

Color Index
Sensors and Instrumentation
IRS' Satellite Conference
Measurement Science
System of Units and Metrological Infrastructure

Day 4: Thursday, 6 May 2021

Plenary Talks	
Chair:	K. D. Sommer, Technische Universität Ilmenau, Ilmenau (Germany)
08:45	Greeting NCSLI
	C. Gulka, NCSLI, Boulder (USA)
09:00	Plenary Talk 7:
	Quantum-Based Photonic Sensors for Pressure, Vacuum, and Temperature Measurements: A Vision of the Future with NIST on a Chip J. Hendricks, NIST – National Institute of Standards and Technology, Gaithersburg (USA)
09:45	Plenary Talk 8:
	High Throughput Development of Structural Materials Using Descriptors L. Mädler, IWT - Leibniz-Institute for Materials Engineering and University of Bremen (Germany)
10:30	Plenary Talk 9:
	Quantum Sensing with Spins in Diamond P. Maletinsky, Basel University, Basel (Switzerland)
11:15	Break

Session A8 Ultrasonic Transducers and Measurement		Session B8 Fiber Optic Sensors		Session C8 Testing and Diagnosis		Session D8 Applications I	
Chair: S. Rupitsch, Albert-Ludwigs-University Freiburg, Freiburg (Germany)		Chair: A. Fischer, University of Bremen (Germany)		Chair: T. Härtling, Fraunhofer-Institut für Keramische Technologien und Systeme IKTS, Dresden (Germany)		Chair: R. Tutsch, Technische Universität Braunschweig, Braunschweig (Germany)	
A8.1	11:30	B8.1	11:30	C8.1	11:30	D8.1	11:30
Electrostatic Transducer for Ultrasound Ranging Based on In-Plane Electrode Motion J. Monsalve, F. Wall, M. Jongmanns, S. Langa, M. Kircher, B. Kaiser, A. Melnikov, I. Marica-Bercu, Fraunhofer Institute IPMS, Dresden (Germany), H. Schenk, Arioso Systems GmbH, Dresden (Germany)		Improvements in Thermal Profiling Using High-Definition Fiber Optic Sensing D. Potter, A. Rahim, Luna Innovations, Blacksburg (USA), A. Stern, Luna Innovations, Pfullingen (Germany)		Methodology for Diagnosing Sensor Faults on Engine Test Benches M. Wohltan, G. Pirker, LEC GmbH, Graz (Austria), A. Wimmer, Graz University of Technology, Graz (Austria)		Investigation of a Mitigation Strategy for Thermal Effects of X-ray Sources in Computed Tomography F. Binder, B. Baumgärtner, T. Hausotte, Friedrich-Alexander-University Erlangen-Nuremberg, Erlangen (Germany)	
A8.2	11:50	B8.2	11:50	C8.2	11:50	D8.2	11:50
Measurement and Simulation of Lamb Waves in Adhesive-bonded Multilayer Systems H. Zeipert, L. Claes, S. Johannesmann, M. Webersen, B. Henning, Paderborn University, Paderborn (Germany), Y. Lugovtsova, J. Prager, Bundesanstalt für Materialforschung und -prüfung, Berlin (Germany)		Tunable Nanopillars as Surface Enhanced Raman Scattering (SERS) Active Structure for Optical Quartz Glass Fiber E. Melekhov, V. Abb, T. Weidauer, M. Kammler, A. Lechner, Regensburg University of Applied Sciences, Regensburg (Germany)		Near Process Coolant Flow Field Measurements in a Grinding Machine C. Vanselow, B. Espenhahn, D. Stöbener, A. Fischer, University of Bremen, Bremen (Germany), L. Schumski, D. Meyer, Leibniz-Institut für Werkstofforientierte Technologien, Bremen (Germany)		Influence of Continuous Scan Mode and Workpiece Positioning on Dimensional Measurements with Computed Tomography C. Orgeldinger, F. Wohlgemuth, T. Hausotte, Friedrich-Alexander-University Erlangen-Nuremberg, Erlangen (Germany)	
A8.3	12:10	B8.3	12:10	C8.3	12:10	D8.3	12:10
A Hardware Simulator for the Generation of Ultrasonic Transmission Test Signals J. Förster, M. Gevers, KROHNE Innovation GmbH, Duisburg (Germany), M. Vogt, KROHNE Messtechnik GmbH, Duisburg (Germany), R. Geerders, KROHNE New Technologies BV, Dordrecht (The Netherlands)		Influence of Temperature on Distributed Strain Sensing with OTDR in Polymer Optical Fibers S. Dengler, N. Schmidt, M. Luber, J. Fischer, O. Ziemann, R. Engelbrecht, Technische Hochschule Nürnberg Georg Simon Ohm, Nuremberg (Germany), H. Hangen, HUESKER Synthetic GmbH, Gescher (Germany)		Wireless Measurement of Moisture Entry in SYLGARD-527 K. Dehning, M. Hitzemann, S. Zimmermann, Leibniz University Hannover, Hannover (Germany)		Accuracy Improvement of the Alternating Current Zero Potential Method for Impedimetric Sensor Matrices Z. Hu, D. Chen, O. Kanoun, Technische Universität Chemnitz, Chemnitz (Germany)	
A8.4	12:30	B8.4	12:30	C8.4	12:30	D8.4	12:30
Acoustophoresis in Suspensions with Local- and Time-discrete Sound Fields Based on the Time Reversal Technique P. Hörnlein, S. Wockel, H. Arndt, ifak - Institute for Automation and Communication e. V., Magdeburg (Germany), J. Auge, University of Applied Sciences Magdeburg-Stendal, Magdeburg (Germany)		12 nm Spectral Shift with a VCSEL in the Near Infrared in a 10 µs Time Interval R. Engelbrecht, G. Saur, R. Kruglov, Technische Hochschule Nürnberg Georg Simon Ohm, Nuremberg (Germany)		Measurement Methods for Understanding Water Uptake Processes in Polymers P. Gierth, U. Gierth, L. Rebenklau, M. Schneider, Fraunhofer IKTS, Dresden (Germany)		Precision Measurement of the Application-dependent Current Consumption of a Wireless Transceiver Chip T. Doebbert, C. Cammin, G. Scholl, Helmut-Schmidt-University, Hamburg (Germany)	
	12:50	Break					

Conference Program

(as at 2 May 2021)

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Session A9 Ultrasonic and Acoustic Measurements		Session B9 Optical Sensors		Session C9 Advanced Testing Methods		Session D9 Applications II	
Chair: S. Rupitsch, Albert-Ludwigs-University Freiburg, Freiburg (Germany)		Chair: M. Heizmann, Karlsruhe Institute of Technology - KIT, Karlsruhe (Germany)		Chair: V. Witkovsky, Slovak Academy of Sciences, Bratislava (Slovak Republic)		Chair: G. Fischerauer, University Bayreuth, Bayreuth (Germany)	
A9.1	13:30	Excitation of Guided Acoustic Waves Using Ignition Sparks S. Kreppe, A. Backer, F. Dötzer, K. Drese, Coburg University of Applied Sciences and Arts, Coburg (Germany)		B9.1	13:30	Optoelectronic Nociceptive Sensors Based on Heterostructured Semiconductor Films M. Karbalaee Akbari, S. Zhuiykov, Gent University Global Campus, Incheon (South Korea)	
A9.2	13:50	Fouling Detection in Polymerization Processes by Ultrasound Echo Measurements J. Förster, J. Tebrügge, KROHNE Innovation GmbH, Duisburg (Germany), M. Osenberg, S. Westerdick, Ruhr-Universität Bochum, Bochum (Germany), E. von Grothuss, F. Behrendt, Covestro Deutschland AG, Leverkusen (Germany), M. Vogt, KROHNE Messtechnik GmbH, Duisburg (Germany)		B9.2	13:50	Monitoring of Composite Bicycle Components Using Polymer Planar Bragg Gratings S. Kefer, F. Roth, M. Kaloudis, R. Hellmann, Aschaffenburg University of Applied Sciences, Aschaffenburg (Germany), B. Schmauss, University of Erlangen-Nuremberg, Nuremberg (Germany)	
A9.3	14:10	Dual Electrochemical Quartz Crystal Microbalance with Dissipation Monitoring R. Ecker, N. Doppelhammer, B. Jakoby, E. Reichel, Johannes Kepler University Linz, Linz (Austria)		B9.3	14:10	Optimization of ITO-Based Plasmonic Slot Waveguide for CO₂ Mid-IR Absorption Sensors P. Saeidi, B. Jakoby, G. Pühringer, R. Jannesari, Johannes Kepler University Linz, Linz (Austria), A. Tortschanoff, Silicon Austria Labs GmbH, Villach (Austria), T. Grille, Infineon Technologies Austria AG, Villach (Austria)	
A9.4	14:30	Metal/Semiconductor Hetero-interface Engineering for Photocurrent Controlling in Plasmonic Photodetectors S. Zhuiykov, M. Karbalaee Akbari, Gent University Global Campus, Incheon (South Korea)		B9.4	14:30	Metal/Semiconductor Hetero-interface Engineering for Photocurrent Controlling in Plasmonic Photodetectors S. Zhuiykov, M. Karbalaee Akbari, Gent University Global Campus, Incheon (South Korea)	
	14:50	Break					
				C9.1	13:30	Temporal Hygrometer Characterization: Design and First Test of a New Metrological Dynamic Testing Infrastructure F. Witt, F. Bubser, V. Ebert, Physikalisch-Technische Bundesanstalt, Brunswick (Germany), D. Bergmann, Technische Universität Braunschweig, Brunswick (Germany)	
				C9.2	13:50	Towards the Assessment of the Accuracy of Measuring the Integral Characteristics of Physical Quantities Using the Sensors of Discrete Values of these Quantities P. Neyezhnikov, A. Prokopov, T. Panasenko, V. Skliarov, A. Shloma, National Scientific Centre "Institute of Metrology", Kharkiv (Ukraine)	
				C9.3	14:10	Detecting Local Delamination of Power Electronic Devices through Thermal-Mechanical Analysis H. Huai, G. Laskin, M. Fratz, T. Seyler, T. Beckmann, A. Bertz, J. Wilde, Albert-Ludwigs-University, Freiburg (Germany)	
				D9.1	13:30	DMP41 - A High-precision Amplifier Based on an Inductive-Voltage-Divider, Suitable to Safeguard Traceability for Most Mechanical Quantities A. Schäfer, Hottinger Brüel & Kjaer GmbH, Darmstadt (Germany)	
				D9.2	13:50	Analysis of the Oscillating Behavior of a Highway Bridge for Structural Health Monitoring R. Peter, A. Fischerauer, S. Kraus, N. Krug, T. Ringelmann, J. Welsch, G. Fischerauer, Universität Bayreuth, Bayreuth (Germany)	
				D9.3	14:10	Scalable and Automatic Dynamic Excitation of Non-Linear Structures P. Blaschke, D. J. Alarcón, Technische Hochschule Wildau, Wildau (Germany)	
				D9.4	14:30	Detection of Initial Subsurface Defects in Rotor Blade Leading Edges of Wind Turbines by Means of Active Thermography F. Jensen, M. Sorg, A. Fischer, University of Bremen, Bremen (Germany)	

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Session A10 Inverse Problems in Measurements (Special Session)		Session B10 Optical Sensors and Measurement		Session C10 Magnetic Sensors		Session D10 Advances in Sensor Electronics	
Chair: B. Henning, Paderborn University, Paderborn (Germany)		Chair: R. Engelbrecht, Technische Hochschule Nürnberg, Nürnberg (Germany)		Chair: R. Slatter, Sensitec GmbH, Wetzlar (Germany)		Chair: A. König, Technical University of Kaiserslautern, Kaiserslautern (Germany)	
A10.1	15:20	B10.1	15:20	C10.1	15:20	D10.1	15:20
Optimised Multi-Electrode Topology for Piezoelectric Material Characterisation L. Claes, N. Feldmann, B. Henning, Paderborn University, Paderborn (Germany), B. Jurgelucks, V. Schulze, S. Schmidt, A. Walther, Humboldt-Universität zu Berlin, Berlin (Germany)		A 64 x 48 BSI SPAD Sensor Based on 8" Wafer 3D Stacking Technology S. Grosse, A. Steuer, P. vom Stein, C. Zeidler, J. Haase, Fraunhofer IMS, Duisburg (Germany)		Integrated Differential Transformer on a Single Printed Circuit Board M. Berger, A. Zygmanski, S. Zimmermann, Leibniz University Hannover, Hannover (Germany)		Poly-harmonic Signal Characterization Method and ADC Characterization Using Josephson Converter and Linear Regression Analysis S. Sherstobitov, M. Karpova, All-Russian Scientific Research Institute of Physicotechnical and Radio Engineering Measurements, Moscow (Russia)	
A10.2	15:40	B10.2	15:40	C10.2	15:40	D10.2	15:40
Inverse Determination of Elastic Material Parameters from Ultrasonic Guided Waves Dispersion Measurements using Convolutional Neuronal Networks M. Held, A. Rashwan, M. Lauschkin, J. Bulling, Y. Lugovtsova, J. Prager, Bundesanstalt für Materialforschung und -prüfung, Berlin (Germany)		A Novel Approach to Identify Wood Species Optically Using Fluorescence Lifetime Imaging Microscopy N. Leiter, M. Wohlschläger, V. Auer, M. Versen, Technical University of Applied Sciences Rosenheim, Rosenheim (Germany), C. Laforsch, University Bayreuth, Bayreuth (Germany)		Rotary Encoder Magnet Inspection with Noise Elimination K. Vervaeke, Magcam NV, Leuven (Belgium)		Feasibility Study for Safe Workplaces through Automation and Digitalization Technology with Redesigned Smart Sensors and LoRa WAN Monitoring System S. Johann, C. Tiebe, H. Kohlhoff, M. Bartholmai, Bundesanstalt für Materialforschung und -prüfung, Berlin (Germany)	
A10.3	16:00	B10.3	16:00	C10.3	16:00	D10.3	16:00
Model-based Optimization for Acoustic Characterization of Thin Hidden Layers S. Wöckel, H. Arndt, ifak - Institut für Automation und Kommunikation e.V., Magdeburg (Germany)		Differential Channel Optical Readout System for Color Changes of Gas Sensitive Colorimetric Dyes C. Weber, M. El-Safoury, C. Pannek, L. Engel, A. Eberhardt, M.-L. Bauersfeld, Fraunhofer Institute IPM, Freiburg (Germany), J. Wöllenstein, University of Freiburg, Freiburg (Germany)		Calibration Method for an Inductive Localization System of Wireless Sensors in Photoreactors D. Demetz, A. Sutor, UMIT - Private University, Hall in Tirol (Austria)		Adaptive Spiking Sensor Electronics Inspired by Biological Nervous System Based on Memristor Emulator for Industry 4.0 Applications H. Abd, A. König, TU Kaiserslautern, Kaiserslautern (Germany)	
A10.4	16:20		16:20	C10.4	16:20	D10.4	16:20
Phononic Crystals Applied as Ultrasonic S+A74ensor for Liquid Systems R. Lucklum, N. Mukhin, U. Steinmann, Otto-von-Guericke-Universität Magdeburg, Magdeburg (Germany)				Embedded Multi-frequency Eddy Current Measurement System for in-situ Assessment of Metals R. Munjal, F. Wendler, O. Kanoun, Chemnitz University of Technology, Chemnitz (Germany)		Predicting the Analog Integrated Circuit Performance Using Indirect Measurements Based on Simulations S. Alraho, Q. Zaman, A. König, TU Kaiserslautern, Kaiserslautern (Germany)	
	16:40	<i>Break</i>					
	16:50	Fairwell reception and awards (best paper, best young paper)					
	17:30	<i>End of Conference</i>					