

Symposium Program

Tuesday, Sept. 7th, 2004;

2:00 p.m. Hysitron User Meeting

6:00 p.m. Welcome Reception

Wednesday, Sept. 8th, 2004

9:00a.m. **O P E N I N G**

*****MEMS & Semiconductors*****

9:10a.m. **nanoImprint Replication Mechanics** *Graham Cross (invited)*

10:00a.m. **Adhesion measurements using Cross-Section nanoIndentation**
Sywert Brongersma IMEC

10:25a.m. **Identification of the mechanical Properties of Hydroxy-Catalysis Glue Bonds in the mirror suspensions of gravitational wave detectors using NanoIndentation and finite element Modelling** *S.J. Bull*

coffee break 10:50a.m. – 11:20a.m.

11:20a.m. **Deformation of Semiconductors under micro- & nano-Indentation** E. Le Bourhis

11:45a.m. **Fracture Mechanical Characterisation of Microcracks by application of digital Image Correlation to SPM images** Jürgen Keller

*****Thin films*****

12:10p.m. **Nanomechanical Properties of Thin Film Libraries** O. Warren

12:35p.m. **Investigations of the Size-Effect in Al-nano-coatings** M. Schaper

Lunch 1:00p.m. – 1:50p.m.

*****Bulk Samples; homogenous or with microstructures*****

1:50p.m. **NanoIndentation on metallic Glasses** H. Meinhard, P. Grau

2:15p.m. **NanoIndentation in healthy bone and bone affected by Osteogenesis** T. Schoeberl

2:40 p.m. **Nanoindentation of ultra-fine grain copper produced by equal channel angular pressing** F. Rabkin

Poster Session & Coffee break 3:05p.m. – 4:30p.m.

- 4:30 p.m. **Indentation Testing of nano-particles** William Gerberich / video
- 5:30 p.m. **Visco-elastic characterisation of Low-Dielectric Constant Polymer films using nanoindentation** J.den Toonder
- 5:55 p.m. **Visco-elastic properties of coating-polymer systems. Comparison between quasi-static, dynamic depth sensing indentation measurements and instrumented scratch testing in order to characterise the wear and mar resistance** Riche
- 6:20 p.m. **nanomechanical properties of thin tailored Plasma polymers on organic coatings** L.Yang
- 7:30 p.m. Shuttle to Conference Dinner

Thursday, Sept. 9th, 2004

****indentation - fundamentals, theoretical predictions & experiments****

- 9:00 a.m. **Indentation Modulus a measure of sample elasticity, probed under high pressure** B.Wolf
- 9:25 a.m. **Comparison between conventional Vickers hardness and indentation hardness with different indenter types**
T.Chudoba
- 9: 50 a.m. **Elastic contact to a coated substrate – the contact radius problem** A.Perriot
- coffee break 10:15a.m. – 10:45a.m.*
- 10:45 a.m. **Investigations on the establishment of traceability for the nanoindentation method** K.Herrmann
- 11:10 a.m. **A new method for hardness Calculation using instrumented indentation testing** Pintaude / Brasil
- 11:35 a.m. **Determination of macroscopic mechanical properties of polycrystalline metallic materials by nanoindentation** - experiments and finite element simulations K.Durst & M. Göken
- 12:00 p.m. **Quantitative Evaluation of nanoIndents and NanoScratches; Do we need more reliable Standards for mechanical testing?** G.Kaupp
- Lunch 12:25 p.m. – 2:10 p.m.*

****thin films****

- 2:10 p.m. **Young's Modulus and Electronmicroscopy measurements on ultra-thin reaction layers** M.Reichelt
- 2:35 p.m. **Modeling of Nanoindentation Process of Ultrathin Film** Zygmund Rymuza
- 3:00 p.m. **Structure investigations and nanoindentation experiments on TiC/VC multilayers – indication for an inverse Hall-Petch relation for nanocrystalline films** A.Belger
- 3:25 p.m. **Nanoindentation Study on Thin Film MAX-Phases** Jens Emmerlich
- 3:50 p.m. Closing and Farewell

Poster Session: Sept. 8th, 2004, 3:05 p.m.

- 1) MicroIndentation near Stiff-Soft Boundaries
Gerhard Kalinka
- 2) Analysis of mechanical properties of thin metal films for RF-MEMS using nanoIndentation
Jaap M.J. den Toonder
- 3) Measurement of local mechanical properties in pyrolysed wood
Thomas Schöberl
- 4) Orientation dependence of nanoindentation and mechanical relaxation
P.Nagy
- 5) Nanomechanical Properties of Polymer-Materials Device: Setup, Calibration and Results
M.Kutschera BASF
- 6) nanomechanical and nanotribological behaviour of thin Hydrogen free amorphous carbon coatings on different substrates
Küster
- 7) Indentation and Scratch damage of multilayer optical Coatings
K.Belde & S.J.Bull
- 8) NanoIndentation under Displacement Control for the mechanical Assessment of multilayer optical coatings **J.Chen & S.J.Bull**
- 9) Application of lateral force unit for the extension of measurement possibilities with spherical indenters **Karniychuk**
- 10) Examination of particle-surface contact under triboCorrosion conditions with a novel low force micro indenter **Tan**
- 11) Analysis of the ductile /brittle transition during a scratch test performed into polymeric film deposited on PMMA substrate **Riche**
- 12) Nanomechanics and Nanotribology of nanocrystalline Diamond Films
K. Malyska & Z. Rymuza
- 13) Adhesive and Nanomechanical Proerties of Polymeric Films Deposited on Silicon
D. Falkowska & Z. Rymuza
- 14) A usable Concept for the indentation of thin porous films
René Puschmann et al
- 15) Direct measurement of indenter area function by metrological AFM.
Giles Aldrich-Smith et al
- 16) Nanomechanical and nanotribological properties of polymeric ultrathin films for nanoimprint lithography **M.Ekwinska**