

Thematic Overview

Calibration and machine tool performance: Calibration procedures

Day	Block	Room	Authors	Title
02.07.	14:15 - 14:30	K9	Markus Bartscher, Osamu Sato, Frank Härtig, Ulrich Neuschaefer-Rube	Current State of Standardization in the Field of Dimensional Computed Tomography
02.07.	14:30 - 14:45	K9	Yohan Kondo and Youichi Bitou	Evaluation of deformation value of optical flat under gravity
02.07.	14:45 - 15:00	K9	Illés Dudás, Sándor Bodzás	Analysing of the cutting edges of face gear hob with analytical calculation and three coordinate measuring machine
02.07.	15:00 - 15:15	K9	Sherif E. Hussein and Mahmoud E. Gadallah	Augmented reality Based Expert Surgery Guidance
03.07.	13:30 - 13:45	K9	Jens Illeemann, Markus Bartscher, Otto Jusko, Frank Härtig, Ulrich Neuschaefer-Rube, Klaus Wendt	Procedure and reference standard to determine the structural resolution in coordinate metrology
03.07.	13:45 - 14:00	K9	Jingzhi Huang, Bingmei Hu, Wei Gu, Wenguo Yang, Xiping Zhao and Jiubin Tan	Uncertainty analysis of calibration of cylindricity standards
03.07.	14:00 - 14:15	K9	Guoqing Ding, Xin Chen, Lihua Lei and Yuan Li	Self-calibration of Three-dimensional Spatial Accuracy Using Least Squares method
03.07.	14:15 - 14:30	K9	Kai Song, Qi Wang	Intelligent Integrated Sensor Measurement, Validation and Uncertainty for Full-range Hydrogen Monitorin

Calibration and machine tool performance: Machine tool performance

Day	Block	Room	Authors	Title
03.07.	10:30 - 11:00	K9	Shan Deng, Dingding Zhao, Ping Cai	Study on the Calibration of Dynamic Balancing Machine for Separating System Interference Vibration
03.07.	11:00 - 11:15	K9	Daniel Hagedorn, Heinz-Peter Heyne, Stephan Metschke, Uwe Langner, and Frank Löffler	Development of High Precision Test Masses for the MicroSCOPE Space Mission
03.07.	11:15 - 11:30	K9	Jiang Zhang, Liying Wu and Dong Wang	Precision control of Laser beam based on liquid crystal spacial light modulator in ultra-precision manufacturing
03.07.	11:30 - 11:45	K9	Yuan-Liu Chen, So Ito, Yuki Shimizu, Wei Gao and Bing-Feng Ju	Stitching Fabrication of Large Area Micro-structured Surfaces by a Fast Tool Servo with a Force Sensor
03.07.	11:45 - 12:00	K9	Lucas Benini, Walter Lindolfo Weingaertner and Lucas da Silva Maciel	Wear monitoring on microcrystalline aluminum oxide grinding wheels on profile grinding with the aid of Acoustic Emission
03.07.	12:00 - 12:15	K9	Jeong Seok Oh, Chun Hong Park and Ji Hun Jeong	Measuring Rail Profiles of Long Hydrostatic Guideway in Precision Roll Lathe

In-process and inline metrology

Day	Block	Room	Authors	Title
02.07.	14:15 - 14:45	K3	Y. Gao, J.X. Wang and R. Li	Development of a Test System for In-Process Form Profile Measurement
02.07.	14:45 - 15:00	K3	Bouhouche Salah, Laib dit Leksir Yazid and Bast Jurgen	Modeling and Estimation of the Dynamical Measurement Uncertainty. Application to Infra Red Image Processing in Continuous Casting
02.07.	15:00 - 15:15	K3	Wolfgang Hintze, Jörg Wollnack, Dominik Griefahn	Principal Component Analysis for fast and automated thermographic inspection of internal structures in sandwich parts
03.07.	13:30 - 13:45	K3	J. Seewig, P. Schäfer, H. Wegmann, R. Volk	Three-point measurements and mathematical methods of surface reconstruction
03.07.	13:45 - 14:00	K3	Jürgen W. Czarske, Philipp Günther, Robert Kuschmierz	Shape, vibration and displacement measurements of fast rotating objects by a single interferometric sensor
03.07.	14:00 - 14:15	K3	Oliver Focke, Andrea Miene, Maximilian Koerdt and Frederik Evers	Automated quality inspection in a draping process as well as in a continuous manufacturing process for processing non crimped fabrics
03.07.	14:15 - 14:30	K3	Thomas M. Hedges, and Anthony Slotwinski	Re-Introducing the Nikon Metrology Laser Radar

Intelligent instruments for automation: Manufacturing integration

Day	Block	Room	Authors	Title
03.07.	10:30 - 10:45	K5	Alistair Forbes, Robert Schmitt, Philipp Jatzkowski and Stefan Quinders	Metrology Infrastructure for Multi-Robotic Cooperative Assembly
03.07.	10:45 - 11:00	K5	Jianwen Sun, Reto Wyss, Alexander Steinecker and Philipp Glocker	Automated Fault Detection Using Deep Belief Network for the Quality Inspection of Electromotor
03.07.	11:00 - 11:15	K5	Marcelo R. Stemmer, Camila P. B. da Costa, Jaqueline Vargas and Mário L. Roloff	Artificial Intelligent Systems to Quality Assurance in Small Series Production
03.07.	11:15 - 11:30	K5	Syuhei Kurokawa, Md. Hazrat Ali, Kensuke Uesugi, Tetsuya Taguchi, Yoji Umezaki and Yoji Matsukawa	Whole Circumference Scanning Measurement of Cylindrical Gears Including Working Flanks, Tooth Tip and Bottom Profiles
03.07.	11:30 - 11:45	K5	Christian JanBen, Robert Schmitt	Efficient Commissioning processes for the Automotive Final Assembly
03.07.	11:45: 12:00	K5	Thombansen, Ulrich; Purrio, Marion; Buchholz, Guido; Hermanns, Torsten; Molitor, Thomas; Willms, Konrad; Schulz, Wolfgang; Reisgen, Uwe	Measurement of process variables in melt based manufacturing processes

Intelligent instruments for automation: Smart systems

Day	Block	Room	Authors	Title
02.07.	10:35 - 10:50	K4	Fu Zhenxian, Lin Yurong, Chen Xinglin, Liu Yang	Accumulative Drifting Model of Inertial Navigation Platform under Elliptic Vibration
02.07.	10:50 - 11:05	K4	Ju-Yi Lee, Yu-Che Chung, Cheng-Chih Hsu, Chyan-Chyi Wu, Hung-Lin Hsieh	Displacement measurement based on wavelength-modulated heterodyne grating interferometry
02.07.	11:05 - 11:20	K4	Tsukasa Watanabe	Dynamic Spindle Run Out Measurement with Self-calibratable Rotary Encoder
02.07.	11:20 - 11:35	K4	Y. Baksheeva, K. Sapozhnikova, and R. Taymanov	Improvement of the reliability of information received from sensors with metrological self-check
02.07.	11:35 - 11:50	K4	Christoph Landmann, Rolf Kall	Graphical Hardware Description as a High-Level Design Entry Method for FPGA-based Data Acquisition Systems
02.07.	11:50 - 12:05	K4	Manus Henry, Michael Tombs and Feibiao Zhou	Towards assessing on-line uncertainty for three-phase flow metering in the oil and gas industry

Macro metrology

Day	Block	Room	Authors	Title
03.07.	13:30 - 13:45	K7	Kyohei Ishikawa, Tomohiko Takamura, Muzheng Xiao, Satoru Takahashi, and Kiyoshi Takamasu	Nanometer Profile Measurement on Large Aspheric Optical Surface by Scanning Deflectometry with Rotatable Autocollimator - Error Analysis and Measurement Experiments by Using Autocollimator with Wide Measuring Range
03.07.	13:45 - 14:00	K7	Christian Raffaello Baldo, Gustavo Daniel Donatelli	Experimental Performance Study of Industrial-Grade Coordinate Measuring Machines Using a Calibrated Production Workpiece
03.07.	14:00 - 14:15	K7	Shi Zhaoyao, Lin Jiachun, Pan Chenguang, Zhang Bai, Lin Hu	Super-large gear measurement using LaserTracker and CMM
03.07.	14:15 - 14:30	K7	Illés Dudás, Renáta Monostori	Analysis Of A Big Joint Implant
03.07.	14:30 - 14:45	K7	Lei Baozhen, Cheng Guang and Shi Zhao-Yao	Advanced remanufacturing technology for large spiral bevel gears based on reverse engineering and theory of gearing

Management of measurement processes

Day	Block	Room	Authors	Title
02.07.	10:35 - 11:05	K5	S.D. Phillips, M. Krystek	Assessment of Conformity, Decision Rules and Risk Analysis
02.07.	11:05 - 11:20	K5	Edgar Dietrich	Capability of measurement processes based on ISO 22514-7 and VDA 5
02.07.	11:20 - 11:35	K5	Maryna Galovska, Michael Krystek and Rainer Tutsch	Study of curvature radii characterization based on point clouds
02.07.	11:35 - 11:50	K5	Frank Härtig, Harald Bosse and Michael Krystek	Recommendations for unified rules for key comparison evaluations
02.07.	11:50 - 12:05	K5	Sarwat Z. A. Zahwi	Uncertainty in Gauge Block Calibration by Mechanical Tactile Methods (Case study: for Dissimilar Gauge in length and material)
02.07.	14:15 - 14:45	K5	Sherif E. Hussein and Sarwat Zahwi	Multi-Agent Based Chaotic Traffic Simulation for Cairo Circular Road
02.07.	14:45 - 15:00	K5	Tan Ye, Kim Kiekens, Frank Welkenhuyzen, J. Angel, L. De Chiffre, Jean-Pierre Kruth, Wim Dewulf	Simulation-aided investigation of beam hardening induced errors in CT dimensional metrology
02.07.	15:00 - 15:15	K5	Diogo Cesar Borges Silva, Christian Raffaello Baldo, Douglas Mamoru Yamanaka	X-Ray Computed Tomography Applied as a Comprehensive Technique for Material Investigation and Dimensional Characterization of Metallic Parts
02.07.	15:15 - 15:30	K5	Sherif E. Hussein	Healthcare Clouds Integration using Software Agents and Hybrid Image Compression
02.07.	15:50 - 16:20	K5	Edward Morse, Yue Peng, Vijay Srinivasan, and Craig Shakarji	Metrological Challenges Introduced by New Tolerancing Standards
02.07.	16:20 - 16:35	K5	Maria Nau, Sebastian Pollmanns and Robert Schmitt	Uncertainty evaluation for surgical processes
02.07.	16:35 - 16:50	K5	Qunfen Qi, Xiangqian Jiang, Paul J Scott, Wenlong Lu	The Discussion of Uncertainties in Surface Texture during Design, Manufacture and Measurement
02.07.	16:50 - 17:05	K5	Tetsuya Taguchi, Yohan Kondo, Ming Aiguo and Makoto Shimojo	Evaluation of high precision gear measuring machine for tooth profile measurement using involute and sphere artifacts
02.07.	17:05 - 17:20	K5	Wu Jianwei, Liu Yang, Cui Jiwen, Tan Jiubin	A Parameter Identification Method of Assemble Inaccuracy for 6-DOF Ultra-Precision Stage
03.07.	13:30 - 13:45	K5	Isabel Basse, Robert Schmitt	Inspection Planning in Ramp-Up
03.07.	13:45 - 14:00	K5	Fabrcio Borges de Oliveira, Maurício de Campos Porath, Vitor Camargo Nardelli, Francisco Augusto Arenhart and Gustavo Daniel Donatelli	Investigation and minimization of thermal drift effects on tridimensional CT measurements
03.07.	14:00 - 14:15	K5	Elmar Garcia, Tino Hausotte	Parallel high-performance computing of recursive Bayes estimation for metrological data and signal processing
03.07.	14:15 - 14:30	K5	Wojciech Płowucha, Władysław Jakubiec	Theory and practice of uncertainty evaluation of coordinate measurements
03.07.	14:30 - 14:45	K5	Qiang Li, Zhongyu Wang, Hu Yan, Qian Wang	Novel Method for Predicting Solar Proton Events Based on Grey Relational Analysis and Joint Probability Density

Material properties' characterization

<i>Day</i>	<i>Block</i>	<i>Room</i>	<i>Authors</i>	<i>Title</i>
03.07.	10:30 - 10:45	K6	Hao Zhao, Ming Chang, Wei Siou Lin and Xiaojun Liu	Resistivity Variation of a Single ZnO Nanowire Under Axial Strain
03.07.	10:45 - 11:00	K6	Lei Wang, Xianping Liu	Characterization of viscoelastic materials by quasi-static and dynamic indentation
03.07.	11:00 - 11:15	K6	Fabian Bürger, Johannes Herwig, Matthias Thureau, Christoph Buck, Wolfram Luther and Josef Pauli	An Auto-adaptive Measurement System for Statistical Modeling of Non-metallic Inclusions through Image-based Analysis of Milled Steel Surfaces
03.07.	11:15 - 11:30	K6	Alexa Oerke, Christina König, Stephanus Büttgenbach and Andreas Dietzel	Investigation of different piezoresistive materials to be integrated into micromechanical force sensors based on SU-8 photoresist
03.07.	11:30 - 11:45	K6	Xiaolei Zhang, Liqun Du	Investigation on Internal Stress of SU-8 Photoresist Film
03.07.	11:45 - 12:00	K6	Ghaleb Natour, Fred Pauly	Analysis of materials and structures in scientific applications using microfocus computed tomography
03.07.	12:00 - 12:15	K6	Nadine AL-Khudray , Pierre-Yves Cresson, Yovan Orlic, Tuami Lasri, Philippe Coquet, and Philippe Pernod	Measurement of the thermal conductivity of Polydimethylsiloxane polymer using the three omega method

Measurements, modeling and simulation in the humanitarian field

<i>Day</i>	<i>Block</i>	<i>Room</i>	<i>Authors</i>	<i>Title</i>
03.07.	10:30 - 11:00	K6	Vladimir M. Petrov, Lidia A. Mazhul	Measuring mental wealth: indices of social inequality for cross-cultural investigations
03.07.	11:00 - 11:15	K6	R. Taymanov, K. Sapozhnikova	Measurements Enables Some Riddles of Sounds to Be Revealed
03.07.	11:15 - 11:30	K6	Nadezda Solovyev	The search of metrics for musician's style of performance
03.07.	11:30 - 11:45	K6	Vladimir M. Petrov	Measuring social progress: indicators of vertical growth
03.07.	11:45 - 12:00	K6	Robert L. Hogenraad	Measuring vagueness in communication

Metrology for SI

<i>Day</i>	<i>Block</i>	<i>Room</i>	<i>Authors</i>	<i>Title</i>
02.07.	14:15 - 14:30	K7	Arnold Nicolaus, Horst Bettin, Michael Borys, Ulrich Kuetgens	Revision of the SI: the determination of the Avogadro constant as the base for the kg
02.07.	14:30 - 14:45	K7	Torsten Mai, Guido Bartl, Arnold Nicolaus and Andreas Peter	Characterizing the new sphere interferometer for the diameter determination of the Avogadro spheres
02.07.	14:45 - 15:00	K7	Arnold Nicolaus, Rudolf Meeß	New Avogadro spheres for the redefinition of the kg
02.07.	15:00 - 15:15	K7	Guido Bartl, Michael Krystek and Arnold Nicolaus	PTB's enhanced stitching approach for high-accuracy interferometric characterisations of absolute topographies of spheres

Dimensional metrology for small features

<i>Day</i>	<i>Block</i>	<i>Room</i>	<i>Authors</i>	<i>Title</i>
03.07.	10:30 - 11:00	Brüssel	Kuang-Chao Fan, Zhi-Wei Wang, Qianxian Huang and Hui Zhang	Roundness Measurement of Micro Spheres
03.07.	11:00 - 11:15	Brüssel	D. Gnieser, C.G. Frase, H. Bosse, R. Tutsch	A virtual instrument for SEM uncertainty analysis
03.07.	11:15 - 11:30	Brüssel	Rawaa Habeb, Peter Kinnell	The Unpredictable Errors of Micro Tactile Metrology – Probe tip Contamination and Methods for Removal
03.07.	11:30 - 11:45	Brüssel	John Song, Wie Chu, Mingsi Tong, Johannes Soons	3D Topography Measurements on Correlation Cells – A New Approach to Forensic Ballistics Identifications
03.07.	11:45 - 12:00	Brüssel	M. Ranusawud, P. Limsuwan	High stability of temperature control using vacuum insulated wall for gauge block measurement
03.07.	12:00 - 12:15	Brüssel	Denys Dontsov, Walter Schott, Enrico Langlotz	Precision, flexible, broad-range measurement of 3D-objects by Nanomeasuring Machine

Micro and nano metrology: instrumentation

<i>Day</i>	<i>Block</i>	<i>Room</i>	<i>Authors</i>	<i>Title</i>
02.07.	15:50 - 16:20	Brüssel	Ivo Widdershoven, Michiel Baas, Henny Spaan	Ultra-precision 3D coordinate metrology results showing 10 nm accuracy
02.07.	16:20 - 16:35	Brüssel	Bastian Tröger, Alexander Mühlig, Thomas Fries, Stefan Bauer, Hubert Wihr, Frank Riedel, Dirk Lewke, Martin Schellenberger	Automated Tool for Measuring Nanotopography of 300 mm Wafers at Early Stages of Wafer Production
02.07.	16:35 - 16:50	Brüssel	Min Xu, Jürgen Kirchhoff and Uwe Brand	Development of a traceable profilerscanner for metrology of high-aspect-ratio microstructures
02.07.	16:50 - 17:05	Brüssel	N. Ferreira, T. Krah, D.C. Jeong, D. Metz, K. Kniel, A. Dietzel, S. Büttgenbach, F. Härtig	Integration of a silicon based microprobe into a gear measuring instrument for accurate measurement of micro gears
02.07.	17:05 - 17:20	Brüssel	Alexander Schuler, Albert Weckenmann and Tino Hausotte	Setup and evaluation of a sensor tilting system for dimensional micro and nanometrology

Microprobe systems

<i>Day</i>	<i>Block</i>	<i>Room</i>	<i>Authors</i>	<i>Title</i>
02.07.	10:35 - 10:50	Brüssel	Masaki Michihata, Ryosuke Gake, Terutake Hayashi and Yasuhiro Takaya	Fundamental verification of diameter measurement of a micro-CMM probe by using whispering gallery mode resonance
02.07.	10:50 - 11:05	Brüssel	Ralf Christoph and Ingomar Schmidt	Novel sensors and methods for traceable measurements on micro features
02.07.	11:05 - 11:20	Brüssel	Feng Ju, Shih-Fu Ling	A Whisker Transducer for Detecting Geometry of High-Aspect-Ratio Micro Holes
02.07.	11:20 - 11:35	Brüssel	Douglas Mamoru Yamanaka, Christian Raffaelo Baldo, Diogo Cesar Borges Silva	Dimensional Measurement and Evaluation of Intricate Features Using Tactile-Optical Microprobes on Coordinate Measuring Machines
02.07.	11:35 - 11:50	Brüssel	Jiwen Cui, Yuanzheng Chen, Xiping Zhao, Wenguo Yang, Jiubin Tan	Sensing characteristic research of spherical coupling fiber probe sensor
02.07.	11:50 - 12:05	Brüssel	Ayano Fukui, Masaki Mchihata, Terutake Hayashi and Yasuhiro Takaya	Surface Detection of Vertical Sidewall by Measuring Fluorescent Signal for Three-dimensional Shape Measurement of Microstructures

Nanometrology

<i>Day</i>	<i>Block</i>	<i>Room</i>	<i>Authors</i>	<i>Title</i>
02.07.	14:15 - 14:45	Brüssel	Ryszard Jablonski, Maciej Ligowski and Michiharu Tabe	Measurement of potential profile by KFM
02.07.	14:45 - 15:00	Brüssel	Makoto Fukuda and Masato Hayashi	Generating Sub-nanometer Displacement Using Reduction Mechanism Consisting of Torsional Leaf Spring Hinges
02.07.	15:00 - 15:15	Brüssel	So Ito, Issei Kodama and Wei Gao	Development of a Nanopipette Ball Probe for Form Measurement of Micrometer-Scale Structures
02.07.	15:15 - 15:30	Brüssel	Roman Romashko, Timofei Efimov and Yuri Kulchin	Resonance Micro-Weighing of Sub-Picogram Mass with Use of Adaptive Interferometer
03.07.	13:30 - 13:45	Brüssel	Maxim Ryabko, Sergey Koptyaev, Alexander Shcherbakov, Alexey Lantsov	Interferometric-based technology for optical nanoscale inspection
03.07.	13:45 - 14:00	Brüssel	Hiroki Yokozeki, Ryota Kudo, Satoru Takahashi and Kiyoshi Takamasu	Study on Lateral Resolution Improvement of Laser-Scanning Imaging for Nano Defects Inspection
03.07.	14:00 - 14:15	Brüssel	Boris Goj, Lothar Dressler and Martin Hoffmann	Non-contact measurements of three-dimensional surfaces utilizing a miniaturized uniaxial nanoprobe
03.07.	14:15 - 14:30	Brüssel	Thorsten Dziomba, André Felgner, Peter Krebs and Ludger Koenders	Towards more comparable and standardized Atomic Force Microscopy roughness measurements

Optical metrology: image processing

<i>Day</i>	<i>Block</i>	<i>Room</i>	<i>Authors</i>	<i>Title</i>
02.07.	15:50 - 16:05	K3	Akihiro Sakaguchi, Tomoyuki Kawashita and Shuji Matsuo	Three-Dimensional Measurement of a Cup-type Grinding Wheel Surface with Image Processing
02.07.	16:05 - 16:20	K3	Ernst Wiedenmann, Thomas Scholz, Jan Tusch and Andreas Wolf	Infrared 3D Scanner
02.07.	16:20 - 16:35	K3	Thomas Dunker and Sebastian Luther	Calibration of an Infrared 3D Scanner
02.07.	16:35 - 16:50	K3	Yury V. Chugui, Elena S. Senchenko	High Precision Algorithms for 3D Objects Shadow Inspection in Partially Coherent Light
02.07.	16:50 - 17:05	K3	Ruitong Zheng, Guan hao Wu and Lijiang Zeng	Linear APD array based LiDAR and CCD integrated mapping system
02.07.	17:05 - 17:20	K3	Cui Yan, Chen Chen , Chu Jin-Kui , Wang Wei, Qin Bin	Study on Polarization Pattern of Full Moonlight in Clear Sky

Optical metrology: optical probing

<i>Day</i>	<i>Block</i>	<i>Room</i>	<i>Authors</i>	<i>Title</i>
02.07.	10:35 - 10:50	K3	Chung-Heng Lin and Shyh-Tsong Lin	Plane Optical Surface Examinations Using White Light Newton Interferometer
02.07.	10:50 - 11:05	K3	Jian Liu, Jiurong Huang, Chenguang Liu , Jiubin Tan	Extraction of Axial Peak by Sinc2 Fitting in Confocal Microscope
02.07.	11:05 - 11:20	K3	M. A. Hassan, H. Martin and X. Jiang	Surface Profile Measurement Using Spatially Dispersed Short Coherence Interferometry
02.07.	11:20 - 11:35	K3	Liang-Chia Chen and Yi-Wei Chang	One-Shot Microscopic Surface Profilometry Employing Differential Chromatic Confocal Microscopy
02.07.	11:35 - 11:50	K3	SungHo Jang, Yuki Shimizu, So Ito and Wei Gao	A micro optical probe for edge contour evaluation of single point diamond cutting tools
02.07.	11:50 - 12:05	K3	Gernot Berger, Jürgen Petter	Novel technology for high precision, fast non-contact asphere metrology

Optical metrology: optical systems

<i>Day</i>	<i>Block</i>	<i>Room</i>	<i>Authors</i>	<i>Title</i>
03.07.	10:30 - 11:00	K3	Yuri Chugui	3D Optics Information Measuring and Laser Technologies and Systems
03.07.	11:00 - 11:15	K3	Zhengang Lu, Jiubin Tan, Xiping Zhao, Tao Zheng, Shen Lin and Luyang Zhang	Parallelism measuring for two thin parallel beams based on autocollimation principle
03.07.	11:15 - 11:30	K3	Evgeny V. Sysoev, Sergei S. Kosolobov , Rodion V. Kulikov, Alexander V. Latyshev, Sergei V. Sitnikov and Ignat A. Vykhristuk	Precision measurements of subnanoscaled relief by interferometric method
03.07.	11:30 - 11:45	K3	Anton Ionov, Boris Ionov, Egor Plotkin, Nadezhda Chernysheva	An Approach To On-Line Uncertainty Evaluation In Non-Contact Temperature Measurements
03.07.	11:45- 12:00	K3	Sheng-Kang Yu, Ting-Kun Liu and Shih-Chieh Lin	Speed Up Topography Measurement with 2-step Phase Shifting Differential Interference Contrast technique

Position & displacement metrology: encoder systems

<i>Day</i>	<i>Block</i>	<i>Room</i>	<i>Authors</i>	<i>Title</i>
02.07.	15:50 - 16:05	K9	Yongmeng Liu, Maoqiang Yuan, Jiwen Cui, Wenguo Yang and Jiubin Tan	Error Separation and Dynamic Compensation Method in Coplanar Planar Grating Displacement Measurement System
02.07.	16:05 - 16:20	K9	Roumen Nojdelov, Stoyan Nihtianov	Precision Capacitance-to-Digital Converter for Capacitive Position Measurement
02.07.	16:20 - 16:35	K9	Yao Hu and Nanfen Wang	Orthogonality measurement of cross-grating based on image processing of multi-order diffraction patterns
02.07.	16:35 - 16:50	K9	Muhummad Madden, Masato Aketagawa, Shuhei Uesugi, Takuya Kumagai, Yoshitaka Maeda and Eiki Okuyama	Spindle error motion measurement using concentric circle grating and phase modulation interferometers

Position & displacement metrology: interferometry

<i>Day</i>	<i>Block</i>	<i>Room</i>	<i>Authors</i>	<i>Title</i>
02.07.	14:15 - 14:30	K4	Yang Hongxing, Fan Zhigang, Tan Jiubin, Lu Yunfeng, Hu Pengcheng	Methods for Measuring and Controlling the Coil Suspension Position of the Joule Balance
02.07.	14:30 - 14:45	K4	Fang-Jung Shiou, Chao-Jung Chen, Wen-Sheng Chien, and Huay-Chung Liou	Research on a Long Travel Nano- Positioning Air Bearing Stage with the Linear Motors
02.07.	14:45 - 15:00	K4	Young-Jin Kim, Byung Jae Chun, Sangwon Hyun and Seung-Woo Kim	Generation of multiple optical frequencies out of the frequency comb of a femtosecond laser
02.07.	15:00 - 15:15	K4	Steven Cappa, Dominiek Reynaerts, Farid Al-Bender	A new reversal method characterizing the axis of rotation radial error motion on the nanoscale
02.07.	15:15 - 15:30	K4	Mingxing Jiao, Junhong Xing and Xiaolu Wei	Experimental study of continuously tunable dual-frequency Nd:YAG laser with large frequency difference for absolute-distance interferometry
02.07.	15:50 - 16:20	K4	Sangwon Hyun, Young-Jin Kim, Byung Jae Chun and Seung-Woo Kim	Real-time absolute distance measurement using multi-wavelengths referenced to the frequency comb
02.07.	16:20 - 16:35	K4	Klaus-Dieter Roeth, Mark Wagner, and Frank Laske	Changing technology requirements of mask metrology
02.07.	16:35 - 16:50	K4	Haijin Fu, Jiubin Tan, Pengcheng Hu and Zhigang Fan	Model and Measurement Method of Optical Nonlinearities Caused by the Heterodyne and Homodyne Interference Terms in the Heterodyne Interferometer
02.07.	16:50 - 17:05	K4	Hu Pengcheng, Diao Xiaofei, Yang Hongxing, Fu Haijin, Guoliang Jin and Tan Jiubin	High stable heterodyne interferometer without periodic nonlinearity
03.07.	13:30 - 13:45	K4	Guanhao Wu, Kaoru Arai, Mayumi Takahashi, Hajime Inaba and Kaoru Minoshima	Two-color heterodyne interferometry of optical frequency combs for absolute distance measurement
03.07.	13:45 - 14:00	K4	Ming Wang, Wei Xia, Wenhua Guo and Huali Lu	Design of an all-fiber self-mixing interferometer based on sinusoidal phase modulation technique: theory and experiment
03.07.	14:00 - 14:15	K4	Wei Xia, Ming Wang, Zhenyu Yang, Wenhua Guo, Hui Hao and Dongmei Guo	High accuracy sinusoidal phase-modulating self-mixing interferometer using an electric-optic modulator for large range displacement measurement
03.07.	14:15 - 14:30	K4	Masato Aketagawa, Ryohei Yamashita, Tatsumi Ito, Anh Duong Quang and Kenji Hiata	Absolute length determination of a Fabry-Perot cavity with 10 ⁻⁹ uncertainty by free spectral range measurement

Sensors and actuators: acutators

<i>Day</i>	<i>Block</i>	<i>Room</i>	<i>Authors</i>	<i>Title</i>
02.07.	10:35 - 10:50	K9	Weiping Yan, Yinghua Xu, Li Guo	Study on Valveless Micropump of Saw-tooth Microchannel
02.07.	10:50 - 11:05	K9	Guan Lijuan, Bai Fengxian*, and Dong Weijie	Design and testing of wind energy harvester based on PVDF
02.07.	11:05 - 11:20	K9	Lei Wang, Xiaoyu Zhu	Giant magnetostrictive stretch micrometric displacement actuator based on external stress self-sensing
02.07.	11:20 - 11:35	K9	Sun Shengfu, Dong Weijie and Cui Yan	Investigation of energy harvest using a piezoelectric unimorph post-buckled by a stretching spring
02.07.	11:35 - 11:50	K9	Guiming Zhang, Libo Zhao, Longqi Xu, Yulong Zhao, Zhuangde Jiang, Xiaopo Wang and Zhigang Liu	Experimental Analysis on Dynamic Characteristics Stability of Magnetically Actuated Piezoresistive Microcantilever Sensor under Varying Environmental and Operational Conditions
02.07.	11:50 - 12:05	K9	V.N. Kostyukov, Al.V. Kostyukov	Self-diagnostics of piezoelectric transducers

Sensors and actuators: general

<i>Day</i>	<i>Block</i>	<i>Room</i>	<i>Authors</i>	<i>Title</i>
02.07.	10:35 - 10:50	K7	V. D. Kuptsov, V. Y. Katelevski, V. P. Valyukhov, E. N. Rybin	Highly Sensitive Automatic Gas Analyzers Based on the Molecular Condensation Nuclei Method
02.07.	10:50 - 11:05	K7	Robert Schmitt, Markus Köhler, Juan V. Durá and Jaime Diaz-Pineda	Objectifying User Attention and Emotion Evoked By Relevant Perceived Product Components
02.07.	11:05 - 11:20	K7	Robert Schmitt, Annika Neumann	Correlation Between Haptic Perceived Quality Characteristics and Measured Technical Parameters for Leather Surfaces
02.07.	11:20 - 11:35	K7	Khablov D.V.	Applications of the Continuous Wavelet Transform in the processing of output signals of microwave sensors
02.07.	11:35 - 11:50	K7	Xin Guo, Libo Zhao, Zhixia Qiao, Chuang Chen, Yulong Zhao and Zhuangde Jiang	Simulation Analysis on Autofrettaged Cylinder with Multi-hole Structure Applied in Ultra-high Pressure Sensor
02.07.	11:50 - 12:05	K7	Chao-Ching Ho, Dan-Wen Ku, and You-Huei Chiou	IEEE 1451-Based Sensor Interfacing and Data Fusion for Fire Smoke Detection

Sensors and actuators: optical and electrical sensors

<i>Day</i>	<i>Block</i>	<i>Room</i>	<i>Authors</i>	<i>Title</i>
02.07.	15:50 - 16:05	K7	Zhihuan Liu, Weiping Yan, Xiaobo Yang	Wavelength-resolved Fluorescence Detection on Capillary Electrophoresis Microchip
02.07.	16:05 - 16:20	K7	Junning Cui, Jiubin Tan, Guoliang Jin and Zhangqiang He	Optimal design of stylus with large aspect ratio for spherical capacitive probe based on modal analysis and simulation
02.07.	16:20 - 16:35	K7	M. Wendel, A. Karatas, J. Seewig	Qualification of a new scattering light sensor for areal form and roughness measurement
02.07.	16:35 - 16:50	K7	Wei Wei, Yu Jianwei, You Tao, Yu Xiaofen	Evaluation of the Transient Temperature Distribution of End-face Sliding Friction Pair Using Infrared Thermometry
02.07.	16:50 - 17:05	K7	Ming Ye, Toshifumi Yamashita, Kumiko Miyajima, Tomoko Gessei, Takahiro Arakawa, Hiroyuki Kudo, Kohji Mitsubayashi	Fiber-optic Fluorometric Biochemical Gas Sensor for Monitoring of Formaldehyde Vapor at Sub-ppb Level
02.07.	17:05 - 17:20	K7	Libo Zhao, Longqi Xu, Guiming Zhang, Zhuangde Jiang, Yulong Zhao, Xiaopo Wang and Zhigang Liu	A MEMS Fluid Density Sensor with Rectangular Micro Cantilever Beam Base on Novel Measuring Principle

Special Session: self-optimizing production systems

<i>Day</i>	<i>Block</i>	<i>Room</i>	<i>Authors</i>	<i>Title</i>
02.07.	10:35 - 10:50	K6	Marco Faber, Simon Müller, Marcel Ph. Mayer, Christopher M. Schlick	Modeling the Human Operator in Socio-Technical Systems
02.07.	10:50 - 11:05	K6	Günther Schuh, Till Potente and Carlo Hausberg	Approach to determine the performance limits of production structures
02.07.	11:05 - 11:20	K6	Christian Brecher, Sebastian Haag, Daniel Zontar	Camera-guided Feeding of Optics in Robot-based Laser Assembly
02.07.	11:20 - 11:35	K6	Ying Wang, Daniel Ewert, Daniel Schilberg and Sabina Jeschke	Work area monitoring in dynamic environments using multiple auto-aligning 3d sensors
02.07.	11:35 - 11:50	K6	Fritz Klocke, Meysam Minoufekr, Oliver Adams, Thomas Auerbach, Drazen Veselovac	Linked process evaluation model for machining processes
02.07.	11:50 - 12:05	K6	Tobias Meisen, Max Hoffmann, Daniel Schilberg and Sabina Jeschke	A Framework for Semantic Integration and Analysis of Measurement Data in Modern Industrial Machinery
02.07.	14:15 - 14:30	K6	Robert Schmitt, Philipp Jatzkowski, Markus Janssen, and Felix Bertelsmeier	Modeling of Component Deformation in Self-optimizing Assembly Processes
02.07.	14:30 - 14:45	K6	Robert Schmitt, Eike Permin	Characterization of Future Key Performance Indicators and Constraints for Self-Optimizing Assembly Systems
02.07.	14:45 - 15:00	K6	Martin Holters, Alexander Gatej , Sebastian Haag, Tobias Müller, Peter Loosen and Christian Brecher	Self-optimizing approach for the alignment of optical components
02.07.	15:00 - 15:15	K6	Tim Detert, Tom Mannheim and Burkhard Corves	Improving the accuracy of a Multi-Arm-Robot-System by parameter identification of the single arms
02.07.	15:15 - 15:30	K6	Ch. Hopmann, A. Reßmann, Daniel Zöller, M. Reiter and Dirk Abel	Strategy for Robust System Identification for Model Predictive Control of Cavity Pressure in an Injection Moulding Process

Special Session: towards zero defect manufacturing

<i>Day</i>	<i>Block</i>	<i>Room</i>	<i>Authors</i>	<i>Title</i>
02.07.	15:50 - 16:05	K6	Nicolas Meier, Anthimos Georgiadis	Optical part measuring inside a milling machine
02.07.	16:05 - 16:20	K6	Marvin Eggebrecht, Anthimos Georgiadis, Thomas Wagner	Strategies for correcting the workpiece deformation during the manufacturing at the milling process
02.07.	16:20 - 16:35	K6	Alvaro Capellan, Lars Tingelstad, Trygve Thomessen and Terje K. Lien	Fixture and Assembly Sequence Study of Robot-Automated High Precision Assembly of Aerospace Components
02.07.	16:35 - 16:50	K6	R. Schmitt, M. Wiederhold, J. Lose, M. Harding, R. Ottone	Cost-efficient measurement system analysis for small-batch production
02.07.	16:50 - 17:05	K6	L. Pilný, G. Bissacco, M. Dazzi, L. De Chiffre, J. Ramsing	Acoustic Emission Based In-process Monitoring in Robot Assisted Polishing

Surface metrology

<i>Day</i>	<i>Block</i>	<i>Room</i>	<i>Authors</i>	<i>Title</i>
03.07.	10:30 - 11:00	K4	Claudiu Giusca, Louis Bazin, Richard Leach and Andrew Henning	Determination of the lateral resolution of two commercial coherence scanning interferometers
03.07.	11:00 - 11:15	K4	Raimund Volk, Stefan Feifel	Full scale calibration of a combined tactile contour and roughness measurement device
03.07.	11:15 - 11:30	K4	Yuki Shimizu, Lu Wenjian, Yuta Ohba and Wei Gao	Feasibility study on the concept of thermal contact sensor for nanometer-level defect inspections on smooth surfaces
03.07.	11:30 - 11:45	K4	Sophie Gröger, Marco Gerlach and Saskia Schiefer	Function-oriented surface characterization system
03.07.	11:45 - 12:00	K4	A.J.Mohamad, Xinyao Zhu, E. M. H. Wellington, Wilhelm Pflöging and X. Liu	Investigation the effect of surface topography on hydrophobicity and bacterial adhesion of polystyrene
03.07.	12:00 - 12:15	K4	Bastian Lindl, Frank Kemnitzer	High accurate metrology on large surface areas with low reflectivity