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Editor:

Karsten Durst

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Sunday, October 1, 2017

08:30 - 09:00 Check-in for Optional Tutorial Session

09:00 - 13:00 Tutorial Session

Advances in high temperature nanoindentation

Jeff Wheeler, ETH Zurich, Switzerland

Analysis of thermally activated processes during indentation

Verena Maier-Kiener, Montanuniversität Leoben, Austria

Industrial application of small scale mechanical testing

Johann Michler, EMPA, Switzerland

13:00 - 14:00 Lunch (on your own)

14:00 - 15:45 Conference check-in (Pre-function area)

Welcome and Conference Overview

Conference Chair: Karsten Durst

ECI Technical Liaison: Larry Kabacoff

16:00 - 17:00 **Keynote: Integrated experimental and simulation analysis of stress and strain partitioning in dual phase steel1**

Dierk Raabe

Max-Planck-Institut für Eisenforschung GmbH, Düsseldorf, Germany

17:00 - 19:00 **Session I: Introducing nanomechanical testing in research and development**

17:00 - 17:30 *Highlight:* **Quantifying the commonalities in structure and plastic deformation in disordered materials2**

Daniel S. Gianola, University of California, Santa Barbara, USA

17:30 - 17:50 **Plastic deformation of sub-micron Al and Be wires: A TEM and in situ TEM study3**

Marc Legros, CEMES-CNRS, Toulouse, France

17:50 - 18:10 **The brittle-ductile transition of tungsten single crystals at the micro-scale4**

Johannes Ast, EMPA Swiss Federal Laboratories for Materials Science and Technology, Switzerland

19:00 - 20:00 Welcome Reception

20:00 - 21:30 Dinner (Giardino)

Monday, October 2, 2017

- 07:30 - 09:00 Breakfast Buffet
- 09:00 - 13:00 **Session II: Small scale fracture mechanics**
- 09:00 - 09:40 *Invited*
Fracture mechanics of microsamples5
Reinhard Pippan, Erich Schmid Institute of Materials Science of the Austrian Academy of Sciences, Austria
- 09:40 - 10:00 **In situ HR-EBSD during micro-mechanical testing for microstructure, stress and plastic deformation characterizations in material6**
Xavier Maeder, EMPA - Swiss Federal Laboratories for Materials Science and Technology, Switzerland
- 10:00 - 10:20 **Micromechanics of fully lamellar TiAl alloys7**
Jon Molina-Aldareguia, IMDEA Materials Institute, Spain
- 10:20 - 10:40 **In situ stable fracture of ceramic interfaces8**
Finn Giuliani, Imperial College London, UK
- 10:40 - 11:10 Coffee break
- 11:00 - 11:30 **Miniaturized fracture experiments on pearlitic steel: Challenges and solutions9**
Gerhard Dehm, Max-Planck-Institut für Eisenforschung GmbH, Düsseldorf, Germany
- 11:30 - 11:50 **Understanding the performance of nano-structured ferritic alloys through micro-mechanical testing10**
David Armstrong, University of Oxford, UK
- 11:50 - 12:10 **Using simulations to investigate the apparent fracture toughness of microcantilevers11**
Steffen Brinckmann, Max-Planck-Institut für Eisenforschung, Düsseldorf, Germany
- 12:10 - 12:30 **Fracture of silicon at low length scales12**
Jeffrey M. Wheeler, ETH Zurich, Switzerland
- 12:30 - 12:50 **Elastic-plastic fracture toughness of electrodeposited Ni-W thick films using in-situ microcantilever bend tests13**
Denise Yin, Lehigh University, USA
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- 14:30 - 16:30 Networking / Time for *ad hoc* discussions

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- 16:30 - 16:50 **Multiple cracking events in metal bi-layers on polymer substrates14**
Megan J. Cordill, Erich Schmid Institute of Materials Science, Leoben, Austria
- 16:50 - 17:10 **Mechanical properties and failure of Ag nanowire transparent electrodes
studied by means of in situ tensile testing15**
Nadine Schrenker, University Erlangen-Nürnberg (FAU), Germany
- 17:10 - 17:30 **Fracture behavior of metallic thin films as evaluated by bulge-tests and in
situ TEM deformation experiments16**
Mathias Göken, FAU Erlangen-Nürnberg, Germany
- 17:30 - 17:50 **Micro-mechanical testing of transition metal (oxy)nitride coatings17**
James S.K-L. Gibson, RWTH Aachen University, Germany
- 18:20 - 19:00 *Invited*
**Filamentary growth of metals: Microstructure and properties of (nano-)
whiskers18**
Gunther Richter, Max-Planck-Institute for Intelligent Systems, Stuttgart, Germany
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- 20:00 - 21:30 Dinner
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Erdmann Spiecker, University Erlangen-Nürnberg, Germany
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Stefanie Sandlöbes, RWTH Aachen University, Germany
- 10:00 - 10:20 **Mechanical hysteresis of the MAX phase Ti₂AlN: A nano-mechanical testing study21**
Christophe Tromas, Institut Pprime - Université de Poitiers, France
- 10:20 - 10:40 **Plasticity of an atomically layered crystal: A combined nanomechanical and ab initio study on Mo₂BC22**
Sandra Korte-Kerzel, RWTH Aachen University, Germany
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- 11:10 - 11:30 **The impact of grain boundary character on the size dependence of Bi-crystals23**
Christoph Kirchlechner, Max-Planck-Institut für Eisenforschung, Düsseldorf, Germany
- 11:30 - 11:50 **Mechanical testing of nanotwinned alloys24**
Andrea M. Hodge, University of Southern California, USA
- 11:50 - 12:10 **Mechanical testing of copper and copper alloy micropillars containing a single twin boundary25**
Benoit Merle, University Erlangen-Nürnberg (FAU), Germany
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- 19:00 - 20:15 Dinner
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Daniel Kiener, Erich Schmid Institute, Montanuniversität Leoben, Austria
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Magnus Hörnqvist Colliander, Chalmers University of Technology, Sweden
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Manuel J. Pfeifenberger, Montanuniversität Leoben, Austria
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Alain S. Reiser, ETH Zurich, Switzerland
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- 11:00 - 11:30 *Highlight*
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Afrooz Barnoush, Norwegian University of Science and Technology, Norway
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Fabien Volpi, Univ. Grenoble Alpes, CNRS, SIMaP Lab., Grenoble, France
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Rachel L. Schoeppner, EMPA Swiss Federal Laboratories for Materials Science and Technology, Switzerland
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Johannes Zechner, KAI GmbH, Villach, Austria
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Joan Josep Roa Rovira, Universidad Politecnica de Cataluña, Barcelona, Spain
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Tamás Csanádi, IMR-SAS, Slovakia
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Yevhen Zayachuk, Department of Materials, University of Oxford, UK
- 18:10 - 18:30 **Nanoindentation of Au nanoparticles – A combined experimental/computational multiscale study40**
Dan Mordehai, Technion - Israel institute of Technology, Israel
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Seok-Woo Lee, University of Connecticut, USA
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Guillaume Kermouche, Ecole des Mines de Saint-Etienne, France
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Andy Bushby, Queen Mary University of London, UK
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Nigel Jennett, Coventry University, UK
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Brittnee A. Mound, University of Tennessee, USA
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Sebastian Bruns, TU Darmstadt, Germany
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Jean-Luc Loubet, CEMES-CNRS, Ecully, France
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Alexander Leitner, Montanuniversität Leoben, Austria
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Charbel Moussa, MINES ParisTech, France
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Stanisław Kucharski, Institute of Fundamental Technological Research, Polish Academy of Science, Poland
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Sponsored by Micro Materials Limited
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Ben D. Beake, Micro Materials Ltd, UK

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Warren C. Oliver, Nanomechanics, Inc., Oak Ridge, USA
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Gaurav Mohanty, Alemnis, Thun, Switzerland
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Oleksandr Glushko, Montanuniversität Leoben, Austria
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