

NanoScale 2013

24th April 2013

Arrival

SPM Standardization Symposium

LNE Paris

25th April 2013

08:00

Registration

09:00

Welcome by LNE

1st Session

09:10

1.1

Performance evaluation of metrological Scanning Probe Microscope with integrated heterodyne interferometry

B. Babic, C. Freund, M. T. L. Hsu, M. B. Gray and J. Herrmann
National Measurement Institute Australia, Lindfield NSW 2070, Australia

09:30

1.2

New concept of long-range Scanning Probe Microscope stage based on mechanism with stuck planchets

Ondřej Číp, Martin Čížek, Jan Hrabina, Václav Hucl, Šimon Řeřucha, Josef Lazar 1)
Pavel Konečný 2)
Miroslav Valtr, Anna Campbellová, Petr Klapetek 3)
1) Institute of Scientific Instruments Academy of Sciences of the Czech Republic, Královopolská 147, 612 64 Brno, Czech Republic
2) MESING, s.r.o., Šámalova 60a, 61500 Brno, Czech Republic
3) Czech metrology institute, Okružní 31, 63800 Brno, Czech Republic

09:50

1.3

Development of a motorized scanning stage for a large range metrological atomic force microscope

M. Lu, S. Gao, W. Li, Y. Shi, Q. Li
National Institute of Metrology (NIM), Beijing 100013, China

10:10

Coffee

POSTER

10:50

1.4

An approach towards 3D sensitive AFM cantilevers

K.R. Koops, V. Fokkema
VSL Dutch Metrology Institute, Thijssseweg 11, 2629 JA Delft, The Netherlands

11:10	1.5	Design and proof of concept of a novel 3D vibrating probe M.C.J.M. van Riel, E.J.C. Bos 1) M.C.J.M. van Riel, F.G.A. Homburg 2) A.H. Dietzel 3) 1) Xpress Precision Engineering, Horsten 1, 5612 AX Eindhoven, The Netherlands 2) Eindhoven University of Technology, P.O. box 513, 5600 MB Eindhoven, The Netherlands 3) Technical University Braunschweig, 38092 Braunschweig, Germany
11:30	1.6	Comparison of a homodyne interferometer and optical resonator with common measuring arm: the scale nonlinearity and resolution limits under atmospheric conditions M. Čížek, R. Šmíd, V. Hucl, B. Mikel, J. Hrabina, J. Lazar and O. Číp Institute of Scientific Instruments, Academy of Sciences of the Czech Republic Královopolská 147, 612 64 Brno, Czech Republic
11:50	Lunch	
13:00 – 14:30	POSTERSESSION	

2nd session		
14:30	2.1	Self-consistent determination of line width and probe shape using atomic force microscopy B. J. Eves, R. G. Green National Research Council Canada, 1200 Montreal Rd, Ottawa, Ontario, K1A 0R6
14:50	2.2	Accurate and traceable CD metrology based on CD-AFM and TEM Gaoliang Dai, Kai Hahm, Jens Fluegge, Harald Bosse Physikalisch-Technische Bundesanstalt (PTB), Bundesallee 100, D-38116 Braunschweig, Germany
15:10	2.3	Investigations of the influence of common approximations in scatterometry for dimensional nanometrology J. Endres, A. Diener, M.-A. Henn, S. Heidenreich, M. Wurm, B. Bodermann Physikalisch-Technische Bundesanstalt (PTB), Bundesallee 100, 38116 Braunschweig, Germany
15:30	Coffee	POSTER
16:00	2.4	Traceability for AFM roughness measurements T. Dziomba, P. Krebs, A. Felgner, R. Krüger-Sehm, H.-U. Danzebrink, L. Koenders Physikalisch-Technische Bundesanstalt (PTB), Bundesallee 100, 38116 Braunschweig, Germany
16:20	2.5	Development of reference roughness specimens for surface metrology via scanning probe microscopy Yuhang Chen, Wenhao Huang, Tingting Luo, Xiaoning Liu Department of Precision Machinery and Precision Instrumentation, University of Science and Technology of China, Hefei 230026, China

16:40	2.6	Low-cost artefacts for ISO-compliant calibration of surface topography measuring instruments Claudiu Giusca 1), Richard Leach 2), Markus Guttman 3), Peter-Jürgen Jakobs 4) Kai Rickens 5), Oltmann Riemer 6), Paul Rubert 7) 1) Engineering Measurement Division, National Physical Laboratory, Teddington, Middlesex TW11 0LW, UK 2) Engineering Measurement Division, National Physical Laboratory, Teddington, Middlesex TW11 0LW, UK 3) Karlsruhe Institute of Technology, Institute of Microstructure Technology, 76344 Eggenstein-Leopoldshafen, Germany 4) Karlsruhe Institute of Technology, Institute of Microstructure Technology, 76344 Eggenstein-Leopoldshafen, Germany 5)+6) Laboratory for Precision Machining, University of Bremen, Bremen, D-28359, Germany 7) Rubert + Co Ltd, Cheadle, Cheshire SK8 2PG, UK
17:00	Coffee	POSTER
17:20	2.7	Novel method for dimensional measurements of nanorelief elements based on electron probe defocusing in scanning electron microscope M.N. Filippov, V.P. Gavrilenko, V.B. Mityukhlyayev, A.V. Rakov, P.A. Todua Center for Surface and Vacuum Research, 40 Novatorov street, 119421 Moscow, Russia
17:40	2.8	Reconstruction of 3D structures using photogrammetry and shape from shading technique in an SEM Petr Cizmar, Gaoliang Dai, Klaus-Peter Johnsen, Carl Georg Frase, Harald Bosse 1) Manfred Prantl 2) 1) Physikalisch-Technische Bundesanstalt (PTB), Bundesallee 100, 38116 Braunschweig, Germany 2) Alicona Imaging GmbH, Dr. Auner-Straße 21a, 8074 Raaba/Graz, Austria
3rd Session - Activities at ISO TC 201		
18:00 - 18:30	3.1	SPM standardization in ISO/TC 201/SC9 Prof. Haesong Lee Chairman of the ISO/TC 201/SC 9
19:00	Sightseeing	
20:30	Arrival at conference dinner location	
21:00	Conference Dinner	
-		
23:00		

26th April 2013

08:00

Registration

4th session

08:30

4.1

Nanoparticle packing model for lateral AFM size calibrations

Felix Meli

Swiss Federal Office of Metrology (METAS), Lindenweg 50, CH-3003 Bern-Wabern, Switzerland

08:50

4.2

Size and mechanical properties of polystyrene nano particles

Joergen Garnaes

DFM - Danish Fundamental Metrology, Matematiktorvet 307, DK-2800 Lyngby, Denmark

09:10

4.3

Validity of elastic mechanical models for AFM force measurement

S. Fujinami, M. Ito, K. Nakajima

WPI Advanced Institute for Materials Research, Tohoku University, 2-1-1 Katahira, Aoba-ku, Sendai, Japan

09:30

4.4

A novel approach to estimate deformations of adsorbed nanoparticle sizing

K.Dirscherl

Danish Fundamental Metrology, Matematiktorvet 307, DK-2800 Kgs. Lyngby, Denmark

09:50

Coffee

10:30

4.5

Towards quantitative modelling of surface deformation of photoresist micro- structures under tactile measurement

Zhi Li, Uwe Brand and Thomas Ahbe

Physikalisch-Technische Bundesanstalt (PTB), Bundesallee 100, 38116 Braunschweig, Germany

10:50

4.6

Scatterometric characterization of diffractive optical elements

H. Husu, A. Lassila 1),

T. Saastamoinen, J. Turunen 2),

S. Siitonen 3)

1) Centre for Metrology and Accreditation (MIKES), P.O. Box 9, FI-02151 Espoo, Finland

2) University of Eastern Finland, P.O. Box 111, FI-80101 Joensuu, Finland

3) Nanocomp Oy Ltd, Ensolantie 6, FI-80710 Lehmo, Finland

11:10

4.7

Overcoming diffraction limit in 3D white light interferometer

Matt Novak 1), 2. Samuel Lesko 2)

1) Bruker Nano, 3400 East Britannia Drive Suite 150, 85706 Tucson, AZ, USA

2) Bruker Nano, 7 rue de la Croix Martre, 91120 Palaiseau, France

11:30

4.8

A new calibration tool for fluorescence microscopy

A. Royon and G. Papon

Argolight SA, Building C5, Domaine du Haut Carré, 351 Cours de la Libération, F-33405 Talence, France

11:50

Final remarks and closing

12:00

Lunch

13:00

17:00

Tour to LNE Paris and Trappes