J. Wöllenstein, University of Freiburg, Freiburg (Germany)	C3.4	16:20	Measurement and Calculation of Surface Temperature on Tyre Samples F. Bartz, Dr. Ing. h.c. F. Porsche AG, Weissach (Germany), S. Gehrman, S. Augustin, V. Ackermann, T. Fröhlich, TU Ilmenau, Ilmenau (Germany)	D3.4	16:20	The Analysis and Correction of Transfer Function of Film Measuring Transducers of the Microwave Power P. Neyezhnikov, National Scientific Centre "Institute of Metrology", Kharkiv (Ukraine), I. Zakharov, Kharkiv National University of Radioelectronics, Kharkiv (Ukraine)
									D3.5	16:40	Development of a Low-Cost Sensing Node with Active Ventilation Fan for Air Pollution Monitoring N. Winkler, P. Neumann, H. Kohlhoff, J. Erdmann, Bundesanstalt für Materialforschung und -prüfung, Berlin (Germany), E. Schaffernicht, A. Lilienthal, Örebro University, Örebro (Sweden)
	17:00	Science Slam									
	17:30	End									