

3rd European Conference on Tribology



and

4th Vienna International Conference on Nano-Technology

Viennano '11

Organisation Consortium



Austrian Tribology Society



Italian Tribology Association



Slovenian Society for Tribology



Swiss Tribology

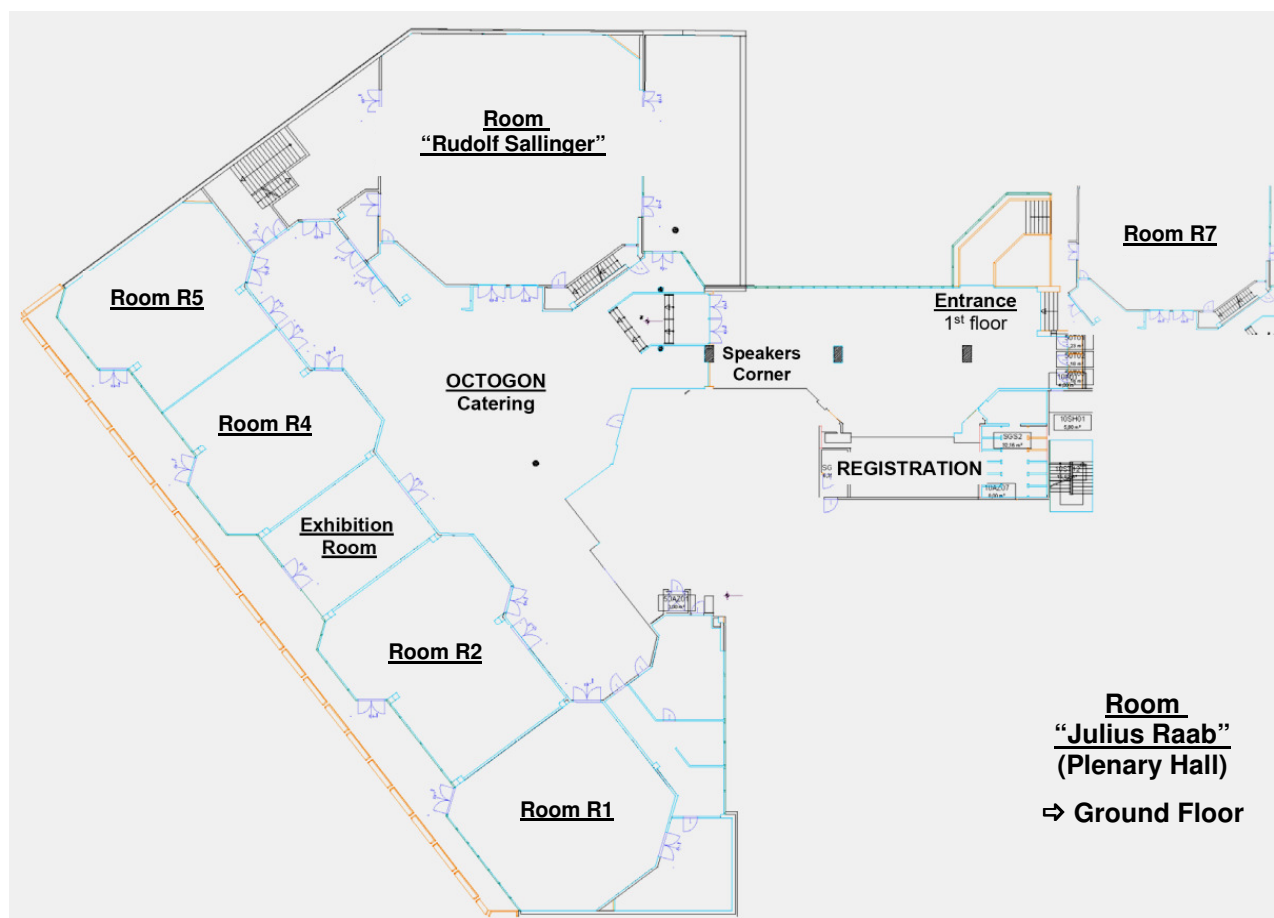
**07 – 09 June 2011
Vienna & Wiener Neustadt
Austria**

Final Program

ECOTRIB 2011

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Scope of the Conference

The congress ECOTRIB 2011 / Viennano '11 addresses the following topics:

E	ECOTRIB 2011
E0	ECOTRIB Plenary
E1	Tribology Impacts on Ecology and Economy
E2	Novel Lubrication Concepts and Lubricants
E3	Smart Materials and Functional Coatings
E3.1	Coatings / Materials
E3.2	Surface Structuring and Texturing
E4	Modelling and Simulation of Tribological Processes and Systems
E5	Tribosystems Reliability and Lifetime Assessment
E6	Tribology in Production Processes
E7	Biotribology and Biomicrotribology
E8	Tribosensorics, Measurement Methods for Tribological Tasks, Condition Monitoring
E9	Machine Elements and Tribo Components
ES	Special Sessions
ES1	Hot Tribology
ES2	Special Tribosystems
V	Viennano '11
V0	Viennano Plenary
V1	Nanoeffects - General Aspects
V2	Friction Control by Nanoeffects
V3	Bio-Nanotechnology
V4	Nanostructured Surface Layers
V5	Materials Design and Selection
V6	Measurement and Testing in the Nano-Range
V7	Nanotribology and -lubrication
VS	Special sessions
VS1	Effects of Bio-Ethanol on Engine Tribology in the Nanoscopic Range
VS2	Measurement and Testing in the Nano-Range – Tribometry

The sessions for oral presentations are arranged according to the following scheme (cf. details about the "session blocks" on the **subsequent pages**). Poster presentations are scheduled each for a half-day in the "Octagon"-hall and the exhibition area, respectively.

Session Block Start	Tuesday, 7 June 2011					Wednesday, 8 June 2011					Thursday, 9 June 2011								
Room	09:30	11:20	13:20	15:00	16:40	09:00	10:50	13:10	14:50	16:30	08:30	09:30	11:20	13:40	14:50				
"Julius Raab"	Plenary L.																		
R1		E3.1a				ES1		E3.1b											
R2		E4			E3.2														
R4		E9a					E6												
R5		E7			E8a			ES2											
R7		E1			E2			E5a											
"Rudolf Sallinger"		V1	VS1	V2	V7	VS2	V6	V3	V4										
Octogon Area		Posters				Posters		Posters											
TFZ / Large Room											Transfer to TFZ	Plen.L.	E8b						
TFZ / OFI-Sem													E5b						
TFZ / CEST-Sem													E9b						
TFZ / AC2T															Tour of the Labs				
TFZ / OFI															Tour of the Labs				
TFZ / CEST															Tour of the Labs				

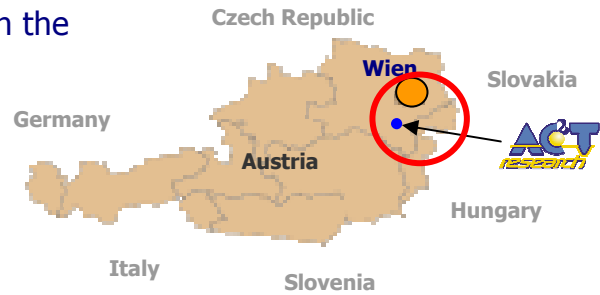
Conference Venue

Wien (Vienna), the capital of Austria, is located in the heart of Europe. The city with its historical and cultural highlights as well as the Viennese hospitality enthuse millions of tourists every year. A couple of centuries

Vienna was the residence

of the Habsburg dynasty and since that time Vienna has a great diversity of magnificent historical buildings, churches and parks.

Today, Vienna and the Vienna Region also offer you modern architecture, a cluster of high tech industries, renowned education and research institutions as well as globally playing economic and political organisations.



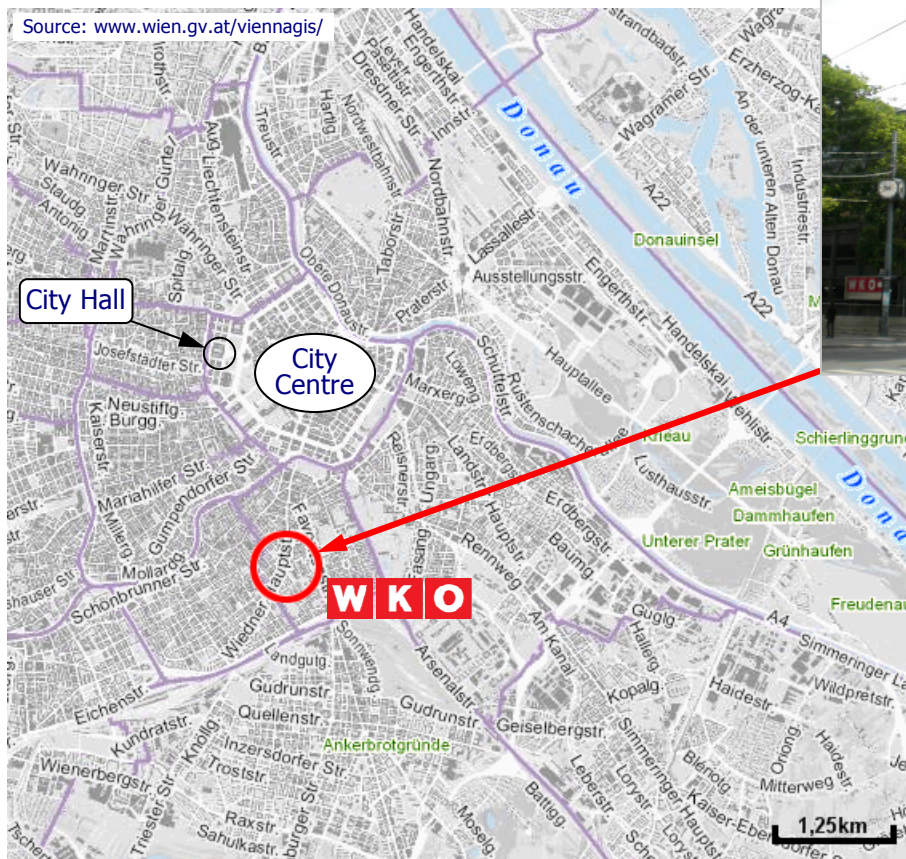
The greater part of the conference will take place in the building of

The Austrian Chamber of Commerce

Wiedner Hauptstraße 63

A 1045 Wien

☎ +43 590 900



Public transport facilities:

Tram Lines **1, 62** or **WLB**,
Station/Stop

Johann-Strauß-Gasse

(cf. page 35)

For **online information** refer to:

<http://www.wien.gv.at/stadtplan/en/> ; search for "Wiedner Hauptstrasse 63", and/or:

http://efa.vor.at/wvb/XSLT_TRIP_REQUEST2?language=en , respectively.



Monday, 06 June 2011 EVENING Registration Desk

16:30 – 19:00 PRE-REGISTRATION on Site

Tuesday, 07 June 2011 MORNING Registration Desk

08:00 – 17:00 REGISTRATION on Site

Wirtschaftskammer Österreich (WKO)

1045 Wien, Wiedner Hauptstraße 63

☎ +43 (5) 90 900 – 0 (WKO)

📠 +43 (5) 90 900 – 250 (WKO)

📠 **+43 676 845 16 2300** Helpdesk OeTG, Mrs. **Martina Nuhsbaumer**

The papers compiled in the following information are presented by the first author each, otherwise an asterisk (*) after a name denominates the presenting author!

Tuesday, 07 June 2011 MORNING Room: "Julius Raab"

09:30 OPENING – WELCOME ADDRESSES

Rankl H., *Dpty. General Manager, Industrial Union of Machines and Metal Goods Industry, Austrian Chamber of Commerce (AT)*

Franek F., *President, Austrian Tribology Society; Scientific Head, AC²T research GmbH – Excellence Centre of Tribology; and Dpty. Head, Department of Microsystem Technology, Institute of Sensor and Actuator Systems, Vienna University of Technology (AT)*

Bartz W.-J., *Tribology and Lubrication Engineering (DE); Chairman **Viennano '11**, Spokesman of the Shareholders, AC²T research GmbH – Excellence Centre of Tribology; Hon.Prof., Vienna University of Technology (AT)*

10:00 Session P-1: PLENARY LECTURES Chair: Franek F.

Lubricating Surfaces by In-Situ Grafted Polymer Chains and Gels (#459)

Spencer N. D., *ETH Zurich (CH)*

Biomimetics: Lessons from Nature (#331)

Bhushan B., *The Ohio State University (USA)*

11:00 Refreshments

11:20 Session P-2: PLENARY LECTURES Chair: Bartz W. J.

Nanotechnology as a Source of Innovation to Meet the Energy and Climate Change Challenges in Tribology (#477)

Hsu S., *George Washington University (USA)*

Green Nanotribology - Challenges, Development and Opportunities (#435)

Gebeshuber I. C., Majlis B. Y., *Universiti Kebangsaan Malaysia (MY)*

12:20 Lunchbreak

13:20**Tuesday, 07 June 2011****AFTERNOON****Session E3.1-1: Coatings / Materials**Room: **R1**Chair: **Podgornik B.****CrN and TiN Based Ternary Coatings for Self-Lubrication (#345)**Ballestrazzi A., Rota A., Incerti L., Valeri S., *Università di Modena e Reggio Emilia (IT)***Electron Beam Surface Engineering of Aluminium Alloys and its Influence on Microstructure - Property Relationships (#226)**Klemm M., *Stahlzentrum Freiberg e.V. (DE)*; Zenker R., *TU Bergakademie Freiberg (DE)*; Haase I., *SWM Structure and Materials Mechanics Research gGmbH Dresden (DE)*; Franke R., *IMA Materials Research and Applications Engineering GmbH (DE)***Effects of Abrasive Environment on the Wear Resistance of Steels (#471)**Just C., Ilo S., Peissl S., *AC²T research GmbH - Excellence Centre of Tribology (AT)***Session E4-1: Modelling and Simulation of Tribological Processes and Systems**Room: **R2**Chair: **Scheichl B.****Elastic-Plastic Spherical Contact under Cyclic Tangential Loading in Pre-Sliding (#250)**Kligerman Y., Zolotarevsky V., Etsion I., *Technion - Israel Institute of Technology (IL)***An Asperity Interaction Model for Friction (#281)**Mulvihill D. M., Kartal M.-E., Nowell D., *University of Oxford (UK)***Contact Mechanics of Rough Surfaces: an Innovative Numerical Approach (#332)**Putignano C., Carbone G., Afferrante L., Demelio G., *Politecnico di Bari (IT)***Combining Probabilistic, Phenomenological and Energetic Methods for Simulation of Wear (#378)**Jisa R., *AC²T research GmbH - Excellence Centre of Tribology (AT)*; Lazarev V., *South Ural State University (RU)*; Ilincic S., Haslehner N., Lenauer C., Vorlauffer G., *AC²T research GmbH - Excellence Centre of Tribology (AT)***Session E9-1: Machine Elements and Tribo Components**Room: **R4**Chair: **Salant R. F.****Transmissions for Aviation – Products with Special Tribological Requirements (#201)**Weigand M., *Vienna University of Technology (AT)***Analysis of the Lubrication Flow in a Main Bearing Shell (#216)**Offner G., *AVL List GmbH (AT)*; Herbst H., *Scania CV AB (SE)*; Mahmoud K. *, Baier W., *AVL List GmbH (AT)***Influences on No-Loaded Gear Losses (#203)**Höhn B.-R., Michaelis K., Otto H.-P. *, *Technische Universität München (DE)***Tribology of Partial Pad Journal Bearings with Textured Surfaces (#310)**Morris N., Rahmani R., Rahnejat H., *Loughborough University (UK)***14:40 Posters & Exhibition & Refreshments**

13:20
Tuesday, 07 June 2011
AFTERNOON
Session E7: Biotribology and Biomicrotribology
Room: R5
Chair: Franek F.
Ceramic-on-Ceramic Hip Retrievals: SEM and Fluorescence Investigations (#357)

Affatato S., Brando D., *Istituto Ortopedico Rizzoli (IT)*; Modena E., Taddei P., *Università di Bologna (IT)*

Failed Metal-on-Metal Resurfacing Hip Prostheses Operated under Boundary Lubrication at Time of Failure (#273)

Joyce T., Langton D. J., Lord J., *Newcastle University (UK)*; Nargol A. V., *University Hospital of North Tees (UK)*

Heating of Knee Joint Replacements on Simulator during "ISO Gait" and Normal Physiological Walking (#260)

Heralt P., Franta L., Suchánek J., *Czech Technical University in Prague (CZ)*

Alternative Lubricants for Wear Testing Orthopaedic Biomaterials (#370)

Joyce T., *Newcastle University (UK)*

Session E1-1: Tribology Impacts on Ecology and Economy
Room: R7
Chair: Ecker A.
Fuel Economy of Engine Oils based on Polyalkylene Glycols (#222)

Merryweather S., Zweifel D., *Dow Europe GmbH (CH)*; Woydt M. *, *BAM - Federal Institute for Materials Research and Testing (DE)*

Hydraulic Fluids from an Environmental Point of View (#200)

Gaule G., Müller-Zermini B., *Hermann Bantleon GmbH (DE)*

Food Grade Lubricants, Key Influences in the Growing European Market (#392)

Evans J., *NSF International (USA)*; (presented by T. Bellahcene)

Eco Design of Environmental Benign Ionic Lubricants – Assessment of Toxicity and Biodegradability (#420)

Steudte S., Stepnowski P., *University of Gdansk (PL)*; Igartua A., *Fundación Tekniker (ES)*; Stolte S., *University of Gdansk (PL)*

Session V1: Nanoeffects – General Aspects
Room: "Rudolf Sallinger"
Chair: Spencer N. D.
Analyses and Quantification of Friction and Wear Processes on the Nanometer Scale (#429)

Jech M., Tomastik C., Vernes A., Pauschitz A., *AC2T research GmbH - Excellence Centre of Tribology (AT)*; Franek F., *Vienna University of Technology (AT)*

Nanoscale Hotspot Formation in an Energetic Material (#286)

Kovalev A., Sturm H., *BAM - Federal Institute for Materials Research and Testing (DE)*

An Accurate In-Situ Wear Assessment in Micro/Nanotribology (#271)

Stempflé P., *FEMTO-ST Institute - ENSMM (FR)*; Takadom J., *ENSMM (FR)*; Kouitat Njiwa R., *Ecole des Mines Nancy (FR)*

Structural Colours in the Focus of Nanoengineering and the Arts: A Survey on State-of-the-Art Developments (#434)

Zobl S., *Institut of Science and Technology in Art, Academy of Fine Arts (AT)*; Matin T. R., Majlis B. Y., *Universiti Kebangsaan Malaysia (MY)*; Schwerte T., *Institut of Zoology, Universität Innsbruck (AT)*; Schreiner M., *Academy of Fine Arts (AT)*; Gebeshuber I. C. *, *Universiti Kebangsaan Malaysia (MY)*

14:40 Posters & Exhibition & Refreshments

15:00**Tuesday, 07 June 2011****AFTERNOON****Session E3.1-2: Coatings / Materials**Room: **R1**Chair: **Klemm M.****Tribological Properties of DLC Coatings in Helium Atmosphere (#335)**Podgornik B., *Institute of Metals and Technology (SI)*; Vižintin J., Borovsak U., Megusar F., *University of Ljubljana (SI)***Effect of Tribosystem Rigidity and Inertia on Run-In Behaviour of PVD Coating (#415)**Antonov M., Adoberg E., Hussainova I., Goljandin D., *Tallinn University of Technology (EE)*; Zikin A., *AC²T research GmbH - Excellence Centre of Tribology (AT)***Plasma Electrolytic Oxidation Coatings on Zirconium for Tribological Applications (#383)**Guadalupe S., Diomidis N., Mischler S., *EPFL - Ecole Polytechnique Fédérale de Lausanne (CH)***Tribological Characteristics of Duplex Coated Cr-Mo-V Alloyed Steel (#384)**Válová M., Suchánek J., *Czech Technical University in Prague (CZ)***Session E4-2: Modelling and Simulation of Tribological Processes and Systems**Room: **R2**Chair: **Kligerman Y.****A Numerical Model for Investigating Mixed Lubricated Systems Taking into Account Adhesion Effects and Surface Roughness (#334)**Albers A., Lorentz B. *, *KIT - Karlsruhe Institute of Technology (DE)***On the Inertial/Turbulent Range in Fully Hydrodynamic Lubrication (#254)**Scheichl B., *AC²T research GmbH - Excellence Centre of Tribology (AT)***Calculation of Viscosities of Complex Lubricants using Quantum Chemical Molecular Dynamics Simulations (#275)**Mart U., *University of Southampton (UK)***Session E9-2: Machine Elements and Tribo Components**Room: **R4**Chair: **Weigand M.****Simulation of Viscoelastic Rod Seals in Conventional Hydraulic Actuators (#218)**Thatte A., Salant R. F. *, *Georgia Institute of Technology (USA)***Friction Model for Pneumatic Seals (#248)**Heipl O., Murrenhoff H., *RWTH Aachen University (DE)***The Dynamics of Rubber Contacts (#398)**Happ B., *Universität Erfurt (DE)***The Optimization Process of the Hydrodynamic Mechanical Face Seals with Unaligned Plane Surfaces (#393)**Onescu C., Popa N. *, *University of Pitesti (RO)***16:20 Posters & Exhibition & Refreshments**

15:00
Tuesday, 07 June 2011
AFTERNOON
Session E8-1: Tribosensorics, Meas. Methods for Tribological Tasks, Condition Monitoring
Room: R5
Chair: Ronkainen H.
On-Line Magnetoelastic Oil Viscosity Detector (#253)

Markova L., *Belarus National Academy of Science (BY)*; Myshkin N. *, *Metal-Polymer Research Institute NANB (BY)*; Makarenko V. M., Semenyuk M. S., Zazulia A. P., *Belarus National Academy of Science (BY)*; Kong H., Han H. G., *Korea Institute of Science and Technology (KR)*

Analytical Challenges Emerging from Future Fuels and Lubricants (#444)

Dörr N., Besser C., Grafl A., Pisarova L., Kassler A., *AC²T research GmbH - Excellence Centre of Tribology (AT)*

Surface Analysis – a Useful Tool in the Development and Testing of New Lubricants (#450)

Orendorz A., Kuhn M., Staub P., *Klüber Lubrication München KG (DE)*

The State-of-the-Art Fukui Model Colorimetric Patch Analysis to Check Contamination in Hydraulic and Lubricating Oils (#385)

Sasaki A., *Maintek Consult (JP)*; Honda T., *University of Fukui (JP)*; Iwai Y., *Fukui University (JP)*; Becker N., *Norbert Becker Ingenieurbüro & Vertrieb (DE)*

Session E1-2: Tribology Impacts on Ecology and Economy
Room: R7
Chair: Woydt M.
How Anion Species Influence Tribology of Green Lubricant Based on Ionic Liquids (#295)

Kronberger M., Pejakovic V., *University of Ljubljana (SI)*; Conte M., *Fundación Tekniker - Tribology Unit (ES)*

Pyrrolidinium Sulfate and Ammonium Sulfate Ionic Liquid as Green Lubricant Additives for Steel/Steel Contact Lubrication (#338)

Pejakovic V., Kronberger M., Kalin M., *University of Ljubljana (SI)*; Mahrova M., Vilas M., Tojo E., *University of Vigo (ES)*

Air Bearings for High-Speed Applications: A Viable, Clean Solution (#377)

Waumans T., Peirs J., Al-Bender F., Reynaerts D., *Katholieke Universiteit Leuven (BE)*

Energy Efficiency Improvements in Large Stationary Gas Engines through Optimization of Oil Rheology Supported by Close-to-Practice Simulation Methods (#463)

Priestner C., Allmaier H., *Virtual Vehicle Competence Center (AT)*; Novotny-Farkas F., *OMV Refining and Marketing GmbH (AT)*

Session VS1: Effects of Bio-Ethanol on Engine Tribology in the Nanoscopic Range
Room: "Rudolf Sallinger"
Chair: Jech M.
Chemical Evaluation of Engine Oil Performance in the Presence of Bio-Ethanol by Artificial Alteration (#207)

Besser C., Dörr N., Lenauer C., *AC²T research GmbH - Excellence Centre of Tribology (AT)*; Steinschütz K., *Vienna University of Technology (AT)*; Novotny-Farkas F., *OMV Refining and Marketing GmbH (AT)*

Characteristics of Ethanol as a Blend and the Impact of Combustion Products on Wear of Piston Ring in a Modern Passenger Car (#234)

Steinschütz K., *Vienna University of Technology (AT)*; Lenauer C., *AC²T research GmbH - Excellence Centre of Tribology (AT)*; Urbanek M., *Vienna University of Technology (AT)*; Jech M., *AC²T research GmbH - Excellence Centre of Tribology (AT)*

Nanoscopic Wear Tests Using Engine Oil Aged with Ethanol Combustion Products (#235)

Lenauer C., Besser C., *AC²T research GmbH - Excellence Centre of Tribology (AT)*; Steinschütz K., *Vienna University of Technology (AT)*; Wopelka T., *AC²T research GmbH - Excellence Centre of Tribology (AT)*; Novotny-Farkas F., *OMV Refining and Marketing GmbH (AT)*; Jech M., *AC²T research GmbH - Excellence Centre of Tribology (AT)*

Nanoscopic Analysis of Cylinder Liner Surfaces Tribomutated under the Influence of Ethanol Biofuel (#400)

Tomastik C., Lenauer C., Besser C., Wopelka T., Jech M., *AC²T research GmbH - Excellence Centre of Tribology (AT)*; Störi H., *Vienna University of Technology (AT)*

16:20 Posters & Exhibition & Refreshments

16:40**Tuesday, 07 June 2011****AFTERNOON****Session E3.1-3: Coatings / Materials**Room: **R1**Chair: **Antonov M.****Tribological Analysis of Lightweight High-Strength Silicon Alloys by Self-Propagating High-Temperature Synthesis (#421)**Honda T., Ando K., Miyajima T., *University of Fukui (JP)*; Iwai Y., *Fukui University (JP)*; Matsushita A., *ISMAN J CO (JP)***Investigation of Wear Resistance of Spark Plasma Sintered Co/WC and cBN/Co/WC Composites (#314)**Yaman B., *Eskisehir Osmangazi University (TR)*; Mandal H., *Anadolu University (TR)***Coatings for Reducing Fretting Wear of Wires in Polymer Coated Cables (#381)**Diomidis N., Mischler S. *, *EPFL - Ecole Polytechnique Fédérale de Lausanne (CH)***Session E4-3: Modelling and Simulation of Tribological Processes and Systems**Room: **R2**Chair: **Negrini S.****A Two Scale Approach for Mixed Lubrication Modelling: the Case of Lip Sealings (#350)**Scaraggi M., Carbone G., *Politecnico di Bari (IT)***Quantum Chemical Molecular Dynamics Simulation on Tribochemical Reaction Dynamics of Diamond-Like Carbon (#394)**Kubo M., Hayashi K., Tezuka K., Ozawa N., Shimazaki T., Adachi K., *Tohoku University (JP)***Computational Chemistry Study on the Interaction Mechanism of Imidazolium Based Ionic Liquid Lubricants with Iron Surface (#309)**Mart U., Wang L., Wood R. J., *University of Southampton (UK)*; Zhou F., *Chinese Academy of Sciences (CN)***Molecular Simulation of New Ionic Lubricants (#399)**Mendonca A. C., *Université Blaise Pascal - CNRS - Centre national de la recherche scientifique (FR)*; Malfreyt P., Pádua A. A., *Université Blaise Pascal (FR)***Session E9-3: Machine Elements and Tribo Components**Room: **R4**Chair: **Otto H.-P.****Eddy Current Stabilization of Magnetic Bearings (#407)**Bassani R., *Italian Tribology Association (AIT) (IT)*; Musolino A. *, Rizzo R., Tripodi E., *University of Pisa (IT)***THD Analysis of Rayleigh Step Bearings (#379)**Ogata H., *IHI Corporation (JP)***A Generalized Coefficient of Friction for Assessing Energy Efficiency of Bearing Systems (#411)**Al-Bender F., *Katholieke Universiteit Leuven (BE)*

16:40
Tuesday, 07 June 2011
AFTERNOON
Session E8-2: Tribosensorics, Meas. Methods for Tribological Tasks, Condition Monitoring
Room: R5
Chair: Myshkin N.
Multichannel Optical Sensor for Oil Film Pressure Measurement in Engine Main Bearing (#440)

Ronkainen H., Hokkanen A., Kapulainen M., Stuns I., Varjus S., Turunen R., Nyyssönen S., Halme J., *VTT Technical Research Centre of Finland (FI)*

New Test Rig "CATRI" for Tribological and Mechanical Characterization of Materials, Coatings and Lubricants in UHV (#354)

Nevshupa R. A., *CISDEM (ES)*; Conte M. *, *Berriozabal E., Roman E., Fundación Tekniker - Tribology Unit (ES)*; Igartua A., *Fundación Tekniker (ES)*

Effect of Surface Velocity Directions on Elastohydrodynamic Film Shape (#412)

Omasta M., Křupka I., Hartl M., *Brno University of Technology (CZ)*

Sliding Friction by Liquid Meniscus Bridge under Shear and its Interfacial Slip (#342)

Tanaka K., Iwamoto K., *Tokyo University of Marine Science and Technology (JP)*

Session E2-1: Novel Lubrication Concepts and Lubricants
Room: R7
Chair: Fathi-Najafi M.
Tribological Stress and Structural Behaviour of Lubricating Greases (#210)

Kuhn E., *Hamburg University of Applied Sciences (DE)*

Rheological and Tribological Investigation of a Mesogenic Fluid with Ultralow Friction (#374)

Amann T., *Fraunhofer-Institut für Werkstoffmechanik IWM (DE)*; Kailer A., *Fraunhofer Institute for Mechanics of Materials (DE)*

Lubricity of a Novel Water Miscible Fluid (#322)

Jayadas N. H., Grahm M., Larsson R., *Luleå University of Technology (SE)*

Tribological Characterization of High Performance Lubricants (#270)

Hoffmann T., Lehmann D., *Leibniz-Institut für Polymerforschung Dresden e.V. (DE)*; Schäffler M., *Anton Paar Germany GmbH (DE)*

Session V2: Friction Control by Nanoeffects
Room: "Rudolf Sallinger"
Chair: Gebeshuber I. C.
The Effect of Re-Doped Fullerene-Like MoS₂ Nanoparticles on Friction and Wear (#376)

Tenne R., *Weizmann Institute of Science (IL)*; Moshkovich A., Perilyev V., Haikin E., Rapoport L. *, *Holon Institute of Technology (IL)*

Tribological Properties of Vertically-Aligned Carbon Nano-Tube with Perfluoropolyether Lubricant (#315)

Tani H., *Kansai University (JP)*; Konishi K., *Graduate School of Kansai University (JP)*; Norimatsu W., Kusunoki M., *Nagoya University (JP)*; Tagawa N., *Kansai University (JP)*

Lubricant Molecular Chain Length Effects on the Friction of Diamond-Like Carbon Contacts (#257)

Velkavrh I., Kalin M., *University of Ljubljana (SI)*

Molecular Dynamics Simulation of Solid Particles of Nano Magnetorheological Fluids (#228)

Bompos D. A., Nikolakopoulos P. G. *, *University of Patras (GR)*

13:00 – 18:00**Tuesday, 07 June 2011****AFTERNOON****Room: Octagon Area****ECOTRIB Poster Session E1-P: Tribology Impacts on Ecology and Economy****Increasing Energy-Efficiency of Hydrodynamic Journal Bearings by Closed-Loop Lubrication Flow Control and Condition Monitoring (#475)**Albers A., Nguyen T., Burger W., *KIT - Karlsruhe Institute of Technology (DE)***Increasing the Environment Protection and the Economy of I.C. Engines with the New Type of Additive (#227)**Fodor J., *Dr. Fodor (HU)*; Fésüs K. *(HU)***ECOTRIB Poster Session E2-P: Novel Lubrication Concepts and Lubricants****Low-Wear and Low-Friction Polymeric Materials Containing Ionic Liquids (#388)**Ranetcaia N., Hamciuc V., Ibanescu C., Simionescu B. C., Harabagiu V., *"Petro Poni" Institute of Macromolecular Chemistry (RO)*; Mahrova M. *University of Vigo (ES)***Antiseizure Properties of Imidazolium Ionic Liquids (#474)**Sulek M. W., Wogorzalek M., *Technical University of Radom (PL)***Research on Lubricity of Ionic Liquids for Metal Alloys (#408)**Koyama T., Sasaki S. *, *Tokyo University of Science (JP)*; Miyake K., Nakano M., *National Institute of Advanced Industrial Science and Technology (JP)***ECOTRIB Poster Session E3.2-P: Surface Structuring and Texturing****Mechanical Mixing during Running-In under Lubricated Conditions (#348)**Optatzky W., Pöhlmann K. *, *IAVF Antriebstechnik GmbH (DE)***Viennano Poster Session V1-P: Nanoeffects - General Aspects****Synthesis of Ti-O Nanolayers on Aerosil Surface and Investigation of Aggregative Stability of Disperse Systems in Organic Environments (#406)**Zemtsova E. G., Abdrashitov G., Kirichenko S. *, Smirnov V., *Saint-Petersburg State University (RU)***Elementary Nanostructure of Friction (#225)**Fedorov S., *Kaliningrad State Technical University (RU)***Viennano Poster Session V2-P: Friction Control by Nanoeffects****The Tribologic Properties of Fatty Acid Methyl Esters and Single Wall Carbon Nanotubes (#229)**Cursaru D., Tanasescu C., Ciuparu D., Ripeanu R., *Petroleum-Gas University of Ploiesti (RO)*

08:30 – 12:45
Wednesday, 08 June 2011
MORNING
Room: Octagon Area
ECOTRIB Poster Session E4-P:
Modelling and Simulation of Tribological Processes and Systems
The Analysis of Fractal Dimensions of the Damage Area of Details Working Under the Conditions of Shock Loading (#361)

Pashayev A. M., Janahmadov A. *, Javadov N., *Azerbaijan Engineering Academy (AZ)*

Using Neural Networks in Wear Prediction for a Class of Polymeric Composites (#326)

Ciortan S., Deleanu L. *, Podaru G., *University Dunarea de Jos of Galati (RO)*

ECOTRIB Poster Session E5-P: Tribosystems Reliability and Lifetime Assessment
Classification of Faults in Tractor Gearbox with Neural Networks (#454)

Ahmadi H., *University of Tehran (IR)*

ECOTRIB Poster Session E7-P: Biotribology and Biomicrotribology
The Wear of Explanted 36 mm Metal-on-Metal Total Hip Replacements (#272)

Joyce T., Langton D. J., Lord J., Newcastle University (UK); Nargol A. V., University Hospital of North Tees (UK)

ECOTRIB Poster Session E8-P:
Tribosensorics, Measurement Methods for Tribological Tasks, Condition Monitoring
Rotor Condition Monitoring for Evaluation of Safe Functioning of Turboaggregat (#319)

Radovanovic L., Pekez J., Adamovic Z., *University in Novi Sad (RS)*

Modeling of Particle Quantifier Index in Oil Engine of MF 285 Tractors Based on Result of Atomic Emission Spectroscopy Test (#301)

Labbafi R., Ahmadi H., Heidary B., Bagheri B., *University of Tehran (IR)*

Acoustic Fault Diagnosis of MF285 Gearbox by Artificial Neural Networks and K-Nearest Neighbour (#304)

Bagheri B., Ahmadi H., Labbafi R., Omid M., Rajabipour A., *University of Tehran (IR)*

Viennano Poster Session V4-P: Nanostructured Surface Layers
Investigation on Wear Resistance of Ductile Cast Iron covered with Nanostructured Composite Nickel Coatings (#372)

Kaleicheva J., *Technical University of Sofia (BG)*; Karaguiozova Z., *Bulgarian Academy of Sciences (BG)*; Kandeveva M., *Technical University of Sofia (BG)*; Lyubchenko E., *National Technical University Kharkov (UA)*; Stavrev S., *Bulgarian Academy of Sciences (BG)*; Shumnaliev P., *Technical University of Sofia (BG)*

Viennano Poster Session V6-P: Measurement and Testing in the Nano-Range
Nanocones and Nanowires Analysis with Scanning Auger Microscopy (#422)

Lyapin A., *Physical Electronics GmbH (DE)*; Paul D., Hammond J., Raman S., *Physical Electronics USA (USA)*

09:00**Wednesday, 08 June 2011****MORNING****Session E3.1-4: Coatings / Materials**Room: **R1**Chair: **Conte M.****Electrodeposited Gold Composite Coatings - Mechanism of Formation and Tribological Properties (#468)**

Godja N., Löcker C., Schindel A., *CEST - Center of Electrochemical Surface Technology (AT)*; Fink M., Merstallinger A., *Aerospace and Advanced Composites GmbH (AT)*

Tribological and Tribocorrosion Tests of Ni-PTFE Electrochemical Coatings (#401)

Szeptycka B., Senatorski J. *, *Institute of Precision Mechanics (PL)*

Tribological Behaviour of Al-Si-Polyester Abradable Coatings (#321)

Koutsomichalis A., *Hellenic Air-Force Academy (GR)*; Vaxevanidis N. *, *School of Pedagogical & Technological Education (ASPETE) (GR)*; Mourlas A., Psyllaki P., *Technical Education Institute of Piraeus (GR)*

Wear Resistant Nickel-Based Hardfacings under Corrosive and Abrasive Conditions (#441)

Hornung J., Katsich C., *AC²T research GmbH - Excellence Centre of Tribology (AT)*; Kirchgaßner M., *Castolin Ges.m.b.H. Vienna (AT)*; Badisch E., *AC²T research GmbH - Excellence Centre of Tribology (AT)*

Session E4-4: Modelling and Simulation of Tribological Processes and SystemsRoom: **R2**Chair: **Mart U.****Modelling of Elastic Properties of Sintered Porous Bearings (#405)**

Manoylov A., Borodich F., Evans H. P., *Cardiff University (UK)*

Model of Deformation Contribution from Total Friction Force for Textile Fabrics (#438)

Camillieri B., Baussan E., Bueno M.-A. *, *University of Haute Alsace (FR)*; Derler S., Rossi R., *EMPA - Materials Science & Technology (CH)*

Simulation of Ground Compaction Phenomenon due to Agricultural Tyre Passage (#341)

Braghin F., Melzi S., Negrini S. *, *Politecnico di Milano (IT)*; Tasora A., *Università di Parma (IT)*; Sabbioni E., *Politecnico di Milano (IT)*

Mathematical Model for Simulating Wear of HIP Prostheses (#404)

Di Puccio F., Mattei L. *, Ciulli E., *University of Pisa (IT)*

Session E9-4: Machine Elements and Tribo ComponentsRoom: **R4**Chair: **Grün F.****Bearing Selecting Algorithm for Calculating the Bearing Friction in Compound Planetary Transmissions (#262)**

Csobán A., Kozma M., *Budapest University of Technology and Economics (HU)*

An Experimental Investigation on Air Pads with Micro-Holes (#289)

Belforte G., Colombo F., Raparelli T., Trivella A. *, Viktorov V., *Politecnico di Torino (IT)*

Cavitation in Porous Journal Bearings Lubricated with Ionic Liquids (#293)

Neacsu A., Scheichl B., Eder S., Vorlauffer G., *AC²T research GmbH - Excellence Centre of Tribology (AT)*

Effect of Water Contamination on Lubricating Performance: Experiments on a Hydrodynamic Tilting Pad Thrust Bearing (#323)

Harika E., Hélène M., *EDF R&D (FR)*; Bouyer J., Fillon M., *Université de Poitiers (FR)*

10:20 Posters & Exhibition & Refreshments

09:00
Wednesday, 08 June 2011
MORNING
Session E8-3: Tribosensorics, Meas. Methods for Tribological Tasks, Condition Monitoring
Room: R5
Chair: Ciulli E.
Measurement of Limiting Shear Stress – an Intrinsic Property of Lubricant or Measuring System? (#224)

Wong P., *City University of Hong Kong (HK)*; Li X., Guo F., *Qingdao Technological University (CN)*

Crack Motion in Viscoelastic Solids: Experimental Investigation (#282)

D'Amico F., Carbone G. *, Foglia M.-M., *Politecnico di Bari (IT)*

Determining the Wear Volume on Standard Test Pieces by Universal Surface Tester (#436)

Weinhold W., *Innowep GmbH (DE)*; Stengler R., *University of Applied Sciences Darmstadt (DE)*; Zoll A. M., *Innowep GmbH (DE)*

Radionuclide Technique in Mechanical Engineering, a Powerful Measuring Method for Tribological Tasks (#239)

Kleinrahm A., Daul J., *ZAG Zyklotron AG (DE)*

Session E2-2: Novel Lubrication Concepts and Lubricants
Room: R7
Chair: Kuhn M.
Comparative Study of the Tribological Behaviour of a Viscous Naphthenic Oil and two Polyisobutenes (#223)

Fathi-Najafi M., *Nynas AB (SE)*; Persson K., *YKI - Institute for Surface Chemistry (SE)*; Skedung L., *KTH - Royal Institute of Technology (SE)*

Enhanced Lubricant Lifetime by Laser Interference Patterned Steel Surfaces (#481)

Rosenkranz A., Gachot C., Mücklich F., *Saarland University (DE)*

Influence of Biodiesel Fuels on Lubricity of Passenger Car Diesel Engine Oils (#464)

Petraru L., Novotny-Farkas F., Baumann K., *OMV Refining and Marketing GmbH (AT)*

Topography and Nanomechanical Properties of Tribofilms from Primary Alkyl ZDDPs (#219)

Muraki M., Oshima A., *Shonan Institute of Technology (JP)*

Session V7: Nanotribology and -lubrication
Room: "Rudolf Sallinger"
Chair: Bhushan B.
Tribological Properties of Oil Additives with Fe and Cu Nano-Particles (#389)

Padgurskas J., Rukuiza R., Kreivaitis R. *, Kupcinskas A., *Lithuanian University of Agriculture (LT)*; Prosycevas I., *Kaunas University of Technology (LT)*

Tribological and Rheological Behaviour of Lubricating Greases with Nanosized Inorganic based Additives (#451)

Altavilla C., Ciambelli P., Sarno M., Nobile M. R., Gnerre C., Somma E., D'Agostino V., Senatore A., Petrone V. *, *University of Salerno (IT)*

Nanotribological and Nanorheological Studies of Ultrathin Films for Nanotechnological Applications (#330)

Rymuza Z., *Warsaw University of Technology (PL)*

Tribological Behaviour of MoS₂ Nanotubes in Oil (#320)

Kogovšek J., Kalin M., *University of Ljubljana (SI)*; Remškar M., *Jožef Stefan Institute (SI)*

10:20 Posters & Exhibition & Refreshments

10:50**Wednesday, 08 June 2011****MORNING****Session E3.1-5: Coatings / Materials**Room: **R1**Chair: **Berger L.-M.****Improving the Tribological Behaviour of Amorphous Thermoplastics with New Bonded Solid Lubricant Coatings (#283)**

Enger M., *Hochschule Mannheim (DE)*; Blaškovič P., *Slovak University of Technology in Bratislava (SI)*; Feinle P., *Mannheim University of Applied Sciences (DE)*

Effect of Fillers on Tribological Properties of PTFE Composites (#340)

Conte M., Fuentes E., *Fundación Tekniker - Tribology Unit (ES)*; Fernandez X., Igartua A., *Fundación Tekniker (ES)*

Particular Aspects of Tribological Behaviour for Composites with Polyamide Matrix and Microglass Spheres (#264)

Deleanu L., Andrei G., Birsan I. G., Raileanu I., *University Dunarea de Jos of Galati (RO)*

Novel Material Pairing Concepts for Gears with a High Proportion of Sliding (#287)

Klien S., Diem A., Surberg C.-H., *V-Research GmbH (AT)*; Zimmermann J., *Zimm Maschinenelemente GmbH + Co KG (AT)*

Session E3.2-1: Surface Structuring and TexturingRoom: **R2**Chair: **Gachot C.****Tuning Elastomer Friction by Hexagonal Surface Patterning (#263)**

Murarash B., Itovich Y., Varenberg M. *, *Technion - Israel Institute of Technology (IL)*

Super-Hydrophobicity of Fractal Surfaces (#259)

Bottiglione F., Carbone G. *, *Politecnico di Bari (IT)*

Roughness Parameters and Friction of Textured Surfaces (#232)

Sedlacek M., *University of Ljubljana (SI)*; Podgornik B., *Institute of Metals and Technology (SI)*; Vižintin J., *University of Ljubljana (SI)*

Laser Surface Texturing for Friction Reduction in MoS₂ Coated Surfaces (#324)

Ripoll R., *AC²T research GmbH - Excellence Centre of Tribology (AT)*; Savkova J., *MINES ParisTech (FR)*; Simic R., *University of Ljubljana (SI)*; Podgornik B., *Institute of Metals and Technology (SI)*

Session E9-5: Machine Elements and Tribo ComponentsRoom: **R4**Chair: **Trivella A.****Load Carrying Capacity of W-DLC Coated Gears (#363)**

Krzan B., Vižintin J., *University of Ljubljana (SI)*; Novotny-Farkas F., *OMV Refining and Marketing GmbH (AT)*

An Experimental Investigation on Scuffing in Spur Gears (#360)

Ciulli E., Guerrieri Paleotti F. S. *, Bartilotta I., *University of Pisa (IT)*; Manconi S., *AM Testing srl (IT)*; Facchini M., *AVIO Propulsione Aerospaziale S.p.A. (IT)*

The Running in Phase of Polymer Materials for Gears (#352)

Pogacnik A., *Iskra Mehanizmi d.d., Lipnica (SI)*; Kalin M., *University of Ljubljana (SI)*

12:10 Lunchbreak

10:50
Wednesday, 08 June 2011
MORNING
Session E8-4: Tribosensorics, Meas. Methods for Tribological Tasks, Condition Monitoring
Room: R5
Chair: Ratia V.
Set-Up of a Test Rig for Lubricated Cam Simulation (#403)

Vela D., Fazzolari F., *University of Pisa (IT)*; Bassani R., *Italian Tribology Assoc. (AIT) (IT)*; Ciulli E. *, *University of Pisa (IT)*

In-Situ Observation of Metallic Tribosystems (#291)

Korres S., Feser T., *KIT - Karlsruhe Institute of Technology (DE)*; Scherge M., *Fraunhofer IWM (DE)*; Dienwiebel M., *KIT - Karlsruhe Institute of Technology (DE)*

Scan Thermal Microscopy Investigation into the Energetics of the Thermal Skin in Dry Reciprocating Sliding of Titanium (#373)

Abdel-Aal H., *Arts et Metiers ParisTech (FR)*; Trannoy N., *Université de Reims (FR)*; El Mansori M., *Arts et Metiers ParisTech (FR)*

A Study on the Thermo-Electrical Response of Pure Titanium in Dry Machining (#397)

Abdel-Aal H., El Mansori M., *Arts et Metiers ParisTech (FR)*

Session E2-3: Novel Lubrication Concepts and Lubricants
Room: R7
Chair: Kreivaitis R.
Ionic Liquids Based on Imidazolium with Functionalized Alkyl Chain as New Lubricants (#267)

Kaldonski T., *Military University of Technology, Faculty of Mechanical Engineering (PL)*; Ozimina D., *Kielce University of Technology (PL)*; Cudzilo S., Durejko T., Gocman K., Zasada D., Kaldonski T., *Military University of Technology, Faculty of Mechanical Engineering (PL)*

Tribological Evaluation of Tetraethylen Glycol Functionalized Ionic Liquids (#292)

Pagano F., *Fundación Tekniker (ES)*; Zare P., *Martin-Luther University (DE)*; Bayon R., *Fundación Tekniker (ES)*; Binder W., *Martin-Luther University (DE)*; Fernandez X., Igartua A., *Fundación Tekniker (ES)*

Effectiveness of Corrosion Inhibitors in Ionic Liquids (#205)

Gabler C., Tomastik C., Brenner J., Pisarova L., Dörr N., *AC²T research GmbH - Excellence Centre of Tribology (AT)*

Study on the Tribological Performance of Magnetic Surface Lubricated by Magnetic Fluids (#387)

Huang W., Liao S., Wang X., *Nanjing University of Aeronautics & Astronautics (CN)*

Session VS2: Measurement and Testing in the Nano-Range – Tribometry
Room: "Rudolf Sallinger"
Chair: Dörr N.
A Novel Design of a Nanotribometer Instrument Line (#240)

Hess M., *CSM Instruments SA (DE)*; Bellaton B., Kempe P., *CSM Instruments SA (CH)*

The SEM/FIB Workbench: Automated Nanorobotics System Inside of Scanning Electron or Focussed Ion Beam Microscopes (#221)

Burkart I., Klocke V., *Klocke Nanotechnik GmbH (DE)*

Calibrated Nanoscale Capacitance and Dopant Profile Measurements using a Scanning Microwave Microscope (#212)

Kada G., Fenner M. A., *Agilent Technologies Austria GmbH (AT)*; Huber H.-P., *JKU University of Linz (AT)*; Tanbakuchi H., *Agilent Technologies Inc. (USA)*; Moertelmaier M., *Agilent Technologies Austria GmbH (AT)*; Kabos P., *National Institute for Standards and Technology (NIST) (USA)*; Smoliner J., *Vienna University of Technology (AT)*; Hinterdorfer P., *JKU University of Linz (AT)*; Kienberger F., *Agilent Technologies Austria GmbH (AT)*

Abrasion-Resistant Coatings by Nano-Diamonds (#417)

Ziltener D., *Accutron AG (CH)*; Weinhold W., *Innowep GmbH (DE)*

12:10 Lunchbreak

13:10**Wednesday, 08 June 2011****AFTERNOON****Session ES1: Hot Tribology**Room: **R1**Chair: **Badisch E.****Hot Tribology - A Bibliometric Assessment (#290)**

Hörlesberger M., *AIT Austrian Institute of Technology GmbH (AT)*; Badisch E., *AC²T research GmbH - Excellence Centre of Tribology (AT)*; Wepner B., *AIT Austrian Institute of Technology GmbH (AT)*; Winkelmann H., *AC²T research GmbH - Excellence Centre of Tribology (AT)*

Tool - Workpiece Interactions for Hot Forming and Forging Applications (#482)

Tomala A., *AC²T research GmbH - Excellence Centre of Tribology (AT)*

Hard Tribological Ti-(Al,Cr)-Si-C-N Coatings for High Temperature Applications (#258)

Kuptsov K., Kiryukhantsev-Korneev P., Sheveyko A., Shtansky D., *National University of Science and Technology "MISIS" (RU)*

High Temperature Wear Influenced by Micro and Nanostructural Material Properties – Extended Summary and Explanation of Wear Mechanism of Dendritic Precipitations (#465)

Winkelmann H., *AC²T research GmbH - Excellence Centre of Tribology (AT)*

Session E3.2-2: Surface Structuring and TexturingRoom: **R2**Chair: **Varenberg M.****Assessment of the Performance of Mushroom-Shaped Micro-Structured Surfaces (#325)**

Carbone G., Pierro E. *, *Politecnico di Bari (IT)*

Structural Lubricity on the Mesoscale - Controlling Friction by Laser-Interference Patterned Surfaces (#327)

Gachot C., Rosenkranz A., Müser M., Mücklich F., *Saarland University (DE)*

Micro Texturing of the Tribological Contact in a CVT (#328)

Albers A., Drechsler S., Bernhardt J. *, Ott S., *KIT - Karlsruhe Institute of Technology (DE)*

Session E9-6: Machine Elements and Tribo ComponentsRoom: **R4**Chair: **Krzan B.****Interactions between Heterogeneous Aluminium Sliding Materials and Lubricants (#265)**

Grün F., *Montanuniversität Leoben (AT)*; Summer F., Pondicherry K. S., *MCL - Material Center Leoben Forschung GmbH (AT)*; Gódor I., *University of Leoben (AT)*; Lainé E., *Infineum UK Ltd. (UK)*; Offenbecher M., *Miba Bearing Group (AT)*

Novel Methodology for the Calculation of Local Loading in Lubricated Heterogeneous Tribosystems (#432)

Krampl H., *MCL - Material Center Leoben Forschung GmbH (AT)*; Grün F., *Montanuniversität Leoben (AT)*; Gódor I., *University of Leoben (AT)*

Fault classification of Planetary Gears Based on Decision Tree and Regression Model (#302)

Labbafi R., Ahmadi H., Bagheri B., Mohtasebi S. S., Rajabipour A., Khazaei M., *University of Tehran (IR)*

14:30 Posters & Exhibition & Refreshments

13:10
Wednesday, 08 June 2011
AFTERNOON
Session E8-5: Tribosensorics, Meas. Methods for Tribological Tasks, Condition Monitoring
Room: R5
Chair: Korres S.
Identification of Micro-Hole Discharge Coefficients for Air Bearings (#288)

Belforte G., Colombo F. *, Raparelli T., Trivella A., Viktorov V., *Politecnico di Torino (IT)*

Proof of Concept of a Novel Optical Glucose Enzyme-Based Micro-Biosensor using SU-8 (#317)

Psoma S. D., *University of Western Macedonia (GR)*; van der Wal P. *, de Rooij N., *EPFL - IMT Neuchâtel (CH)*

Effect of Abrasive Properties on the Crushing Pin-On-Disc Wear Test Results (#395)

Ratia V., Heino V., Valtonen K., *Tampere University of Technology (FI)*; Kemppainen A., *Rautaruukki Oyi (FI)*; Siitonen P., *Metso Minerals Inc. (FI)*; Vippola M., Kuokkala V.-T., *Tampere University of Technology (FI)*

Session E2-4: Novel Lubrication Concepts and Lubricants
Room: R7
Chair: Pagano F.
Tribological Investigation of Thermally Oxidized Pure Rapeseed Oil (#391)

Kreivaitis R., Rukuiza R., Gumbyte M., Makareviciene V., *Lithuanian University of Agriculture (LT)*

Friction Reduction in Engines by Organic Oil and Fuel Additives – Characterization Study by Combination of Piston Simulator and a Microtribometer (#220)

Achanta S., Drees D. *, *Falex Tribology (BE)*; Verhaeghe B., van Hecke L., *Oleon NV (BE)*; Celis J.-P., *Katholieke Universiteit Leuven (BE)*

Session V6: Measurement and Testing in the Nano-Range
Room: "Rudolf Sallinger"
Chair: Rymuza Z.
Investigation of Alcohol Adsorption on DLC Surfaces using AFM and Tribological Experiments (#478)

Kalin M., Simic R., *University of Ljubljana (SI)*

Hierarchy Levels of Real Objects Nanostate: Physical Models in the Analysis Methodology (#242)

Liopo V., Sabutz A., Struk V., *Yanka Kupala State University of Grodno (BY)*; Avdejchik S., *The JSC "Belkard" education-methodological centre "Promagromash" (BY)*; Sorokin V. *, *Yanka Kupala State University of Grodno (BY)*

Beyond the Limits - Alternative Testing Concepts in Nano Mechanics (#311)

Pfaff H., *Agilent Technologies Sales and Services GmbH (DE)*; Crawford B., *Agilent Technologies Sales and Services GmbH (USA)*

Probing the Mechanical Interaction between Particles based on Nanoindentation (#349)

Staedler T., Kumar A., Jiang X., *University of Siegen (DE)*

14:30 Posters & Exhibition & Refreshments

14:50**Wednesday, 08 June 2011****AFTERNOON****Session E3.1-6: Coatings / Materials**Room: **R1**Chair: **Merstallinger A.****Advanced Ceramics as Friction Material in Lubricated Clutch Systems (#329)**Albers A., Bernhardt J. *, Ott S., *KIT - Karlsruhe Institute of Technology (DE)***Abrasion of the WC based Hardmetals (#445)**Voltsihhin N., Hussainova I., Antonov M., *Tallinn University of Technology (EE)***Dependence of the Rolling Contact Fatigue of HVOF-Sprayed Cr₃C₂-NiCr Hardmetal Coatings on Substrate Hardness (#449)**Berger L.-M., *Fraunhofer IWS Dresden (DE)*; Lipp K., *Fraunhofer LBF Darmstadt (DE)*; Spatzier J., Bretschneider J., *Fraunhofer IWS Dresden (DE)***Mechanical and Tribological Properties of 6061 Aluminium Alloy Modified with Yttrium (#458)**Ahmadi H., *University of Tehran (IR)*; Kamani E., *Payesh Pardis Andish Industrial & Research Institute (IR)***Session E3.2-3: Surface Structuring and Texturing**Room: **R2**Chair: **Daubner A.****Tribological Properties of Laser Surface Textured DLC Coating against Si₃N₄ under Lubrication with Water (#409)**Sato R., Tsuboi R., Sasaki S. *, *Tokyo University of Science (JP)***Correlation of Microstructure and Tribological Properties of Dry Sliding Nanocrystalline Diamond Coatings (#343)**Wiora M., Sadrifar N., Brühne K. *, *Ulm University (DE)*; Gluche P., *GFD Gesellschaft für Diamantprodukte mbH (DE)*; Fecht H.-J., *Ulm University (DE)***Effect of Surface Texturing Dimensions on Tribological Properties of Slideway (#413)**Korenaga A., *National Inst. of Advanced Industrial Science and Technology (JP)*; Seki K., *Tokyo Univ. of Science (JP)*; Miyake K., Nakano M., Kano S., *National Inst. of Advanced Industrial Science and Technology (JP)*; Sasaki S., *Tokyo Univ. of Science (JP)***Dimple Pattern Design for PDMS with Different Hydrophobicities (#386)**Wang X., Yu H., Huang W., *Nanjing University of Aeronautics & Astronautics (CN)***Session E6-1: Tribology in Production Processes**Room: **R4**Chair: **Marinkovic A.****Separation of Adhesive and Deformation Part from Total Friction Force for Textile Fabrics (#447)**Bocquet R., *EMPA - Materials Science & Technology (CH)*; Tournalias M. *, *University of Haute-Alsace (FR)*; Bueno M.-A., *University of Haute Alsace (FR)*; Derler S., Rossi R., *EMPA - Materials Science & Technology (CH)***Tooling Plug Life in the Piercing Process: Role of the Oxide (#274)**Tavasci A., Anelli E., *Tenaris Dalmine SpA (IT)*; Pantiu G., Perez T., *Tenaris Siderca (AR)***Investigation of Self-Organizing Behaviour of Thermally Implanted Tool Surfaces (#268)**Hilgenberg K., Steinhoff K., *University of Kassel (DE)***Effect of Wire-EDM on Friction and Wear of WC-Based Cemented Carbides in Dry Sliding Contact (#255)**Perez Delgado Y., Bonny K., De Baets P., *Ghent University (BE)*; Malek O., Vleugels J., Lauwers B., *Catholic University of Leuven (BE)***16:10 Posters & Exhibition & Refreshments**

14:50
Wednesday, 08 June 2011
AFTERNOON
Session E8-6: Tribosensorics, Meas. Methods for Tribological Tasks, Condition Monitoring
Room: R5
Chair: Gunst U.
Microscopic Study of Tribofilms Formed on Lubricated Surfaces Under Different Contact Conditions (#433)

Pondicherry K. S., *MCL - Material Center Leoben Forschung GmbH (AT)*; Grün F., Gódor I., *University of Leoben (AT)*; Krامل H., *MCL Forschung GmbH (AT)*; Lainé E., *Infineum UK Ltd. (UK)*; Offenbecher M., *Miba Bearing Group (AT)*

Identification of Mechanisms of Additive Degradation using Mass Spectrometry (#204)

Kassler A., *AC²T research GmbH - Excellence Centre of Tribology (AT)*; Pittenauer E., *Vienna University of Technology (AT)*; Dörr N., *AC²T research GmbH - Excellence Centre of Tribology (AT)*; Allmaier G., *Vienna University of Technology (AT)*

Acoustic Condition Monitoring of Rotating Machinery Based on Wavelet Transform and Fuzzy Logic using FIS-Builder GUI (#305)

Bagheri B., Ahmadi H., Labbafi R., Omid M., Rajabipour A., *University of Tehran (IR)*

Experimental Model for Dynamic Friction Analysis in Dental Contacts (#307)

Frunza M. C., *"Carol Davila" University of Medicine and Pharmacy (RO)*; Frunza G., *"Stefan cel Mare" University of Suceava (RO)*; Luca R., *"Carol Davila" University of Medicine and Pharmacy (RO)*

Session E5-1: Tribosystems Reliability and Lifetime Assessment
Room: R7
Chair: Grassi R.
False Brinelling – Standstill Marks on Roller Bearings (#419)

Grebe M., Feinle P., *Mannheim Univ. of Appl. Sciences (DE)*; Blaškovič P., *Slovak University of Technology in Bratislava (SI)*

Wear in Large Head Metal-On-Metal Hip Prostheses Arising From a New Source: the Taper Junction (#371)

Joyce T., Langton D. J., Lord J., *Newcastle University (UK)*; Nargol A. V., *University Hospital of North Tees (UK)*

Aspects of Fretting on the Fatigue Endurance Limit (#418)

Christiner T., Reiser J., Gódor I., *University of Leoben (AT)*; Eichlseder W., *Montanuniversität Leoben (AT)*; Trieb F., Stühlinger R., *BHDT GmbH (DE)*

Effect of Sliding Rate on the Tribocorrosion Behaviour of CoCrMo Alloy in Simulated Body Fluids (#285)

Gil A. R., Igual Muñoz A. *, *Universidad Politecnica de Valencia (ES)*

Session V3: Bio-Nanotechnology
Room: "Rudolf Sallinger"
Chair: Hsu S.
Nano-Electrochemical Characterization of CoCrMo Biomedical Alloy by EQCM and XPS (#284)

Valero Vidal C., *Universidad Politecnica de Valencia (ES)*; Mischler S., *EPFL - Ecole Polytechnique Fédérale de Lausanne (CH)*; Olsson C.-O. A., *Uppsala University, The Ångström Laboratory (SE)*; Igual Muñoz A. *, *Universidad Politecnica de Valencia (ES)*

Multifunctional Bioactive Nanostructured Films from Fundamental Principles to Application (#213)

Shtansky D., Levashov E. A., *National University of Science and Technology "MISIS" (RU)*; Gloushankova N. A., *Cancer Research Center of RAMS (RU)*; Grigoryan A. S., *Center Research Dental Institute (RU)*; Reshetov I. V., *P.A. Hertsen Moscow Research Oncological Institute (RU)*

Nanocomposite and Nanophase Tribotechnical Materials based on Fluorine-Containing Components (#241)

Auchynnikau Y., *Yanka Kupala State Univ. of Grodno (BY)*; Kravchenko V., Struk A., *JSC "Belcard" (BY)*; Antanovich N., *Soligorsk Institute of Resource Saving Problems with Pilot Production (BY)*

A Study on the Frictional Response of Reptilian Shed Skin (#396)

Abdel-Aal H., El Mansori M., *Arts et Metiers ParisTech (FR)*

16:10 Posters & Exhibition & Refreshments

16:30**Wednesday, 08 June 2011****AFTERNOON****Session E3.1-7: Coatings / Materials**Room: **R1**Chair: **Vernes A.****Selflubricating Materials for Bearing and Electrical Sliding Applications based on Metal Matrix Composites (MMC) (#461)**Merstallinger A., Fink M., *Aerospace and Advanced Composites GmbH (AT)*; Neubauer E., *RHP - Technology GmbH & Co KG (AT)***Effects of PTA-Processing Variables on Microstructure Formation and Abrasion Resistance of MMC (#472)**Ilo S., Katsich C., Badisch E., *AC²T research GmbH - Excellence Centre of Tribology (AT)***Phase Transitions in Metal-Polymeric Nanocomposites (#243)**Kravchenko V., *JSC "Belcard" (BY)*; Ryskulov A., *Tashkent Automobile and Road Institute (USB)*; Struk A., *JSC "Belcard" (BY)*; Eismont Y., *The JSC "Belcard" education-methodological centre "Promagromash" (BY)***Session E3.2-4: Surface Structuring and Texturing**Room: **R2**Chair: **Korenaga A.****The Effect of Surface Texturing on Frictional Resistance of Steel-Bronze Assembly in Lubricated Sliding (#428)**Koszela W., Galda L., Dzierwa A. *, Sep J., Pawlus P., *Rzeszow University of Technology (PL)***Wear Behavior in Different Fe-28Mn-2Al-0,8C-1,5Si-1,5Mo Microstructures (#333)**Ramos J., *Universidad Autónoma de Occidente (CO)*; Abenohar J., *Universidad Carlos Tercero de Madrid (ES)*; Perez G. A., *Universidad del Valle (CO)***Investigation of the Tribological Behaviour of PTFE Composite Materials and the Effect of its Microstructure (#402)**Daubner A., *Universität Stuttgart (DE)*; Deuschle J., *Max-Planck-Institute Stuttgart (DE)*; Haas W., *Universität Stuttgart (DE)***Hierarchy Levels of Modifying of Nanocomposites Based on Polytetrafluorethylene (#244)**Antanovich N., *Soligorsk Inst. of Resource Saving Problems with Pilot Production (BY)*; Kravchenko V., *JSC "Belcard" (BY)*; Gorbatshevich G., *JSC "Belcard" centre "Promagromash" (BY)*; Struk V. *, *Yanka Kupala State University of Grodno (BY)***Session E6-2: Tribology in Production Processes**Room: **R4**Chair: **Pauschitz A.****Analytical and Experimental Study on PDC Drill Bits Quality (#359)**Yahiaoui M., *Université de Toulouse, Ecole Nationale d'Ingénieurs de Tarbes (FR)*; Gerbaud L., *MINES ParisTech (FR)*; Paris J.-Y., Delbé K., Denape J., *Laboratoire Génie de Production de l'ENIT (FR)*; Dourfaye A., *Varel Europe (FR)***Coating/Lubricant/Additive Interactions for Thread Forming Applications (#462)**Tomala A., Peuker C., Badisch E., Grafl A., *AC²T research GmbH - Excellence Centre of Tribology (AT)*; Novotny-Farkas F., *OMV Refining and Marketing GmbH (AT)***19:00****Wednesday, 08 June 2011****Reception (p. 25)**



Chair: **Franek F.**

Yung D.-L., AC²T research GmbH - Excellence Centre of Tribology (AT); Kollo L., Hussainova I., Tallinn University of Technology (EE); Zikin A., AC²T research GmbH - Excellence Centre of Tribology (AT)

Chair: **Christiner T.**

Schneider A., AC²T research GmbH - Excellence Centre of Tribology (AT); Novotny-Farkas F., OMV Refining and Marketing GmbH (AT); Mayr I., Borealis, Agrolinz Melamine International (AT); Felkel J., Schneidhofer C., AC²T research GmbH (AT)

Grafl A., Schneidhofer C., Dörr N., AC²T research GmbH - Excellence Centre of Tribology (AT)

Chair: **Kalin M.**

Österle W., BAM - Federal Institute for Materials Research and Testing (DE); Dmitriev A. I., Institute for Strength Physics and Materials Science (RU); Klob H., BAM - Federal Institute for Materials Research and Testing (DE)

Rota A., Tripathi M., Gualtieri E., *Università di Modena e Reggio Emilia (IT)*; Gazzadi G. C., *CNR Istituto di Nanoscienze (IT)*; Valeri S., *Università di Modena e Reggio Emilia (IT)*

Parenago O., Kuzmina G. N., Terechin D. V., Basharina K. Y., *Russian Academy of Sciences (RU)*

Zhmud B., Karls M., Kolar C., *Applied Nano Surfaces Sweden AB (SE)*

13:00 – 18:00**Wednesday, 08 June 2011****AFTERNOON****Room: Octagon Area****ECOTRIB Poster Session E3.1-P: Coatings / Materials****Effects of Yttria on Mechanical Failure and Chemical Stability of the Passive Film in TiNi Alloy (#455)**Ahmadi H., *University of Tehran (IR)***Investigating the Influence of Electrolytic-Plasma Processing on Structure and Wear Resistance of the Chisel Tool Steel (#484)**Skakov M., *East-Kazakhstan State Technical University nm D. Serikbaev (KZ)***Wear Behaviour of Cost Effective Sialons under Sand Blast Test (#266)**Acikbas N. C., *Bilecik University (TR)*; Bitterlich B., *Ceramtec AG (DE)*; Ferhat K., Mandal H., *Anadolu University (TR)***ECOTRIB Poster Session E9-P: Machine Elements and Tribo Components****Stability Analysis of Four-Lobe Journal Bearing Lubricated with Micropolar Fluids (#316)**Chetti B., *Center University of Khemis Miliana (DZ)***Tribology of Piston Skirt Conjunction (#318)**Littlefair B., *Loughborough University (UK)*; Howell-Smith S., *Capricorn Automotive (UK)*; Theodossiades S., King P. D., Rahnejat H., *Loughborough University (UK)***Regeneration of Worn Out Universal Joint – a Dimensional Analysis (#269)**Lazovic-Kapor T., *Belgrade University (RS)*; Markovic S., *Technical College Cacak (RS)*; Trišovic N., *Belgrade University (RS)***Microtribological Evaluation of Unlubricated Sliding Bearings with thin Si₃N₄ and PTFE Coatings (#347)**Pape F., Cvetkovic S. *, *Leibniz Universität Hannover (DE)*; Kiesow A., Kailer A., *Fraunhofer Institute for Mechanics of Materials (DE)*; Rissing L., *Leibniz Universität Hannover (DE)***Viennano Poster Session V5-P: Materials Design and Selection****Calculations Methodology of Geometrical Parameters of Nanodimensional Particles (#245)**Liopo V., *Yanka Kupala State University of Grodno (BY)*; Avdejchik S., *The JSC "Belkard" education-methodological centre "Promagromash" (BY)*; Struk V. *, *Yanka Kupala State University of Grodno (BY)*; Vorontsov A., Michajlova L., Eisymont Y., *The JSC "Belkard" education-methodological centre "Promagromash" (BY)***Viennano Poster Session V7-P: Nanotribology and -lubrication****Nanotribology in the Predominantly Elastic and Plastic Contact Regime (#355)**Kumar A., Staedler T., Jiang X., *University of Siegen (DE)***19:00****Wednesday, 08 June 2011****Reception (p. 25)**

19:00

Wednesday, 08 June 2011

EVENING

Cocktail Reception – Vienna City Hall

Following the tradition already arranged for other international tribology congresses in Vienna (like the 2nd World Tribology Congress – WTC 2001), the participants of the ECOTRIB / Viennano Conference and their partners are invited by the **Lord Major of Vienna** and the **Austrian Tribology Society** to take part in the Cocktail Reception on Wednesday, 08 June 2011.

This social event will take place in the

Wiener Rathaus (Vienna City Hall) Rathauskeller



Source: Friedrich Kromberg

http://de.wikipedia.org/wiki/Datei:CIMG3413_wiener_rathaus.jpg



Source:

<http://www.wiener-rathauskeller.at/en/index.html>

Rathauskeller, Salon „Lanner“
Entrance: Rathausplatz 1/ Felderstr.
1010 Wien
Austria

Public transport facilities:

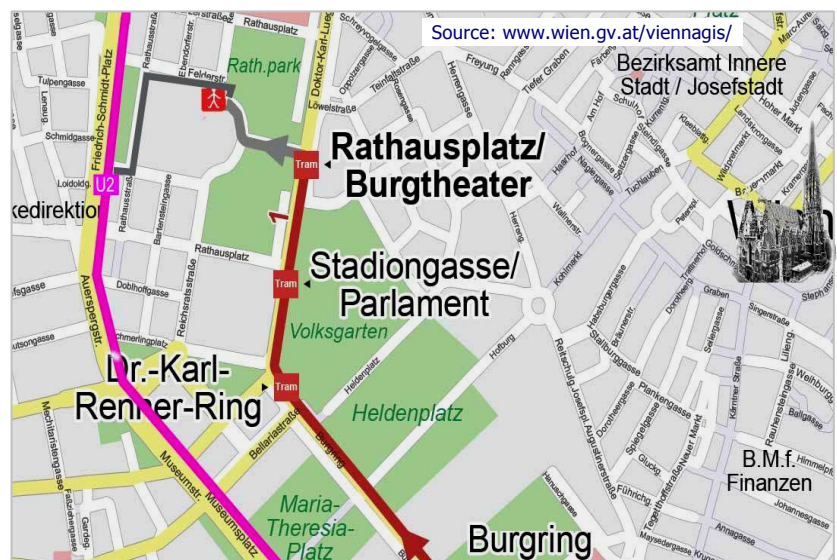
Underground Line **U2**

Station/Stop **Rathaus** or

Tram Line **1 or 2**,

Station/Stop

Rathausplatz/Burgtheater



Source: www.wien.gv.at/viennagis/

For online information refer to:

<http://www.wien.gv.at/stadtplan/en/> ; search for "Rathausplatz 1", and/or:

http://efa.vor.at/wvb/XSLT_TRIP_REQUEST2?language=en , respectively.

Thursday, 09 June 2011 MORNING

08:30 Transfer (Shuttle Bus) to TFZ Wiener Neustadt

Meeting Point (registered persons only!):

Wirtschaftskammer Österreich (WKO) – ECOTRIB/Viennano Venue
Wiedner Hauptstraße 63 / Schönburgstraße
 in front of the main entrance!

Conference venue on Thursday, 09 June 2011:

TFZ – Technologie- und Forschungszentrum Wiener Neustadt
(Technology and Research Centre)
Viktor-Kaplan-Strasse 2
2700 Wiener Neustadt

Thursday, 09 June 2011 MORNING Room: TFZ - L

09:30 WELCOME ADDRESSES

Pauschitz A., *General Manager/CEO, Excellence Centre of Tribology – AC²T research GmbH, Wiener Neustadt (AT)*

Zeppelzauer C., *Head of Department, Business Area "Technopoles", ecoplus – The Business Agency of Lower Austria, St. Pölten (AT)*

Badisch E., *Dpty. Scientific Head, AC²T research GmbH, Wiener Neustadt (AT)*

10:00 Session P-3: PLENARY LECTURES

Adhesive Contact Problems at Macro and Nano Scales (#437)

Borodich F., *Cardiff University (UK)*; Galanov B. A., *Institute for Problems in Materials Science (UA)*; Gorb S. N., *Zoological Institute (DE)*; Prostov Y. I., *MIREA - Moscow State Technical University (RU)*

Hot Forming Tribology (#473)

Prakash B., Pelcastre L., Hardell J., *Luleå University of Technology (SE)*

11:00 Refreshments

11:20
Thursday, 09 June 2011
MORNING
Session E8-7: Tribosensorics, Meas. Methods for Tribological Tasks, Condition Monitoring
Room: TFZ - L
Chair: Kleinrahm A.
Evaluation of the Long-Term Stability of Ammonium Based Ionic Liquids by Mass Spectrometry (#206)

Pisarova L., Gabler C., Dörr N., *AC²T research GmbH - Excellence Centre of Tribology (AT)*; Pittenauer E., Allmaier G., *Vienna University of Technology (AT)*

Fractal Analysis of Microtopographies in Wear (#427)

Czifra Á., Barányi I., *Óbuda University (HU)*; Kalácska G., *Szent István University (HU)*

Up-Conversion Luminescence of Doped Rare Earth Oxides for Sensing and Security Applications (#460)

Baca L., Steiner H., Stelzer N., *AAC - Aerospace and Advanced Composites GmbH (AT)*

Surface Analysis for the Research of Tribological Processes Like Wear, Boundary Layer Formation and Degradation of Molecular Lubricants by TOF-SIMS of Tribosurfaces of Real Tribological Systems (#375)

Gunst U., *Westfälische Wilhelms-Universität Münster (DE)*

Session E9-7: Machine Elements and Tribo Components
Room: TFZ - CEST
Chair: Mahmoud K.
On the Quantification of Wear in Ball-On-Disk Experiments (#410)

Al-Bender F., De Moerloose K., *Katholieke Universiteit Leuven (BE)*

Calculation of Hydrodynamical Journal Bearings of Piston Machines by Using Conservation Mass Algorithm (#369)

Rozhdestvenskij Y., Gavrilov K. *, *Zadorozhnaja E. A., South-Ural State University (RU)*

A Tribological CFD Study of Journal Bearings with Artificial Surface Texturing (#247)

Bompos D. A., Nikolakopoulos P. G. *, *University of Patras (GR)*; Papadopoulos C. I., Kaiktsis L., *National Technical University of Athens (GR)*

Protection of Fibre-Reinforced Composite Materials against Water Droplet Erosion through Electrodeposited Coatings (#470)

Whitehead A., Lammel P., Simunkova H., Gollas B., *CEST - Center of Electrochemical Surface Technology (AT)*

Session E5-3: Tribosystems Reliability and Lifetime Assessment
Room: TFZ - OFI
Chair: Grebe M.
Load-Carrying Capacity Prediction of Different Plasma Nitrided, Case Hardened and Quenched Specimens under Rolling Contact Loading (#423)

Trausmuth A., *Montanuniversität Leoben (AT)*; Gódor I., Stoschka M., *University of Leoben (AT)*; Dietrich A., *MAGNA Powertrain AG & Co KG (AT)*; Eichlseder W., *Montanuniversität Leoben (AT)*

Corrosion and Coating Damages; Options for Clarification and Evaluation (#489)

Grünberger A., *of - Austrian Research Institute for Chemistry and Technology (AT)*

Challenges of Artificial Oil Alteration Used for Online Sensor Evaluation (#443)

Schneidhofer C., Grafl A., *AC²T research GmbH - Excellence Centre of Tribology (AT)*; Adam K., *Voestalpine Stahl, GmbH (AT)*

12:40 Lunchbreak

13:40**Thursday, 09 June 2011****AFTERNOON****Tour of the Labs – Term 1****Several groups (upon reservation in advance, each starting from Room TFZ-L):**

- 1A AC²T research GmbH – Excellence Centre of Tribology**
TFZ Building “B”
- 1B CEST – Austrian Competence Centre for Electrochemical Surface Technology**
TFZ Building “A”
- 1C ofi – Austrian Research Institute for Chemistry and Technology**
TFZ Building “C”
- 1X Short tour comprising all the three research institutions mentioned above**
TFZ Building “A”, TFZ Building “B”, and TFZ Building “C”

14:50 Transfer (Shuttle Bus 1) to Vienna Airport and Vienna City**14:50****Thursday, 09 June 2011****AFTERNOON****Tour of the Labs – Term 2****Several groups (upon reservation in advance, each starting from Room TFZ-L):**

- 2A AC²T research GmbH – Excellence Centre of Tribology**
TFZ Building “B”
- 2B CEST – Austrian Competence Centre for Electrochemical Surface Technology**
TFZ Building “A”
- 2C ofi – Austrian Research Institute for Chemistry and Technology**
TFZ Building “C”

16:00 Farewell Party**16:00 Transfer (Shuttle Bus 2) to Vienna Airport and Vienna City****16:45 Transfer (Shuttle Bus 3) to Vienna City**

Conference Venue – Tour of the Labs / Excursion

South of Vienna, just about 45 km from the Vienna City Centre, a traditional industrial zone is located in and around the city of Wiener Neustadt. Following activities that were started about 20 years ago, a "Foundation Centre" was established for the fields of education, research and industrial production. This area, named "Civitas Nova" (which means New City – Neustadt) is located near the local civil airport and a number of industrial plants such as Diamond aircraft.

The development of this region is part of the provincial "Technopole Programme" which supported the foundation of several research institutions "under one roof", the "TFZ" (Technology and Research Centre). Educational activities have been boosted by the foundation of the University of Applied Sciences Wiener Neustadt, one of Austria's most important Universities of Applied Sciences. In autumn 2010 – a special **Master course on Surface Engineering and Tribology** was created.

Thanks to the institutions under the roof of "TFZ", ECOTRIB's Thursday programme will be staged there:

TFZ Technologie- und Forschungszentrum Wr. Neustadt Ges.m.b.H.

Viktor-Kaplan-Strasse 2
2700 Wiener Neustadt
Austria

<http://www.tfz-wienerneustadt.at/ecoplus/technopole/tfz/e/default.asp>

It is scheduled to **visit three of those institutions** with core relations to tribology, viz the "**Excellence Centre of Tribology**" – **AC²T research GmbH**, **CEST – Austrian Competence Centre for Electrochemical Surface Technology**, and **ofi – Austrian Research Institute for Chemistry and Technology**. How to get there, please check, e.g., <http://www.ac2t.at/html/english/e-drivingmap.html> (cf. p. 35) . Information signs on the roads indicate destinations close by, such as "RIZ", "FH Wiener Neustadt", or "Arena nova".

For registered participants of ECOTRIB / Viennano there will be a **free shuttle bus** available that will take you from Vienna to Wiener Neustadt and back to either Vienna or to Vienna Airport (Schwechat).



TFZ Wiener Neustadt

The Research Institutions to be Visited

▪ “Excellence Centre of Tribology” – AC²T research GmbH

AC²T – founded in 2002 on the occasion of the Austrian Competence Centre Initiative (*Kplus*) – is one of the largest privately organised institutions solely devoted to tribology in research and industrial R&D services. **More than 100 employees** and a number of consultants (mainly affiliated with scientific partners – mainly universities) are working in core fields of tribology. **Interdisciplinarity** in theoretical and experimental work is highly realised, for scientists, engineers, and technicians with expertise in the “mother disciplines” of tribology (physics, material sciences, chemistry, mechanical engineering, and electrical engineering/electronics.) are available on site in a well balanced number (www.ac2t.at).

The AC²T-team could successfully place a sustainable project named “XTribology” within the frame of the actual Austrian initiative for Excellence Centres (COMET). Roughly **60 millions EUR** are the overall budget frame for this umbrella project only for 5 years (2010 – 2015). Right now AC²T is expanding its activities to the full implementation of XTribology which will lead to enlargement of the team, the equipment, and the facilities.

The research work in XTribology in which there are involved more than 80 company partners and more than 35 scientific partners is focused on 4 thematic “areas” which cover the fields of “Lubrication and Surface Interaction”, “Wear Processes”, “Integrated Tribodiagnostics and Tribodesign”, and “Multiscale Computational Tribology”. Moreover, beside the COMET frame AC²T offers research, development, and investigation services to customers on bilateral contract basis.

The scientific-technical achievements result from research pools that focus the staff capacity and specialised equipment in the fields of lubricant analyses and tribochemistry, materials and surface analyses, tribometry, tribo-sensorics, and modelling and simulation. The following special equipment should be – not exhaustively – mentioned: small-spot XPS, mass spectrometry with different ionisation sources, optical emission spectrometry, X-ray fluorescence analysis, nano-indenter, continuous wear quantification system (with nm/h resolution), hot hardness tester, and high temperature tribometers.

▪ CEST – Competence Centre for Electrochemical Surface Technology

CEST is an Austrian competence centre for electrochemical surface technology which acts as an innovation generator and active interface between academia and industry. CEST took over as the successor of ECHEM (Center of Competence in Applied Electrochemistry) under the COMET programme in 2008. About 60 scientist, technicians and administrative staff members are working with CEST, major part of them at the location TFZ (<http://www.cest-chemistry.com/>).

The CEST Competence Centre concentrates on electrochemical surface technology, corrosion research and surface characterisation, in order to develop novel layer systems and metal layers (e.g. nanocrystalline metal layers) and to lower the cost of producing functional layers and make their creation more environmentally friendly.

One specific research focus is devoted to **"Functional Layers"**, which are typically produced by galvanic processes. But they are also made by alloy deposition, inclusion of particles or direct deposition on structured layers, whose physical and chemical properties of hardness and robustness are improved by particle inclusion to the benefit of commercial products, like wear-resistant gold layers on watches and jewellery. In-situ studies show the deposition and dissolution of layers as well as the corrosion behaviour of surfaces. Micro- and nanometer electrodes enhance technical imaging of, for instance, polycrystalline and heterogeneous surfaces.

CEST has a large range of scientific instruments with which to perform the research and analysis. Among them are a well equipped metallographic laboratory with two scanning electron microscopes, GDOES, AFM, XRD, contact angle measurement, IR- and Raman spectroscopy for surface characterisation and several electrochemical instruments (potentiostats and galvanostats, rotating ring-disc-electrodes, impedance measurement workstations). In addition to this also a pilot-scale galvanic plant is available on site.

▪ **ofi – Austrian Research Institute for Chemistry and Technology**

ofi is Austria's largest cooperative research and testing institute and has been the competent service partner for Austrian and European small, medium and large-scale companies. **ofi** supports innovation through research and development, **testing and analysis**, maintaining **quality levels** and **certification** offered to customers ranging from small Austrian enterprises to large-scale European companies.

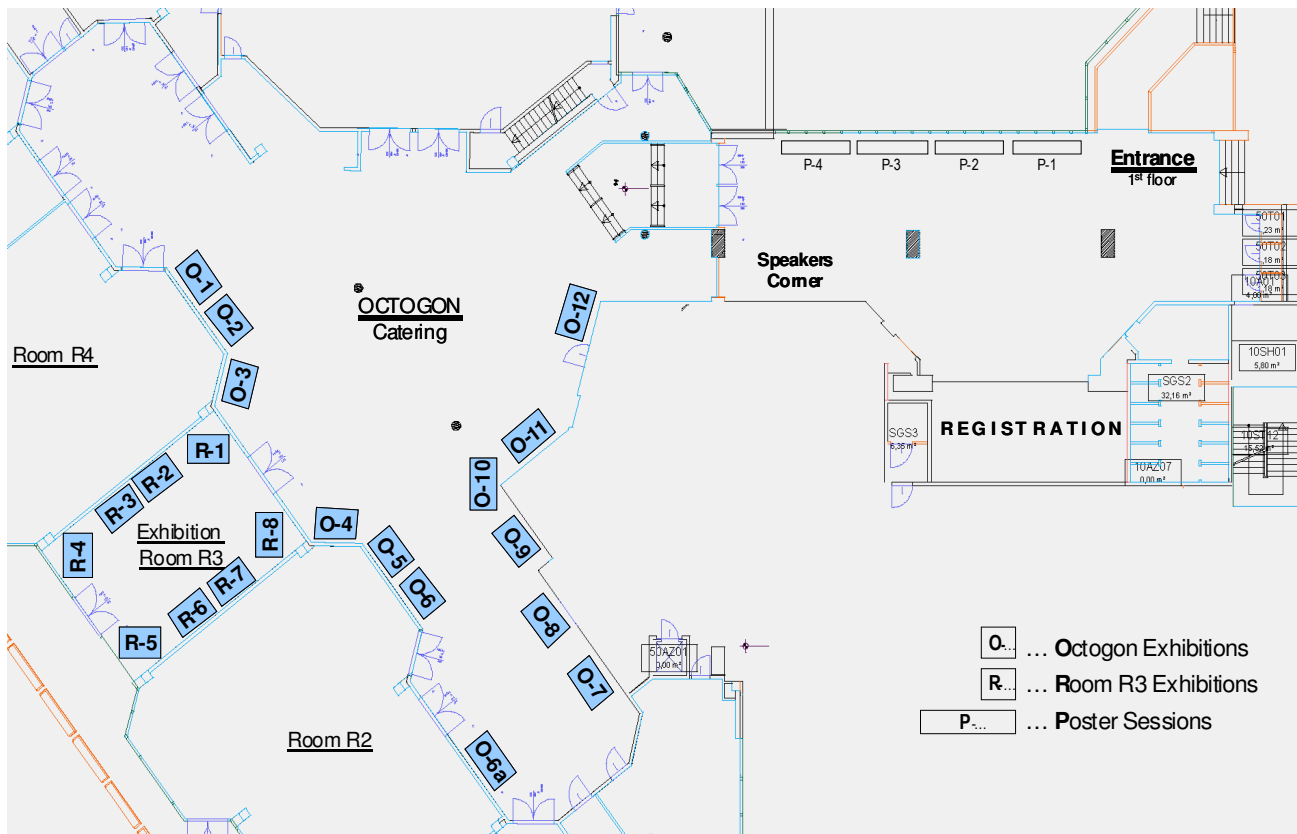
In the past years, newly added research capacity has made **ofi** to one of the leading creative powerhouses in Austria, providing practice-oriented solutions by maintaining a close relation with clients, business partners, and universities. The fully **integrated project management services** include idea engineering, acquisition of public funds and product market launch. The results are new or enhanced products, processes and services with inherent market potential.

At the TFZ site, a staff of about 45 scientists have recently implemented a specific field of competence that deals with **functional surfaces affected by environment** or due to physical, chemical, mechanical and biological exposure. **ofi** has the means and knowledge to provide precise **characterizations** of various surfaces and to track down the causes of possible changes (<http://www.ofi.at/english/index.php/surface-technology.html>).

Available instrumental analyses and test methods comprise light microscopy, scanning electron microscopy and EDX microanalysis, IR spectroscopy, colorimetry using portable measuring equipment, gloss measurement, surface roughness measurement, and x-ray fluorescence analysis.

Other aims of investigations concern **material behaviour** at high and low temperatures considered as a vital factor in ensuring safe use of products. As well mechanical parameters play a central role in qualification and conformity testing, in damage analysis and throughout product development and optimization. **ofi** provides a full range of services using cutting-edge equipment and processes for mechanical properties testing of materials and products.

Exhibition



Exhibitors



AC²T research GmbH – Excellence Centre of Tribology

A – 2700 Wiener Neustadt, Viktor-Kaplan-Str. 2

www.ac2t.at

O-9

O-10



Agilent Technologies

Agilent Technologies

USA – AZ 85226 Chandler, 4330 W Chandler Blvd.

www.agilent.com/find/nano

R-1



Anglo-Euro Scientific

Anglo-Euro Scientific

D – 97422 Schweinfurt, Konrad-Adenauer-Str. 24

www.angloeuro.co.uk

O-2



Bruker AXS GmbH

D – 68165 Mannheim, Dynamostr. 19

www.bruker-axs.com

R-3



CETR – Center for Tribology, Inc.

US – CA 95008 Campbell, 1717 Dell Ave.

www.cetr.com

O-4



CSM Instruments

D – 79115 Freiburg, Basler Strasse 115

www.csm-instruments.com

O-12



DataPhysics Instruments

D – 70794 Filderstadt, Raiffeisenstr. 34

www.dataphysics.de

O-8



Falex Tribology R-7

B – 3110 Rotselaar, Wingepark 23B
www.falexint.com



Innowep GmbH – Measuring and Testing O-11

D – 97070 Würzburg, Haugerring 6
www.innowep.de



Fraunhofer IWS – Material and Beam Technology R-2

D – 01277 Dresden, Winterbergstr. 28
www.iws.fraunhofer.de



Klüber Lubrication Austria Ges.m.b.H. O-7

A – 5020 Salzburg, Franz-W.-Schererstr. 32
www.klueber.at



Leica Mikrosysteme Vertrieb GmbH R-5

D – 35578 Wetzlar, Ernst-Leitz-Str. 17 – 37
www.leica-microsystems.com



LOT Oriel GmbH & Co. KG O-5

D – 64293 Darmstadt, Im Tiefen See 58
www.lot-oriel.de



Physical Electronics GmbH R-6

D – 85737 Ismaning, Fraunhoferstr. 4
www.phi-gmbh.eu



Schaefer Technologie GmbH R-8

D – 63225 Langen, Robert-Bosch-Str. 31
<http://www.schaefer-tec.com>



SKF Österreich AG O-3

A – 4400 Steyr, Seitenstettner Str. 15
http://www.skf.com/portal/skf_at/home/



TRIBOtechnic O-6

F – 92110 Clichy, 4 rue Valiton
www.tribotechnic.com



TTZH Tribologie und Hochtechnologie GmbH R-4

D – 30823 Garbsen, Baerenhof 26A
www.ttzh.com



ZAG Zyklotron AG O-1

D – 76344 Eggenstein-Leopoldshafen, Hermann-von-Helmholtzplatz 1
www.zyklotron-ag.de

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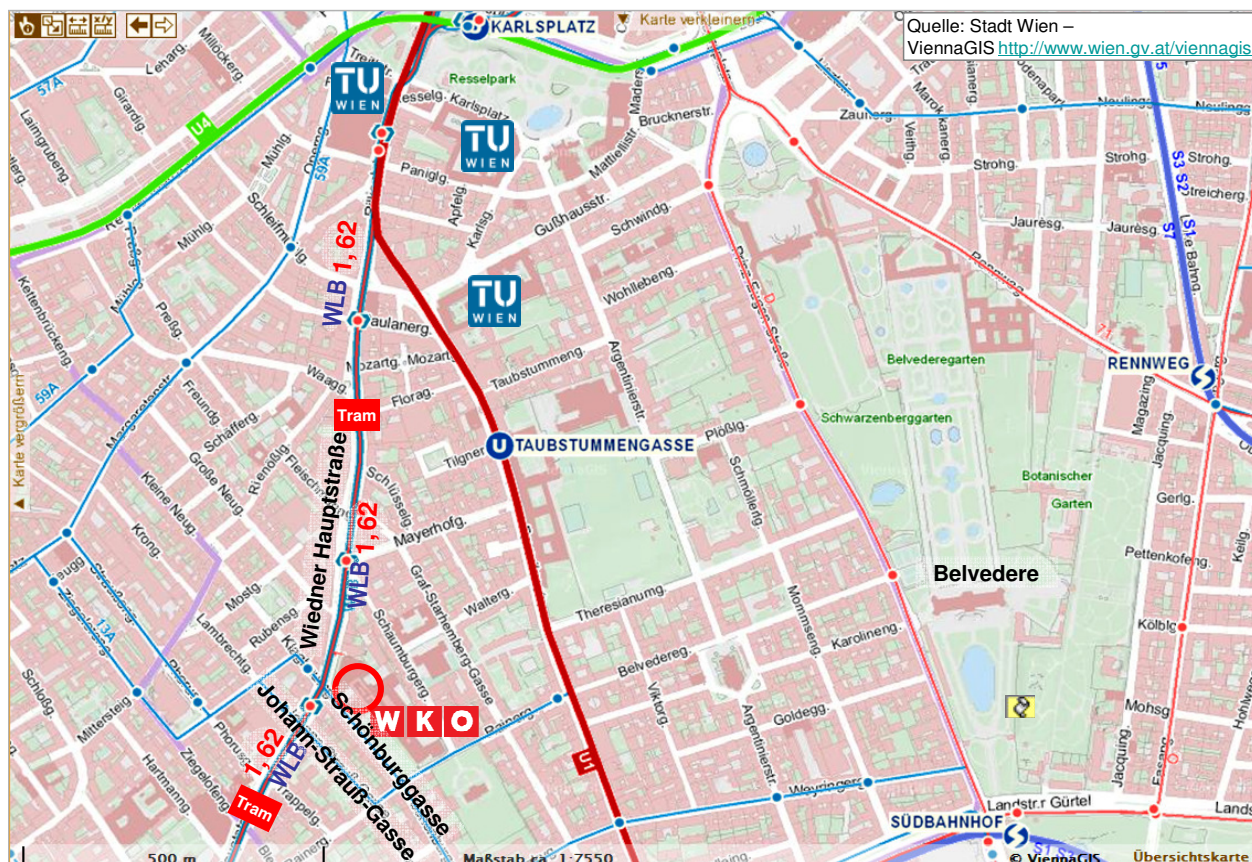
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How to Get to the Conference Venues

Wirtschaftskammer Österreich (WKO), 1040 Wien, Wiedner Hauptstraße 63 / Schönburggasse



TFZ – Technologie- und Forschungszentrum Wiener Neustadt,
2700 Wiener Neustadt, Viktor-Kaplan-Str. 2

