

Final Program of LMV2010

Wednesday, Nov. 10, 2010

10:00-13:30 Registration

12:00 – 13:30 Lunch

13:30-13:45 Opening

Section: Nanoindenter vs. AFM for Local Mechanical Properties

Chairs: L. Pešek, O. Bláhová

14:00-14:35 *Invited lecture*

S. M. Wiederhorn, J.-P. Guin, T. Fett,

Characterization of crack tips at nano scale

14:35-15:05 *Company presentation*

H. Stadler

High Speed Quantitative Measurements at Nanometer Scale

15:05-15:35 *Key Note Lecture*

J. Němeček, C. Lehmann, P. Fontana

Nanoindentation on ultra high performance concrete system

15:35 – 15:50

J. Buršík

Modelling of hardness distribution curves obtained on two-phase materials by grid indentation technique

15:50 - 16:05

P. Zubko

The mechanical properties of hard particles in soft matrix

16:05 - 16:25—coffee break

Section: Porous materials

Chairs: S.M. Wiederhorn, P. Hvizdoš

16:25-16:55 *Company presentation*

J. Hay, H. Pfaff

Quantitative mechanical measurements at the nano scale

16:55-17:10

J. Lukeš, J. Šepitka, U. Hangen

Modulus Mapping of Lamellar Bone

17:10-17:25

O. Jiroušek, J. Němeček, D. Kytýř, J. Kunecký, P. Zlámal, T. Doktor

Nanoindentation of trabecular bone – comparison with uniaxial testing of single trabecula

17:25-17:40

V. Králík, J. Němeček

Micromechanical properties of porous material based on metal foam

18:30-19:30 Dinner

20:00 – 21:30 Welcome Party + Poster Section

Thursday, Nov. 11, 2010

Section: Local Deformation

Chairs: J. Němeček, U. Prahl

9:00 - 9:35 *Invited lecture*

G. Dehm

Combining micro-Laue diffraction and electron microscopy: new insight in small scale plasticity

9:35 - 9:50

P. Haušild, J. Nohava, A. Materna

Identification of stress-strain relation of austenitic steels by instrumented indentation

9:50 - 10:05

J. Menčík, J. Nohava

Opportunities and problems in nanoindentation with spherical indenter

10:05 - 10:20

D. Šimek, D. Rafaja, M. Motylenko, V. Klemm, G. Schreiber

X-Ray diffraction response to microstructure of steel applied in a fast prediction of mechanical properties

10:20 - 10:50 Coffee break

Section: Coatings

Chairs: J. Menčík, A. Kříž

10:50 - 11:05

V. Buršíková, P. Vašina, P. Souček, J. Sobota, T. Fořt, J. Grossman, J. Buršík, M. Jílek ml., M. Jílek

Study of local mechanical properties of TiC/a-C:H nanocomposite coatings

11:05 - 11:20

F. Lofaj, H. Stadler, P. Hvizdoš, A. Duszová

Elastic properties of thin WC-C Coatings

11:20 - 11:35

M. Zelenák, J. Valíček, J. Brumek, P. Hlaváček, B. Haluzíková, M. Vyležík, P. Babková, M. Harničárová, V. Szarková, M. Kušnerová, V. Kuběna

Measurement and analysis of the hardness of aluminium surface layers by the nanoindentation and scratch tests

11:35 - 12:05 *Company presentation*

M. Munzar

New development in Hysitron system

12:10-12:20 Conference photo

12:30 – 13:45 Lunch

Section: Scratch, Impact and Wear Testing

Chairs: P. Haušild, P. Zubko

14:00 - 14:30 *Company presentation*

A. Harris

Making an impact! High strain rate assessment of the mechanical integrity of coated systems

14:30 - 14:45

J. Mikšovský, P. Kutílek, J. Lukeš, Z. Tolde, J. Remsa, T. Kocourek, J. Šepitka, M. Jelínek

Adhesion properties of DLC and TiO₂ thin films using scratch test method

14:45 - 15:00

P. Hvizdoš, M. Besterci

Effect of microstructure of Cu-Al₂O₃ composite on nano-hardness and wear parameters

15:00-15:15

R. Medlín, Š. Houdková

The influence of elevated temperature on CoF of HVOF sprayed coatings measured by pin-on-disc test

15:15 - 15:35 Coffee Break

Section: Steels and Composites

Chairs: V. Buršíková, M. Kašiarová

15:35 – 16:05 *Company presentation*

J. Nohava

Recent development of add-on devices and special procedures for CSM Instruments indentation systems

16:05 - 16:20

M. Garbiak, B. Piekarski

Nanoindentation properties of phase particles in cast steel

16:20 - 16:35

H. Quade, U. Prael, W. Bleck

Microstructure based hardening model of Transformation Induced Plasticity (TRIP) Steels

16:35 - 16:50

D. Tůmová, M. Svobodová, P. Hajkova, J. Čmakal

Comparison of hardness and microhardness in the transition region of the welded joints of advanced creep-resistant steel P91 after long-time annealing

16:50 - 17:05

Ľ. Kaščák, J. Brezinová, M. Halama, J. Viňáš

Quality evaluation of resistance spot welds of hot-dip galvanized sheets in corrosive environment

17:05 - 17:20

D. Mañas, M. Mañas, V. Pata, M. Staněk

Thermal effects on steels at different methods of separation

17:20 - 17:35

Z. Pokorný, V. Hrubý, L. Fecso, J. Kadlec, Tran Quang Dung

Influence of bored cylindrical diameter on the plasma nitriding

17:35 - 17:50

K. Slámečka, J. Pokluda, K. Bonaventurová, L. Čelko

Microfractography of the fish-eye fractures in nitrided steel

19:00 – 21:30 Conference dinner + Poster Section

(+ Poster evaluation by the selected committee)

Friday, Nov. 12, 2010

Section: Polymer Composites

Chairs: M. Garbiak, V. Pata

9:00 - 9:30 *Key Note Lecture*

Z. Zhang

Non-destructive Evaluation of Barely Visible Impact Damage in Fibre Reinforced Polymer Composites

9:30 - 9:45

G. Zamfirova, O. Bláhová, J. Minster, V. Gaydarov

Polypropylene Nanocompositions Studied by Local Micro- and Nano-Mechanical Measurements

9:45 - 10:00

J. Valach, D. Kytýř, T. Doktor, K. Sekyrová, V. Králík, J. Němeček

Comparison of mechanical properties of CFRP laminate obtained from full-scale test and extrapolated from local measurement

10:00 - 10:15

E. Kormaníková, K. Kotrasová

Elastic mechanical properties of fiber reinforced composite material

10:15 - 10:35 Coffee Break

Section: Surface effects

Chairs: F. Lofaj, D. Šimek

10:35 - 10:50

A. Kříž

Local studies of machined surfaces

10:50 - 11:05

V. Pata, M. Mañas, D. Mañas

New methods of description of surface duality

11:05 - 11:20

P. Hlaváček, J. Valíček, J. Brumek, M. Zelenák, B. Haluzíková, M. Harničárová, V. Szarková

Use of the indentation tests for the evaluation of machinability of materials during abrasive waterjet cutting.

11:20 - 11:35

N. Ganev, K. Kolařík, Z. Pala, O. Bláhová, J. Savková

Surface integrity and tribological behaviour of hardened steel

11:35 - 11:45 Poster evaluation

14:45 - 12:00 Closing ceremony

12:00 – 13:30 Lunch

14:00 – 17:00 Optional excursions

Cave Driny and/or Castle Červený kameň

- by personal cars

- stay extension in the Castle possible upon request,
- extended stay and excursions are not included in the conference fee.

Posters

- 1** Marco **Alfano** M. Alfano, G. Di Girolamo, L. Pagnotta, J. Zekonyte, R. J. K. Wood
Depth sensing indentation of oxidized plasma sprayed CoNiCrAlY Coatings
- 2** Ľubomír **Ambriško** Ľ. Ambriško, L. Pešek
Determination the crack growth resistance of automotive steel sheets
- 3** Vratislav **Bártek** K. Hrabovská, J. Podjuklová, O. Životský, I. Štěpánek, K. Barčová, V. Bártek, T. Laník
Effect of indication liquids on brittle-fracture properties of vitreous enamel coats
- 4** Olga **Bláhová** O. Bláhová
Local mechanical properties of Zr- Alloys
- 5** Janette **Brezinová** J. Brezinová, A. Guzanová, M. Egri, J. Malejčík
Evaluation of properties of thermal sprayed coatings in terms of erosive wear
- 6** Helena **Bruncková** H. Bruncková, Ľ. Medvecký, P. Hvizdoš, J. Ďurišin
Effect of composite PZT thin films preparation by sol-gel method on their morphology and nanohardness
- 7** Petra **Bublíková** P. Bublíková, O. Bláhová
Local mechanical properties of the composite materials Au – PS prepared in various conditions
- 8** Jiří **Buršík** J. Buršík, J. Sopoušek, V. Buršíková, A. Stýskalík, D. Škoda
Characterization of sintered Ag nanopowder joints using nanoindentation tests
- 9** Lukáš **Buzek** L. Buzek, J. Wasserbauer, M. Zmrzlý
Mechanical properties of aluminosilicate systems based on alkali activation of industrial by-products
- 10** Erika **Csehová** E. Csehová, J. Dusza, A. Limpichaipanit, R. Todd
Instrumental indentation of Al₂O₃-SiC Nanocomposites
- 11** Erika **Csehová** E. Csehová, A. Duszová, F. Lofaj, J. Dusza, P. Šajgalík

- Load-size effect in basal and prismatic planes of Si_3N_4 crystals
- 12** Radim **Čtvrtlík** R. Ctvrtlik, J. Morozova, Z. Zapletalova
Effect of soft drinks on enamel mechanical properties
- 13** Pavel **Doležal** P. Doležal, J. Zapletal, M. Horynová, P. Gejdoš, L. Čelko
Cyclic deformation response of AZ31 magnesium alloy after corrosion degradation
- 14** Michaela **Dudíková** M. Dudíková, D. Kytýř, T. Doktor, O. Jiroušek
Monitoring of material surface polishing procedure using confocal microscope
- 15** Renáta **Eichlerová** R. Eichlerová, J. Lukeš, S. Konvičková, P. Bradna
Effect of length absorption on indentation modulus of dental composites.
- 16** Pawel **Figiel** A. Biedunkiewicz, W. Biedunkiewicz, P. Figiel, D. Grzesiak
Preparation of stainless steel/ TiC composite by Selective Laser Melting
- 17** Sebastian **Fryška** J. Baranowska, S. Fryška
Characterisation of mechanical properties of S-phase coatings produced by magnetron sputtering deposition
- 18** Gabriela **Fuchsová** G. Fuchsová, F. Lofaj, V. Simkulet
Effect of surface roughness on nanoindentation
- 19** Petra **Gavendová** P. Gavendová, F. Kováč, I. Petryshynets, V. Stoyka
Measurements of parameters determining mechanical properties of grains with particular orientation in non-oriented steels
- 20** Dariusz **Grzesiak** W. Biedunkiewicz, P. Figiel, D. Grzesiak
Preparation of stainless steel/ TiC composite by Selective Laser Melting
- 21** Anna **Guzanová** J. Viňáš, J. Brezinová, A. Guzanová, D. Lorincová
Properties of renovation layers applied by submerged arc welding
- 22** Pavlína **Hájková** P. Hájková, J. Janovec, J. Siegl, B. Smola, M. Vyroubalová, D. Tůmová
Diagnostics of manufacturing defects in the forged blades used in power industry

- 23** Lucia **Hegedüsová** L. Hegedusová, L. Ceniga, J. Dusza
Contact strength and crack formation in monolithic SiC and MoSi₂ materials
- 24** Peter **Horňák** A. Duszová, P. Horňák, F. Lofaj, J. Dusza
Microstructure parameters vs. Load size effect in WC-Co hardmetals
- 25** Šárka **Houdková** Š. Houdková
Vickers indentation fracture toughness of thermally sprayed hardmetal coatings
- 26** Renata **Chylinska** R. Chylinska
Analysis of precipitation processes in austenitic cast steel with Ti and Nb
- 27** Walenty **Jasiński** W. Jasiński
Degradation of iron superalloys H39WM catalytic pipe in steam reforming conditions
- 28** Zdeněk **Joska** Z. Joska, J. Kadlec, M. Pospíchal, T. Quang Dung
Properties of duplex coatings prepared by plasma nitriding and PVD CrN deposition on AISI 316L stainless steel
- 29** Martin **Juliš** M. Juliš, S. Pospíšilová, J. Zapletal, T. Podrábský
Mikrostruktura a mechanické vlastnosti slitiny hliníku AlSi7Mg0,6 po různých způsobech ochlazování.
- 30** Monika **Kašiarová** M. Kašiarová, P. Tatarko, P. Hvizdoš, J. Dusza
Influence of the addition of SiC nanoparticles on the hardness and elastic modulus of Si₃N₄ composites measured by indentation method
- 31** Michaela **Kašparová** M. Kašparová, F. Zahálka, Š. Houdková
Evaluation of the shear strength of the thermally sprayed coatings
- 32** Lenka **Klakurková** L. Klakurková, L. Čelko, K. Slámečka, P. Doležal, J. Švejcar
The Influence of Temperature on Microhardness of Aluminium-Based Composites Produced by Controlled Hypereutectic Reaction in Al-Ni Binary System
- 33** Alexandra **Kovalčíková** A. Kovalčíková, J. Dusza, P. Šajgalík

Indentation thermal shock resistance of Si₃N₄/CNT reinforced composites

- 34** Miriam **Kupková** M. Kupková, M. Kupka, S. Strobl, P. Hvizdoš
Universal hardness test applied to PM materials prepared from coated powders.
- 35** Zdeněk **Majer** Z. Majer, P. Hutař, E. Novotná
The numerically specified mechanical characteristics of particulate composite
- 36** Miroslav **Mañas** M. Mañas, D. Mañas, M. Staněk, Š. Šanda, V. Pata
Improvement of mechanical properties of TPE by irradiation
- 37** Marian **Marton** M.Marton, E.Zdravecká, M.Vojs, M.Varga, L.Gajdošová, T.Ižák, M.Hopfeld, M.Veselý, R.Redhammer
The Influence of Substrate Bias on Nanohardness of a-C:N Films on CoCrMo alloy
- 38** Jaroslav **Menčík** J. Menčík, J. Nohava
Low-load nanoindentation into fused silica and PMMA with a spherical and pointed indenter – a comparison
- 39** Mária **Mihaliková** M. Mihaliková, M. Német, P. Zubko, M. Vojtko
Impact of strain rate on microalloyed steel breaking
- 40** Milos **Milosevic** M. Milosevic, V. Miletic, N. Mitrovic, Savic-Stankovic, T. Maneski
Measurement of local deformation fields of dental composites using a 3D optical system
- 41** Nenad **Mitrovic** R. Jovicic, A. Sedmak, M. Milosevic, N.Mitrovic
Evaluation of the local tensile properties of austenite-ferrite welded joint
- 42** Aneta **Němcová** A. Němcová, P. Gejdoš, M. Zmrzlý, P. Doležal, B. Pacal
The Influence of Surface Protection on Corrosion Resistance of Aluminium Alloy
- 43** Leonardo **Pagnotta** M. Alfano, G. Di Girolamo, L. Pagnotta, J. Zekonyte, R. J. K. Wood
Depth sensing indentation of oxidized plasma sprayed CoNiCrAlY coatings

- 44** Tomáš **Podrábský** M. Juliš, D. Kusmič, S. Pospíšilová, S. Průša, K. Obrtlík, Jiří Dluhoš, T. Podrábský
Study of Surface relief evolution in cyclically strained superalloy In738LC using modern observation methods
- 45** Tomáš **Podrábský** S. Pospíšilová, K. Obrtlík, M. Juliš, T. Podrábský
Initiation and Growth of Fatigue Cracks in Inconel 713LC with Al Coating at 800 °C
- 46** Viktor **Puchý** V. Puchý, J. Dusza, F. Inam, M.J. Reece
Indentation toughness of Al₂O₃+CNT composites
- 47** Michal **Staněk** M. Staněk, M. Mañas, D. Mañas, V. Pata, Š. Šanda
Polymer flow influenced by mold surface roughness
- 48** Lucie **Střílková** L. Střílková, Z. Kuboň, V. Vodárek
Evaluation of local properties in P23/P91 dissimilar weldments after creep exposure from 500 to 600°C
- 49** Josef **Šepitka** J. Šepitka, J. Lukeš, J. Kuželka, J. Řezníček
Nanoscale Dynamic Mechanical Analysis of Soft Tissue and Its Finite Element Modeling
- 50** Josef **Šepitka** J. Šepitka, J. Lukeš, V. Jech, F. Černý, J. Řezníček
Nanoindentation of very thin hard coatings
- 51** Štěpán **Šanda** Š. Šanda, M. Mañas, M. Staněk, D. Mañas, J. Knot
Comparison of injection mold cooling systems.
- 52** Petr **Šrubař** J. Podjuklová, K. Hrabovská, V. Bártek, T. Laník, P. Šrubař, S. Kopaňáková, K. Suchánková
Influence of clay small size on mechanical properties of vitreous enamel coatings
- 53** Peter **Tatarko** P. Tatarko, M. Kašiarová, J. Dusza, P. Šajgalík
Effect of various grain boundary phases and SiC addition on the fracture characteristics of Si₃N₄ based ceramics
- 54** Pavel **Tesárek** P. Tesárek, J. Nemeček
Microstructural and micromechanical study of gypsum

- 55** Jakub **Tkacz** J. Tkacz, J. Wasserbauer, M. Zmrzlý
Effect of corrosion on the mechanical properties of magnesium alloy AZ91
- 56** Marie **Válová** M. Válová, J. Suchánek, Z. Tolde, L. Beránek
The Effect of Duplex Coating to Wear Characteristics of Tool Steels
- 57** Josef **Volák** J. Volák, Z. Bunda
Comparison of microstructure of selected materials for power producing industry equipments before and after performed creep tests and small punch creep tests
- 58** Michaela **Vyroubalová** M. Vyroubalová
Fracture surfaces analysis of selective laser sintered polzamide in correlation to manufacturing conditions
- 59** Galina **Zamfirova** G. Zamfirova, V. Gaydarov, D. Lopez Velasquez
Polycarbonates studied by microindentation methods