

5th International Seminar for PhD Students

Reserach in Progress on Metallic Materials

Institute for Materials Science and Welding, Graz University of Technology

Lecture Hall D, 3rd floor, Kopernikusgasse 24

Graz (Austria), November 8 – 9, 2010

Sunday, November 7, 2010

19:00 Get together

Glöckl Bräu, Glockenspielplatz 2, Graz (map is enclosed)

Monday, November 8, 2010

8:00 – 8:45 Registration

8:50 – 9:00 Welcome

Chair: P. Degischer

09:00 – 09:20 **Mohammad Reza Ahmadi (VUT):** Finely dispersed nuclei growth and heat treatment procedures / a challenge in Al-Mg-Si (Cu) alloys

09:20 – 09:40 **Michaela Poková (CU – DPM):** The Influence of Al₃Zr Precipitates on Recrystallization in AW 3003 Foils for Heat Exchangers

09:40 – 10:00 **Ivona Černíčková (SUT):** Characterization of phases in complex metallic alloy Al₇₆Pd₁₁Co₁₃

10:00 – 10:30 Coffee Break

Chair: F. Chmelík

10:30 – 10:50 **Alena Košinová (WRI):** Creep properties of Aluminium alloys made by powder metallurgy

10:50 – 11:10 **Thomas Wlanis (GUT):** Heat treatment of the aluminium alloy AlSi₇MgCu₀₅ - simulation of the process and precipitation evolution

11:10 – 11:30 **Péter Henits (ELTE):** Effect of large shear on the crystallization in amorphous Al-based alloys

11:30 – 11:50 **Jana Harnůšková (SAS):** Effect of the powder compaction and pre-treatment of the foaming agent behavior and porous structure of aluminium foam

12:00 – 13:30 Lunch

Chair: M. Kutin

13:30 – 13:50 **Dezső Pék (SIU):** CMT-Technology in the Welding of Ferrite Steel

13:50 – 14:10 **Bojan Gligorijevic (IGB):** Plasma Surface Treating of Ferrous Alloys: Applications, Research Progress and Prospects

14:10 – 14:30 **Marian Drienovský (SUT):** Mechanical and microstructural properties of selected lead-free solders and soldered joints

14:30 – 14:50 **Peter Lang (VUT):** "Atomistic and Ab Initio Calculations" - Fundamentals and Applications in Material Science

14:50 – 15:20 Coffee Break

Chair: J. Janovec

15:20 – 15:40 **Marta Rodriguez-Hortala (VUT), Patrik Dobron (CU-DPM):** Acoustic emission signals produced during deformation of carbon fiber reinforced polymers

15:40 – 16:00 **Dragan Djuric (GUT):** Physical Simulation of Hot Ductility of Continuous Casted Steels

16:00 – 16:20 **Jakob Six (VUT):** Investigation of the hot ductility trough of Nb-containing low alloy steel

16:20 – 16:50 Poster Session

- **Tamás Csanádi (ELTE):** Macroscopic and microscopic description of plastic deformation in fcc metals
- **Jozef Veselý (CU – DPM):** AFM study of Fe(20,40)-Al monocrystals during in-situ deformation
- **Kseniya Parfeneko (CU – DPM):** Effect of alloying elements and extrusion speed on plastic deformation of Mg alloys investigated by the AE technique
- **Josef Stráský (CU – DPM):** Electric discharge machining and shot peening as the surface treatments for titanium orthopaedic implants
- **Petr Harcuba (CU – DPM):** Microstructure of lead-free solders
- **Ondřej Srba (CU – DPM):** Mechanical properties and microstructure of polycrystalline Cu and CuZr alloy prepared by ECAP

Chair: F. Simancik

16:50 – 17:10 **Jitka Vrátná (CU – DPM):** Properties of AZ31 alloy processed by SPD

17:10 – 17:30 **Peter Minárik (CU – DPM):** Effect of grain refinement and dispersed particles distribution on corrosion resistance in AE42 magnesium alloy

17:30 – 17:50 **Zoltán Hegedus (ELTE):** Inhomogeneous evolution of microstructure in AZ91 Mg-alloy during high temperature equal-channel angular pressing

19:00 Conference Dinner (Marienbräu – typical Styrian tavern)

Tuesday, November 9, 2010

Chair: I. Groma

09:00 – 09:20 **Lucia Senčková (SAS):** Molybdenum silicides - materials for high temperature applications

09:20 – 09:40 **Gábor Csiszár (ELTE):** Non-random twinning in magnetron-sputtered copper thin films

09:40 – 10:00 **Szabolcs Szalai (SIU):** Modeling and Simulation of High Temperature Formability Tests

10:00 – 10:30 Coffee Break

Chair: A. Falahati

10:30 – 10:50 **Alfred Krumphals (GUT):** Microstructure modelling of Ti-6Al-V during thermomechanical treatment

10:50 – 11:10 **Petra Homporova (VUT):** Phase evolution in the alpha+beta Ti64 titanium alloy

11:10 – 11:30 **David Canelo Yubero (VUT):** Load partitioning between the phases in Ti-alloys

11:30 – 11:50 **Martina Dikovits (VUT):** Hot deformation and processing maps of the near beta Ti55531 alloy

12:00 – 13:30 Lunch

Chair: C. Sommitsch

13:30 – 13:50 **Markus Rath (VUT):** Mechanism of the Reconstructive Phase Transformation Austenite-Ferrite in Alloyed Steels

13:50 – 14:10 **Tomáš Krajňák (CU – DPM):** Microstructural evolution of equal-channel angular pressed IF steel

14:10 – 14:30 **Nikolaus Eder (VUT), Bertalan Joni (ELTE):** Diffraction analysis of thermomechanically treated steels

14:30 – 14:50 **Peter Jenei (ELTE):** Microstructure and mechanical properties of nickel deformed by direct impact at different velocities

14:50 – 15:15 Discussion

15:15 Closing

Guided laboratory tour

Abbreviations Institutes:

VUT	Vienna University of Technology, Vienna, Austria
SUT	Slovak University of Technology, Bratislava, Faculty of Materials Science and Technology in Trnava
CU – DPM	Charles University, Prague, Czech Republic
SAS	Slovak Academy of Sciences, Bratislava, Slovakia
IGB	Institut Gosa, Belgrade, Serbia
SIU	Széchenyi István University, Győr, Hungary
WRI	Welding Research Institute, Bratislava, Slovakia
GUT	Graz University of Technology, Graz, Austria
ELTE	Eötvös Loránd University, Budapest, Hungary