

10th International Conference of the European Society for Precision Engineering and Nanotechnology

Sessions 1 – 4

Wednesday 2nd June 2010, 14:30-16:15

Session 1: Emerging Patterning Technologies and Methods

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|----------------|---|----------|----------|-----------|----------------------------------|
| P1.3_Guo | Surface form measurement with wavefront based modulated lighting technology | Ms | Wenjiang | Guo | Nanyang Technological University |
| P1.4_Blom | Large area mask-less patterning technology for printing of electronic systems on foil | Dr | Paul | Blom | InnoPhysics |
| P1.5_Morquecho | Optical inspection system for adaptive embossing patterning technology | Dipl-Ing | Alvaro | Morquecho | Innovalia Association |

Session 2: Nano & Micro Metrology

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| P2.01_Danzebrink | A high-resolution, self-sensing and self-actuated probe for micro and nano coordinate metrology and Scanning Force Microscopy | Dr | Hans U. | Danzebrink | Physikalisch-Technische Bundesanstalt (PTB) |
| P2.02_Joo | A novel heterodyne displacement interferometer with no detectable periodic nonlinearity and optical resolution doubling | Dr | Ki-Nam | Joo | Delft University of Technology |
| P2.03_Rucki | Novel method of non-contact out-of-roundness measurement with air gauges | Dr | Miroslaw | Rucki | Poznan University of Technology |
| P2.04_Medicus | Diameter Measurement of Small Spheres on a White Light Interferometer Including Uncertainty Analysis | Dr | Kate | Medicus | Mitutoyo RCE |
| P2.05_Jansen | Calibration of CMM reference spheres using stitching interferometry | Dr | Maarten | Jansen | Mitutoyo RCE |
| P2.06_Ellis | Frequency stabilization via the mixed mode in three mode HeNe Lasers | Mr | Jonathan | Ellis | Delft University of Technology |
| P2.07_Leach | Comparison of commercial software packages for calculating surface texture parameters | Prof. | Richard | Leach | NPL |
| P2.08_Claverley | A Novel Three-axis Vibrating Micro-CMM Probe with Isotropic Probing Forces | Mr | James | Claverley | NPL |
| P2.10_Meli | Numerical μ -CMM simulation for the application of Monte-Carlo methods for the uncertainty estimation of measured dimensional parameters | Dr | Felix | Meli | METAS |
| P2.11_Koellmann | Evaluation of Topography and Slope of Free-Formed Optics | Mr | Danny | Koellmann | Fraunhofer Institute for Production Technology IPT |
| P2.12_Xie | Investigation on automated parameter adjustments for the optical dimensional measurement | Dipl-Ing | Ke | Xie | University of Technology Ilmenau, Germany |

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| P2.13_Peters | Experience-based user support system for the measurement of micro-mechanical parts | Mr | Jochen | Peters | wbk - Institute of Production Science, Karlsruhe Institute of Technology (KIT) |
| P2.14_Balzer | 3-D microprobe with optical detection system | Dipl-Ing | Felix Gerhard | Balzer | Ilmenau University of Technology |
| P2.15_Schulz | Characteristics of the new Deflectometric Flatness Reference at PTB | Dr | Michael | Schulz | PTB |
| P2.16_Munnig Schmidt | Development of an Atomic Force Microscope | Prof. | Robert-Han | Munnig Schmidt | Delft University of Technology |
| P2.17_Takamasu | Sub-nanometer uncertainty evaluation of line width measurement by Si lattice structures of STEM image | Prof. | Kiyoshi | Takamasu | The University of Tokyo |
| P2.18_Okuyama | Software datum design for roundness profile measurement based on the least uncertainty criterion | Dr | Eiki | Okuyama | Akita University |
| P2.19_Guo | MEMS surface characterization based on white light phase shifting interferometry | Dr | Tong | Guo | State Key Laboratory of Precision Measuring Technology and Instruments, Tianjin University |
| P2.20_Yague-Fabra | Development of a thermally stable 2D calibration setup | Dr | Jose | Yague-Fabra | University of Zaragoza |
| P2.21_Yague-Fabra | Error budgeting of a sensor based on the inverse square law | Dr | Jose Antonio | Yague-Fabra | University of Zaragoza |
| P2.22_Aketagawa | Free spectral range measurement of Fabry-Perot cavity using transmission light, single frequency modulation and null method under off-resonance condition | Dr | Masato | Aketagawa | Nagaoka University of Technology |
| P2.23_Aketagawa | Precise measurement of air-refractive-index using Fabry-Perot cavity and tunable laser diode | Dr | Masato | Aketagawa | Nagaoka University of Technology |

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| P2.25_Sawano | Three-dimensional nano-positioning system for compact CMM | Dr | Hiroshi | Sawano | Tokyo Institute of Technology, Japan |
| P2.26_Ginani | Investigation of Opto-Mechanical Scanning Systems with the use of a Ray-Tracing Tool | Mr | Luciano | Selva Ginani | Technische Universitaet Ilmenau |
| P2.27_Kumermanis | Determination of surface nanoroughness 3D parameters | Dipl-Ing | Maris | Kumermanis | Riga Technical university |
| P2.28_Herrmann | Development of a Scanning Probe Microscope for traceable nanoscale length metrology | Dr | Jan | Herrmann | National Measurement Institute Australia |
| P2.29_Karrai | Ultra-compact non-invasive interferometric displacement sensor | Prof. | Khaled | Karrai | attocube systems AG |
| P2.30_Zeng | A fast algorithm for the 2nd order robust areal Gaussian regression filter | Dr | Wenhan | Zeng | Centre for Precision Technologies, School of Computing and Engineering, University of Huddersfield |
| P2.31_Unno | "NEXCERA", Zero Thermal Expansion Ceramic for Ultra Precision Applications | Mr | Hiroto | Unno | Electronics Materials Division, Nippon Steel Materials Co. |
| P2.32_Huang | Removal of Artifacts in X-ray CT by Using Extended ROI | Miss | Guixiang | Huang | Singapore Institute of Manufacturing Technology |
| P2.33_Tosello | Integrating measuring uncertainty of tactile and optical coordinate measuring machines in the process capability assessment of micro injection moulding | Dr | Guido | Tosello | Technical University of Denmark |
| P2.34_Tosello | Accuracy optimization of high-speed AFM measurements using Design of Experiments | Dr | Guido | Tosello | Technical University of Denmark |
| P2.35_Dong | Nanoscale displacement sensing using surface plasmonics excited by broadband light | Dr | ying | zhang | Singapore Institute of Manufacturing Technology, Singapore |
| P2.37_Jasinevicius | Micro Raman spectroscopy as a powerful technique to analyze structural phase transitions of silicon crystals | Dr | Renato | Jasinevicius | Departo, de Física, UFSCar, São Carlos, SP, Brazil |

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| P2.38_Gao | An approach of assessment for ultra-precision V-groove structured surfaces | Dr | Feng | Gao | University of Huddersfield |
| P2.39_Poyet | Advances in the development of the LNE metrological atomic force microscope | Dipl-Ing | Benoit | Poyet | Laboratoire National de Metrologie et d'Essais |
| P2.40_Liu | 'Thin Film Characterization by SNOM' | Dr | Ying | Zhang | Singapore Institute of Manufacturing Technology, Singapore |
| P2.41_van Schieveen | Integrated auto alignment and calibration for high resolution capacitive sensor system | Mr | Jeroen | van Schieveen | Delft University of Technology |
| P2.42_Carli | Experimental investigation on the influence of instrument settings on pixel size and nonlinearity in SEM image formation. | Mr | Lorenzo | Carli | Technical University of Denmark (DTU) |
| P2.43_Seck | Measurement of Micro-fluidic Channels by Modified Optical Coherence Tomography | Dr | Ying | Zhang | Singapore Institute of Manufacturing Technology, Singapore |
| P2.44_Cantatore | Investigation on a replica step gauge for optical 3D scanning of micro parts | Dr | Angela | Cantatore | Technical University of Denmark (DTU) |
| P2.45_Widdershoven | Isara 400: enabling ultra-precision coordinate metrology for large parts | Mr | Ivo | Widdershoven | IBS Precision Engineering |
| P2.46_Balcon | Thermal Drift study on SPMs | Mr | Manuel | Balcon | DIMEG - University of Padova |
| P2.47_Balcon | Atomic Force Acoustic Microscopy for surface mechanical characterization | Mr | Manuel | Balcon | DIMEG - University of Padova |
| P2.48_Pierobon | Olympic Gauge: A New Reference Standard for Testing X-ray Microtomography Systems | Dipl-Ing | Anna | Pierobon | University of Padova |
| P2.49_Lormeau | The Variable Optical Null device and its application to asphere metrology | Mr | Jean-Pierre | Lormeau | QED Technologies |
| P2.50_Schitter | Dual Actuated Nano-Positioning for High Speed Atomic Force Microscopy | Dr | Georg | Schitter | TU Delft |

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| P2.51_Dirscherl | Calibrating the diameter of spherical polystyrene nanometer reference particles with an atomic force microscope | Dr | Kai | Dirscherl | Danish Fundamental Metrology |
| P2.53_Dai | Further improvements of the measurement capability of a metrological large range AFM | Dr | Gaoliang | Dai | Physikalisch-Technische Bundesanstalt (PTB) |
| P2.54_Felix | DPBS: Leakage Filtering Interferometer | Mr | Greg | Felix | Agilent Technologies |
| P2.55_Agustinus | Improvement of gauge block measurement without wringing using tandem low-coherence interferometer | Mr | Winarno | Agustinus | The University of Tokyo |
| P2.56_Piot | Design of a sample holder for a metrological atomic force microscope | Dipl-Ing | Jan | Piot | KULeuven |
| P2.57_Gafsi | Temperature Stabilization of an In-process Measurement System Based on Laser Triangulation and Applied at a Furnace | Mr | Houcem | Gafsi | University of Bremen |
| P2.59_Li | Development of a micro-SPM head array with exchangeable cantilevers | Dr | Zhi | Li | Physikalisch-Technische Bundesanstalt |
| P2.61_Vogel | Investigations on profitability of measurements with coordinate measurement machines with multi sensor systems | Mr | Michael | Vogel | Ilmenau University of Technology |

Session 3: Ultra Precision Machines & Control

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| P3.01_Oh | Design and Evaluation of Ultra Precision Roll Lathe for Large-scale Micro-structured Optical Films | Dr | Jeong Seok | Oh | Korea Institute of Machinery & Materials |
| P3.02_van der Kruk | On the practical application of Dynamic error budgetting | Dipl-Ing | Robbert | van der Kruk | Bosch Rexroth |
| P3.03_Hamelinck | Real-time compensation of dynamic thermally induced optical aberrations by a deformable mirror based on reluctance actuators | Mr | Roger | Hamelinck | TNO Science and Industry |
| P3.04_Sobotka | iTool - Design of a diamond grinding and lapping machine | Dipl-Ing | Andreas | Sobotka | Fraunhofer IPT |
| P3.05_Mizumoto | An Active Aerodynamic Bearing for Ultraprecision Machining | Prof. | Hiroshi | Mizumoto | Tottori University |
| P3.06_Jansen | Novel double sided stitching interferometer concept for 450 mm wafers | Dr | Maarten | Jansen | Mitutoyo |
| P3.07_Une | High Flatness Polishing of Long and Narrow Materials with Oscillation Speed Control | Prof. | Atsunobu | Une | National Defense Academy |
| P3.08_Sattel | Design of a nanometre-precision air gap control for planar magnetic bearing actuators | Prof. | Thomas | Sattel | Ilmenau University of Technology, Mechatronics Laboratory, Ilmenau, Germany |
| P3.09_Kim | Mechanical Modeling and Geometric Error Analysis of Rotatable H type stage using Flexure Hinge Mechanism | Mr | Kyoungchon | Kim | Korea Advanced Institute of Science and Technology |
| P3.10_Lee | Ultrasonic Vibration Mechanism with PZT and Flexure Spring for Ultraprecision Laser Machining | Prof. | Moon G. | Lee | Division of Mechanical Engineering, Ajou University, Korea |
| P3.11_Aurich | Micro-EDM-device for Machining Tungsten Carbide in a Desktop Machine Tool | Prof. | Jan C. | Aurich | University of Kaiserslautern |

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| P3.12_Vyroubal | Compensation of Thermal Deformation via Machine Structure Decomposition | Dipl-Ing | Jiri | Vyroubal | RCMT, Praha, Czech Republic |
| P3.13_Koops | Automated calibration facility for accurate angle measurements | Dr | Richard | Koops | VSL Dutch Metrology Institute |
| P3.15_Ro | Design and Control of a Compact Air Bearing Stage with Planar Motor | Dr | Seung-Kook | Ro | Korea Institute of Machinery and Materials |
| P3.17_van Eijk | The Mystery of Active Vibration Isolation | Prof. | Jan | van Eijk | TU Delft |
| P3.18_Shanmugaraj | Measurement of Machine Tool Slide Thermal Deformation using Micro Sensors - An Innovative Approach | Mr | Vellasamy | Shanmugaraj | Central Manufacturing Technology Institute, Bangalore, India |
| P3.19_Fukada | Ultra-precise Positioning over a One-millimeter Stroke by Using Coaxial Differential Ball Screw | Prof. | Shigeo | Fukada | Shinshu University |
| P3.20_Balini | Advanced Control for Active Magnetic Bearings | Mr | HMNK | Balini | DCSC, TU DELFT |
| P3.21_Han | Modelling and the estimation of thermal error in precision machine spindles | Dr | Jian | Han | Department of Precision Instruments and Mechanology, Tsinghua University, Beijing, China |
| P3.22_Vinod | Investigation on influence of spindle running accuracy and feed drive characteristics on the work piece accuracy of a diamond turning machine | Mr | Prakash | Vinod | Central Manufacturing Technology Institute |
| P3.24_Yamamoto | Thrust Force Control in Drilling Applying Sensor-less Cutting Force Monitoring Method | Mr | Masaomi | Yamamoto | Department of System Design Engineering, Keio University, Japan |
| P3.25_Olaskoaga | Design, set-up and test of completely levitating contactless micro-milling machine linear axis. | Mr | Peio | Olaskoaga | Ideko-IK4 |
| P3.26_Niehaus | Innovative Fast Tool Servo System using Mass Compensation and Damping System | Dipl-Ing | Frank | Niehaus | Fraunhofer Institute for Production Technology IPT |

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| P3.27_Teo | A 3-DOF Spatial Motion Flexure-Based Parallel Manipulator with Large Workspace and High Payload for UV Nanoimprint Lithography Application | Dr | Tat Joo | Teo | Singapore Institute of Manufacturing Technology |
| P3.28_Merz | FPGA based Control System for Coupled Highly Dynamic Axes in Ultra-Precision Machining | Dipl-Ing | Dominik | Lindemann | Fraunhofer IPT |
| P3.29_Yang | Multi-probe evaluation study on an ultra-precision eight-axis positioning stage | Mr | Raymond | Yang | Center for Precision Metrology |
| P3.31_Ludwick | Design of a precision scanning system for digitising aero and astro photographic images | Dr | Stephen | Ludwick | Aerotech, Inc. |
| P3.32_Uchida | Development of Non-Contact Micro-Nano Displacement Sensor using Interferometric Phenomena | Dr | Yoshihisa | Uchida | Aichi Institute of Technology |
| P3.33_Jeong | A Millimeter-range Flexure-based Micropositioning Stage Using a Self-guided Amplifying Mechanism | Prof. | Jaehwa | Jeong | Korea University |
| P3.34_Nakao | Fundamental consideration on design of restrictor for hydrostatic bearing | Prof. | Yohichi | Nakao | Kanagawa University |
| P3.35_Fluegge | Long term stability of Suprasil line scales and gauge blocks | Dr | Jens | Fluegge | PTB |
| P3.36_Bos | Design of a low-cost CMM with nanometer uncertainty | Dr | Edwin | Bos | Xpress Precision Engineering |
| P3.37_Nor | An Industrial Feasible Approach for Assessing the Performance of a 5-axis Ultraprecision Micromilling Machine | Mr | Mohd Khalid | Nor | Brunel University |
| P3.38_Autschbach | Integration of Interferometry into Ultra-Precision Lathe for Tool Alignment and Surface Analysis | Mr | Lutz | Autschbach | Carl Zeiss Jena GmbH |

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| P3.39_Spiewak | Attenuation of ambient disturbances in high performance translational exciters | Dr | Swavik | Spiewak | University of Calgary, Canada |
| P3.40_Heidler | Dynamical investigation of a wrap-around gas bearing design in a vacuum environment | Dipl-Ing | Nils | Heidler | Institute of Applied Physics, Friedrich-Schiller-University, Jena, Germany |
| P3.41_Yoshioka | Sub-Nanometer Positioning with a High Resolution Laser Interferometer | Dr | Hayato | Yoshioka | Tokyo Institute of Technology |
| P3.42_Kohut | Experimental Identification of Convective Heat Transfer on Machine Tools | Dipl-Ing | Peter | Kohut | Czech Technical University in Prague, Czech Republic |

Session 4: High Precision Mechatronics

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| P4.01_Laro | Lightweight 450 mm Wafer Stages enabled by over-actuation | Dr | Dick | Laro | MI-partners |
| P4.02_Valentin | Mechatronic System Design of an Optical Element Curvature Actuation System | Mr | Chris | Valentin | Delft University of Technology |
| P4.04_Furutani | Electrode Feeding Device for Micro-hole Electrical Discharge Machining by Using AZARASHI Mechanism | Prof. | Katsushi | Furutani | Toyota Technological Institute |
| P4.05_Kim | An investigation on development of motor and gear heads with 90mm outer diameter for precision mechanism | Mr | Joo Han | Kim | Korea Electronics Technology Institute (KETI) |
| P4.06_Lee | Precise Motion Control in a high vacuum Using a Longitudinal and Bending Hybrid Press-fitted Langevin Transducer | Prof. | Sun-Kyu | Lee | Gwangju Institute of Science and Technology |
| P4.08_Heyne | Measurement of the percentage contact area of high precision planar ball guideways | Dipl-Ing | Marko | Heyne | Ilmenau University of Technology |
| P4.09_Blom | Multivariable Frequency Response Function Estimation of a Micro-Milling Spindle with Active Magnetic Bearings | Mr | Rogier | Blom | Delft University of Technology |
| P4.10_Torii | Friction control using ultrasonic vibration for piezoelectric translation apparatus | Dr | Akihiro | Torii | Aichi Institute of Technology |
| P4.11_Hesse | First results of an interferometric controlled planar positioning system for 100 mm with zerodur slider | Dipl-Ing | Steffen | Hesse | Institut für Mikroelektronik. Mechatronik Systeme gGmbH, Ilmenau, Germany |
| P4.12_Brouwer | Long-range Elastic Guidance Mechanisms for Electrostatic Comb-drive Actuators | Dr | Dannis | Brouwer | University of Twente |

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| P4.14_Loewenstein | Development of a High Precision Clamping System for the Compensation of Angular Errors in Workpiece Alignments | Dipl-Ing | Armin | Loewenstein | Institute for Machine Tools and Factory Management, Technical University Berlin, Germany |
| P4.15_Leicht | Ultraprecision Micropositioning Fixturing | Mr | Zoltan | Leicht | IDEKO IK-4 |
| P4.16_Urreta | High Response Fast Tool Servo for Ultraprecision Turning | Mr | Harkaitz | Urreta | IDEKO IK-4 |
| P4.17_Wagner | Solution principles for the metrology of very small torques with minimized relative uncertainty | Dipl-Ing | Alexander | Wagner | TU Ilmenau |
| P4.18_Bitencourt | Alternative concepts for high precision bearings in torque standard machines | Dipl-Ing | Antonio Carlos | Bitencourt | Universidade Federal de Santa Catarina, Brazil |
| P4.20_vanhulzen | Modal actuation for high speed piezoelectric positioning | Mr | jan | van Hulzen | Delft University of Technology |
| P4.21_Lim | Modal Prediction of Aerostatic Guideway with Realistic Bearing Stiffness Model | Dr | Chee Wang | Lim | Singapore Institute of Manufacturing Technology |
| P4.23_Weikert | Efficient evaluation of machine concepts under hysteresis and inertia influences | Dipl-Ing | pascal | maglie | IWF-ETHZ |
| P4.24_Carlqvist | Optimization of Active Vibration Control of a Laser Pattern Generator in Micro Lithography | Mr | Per | Carlqvist | Micronic Laser Systems AB |
| P4.25_Zirn | Error Classification and Visualization for Hexapod Positioning Units | Prof. | Oliver | Zirn | Institut für Prozess- und Produktionsleittechnik, TU Clausthal |
| P4.26_Teo | Eddy Current Damper for Performance Enhancement in Precision Motion System | Dr | Chek Sing | Teo | SIMTech |
| P4.28_Francesse | Laser frequency stabilization for aerospace applications | Dr | Claudio | Francesse | INRIM |