

# Final Program

## LOCAL MECHANICAL PROPERTIES 2014

November 12-14, 2014, Stará Lesná, High Tatras, Slovakia

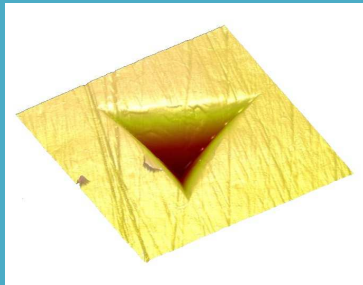


Wednesday,  
Nov. 12, 2014

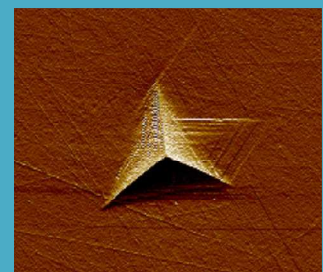


10:00 - 14:00	<b>Registration</b>
12:00 - 14:00	<b>Lunch</b>
14:00 - 14:15	<b>Opening ceremony</b>
	<b>Section:</b>
14:15-14:45 <i>Invited lecture</i>	<u>Z. Németh</u> Orogenic processes and deformation of rocks: Tectonic inspiration for materials research
14:45-15:05	<u>J. Menčík</u> , D. Zíta Residual stresses and energies in elastic-plastic materials after concentrated contact
15:05-15:25	<u>F. Lofaj</u> , D. Németh, M. Novák What happens under the indenter in brittle coatings?
15:25 - 15:45	<u>V. Buršíková</u> , P. Souček, P. Vašina Quasistatic and dynamic nanoindentation study of hard boron and carbon based thin films deposited on silicon substrates
15:45 - 16:15	<b>Coffee break</b>
	<b>Section:</b>
16:15-16:35	<u>R. Čtvrtlík</u> , V. Kulikovskiy, J. Tomáščík Effect of nitrogen concentration on mechanical properties of amorphous SiCN films
16:35-16:55	J. Buršík, <u>V. Buršíková</u> , Y. Jirásková Study of the mechanical properties of bilayered and single-layered CoCrFeSiB ribbons using quasistatic and dynamic nanoindentation tests

16:55-17:15	<u>M. Novák</u> , F. Lofaj, P. Hviščová, R. Podoba, M. Sahul, L. Čaplovič Nanohardness of DC magnetron sputtered W-C coatings as a function of residual stresses
17:15-17:35	<u>Š. Houdková</u> , J. Černý, Z. Pala, P. Haušild High temperature resistance of the selected HVOF coatings
17:35-17:55	<u>J. Schubert</u> , Z. Česánek, Š. Houdková, O. Bláhová, M. Prantnerová Influence of hot corrosion on local mechanical properties of HVOF sprayed coating based on NiCrBSi alloy
18:30-19:30	<b>Dinner</b>
20:00–22:00	<b>Welcome Party + Poster Section</b>

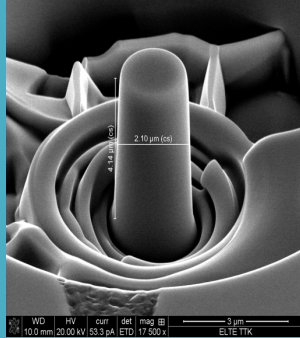


Thursday,  
Nov. 13, 2014

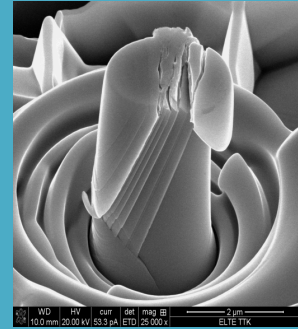


9:00 - 9:30 <i>Invited lecture</i>	<b><i>Section:</i></b> <u>M. Ciccotti</u> Multi-scale investigation of sub-critical crack propagation mechanisms in oxide glasses
9:30 - 9:50	<u>V. Pejchal</u> , M. Mueller, L. Michelet, G. Zagar, A. Singh, A. Rossoll, M. Cantoni, A. Mortensen Testing Strength and Fracture Toughness of Hard Second Phases at Micron Scale
9:50 - 10:10	<u>T. Csanádi</u> , M. Břanda, N.Q. Chinh, P. Hvizdoš, J. Dusza Orientation dependent hardness and deformation mechanisms under nanoindentation of WC grains
10:10 - 10:30	<u>J. Bočan</u> , J. Maňák, A. Jäger Orientation-dependent mechanical properties of pure Mg and AZ31 Mg-alloy analyzed by in-situ nanoindentation
10:30 - 11:00	<b>Coffee break</b>
11:00 - 11:30 <i>Invited lecture</i>	<b><i>Section:</i></b> <u>N.Q. Chinh</u> Mathematical description of indentation creep and its application for the determination of strain rate sensitivity
11:30 - 11:50	<u>D. Zita</u> , J. Menčík

	Finite element analysis of elastic-plastic concentrated contact
11:50 - 12:10	<u>J. Michalíková</u> , G. Mohanty, S. Michalík, J. Wehrs, J. Bednarík, H. Franz Mapping of strain-fields induced by nanoindentation using X-ray nano-diffraction
12:10-12:20	<b>Conference photo</b>
12:30 – 14:00	<b>Lunch</b>
	<i>Section:</i>
14:00 - 14:20	<u>J. Nohava</u> , M. Conte, B. Bellaton Development and the first experiments with a new high temperature nanoindenter
14:20 - 14:40	<u>H. Pavlíček</u> 4D Correlative workflows enabling comprehensive materials characterization
14:40 - 15:00	<u>H. Pfaff</u> , M. Sebastiani, R. Moscatelli, T. Brandau More than being in the right ballpark- testing the mechanical properties of microparticles
15:00-15:20	<u>D. Novotný</u> to be announced
15:20-15:40	<u>A. Gába</u> Inovation is our key issue- scratch testers, tribotesters and calotesters
15:40 - 16:10	<b>Coffee Break</b>
	<i>Section:</i>
16:10 - 16:30	<u>P. Bouška</u> , T. Bittner, M. Špaček, M. Vokáč Experimental investigation of flexural strength of laminated glass
16:30 - 16:50	<u>K. Machalická</u> , M. Eliášová Behaviour of glued connections under shear loading
16:50 – 17:10	K. Naplocha, <u>J. Kaczmar</u> Local strengthening of EN AC-44200 alloy with ceramic fibers
18:30-19:00	<b>Transfer to gala dinner site</b>
19:00 – 24:00	<b>Conference dinner + Poster evaluation + transfer to the hotel</b>



Friday,  
Nov. 14, 2014



9:00 - 9:30  
*Invited Lecture*

***Section:***

T. Chudoba

The influence of the surface profile on the results of micro-scratch tests and consequences for the strength evaluation of materials

9:30 - 9:50

J. Němeček, Z. Keršner, V. Veselý, P. Schmid, H. Šimonová, L. Topolář  
Fracture process zone in a fine-grained cement-based composite monitored with nanoindentation and acoustic emission

9:50 - 10:10

D. Kytýr, N. Fenclova, P. Koudelka, T. Doktor, J. Sepitka, J. Lukes  
Mapping of local changes of local mechanical properties in trabecular connections

10:10 - 10:40

**Coffee Break**

10:40 - 11:00

***Section:***

R. Mušálek, T. Tesař, J. Stráský, J. Čech

Combined indentation testing of spark plasma sintered steels

11:00 - 11:20

I. Černý, J. Sís

Fatigue strength and damage mechanisms of laser welded structural carbon steel sheets

11:20-11:40

M. Neslušan, T. Hrabovský, K. Kolařík, A. Mičietová

Non-destructive analysis of surface after hard milling based on Barkhausen noise

11:40-12:00

M. Stodola, H. Hadraba

Material structure influence when evaluating the basic material mechanical properties based on non-destructive instrumented hardness test

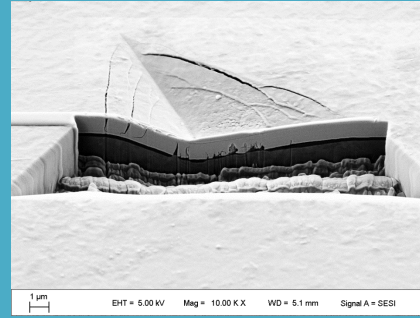
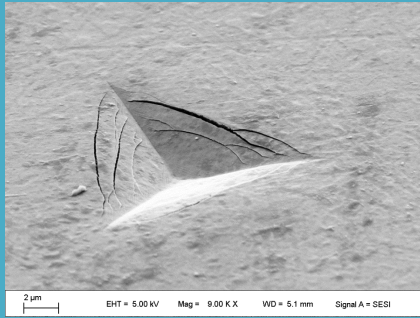
12:00 - 12:15

**Closing ceremony**

12:15 – 14:00

**Lunch**

## POSTERS



1. J. Balko, P. Hvizdoš, S. Hloch, J. Kl'oc, P. Monka  
Wear and mechanical properties of various bone cements
2. M. Bednarik, D. Manas, M. Manas, M. Ovsik, J. Navratil, A. Mizera  
Influence of plasma treatment on the surface properties of HDPE
3. T. Bittner, Bouška, Kostecká, Nenadálová, Rydval, Vokáč  
Determination of mechanical properties of non-conventional reinforcement
4. J. Bobek, J. Safka, J. Habr  
Mechanical properties of metal-plastic composite with internal fractal shape reinforcing structure
5. P. Burik, L. Pešek, L. Voleský  
Effect of pile-up on mechanical characteristics of individual phases in steels by depth sensing indentation
6. J. Buršík, V. Buršíková, M. Svoboda  
Local mechanical properties of Cu-Co alloys with coherent Co precipitates
7. C. Bywalski, M. Rajczakowska, L. Sadowski, M. Kaminski  
Evaluation of barrage lock concrete porosity using X-ray microtomography
8. K. Csach et al.  
Nanoindentation in metallic glasses with different plasticity
9. S. Czarnecki, J. Hola, L. Sadowski  
The use of a 3D laser scanner in evaluating the morphology of a sandblasted concrete surface
10. J. Čech, P. Haušild, J. Nohava  
Relationship between indenter calibration and measured mechanical properties of elastic-plastic materials
11. Z. Česánek, J. Schubert, O. Bláhová, Š. Houdková, M. Prantnerová  
Changing the local mechanical properties of satellite 6 after exposure to high temperature corrosion
12. A. Goetzke-Pala  
Investigations of moisture content in salt-affected brick walls by non-destructive microwave method
13. P. Haušild, M. Landa  
Characterization of sputter-deposited NiTi thin film by nanoindentation
14. A. Hola  
The moisture research of the half-timbered construction of the historic sacral building
15. M. Huráková et al.  
Nanoindentation study of loading rate influence on deformation of metallic glasses
16. A. Jíra, V. Králík, F. Denk, L. Kopecký  
Comparison of micromechanical parameters of different dental implants using nanoindentation

17.	Ľ. Kaščák, E. Spišák, J. Mucha Mechanical joining of various materials by clinching method
18.	M. Kasiarova, M. Michalkova, J. Dusza, P. Sajgalik Scratch resistance of the Si <sub>3</sub> N <sub>4</sub> -graphene nanoplatelets composites
19.	L. Kocmanová, P. Haušild, A. Materna, J. Matějček Investigation of indentation parameters near the interface between two materials
20.	P. Koudelka, D. Kytyr, T. Doktor, J. Sepitka, J. Lukes Mechanical and surface properties of biocompatible materials for bone tissue engineering produced by direct 3D printing
21.	C.Lamuta, G. Di Girolamo, L. Pagnotta Tribological, mechanical and microstructural characterization of plasma sprayed nanostructured YSZ coatings
22.	Z. Majer, L. Náhlík, L. Malíková Particulate composite damage: The influence of particle shape on crack path
23.	L. Malíková Utilization of the multi-parameter description of the crack-tip stress field in fracture mechanics tasks
24.	D. Manas, M. Manas, M. Stanek, M. Ovsik, M. Bednarik, P. Kratky Nanohardness of electron beam irradiated poly (butylene terephthalate) PBT
25.	D. Manas, M. Manas, M. Stanek, M. Ovsik, M. Bednarik, P. Kratky Effect of high doses of electron beam irradiated of glass-filled polypropylene on micromechanical properties of surface layer
26.	M. Martinkovič, P. Pokorný Estimation of local plastic deformation in cutting zone during turning
27.	A. Materna, J. Ondráček Plastic zone around fatigue crack determined by FEM and nanoindentation technique
28.	O. Milkovič, J. Michalíková, J. Bednarčík Influence of nanoparticle size on strain at the core-shell interface
29.	J. Miškuf et al. Spontaneous nanoscale periodic stripes in metallic amorphous ribbon
30.	A. Mizera, M. Manas, D. Manas, M. Ovsik, M. Stanek, J. Navratil, M. Bednarik Surface layer micro-hardness of modified LDPE by radiation cross-linking after temperature load
31.	J. Navratil, M. Manas, M. Stanek, D. Manas, M. Bednarik, A. Mizera Surface properties of HDPE/HDPE <sub>x</sub> blends
32.	M. Négyesi, O. Bláhová, J. Burda, J. Adámek, J. Kabátová, F. Manoch, V. Rozkošný, V. Vrtílková Influence of hydrogen content on microstructure and mechanical properties of Zr1Nb fuel cladding after high-temperature oxidation
33.	J. Němeček, V. Králík Local mechanical characterization of metal foams by nanoindentation
34.	D. Németh, F. Lofaj, J. Kučera Fea of the cortical bone thickness effect on the stress distribution in dental implants
35.	P. Niewiadomski The effects of modifying concrete with nanoparticles in the light of literature reports
36.	M. Ovsik, D. Manas, M. Stanek, M. Manas, L. Chvatalova, A. Skrobak Micro-indentation test and morphology of electron beam irradiated HDPE
37.	V. Petranova, P. Koudelka, D. Kytyr, T. Doktor, J. Valach Evaluation of mechanical and microstructural parameters of multiphase materials using drift distortion corrected SEM imaging

38. M. Reznicek, D. Manas, M. Stanek, A. Skrobak, V. Senkerik, P. Kratky  
Comparison of the results of creep and microindentation creep to irradiated HDPE
39. P. Rovnaníková, H. Šimonová, Z. Keršner, P. Schmid  
Mechanical fracture properties of cement mortars with admixtures in relation to their microstructure
40. V. Senkerik, M. Stanek, M. Manas, D. Manas, A. Skrobak, J. Navratil  
The behaviour of recycled material with particles of various sizes of polyamide 6 to micro hardness
41. A. Skrobak, M. Stanek, D. Manas, M. Ovsik, V. Senkerik, M. Reznicek  
Measuring the micromechanical properties of rubber testing samples
42. O. Sucharda, J. Brozovsky  
Modelling and analysis of reinforced concrete beams
43. J. Tomastik, R. Ctvrtlik, P. Bohac, M. Drab, V. Koula, K. Cvrk, L. Jastrabik  
Utilization of acoustic emissions in scratch test evaluation
44. J. Vácha  
Influence of carbon nanotubes on the mechanical properties and morphology of the different thermoplastic polymer matrices
45. Z. Vilčeková, M. Kašiarová, M. Domanická, M. Hnatko, P. Šajgalík  
Local mechanical properties of highly porous Si<sub>3</sub>N<sub>4</sub> for trabecular bone replacement
46. A. Zeleňák, M. Kupková  
Hardness of sintered Fe-Mn samples with microgradient structure
47. P. Zubko  
Correlation of hardness and fatigue properties of selected steels