

Conference program - BALTMATRIB 2009

21st of October, 2009 – the authors evening

16.00 – 18.00 – Excursion at KUMU Art Gallery of Estonia and welcome reception
(pre-registration is required)

22nd of October, 2009 – the 1st day

9.00 – 13.00 – Registration at the Conference venue “**Swissotel**”, Tallinn

9.30 – 9.40 – **Opening of the Conference**

9.40 – 11.00 **Session 1** – Plenary – invited presentations
Chair: Prof. Jakob Kübarsepp

9.40 – 10.10 – Prof. P. Kulu,
Research activities in materials engineering and tribology at TUT.

10.10 – 11.00 – Prof. S. Hogmark,
Tribologically induced surface modifications in sliding contacts.

11.00 – 11.20 Coffee Break

11.20 – 13.00 **Session 2** - Powder Metallurgy

Chair: Dr. Irina Hussainova

11.20 – 11.40 – J. Grabis, I. Steins, A. Patmalnieks, B. Berzina, L. Trinklere.
Preparation and processing of doped AlN nanopowders

11.40 – 12.00 – A. Monin, N. Shveikina, A. Ziamtsova, V. Smirnov.
The synthesis and physico-chemical properties of nano-sized particles of aluminum oxide for ceramic materials.

12.00 – 12.20 – K. Juhani, J. Pirso, M. Viljus, S. Letunovitš.
The influence of sinter/HIP technology on reactive sintering of chromium carbide based cermets.

12.20 – 12.40 – E. Kimmari, I. Hussainova, A. Smirnov, R. Traksmäa, I. Preis.
Processing and microstructural characterization of WC based cermets doped by Zr₂O.

12.40 – 13.00 – L. Kollo, C. R. Bradbury, M. Leparoux.
Al-SiC nanocomposites produced by high-energy milling and hot pressing.

13.00 – 14.00 Lunch

14.00 – 15.20 **Session 3** - Powder metallurgy

Chair: Prof. Priit Kulu

14.00 – 14.20 – A. Tšinjan,
H. Klaasen, J. Kübarsepp,
H. Annuka.

Influence of sintering techniques on
performance characteristics of TiC-
based cermet.

14.20 – 14.40 – V. Mironov,
E. Mihajlova, O. Filippov, I. Boyko.
Al-W-B composites

14.40 – 15.00 – A. Hambardzumyan,
H. Khachatryan, S. Kharatyan.
Combustion synthesis of silicon
carbide.

15.00 – 15.20 – R. Merijs Meri,
J. Zicans, A. Shutka, S. Strode,
Z. Roja.
Reclamation of polycarbonate from
optical disc waste streams and
manufacturing of composites thereof.

14.00 – 15.20 **Session 4** – Advanced materials

Chair: Dr. Ants Lõhmus

14.00 – 14.20 – I. Bockovs, M. Kalnins,
J. Zicans, V. Kalkis.
Polypropylene and elastomer
composites for engineering materials.

14.20 – 14.40 – L. Dorogin,
A. Kolesnikova, I. Kink, A. Romanov.
Modeling of pentagonal nanorods and
nanoparticles with crystal lattice
mismatched layers.

14.40 – 15.00 – L. Kommel,
M. Saarna, N. Laev.
Nanostructure and properties study of
advanced high purity rare metals.

15.00 – 15.20 – J. Alonso Ortega
Sáenz, M. Antonov, R. Michalczewski.
Nitriding of the CoCr alloy substrate
as the method for improving of the
performance of promising biocoatings
for hip replacement.

15.20 – 15.40 Coffee Break

15.40 – 17.00 **Session 5** – Materials testing

Chair: Prof. Renno Veinthal

15.40 – 16.00 – F. Davin
Advanced mechanic surface testing
for thin coatings by nanoindentation,
scratch and tribology investigation.

15.40 – 17.00 **Session 6** - Tribology

Chair: Prof. Braham Prakash

15.40 – 16.00 – M. Antonov,
R. Michalczewski, W. Piekoszewski.
Comparison of tribological model and
real component test methods for
lubricated contacts.

<p>16.00 – 16.20 – <u>P. Peetsalu</u>, V. Mikli, K. Ratas, P. Kulu. Automatic evaluation of the structure parameters of WC-CO thermal spray coating by image analysis techniques.</p> <p>16.20 – 16.40 – <u>H. Lille</u>, J. Kõo, A. Ryabchikov, R. Veinthal, V. Mikli. Measurement and relaxation observation of residual stresses in brush-plated gold coating depending on the current density.</p> <p>16.40 – 17.00 – A. Sivitski, A. Gregor, M. Saarna, P. Kulu, <u>F. Sergejev</u>. Indentation method application for cracking resistance evaluation of hard coatings on tool steels.</p>	<p>16.00 – 16.20 – <u>J. de Koker</u>. Factors influencing the quantity of lubricant required to efficiently lubricate the rail and wheel flange interface.</p> <p>16.20 – 16.40 – A. K. Syed, <u>J. Hardell</u>, B. Prakash. Tribological behaviour of surface treated and post-oxidised tool steels at room temperature and 400 °C.</p> <p>16.40 – 17.00 – <u>E. Badisch</u>, H. Winkelmann, F. Franek. High-temperature continuous impact abrasion testing (HT-CIAT) wear behaviour of single and multiphase materials up to 750°C.</p>
<p>19.00 – 22.00 Conference dinner at the City Hall</p>	
<p>23rd of October, 2009 – the 2nd day</p>	
<p>9.30 – 11.00 Session 7 - Plenary – invited presentation Chair: Prof. Priit Kulu</p> <p>9.30 – 10.15 – Prof. S.-P. Hannula, Processing and properties of hybrid materials.</p> <p>10.15 – 11.00 – Prof. J. Moya Ceramic-metal nanocomposites.</p>	
<p>11.00 – 11.20 Coffee Break</p>	

<p>11.20 – 13.00 Session 8 - Common issues of materials science</p> <p>Chair: Prof. Viktor Mironov</p> <p>11.20 -11.40 – <u>A. Salundi</u>, V. Reedo, M. Järvekülg, A. Lõhmus. Elaboration of method for controlled cracking of low-dimensional metal alkoxide gel films for development of new structures.</p> <p>11.40 – 12.00 – <u>J. Locs</u>, A. Zhurinsh, L. Berzina-Cimdina, D. Loca, M. Leruma, D. Vempere. Characterization of porous silicon carbide ceramics obtained via biotemplating technique.</p> <p>12.00 – 12.20 – <u>S. Dahms</u>, F. Gemse, U. Basler, H.-P. Martin, A. Triebert. Diffusion joining of silicon nitride ceramics.</p> <p>12.20 – 12.40 – <u>R. Bendikiene</u>, S. Bočkus Microstructure and properties of continuously cast billets of grey cast iron.</p> <p>12.40 – 13.00 – <u>R. Riitasalo</u>, M. Erkin Cura, M. Oksa, T. Kosonen, J. Syrén, J. Lagerbom, O. Söderberg, T. Ritvonen, E. Turunen, S-P. Hannula. Comparison of the compacts made from the commercial Cu nanopowders with the pulsed electric current sintering and hot isostatic pressing.</p>	<p>11.20 – 13.00 Session 9 – Coatings</p> <p>Chair: Prof. Simo-Pekka Hannula</p> <p>11.20 – 11.40 – <u>A. Surzhenkov</u>, J. Latokartano, P. Kulu, M. Viljus, A. Vallikivi. The study of the laser hardening parameters on the structure and tribological properties of the PM steel Vanadis 6.</p> <p>11.40 – 12.00 – <u>H. Lille</u>, J. Kõo, A. Gregor, F. Sergejev, R. Traksmaa, A. Sivitski, P. Kulu. Evaluation of mechanical properties and residual stresses of hard PVD coatings.</p> <p>12.00 – 12.20 – <u>J. Steponas Vilys</u>, V. Juozapas Čiuplys, A. Čiuplys. Metal surface hardening by controlled explosion spraying.</p> <p>12.20 – 12.40 – R. Michalczewski, W. Piekoszewski, M. Szczerek, <u>M. Antonov</u>. Scuffing resistance of DLC coated gears lubricated with ecological oil.</p> <p>12.40 – 13.00 – <u>V. Gruzman</u>, N. Gerasimenko. Research and development of anti-calx covering.</p>
<p>13.00 – 14.00 Lunch</p>	

<p>14.00 – 16.00 Session 10 – Common issues of materials science</p> <p>Chair: Prof. Jose Moya</p> <p>14.00 – 14.20 – C. Emrah Yaldiz, <u>R. Veinthal</u>, A. Gregor, K. Georgiadis. Determination of the mechanical properties of thin hard coatings using nano indentation.</p> <p>14.20 – 14.40 – M. Besterçi, O. Velgosová, J. Ivan, P. Hvizdoš, T. Kvačkaj, <u>P. Kulu</u>. Nanomaterials Al-Al₄C₃ studied by "In-situ Tensile Test in SEM"</p> <p>14.40 – 15.00 – <u>K. Wardenær</u>. Common metallurgical defects in ductile iron.</p> <p>15.00- 15.20 – I. Boyko, <u>V. Mironov</u>, A. Kamols. Fe-Cu powder details: surface condition and wear resistance.</p> <p>15.20 – 15.40 – <u>J. Tuisanen</u>, K. Rissa, T. Ritvonen, J. Lagerblom, K. Keskiaho, T. Lepisto Characterization of functional gradient structures in duplex stainless steel casting.</p>	<p>14.00 – 16.00 Session 11 – Recycling</p> <p>Chair: Dr. Valdek Mikli</p> <p>14.00 – 14.20 – <u>J. Kers</u>, D. Goljandin, K. Vilsaar, K. Tall, V. Mikli, X. Zuo, L. Zhang. Characterization of disintegrator milled electronic waste powders for combustion and pyrolysis.</p> <p>14.20 – 14.40 – <u>R. Joost</u>, J. Pirso, M. Viljus. Microstructure evolution and changes in mechanical properties in WC-Co composites during recycling by oxidation -reduction process and sintering.</p> <p>14.40 – 15.00 - <u>M. Erkin Cura</u>, J. Lagerbom, R. Ritasalo, J. Syrén, J. Lotta, O. Söderberg, T. Ritvonen, E. Turunen, S.-P. Hannula. Process parameter optimization of the pulsed electric current sintering of the recycled WC-8Co powder.</p> <p>15.00 – 15.20 – <u>A. Surzhenkov</u>, P. Kulu, R. Tarbe, V. Mikli, <u>H. Sarjas</u>, J. Latokartano. Wear resistance of laser clad thermal sprayed coatings.</p>
<p>Closing of the Conference</p>	