

Poster Presentations

Instrumented Indentation Testing in Materials Research and Development

9 - 14 October 2005

**Fodele Beach Hotel
Crete, Greece**

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POSTER PRESENTATIONS

Monday, October 10, 2005

Session P.1: Fundamentals

P1.1 An Inverse Analysis of Indentation Load-Depth Curve to Evaluate the Local Mechanical Properties of Materials

Takashi Akatsu, Tokyo Institute of Technology, Japan

P1.2 Optimum Experimental and Analytical Parameters and Technique Standardization for Indentation-Derived Tensile Properties

Kwang-Ho Kim, Frontics, Inc.

P1.3 Indentation Contact Deformation of Superplastic 3Y-TZP at Elevated Temperatures

Hiroyuki MUTO, Tyohashi University of Technology, Japan

P1.4 High Temperature Instrumented Microindentation: Applications to Thermal Barrier Coatings Constituent Materials

Bruno Passilly, ONERA-DMSC, France

P1.5 Comparison of Nanoindentation Results Obtained with Cube Corner and Berkovich Indenters

Patrick Schwaller, EMPA, Materials Science and Technology, Switzerland

P1.6 Incipient Plasticity during Nanoindentation at Grain Boundaries in Body-Centered Cubic Metals

W. A. Soer, University of Groningen, The Netherlands

P1.7 An Experimental Evaluation of the Constant *Beta*: Relating the Contact Stiffness to the Contact Area in Nanoindentation

Jeremy H. Strader, University of Tennessee, USA

P1.8 Nanoindentation Studies of Elastic and Plastic Anisotropies of Copper Single Crystals

Wang Wei, Chinese Academy of Sciences, China

Session P2: Micromechanics of Contacts/Size Effects

P2.1 Material Deformation Investigated by Nanoindentation – Size Dependence and Statistical Scatter

Alfonso H. W. Ngan, University of Hong Kong, Hong Kong

P2.2 Indentation Size Effect in Metallic Material: From Pop-in to Macroscopic Size Independent Hardness

Karsten Durst, University of Erlangen, Germany

- P2.3 A Study of Nanowires Using Nanoindentation**
Gang Feng, Stanford University, USA
- P2.4 Indentation Size Effect Model Considering Tip Bluntness and Surface Roughness in Nanoindentation**
Ju-Young Kim, Seoul National University, Korea
- P2.5 Comparative Study of Cross-Section Indentation Modulus for Ultra-fine Platinum Wires**
Ryan O'Hagan, MTS Instruments, USA
- P2.6 Pop-in Phenomenon in MgO: AFM and Nano-etching Study of Dislocation Nucleation and Growth during Nanoindentation**
Christophe Tromas, University of Poitiers, France

Session P3: Modeling

- P3.1 Study of the Pile-up Behavior During Nanoindentation: Experiments and Finite Element Simulations**
Bjorn Backes, University of Erlangen, Germany
- P3.2 Impact of Domain Anisotropy on CTE of Isotropic Microcrystalline Material**
Alexander M. Efremov, Corning Scientific Center, USA
- P3.3 Mechanical Analysis of the Indentation Experiments with Conical Indenter**
Eric Felder, CNRS, Ecole de Mines des Paris, France
- P3.4 Analytical Correlation of Indentation Experiments**
Eric Felder, Ecole de Mines des Paris, France
- P3.5 On the Pressure Dependence of the Indentation Modulus: A Theoretical Study**
B. Wolf, Fachhochschule Lausitz, Germany

Tuesday, October 11

Session P4. Brittle Solids and Biological Materials

P4.1 Plastic Deformation in Amorphous Silica and Silicate Glasses Investigated by Indentation and Raman Spectroscopy

Etienne Barthel, CNRS, Saint-Gobain, France

P4.2 Analysis of Nanoindentation Tests in SiC-Based Ceramics

Stefano Guicciardi, ISTECCNR, Italy

P4.3 Micromechanical Properties of Ceramic Laminates

E. Jimenez-Pique, Universitat Politecnica de Catalunya, Spain

P4.4 The Effects of Grain Boundary Character and Connectivity on Grain Boundary Hardening and Triple Junction Hardness in Molybdenum

Shigeaki Kobayashi, Ashikaga Institute of Technology, Japan

P4.5 Indentation on YSZ Thermal Barrier Coating Layers Deposited by Electron Beam PVD

Kee Sung Lee, Kookmin University, Korea

P4.6 Indentation Fracture of a-C:H Thin Films Deposited by CVD

Carlos Mauricio Lepienseki, Universidade Federal do Paran, Brazil

P4.7 Contact Mechanics in Dentistry: A Systematic Investigation of Modern Composite Materials Used for Fillings

Dennis Heuer, ZAP Dr. Heuer, Germany

P4.8 Nanoindentation of Natural Hairs and Stratum Corneum as Function of Humidity

S. Pavan, Ecole Centrale-Lyon, France

Session P5 Thin Films and Tribology

P5.1 Nanoindentation and Nanofriction on DLC Films

Sandrine Bec, Ecole Centrale-Lyon, France

P5.2 A Simple Guide to Determining Elastic Properties of Film on Substrate from Nanoindentation Experiments

Sandrine Bec, Ecole Centrale-Lyon, France

P5.3 Critical Shear Stress for On-set of Plasticity in Nanocrystalline Copper Films Determined Using Nanoindentation

J. Chen, Chinese Academy of Sciences, China

- P5.4 Mechanical Properties of Column-Spacer for TFT LCD**
Junhee Hahn, Korea Research Institute of Standards and Science, Korea
- P5.5 Extracting Thin Film Properties from Nanoindentation of Film/Substrate Systems**
Seung Min Han, Stanford University, USA
- P5.6 Characterization of Mechanical Properties of Thin CVD SiC Films by Nanoindentation**
Do Kyung Kim, KAIST, Korea
- P5.7 Irradiation Effects on Mechanical Properties of Nuclear Borosilicate Glasses**
S. Pavan, Ecole Centrale-Lyon, France
- P5.8 Nanomechanical and Analytical Investigations on Tribological Layers for Wear Protection in Slow Running Roller Bearings**
Manuela Reichelt, RWTH Aachen, Germany
- P5.9 Temperature Effects on Mechanical Properties of Zinc Dithiophosphate Tribofilms**
Karim Demmou, Ecole Centrale-Lyon, France
- P5.10 Nanoindentation and Atomic Force Acoustic Microscopy Studies of Carbon-based Thin Films and Multilayers**
S. Kassavetis, Laboratory for Thin Films, Nanosystems and Nanometrology, Greece

Session P6. Polymers and Time-Dependent Deformation

- P6.1 Viscoelastic Properties of Bone as a Function of Hydration State Determined by Nanoindentation**
A. K. Bembey, University of London, UK
- P6.2 Instrumented Indentation and Viscoelastic Materials**
Erik Herbert, Nano Instruments Innovation Center of MTS Corp., USA
- P6.3 Relations Between Hardness, Strain Rate and Mechanical Properties During Conical Indentation of Time Dependent Materials**
G. Kermouche, CNRS/ECL/ENISE, France
- P6.4 Nanomechanical and Tribological Properties of Inorganic/Polymeric Systems**
S. Kassavetis, Laboratory for Thin Films, Nanosystems and Nanometrology, Greece

Session P7. New Techniques and In Situ Experiments

P7.1 Phase Transformations in the Ternary System $ZrO_2 - Y_2O_3 - Sm_2O_3$ and Field of Application

E. Andrievskaya, Ukrainian Academy of Sciences, Ukraine

P7.2 Effect of Hydrogen on Mechanical Properties of Nitrided Steels

Carlos Mauricio Lepienski, Universidad Federal do Paran, Brazil