Poster Presentations

Instrumented Indentation Testing in Materials Research and Development

9 - 14 October 2005
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Conference Co-Chairs

Carl J. McHargue
University of Tennessee

George M. Pharr
University of Tennessee

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ENGINEERING CONFERENCES INTERNATIONAL, INC.
Six MetroTech Center -- Brooklyn, NY 11201
E: info@eci.poly.edu - www.engconfintl.org
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, Toyohashi 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, ISTEC-CNR, 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 Lepienski, 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$_2$O$_3$ - Sm$_2$O$_3$ 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