

12 Jan 2016

Tuesday

Morning

P-1

Session: **Opening and Plenary Session (1)**

Chair: **W.J. Bartz**
Technische Akademie Esslingen e.V., Ostfildern, Germany

09:00 – 09:10 **Greetings of the Honorary Chairman W. J. Bartz:
40 Years of TAE Tribology Colloquium**

09:10 – 09:15 **Welcome Address by H. P. Jost**
President International Tribology Council, London, UK

09:15 – 09:30 H.-J. Mesenholl, A. Fatemi
Technische Akademie Esslingen e.V., Ostfildern, Germany
Opening

09:30 – 10:00 L. Lindemann
FUCHS PETROLUB SE, Mannheim, Germany
**Challenges in Lubricant Development – Sustainability,
Raw Materials and New Technologies**

10:00 – 10:30 M. Webster
ExxonMobil Research & Engineering, Annandale, NJ, USA
**Emerging Trends in Tribology and Lubrication
Engineering**

10:30 – 11:00 Break – Exhibition and Poster Session

11:00 – 11:30 P. Vergne
LaMCoS & CNRS, Villeurbanne, France
**Film Thickness and Friction in EHL: Contribution of
the Lubricant Properties and Current Limitations**

11:30 – 12:00 E. Schulz, Y. Musayev, N. Bagcivan, J.-M. Brandt
Schaeffler Technologies AG & Co. KG, Herzogenaurach, Germany
**Sustainable Reduction of CO₂ and Friction in the Drive
Train through Holistic Surface Technology**

12:00 – 12:30 M. Dienwiebel
Karlsruhe Institute of Technology, Karlsruhe, Germany
**Understanding Nanoscale Phenomena in Applied
Tribological Systems by Combining in-situ Tribometry
and Atomistic Simulations**

12:30 – 14:00 Break – Exhibition and Poster Session

12 Jan 2016

Tuesday

Afternoon

A-1

Session: **Industrial Lubricants – Hydraulic Oils**

Chair: **H. Spikes**
Imperial College, London, UK

14:00 – 14:30 M. Alibert, F.-O. Mähling, T. Bartels
Evonik Resource Efficiency GmbH, Darmstadt, Germany
T. Schimmel
Evonik Oil Additives USA, Inc., Horsham, PA, USA
The Contribution of Hydraulic Fluid Properties to Hydraulic System Efficiency

14:30 – 15:00 T. Norrby, L. Malm, P. Salomonsson
Nynas AB, Nynashamn, Sweden
Group I Replacement Fluids – a Hydraulic Fluid Formulation and Compatibility Study

15:00 – 15:30 F. Lauterwasser, R. Kolb, M. Alibert
Evonik Industries AG, Darmstadt, Germany
Formulation of Energy Efficient Hydraulic Fluids for Injection Moulding

15:30 – 16:00 Break – Exhibition and Poster Session

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Afternoon

A-2

Session: **Base Oil Technology (1)**

Chair: **R. Luther**
FUCHS PETROLUB SE, Mannheim, Germany

14:00 – 14:30 J. Bredsguard
Biosynthetic Technologies, Irvine, CA, USA
Estolides – Closing the Gap between Performance and Sustainability

14:30 – 15:00 G. Stansfield, I. Hobday, D. Freeman
Croda, Snaith, UK
Liquid Amides - A New Group V Base Stock Technology

15:00 – 15:30 S. Asadauskas, D. Bražinskienė, I. Liaščukienė, A. Stončius
Center for Physical Sciences and Technology, Vilnius, Lithuania
Ester Basestock Vaporization from Thin Oil Films

15:30 – 16:00 Break – Exhibition and Poster Session

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Tuesday

Afternoon

A-3

Session: **Metalworking Fluids (1)**

Chair: **G. Gaule**
Hermann Bantleon GmbH, Ulm, Germany

14:00 – 14:30 **S. Baumgärtel**
German Lubricant Manufacturers Association, Hamburg, Germany
**Availability of Lubricants and Additives in Light of
Recent EU and US Legislation**

14:30 – 15:00 **P. Brutto, B. Pyzowski, N. Webb**
ANGUS Chemical Company, Buffalo Grove, USA
R. Stubbs
Sea-Land Chemical Europe Ltd., Wilmslow, Cheshire, UK
**Meeting Metalworking Fluid Longevity Requirements
without Boron, Formaldehyde-Condensates and
Secondary Amines**

15:00 – 15:30 **K. Terveen, I. Dangleterre, S. Kählig**
Hermann Bantleon GmbH, Ulm, Germany
**Cooling Lubricant Technology 4.0 - along the Process
Chain**

15:30 – 16:00 Break – Exhibition and Poster Session

12 Jan 2016

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Afternoon

A-4

Session: **Engines (1) – Bearings**

Chair: **V. Lagemann**
Daimler Research & Development Ulm, Germany

14:00 – 14:30 **M. C. Kayacan**
FEV GmbH, Aachen, Germany
A. Back
RWTH Aachen University, Germany
**Elasto-Hydrodynamic Bearing Analysis in Internal
Combustion Engines at System Level**

14:30 – 15:00 **J. Fischer**
Daimler AG, Ulm, Germany
**Surface Structuring on Journal Bearing Surfaces by
Machine Hammer Peening**

15:00 – 15:30 **C. Wolf**
Federal-Mogul Wiesbaden GmbH, Wiesbaden, Germany
**Tribology and Technology of Bearings for Crankshaft-
Con-rod-Systems**

15:30 – 16:00 Break – Exhibition and Poster Session

12 Jan 2016

Tuesday

Afternoon

A-5

Session: **Roller Bearings (1)**

Chair: **E. Schulz**
Schaeffler Technologies AG & Co. KG, Herzogenaurach, Germany

14:00 – 14:30 V. Strubel, N. Fillot, F. Ville, P. Vergne
INSA Lyon, Lyon, France
A.Mondelin, Y. Maheo
SKF Aerospace, Châteauneuf-sur-Isère, France
Debris Entrapment in Hybrid Rolling Element Bearings

14:30 – 15:00 A. Stratmann, G. Burghardt, G. Jacobs
RWTH Aachen, Germany
Influence of Operating Conditions and Additive Concentration on the Formation of Anti-wear Layers in Roller Bearings

15:00 – 15:30 M. Grebe
Mannheim University of Applied Sciences, Mannheim, Germany
Damages at the Raceways of Roller Bearings due to Vibrational Load or Small Pivoting Angles

15:30 – 16:00 Break – Exhibition and Poster Session

Session: **Surface Texturing**

Chair: **J. Müllers**
Robert Bosch GmbH, Stuttgart, Germany

14:00 – 14:30 C. Greiner, D. Braun, P. Gumbsch, J. Schneider
KIT, Karlsruhe, Germany
Size Effects for Laser Surface Textures under Uniform and Transient Sliding Conditions

14:30 – 15:00 D. Bijani, D. J. Schipper
University of Twente, Enschede, The Netherlands
E. L. Deladi
Bosch Transmission Technology, Tilburg, The Netherlands
The Influence of Surface Texturing on Film Thickness in Parallel Sliding Surfaces

15:00 – 15:30 M. Scaraggi
Università del Salento, Monteroni, Italy
Maximize Tribological Properties in (Elasto-) Hydrodynamic Contacts Through the Mechanism of Local Flow Reconditioning: the Role of Partial Surface Texturing

15:30 – 16:00 Break – Exhibition and Poster Session

12 Jan 2016

Tuesday

Afternoon

A-7

Session: **Computational Tribology (1) – Molecular Dynamics**

Chair: **D. Dini**
Imperial College London, UK

14:00 – 14:30 **M. Moseler**
Fraunhofer Institute for Mechanics of Materials IWM, Freiburg, Germany
Atomistic Simulations of Tribo-induced Phase Transitions

14:30 – 15:00 **J. Ewen, D. Dini**
Imperial College London, London, UK
Force-Field Selection for Lubricant and Lubricant Additive Molecular Dynamics Simulations

15:00 – 15:30 **A. Jabbarzadeh**
The University of Sydney, Australia
Nanotribology-Molecular Dynamics Simulations of Confined Molecular Systems

15:30 – 16:00 **Break – Exhibition and Poster Session**

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Tuesday

Afternoon

A-8

Session: **Tribology Testing (1) – Gear Oils**

Chair: **S. Beyer-Faiss**
Dr. Tillwich GmbH Werner Stehr, Horb, Germany

14:00 – 14:30 G. Patzer
Optimol Instruments Prüftechnik GmbH, Munich, Germany
Presentation of a New Test Concept as a Screening Method for Gear Oils on the Translatory Oscillation Tribometer (SRV®)

14:30 – 15:00 M. Georgiou, D. Drees
Falex Tribology NV, Rotselaar, Belgium
Parallel Wear Test – the Power of Statistics

15:00 – 15:30 K. Topolovec Miklozic
Powertrib Ltd, Oxford, UK
Characterisation of Wind Turbine Gear Oils for Improved Reliability of Wind Turbines

15:30 – 16:00 Break – Exhibition and Poster Session

12 Jan 2016

Tuesday

Afternoon

B-1

Session: **Industrial Lubricants – Gear Oils**

Chair: **K. Topolovec Miklozic**
Powertrib Ltd, Oxford; UK

16:00 – 16:30 C. Engelhardt
Technische Universität München, Garching, Germany
**Influence of Water Contamination in Gear Lubricants
on Wear and Micro-Pitting Performance of Case
Carburized Gears**

16:30 – 17:00 J. Guevremont, K. Garelick, M. Devlin, H. Ryan,
W. Anderson
Afton Chemical, Richmond, USA
Low Temperature Rheology of Wind Turbine Oils

17:00 – 17:30 H. Trivedi
UES Inc, Dayton, USA
C. Klenke, L. Rosado
USAF, Dayton, OH, USA
**Interaction of Anti-wear Additive TCP with Advanced
Bearing Steels**

17:30 – 18:00 T. Housel
INOLEX Incorporated, Philadelphia, USA
Food Grade Lubricants with Industrial Performance

18:00 **Come Together with Snacks and Beverages**

12 Jan 2016

Tuesday

Afternoon

B-2

Session: **Base Oil Technology (2)**

Chair: **L. Lindemann**
FUCHS PETROLUB SE. Mannheim, Germany

16:00 – 16:30 S. Reid-Peters, M. Sheehan
ExxonMobil Chemical, Baytown, USA
**Exploring the Enhanced Oxidative Stability of
Metallocene Polyalphaolefin (mPAO) Base Stocks**

16:30 – 17:00 M. Greaves
Dow Chemical, Horgen, Switzerland
**Oil Soluble Polyalkylene Glycols – A Versatile
Component for Enabling the Formulation of Modern
Gear Lubricants**

17:00 – 17:30 S. Lucazeau
NYCO, Paris, France
**New Insight into the Benefits of Synthetic Esters in
Challenging Lubricating Applications**

17:30 – 18:00 C. Kranenberg
Dow Corning GmbH, Wiesbaden, Germany
New Silicone Copolymer Lubricants

18:00 **Come Together with Snacks and Beverages**

12 Jan 2016

Tuesday

Afternoon

B-3

Session: **Metalworking Fluids (2)**

Chair: **F. Passman**
Biodeterioration Control Associates, Inc., Princeton, NJ, USA

16:00 – 16:30 C.-E. Hedoire
Solvay, Aubervilliers, France
Ultra-stable Emulsifiers for Metal Working Fluids

16:30 – 17:00 L. Bastardo-Zambrano, T. Norrby, L. Malm
Nynas AB, Nynashamn, Sweden
Effect of the Base Oil Selection on Additive Solution Stability in Neat Metalworking Formulations

17:00 – 17:30 W. Rehbein
Rhein Chemie Rheinau GmbH, Mannheim, Germany
Influence of Lubricant Additives on Surface Quality and Material Removal Rate in a Lapping Process

17:30 – 18:00 R. Rakić, Z. Rakić
Novi Sad, Serbia
The Influence of Metalworking Fluids on Milling Machine Failures

18:00 **Come Together with Snacks and Beverages**

Session: **Engines (2) – Piston/Ring Pack**

Chair: **V. Lagemann**
Daimler Research & Development, Ulm, Germany

16:00 – 16:30 J. Halbhuber, G. Wachtmeister, B. Uhlig, A. Oliva, S. Graf,
C. Kirner
Technische Universität München, Munich, Germany
**Experimental and Simulative Research Advances in
the Piston Assembly of an Internal Combustion Engine**

16:30 – 17:00 R. S. Notay
Millers Oils Ltd, Brighouse, UK
M. Priest, M. F. Fox
University of Bradford, Faculty of Engineering and Informatics, UK
**Measurement of Piston Ring Pack Lubricant
Residence Time in a Gasoline Engine Using Laser
Induced Fluorescence**

17:00 – 17:30 C. Lenauer, S. Salopek, T. Wopelka, M. Jech
AC²T research GmbH, Wiener Neustadt, Austria
**Wear and Tribofilm Analysis for the Piston Ring-
Cylinder Liner Tribosystem Lubricated by Artificially
Aged Engine Oil**

18:00 **Come Together with Snacks and Beverages**

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Tuesday

Afternoon

B-5

Session: **Roller Bearings (2) – White Etching**

Chair: **G. Jacobs**
RWTH Aachen, Germany

16:00 – 16:30 J. Franke, M. Correns
Schaeffler Technologies, Herzogenaurach, Germany
P. Jacobs, J. Carey, T. Haque
ExxonMobil Research and Engineering, Annandale, NJ, USA
White Structure Flaking: Simulation of Bearing Rig and Bench Tests

16:30 – 17:00 J. Loos
Schaeffler Technologies AG & Co. KG, Herzogenaurach, Germany
Influences on Generation of White Etching Crack Networks in Rolling Bearings

17:00 – 17:30 H. Yamada, H. Uyama
NSK Ltd., Fujisawa-shi, Kanagawa, Japan
Long Life Technology against White Structure Flaking in Rolling Bearings

17:30 – 18:00 J. Guevremont, G. Pollard, K. Garelick, M. Devlin,
H. Ryan, W. Anderson
Afton Chemical, Richmond, USA
Effect of Lubricants on White Etching Caused by High Surface Stress

18:00 **Come Together with Snacks and Beverages**

Session: **Coatings (1)**

Chair: **J. Vetter**
Oerlikon Metaplas GmbH, Bergisch-Gladbach, Germany

16:00 – 16:30 **M. Jungk, V. Clerici**
Dow Corning GmbH, Wiesbaden, Germany
Y. Liao, G. Weber
Dow Corning Corporation, Midland, MI, USA
Applications of Antifriction Coatings Based on Binder Systems

16:30 – 17:00 **A. Gies, J. Karner, F. Seibert**
Oerlikon Surface Solutions AG, Balzers, Liechtenstein
J. Becker, T. Stelzig
Oerlikon Balzers Coating Germany GmbH, Bingen, Germany
Properties of Carbon-based Coatings in High Temperature Applications

17:00 – 17:30 **F. Nahif, M. Lartz, R. Scheibe, E. Voss**
eifeler-Vacotec GmbH, Düsseldorf, Germany
Tribological and Mechanical Potential of PVD Coatings in Forming Tool Applications

17:30 – 18:00 **M. Boretius**
Listemann Technology AG, Eschen, Liechtenstein
H. Krappitz
Innobraze GmbH, Esslingen, Germany
I. Rass
Euromat GmbH, Aachen, Germany
Wear Protection Coatings Generated by Brazing, Sintering and Heat Treatment in Vacuum

18:00 **Come Together with Snacks and Beverages**

12 Jan 2016

Tuesday

Afternoon

B-7

Session: **Computational Tribology (2) – Advanced Methods**

Chair: **J. Müllers**
Robert Bosch GmbH, Stuttgart, Germany

16:00 – 16:30 R. Larsson
Luleå University of Technology, Luleå, Sweden
Computational Tribology – Predictive Tool for Design and Prognostics

16:30 – 17:00 D. Dini
Imperial College London, London, UK
A Multi-Scale and Multi-Physics Platform for Tribological Modelling

17:00 – 17:30 M. Scaraggi
Università del Salento, Monteroni, Italy
Computational Rough Contact Mechanics Based on Fourier Finite Element Formulation and Residuals Molecular Dynamics: An Application to Rubber Friction

17:30 – 18:00 F. Franek, G. Vorlaufer, A. Vernes
AC²T research GmbH, Wiener Neustadt, Austria
Studies of Tribological Contacts via Advanced Computational Methods

18:00 **Come Together with Snacks and Beverages**

Session: **Tribology Testing (2)**

Chair: **A. Pauschitz**
AC²T research GmbH, Wiener Neustadt, Austria

16:00 – 16:30 **E. Badisch, A. Trausmuth, M. Rodriguez Ripoll**
AC²T research GmbH, Wiener Neustadt, Austria
G. Zehethofer
OMV Exploration & Production GmbH, Wien, Austria
T. Vogel
voestalpine Tubulars, Kindberg, Austria
Lubricity by Corrosion Products under Sliding in CO₂ Atmosphere

16:30 – 17:00 **H. Buse, M. Grebe, P. Feinle**
Hochschule Mannheim, Germany
P. Blaškoviš
Slovak University of Technology in Bratislava, Slovak Republic
Fretting Wear with Constrained Tangential Forces on Tribometers

17:00 – 17:30 **A. Weinebeck, O. Reinertz, H. Murrenhoff**
RWTH Aachen, Aachen, Germany
Boundary Lubrication of Biofuels and Similar Molecules on Metallic and Ceramic Surfaces

17:30 – 18:00 **M. Rodriguez-Ripoll**
AC²T research GmbH, Wiener Neustadt, Austria
Synergistic Effects between MoS₂ Nanotubes and ZDDP Tribofilms

18:00 **Come Together with Snacks and Beverages**

13 Jan 2016

Wednesday Morning

P-2

Session: **Plenary Session (2)**

Chair: **M. Wincierz**
Evonik Industries AG, Darmstadt, Germany

09:00 – 09:30 G. Poll, N. Bader
Leibniz University Hannover, Germany
X. M. Li, F. Guob
Qingdao Technological University, Qingdao, China
Starvation Lubrication in Rolling Contacts - A Review

09:30 – 10:00 A. Miyamoto, R. Miura, A. Suzuki, N. Miyamoto, N.
Hatakeyama
Tohoku University, Sendai, Japan
**Multiscale, Multiphysics Computational Chemistry
Methods for Automotive Engine Tribology**

10:00 – 10:30 R. W. Carpick
University of Pennsylvania, Philadelphia, PA, USA
**Tribological Processes Studied at the Atomic Scale by
In Situ Approaches: New Insights into Wear and
Tribofilm Generation**

10:30 – 11:00 Break – Exhibition and Poster Session

Session: **Automotive Lubricants (1) – Fuel Efficiency**

Chair: **F. S. Qureshi**
The Lubrizol Corporation, Wickliffe, OH, USA

11:00 – 11:30 N. Nouvel
Lubrizol, Hazelwood, Derby, UK
D. Laurent
TOTAL, Solaize, France
S. Crane
TOTAL, Nanterre, France
Comparing Fuel Economy Results on Different Drive Cycles: NEDC versus WLTP

11:30 – 12:00 M. Seemann, F. Lauterwasser
Evonik Industries AG, Darmstadt, Germany
Formulation of Optimum Fuel Efficiency Engine Oils

12:00 – 12:30 T. Dasbach, T. Selby, J. Evans
Institute of Materials, Midland, Michigan
The Past and Present versus the Future in Engine Oils

12:30 – 14:00 Break – Exhibition and Poster Session

13 Jan 2016

Wednesday Morning

C-2

Session: **Environmentally Friendly Lubricants**

Chair: **G. Gaule**
Hermann Bantleon GmbH, Ulm, Germany

11:00 – 11:30 S. Emadi, I. Minami
Lulea University of Technology, Lulea, Sweden
**Does your Lubrication System Conform to the
Concept of Green Chemistry?**

11:30 – 12:00 R. Luther
FUCHS PETROLUB SE, Mannheim, Germany
**European Activities Regarding Standardisation of Bio-
Lubricants**

12:00 – 12:30 M. Baitz
thinkstep AG, Leinfelden-Echterdingen, Germany
**How to Turn Sustainability Aspects of Biolubricants
into Company Benefit – Approaches, Standards,
Solutions, Business Value**

12:30 – 14:00 Break – Exhibition and Poster Session

Session: **Metalworking Fluids (3)**

Chair: **K. Terveen**
Hermann Bantleon GmbH, Ulm, Germany

11:00 – 11:30 F. Passman, A. Eachus
Biodeterioration Control Associates, Inc., Princeton, NJ, USA
Impact of Biocidal Products Regulations on Microbial Contamination Control in Metalworking Fluids

11:30 – 12:00 U. Falk
Lubrizol Deutschland GmbH, Hamburg, Germany
Impact of BPR and Formaldehyde Releaser Classification on Metal Working Industry

12:00 – 12:30 T. McClure
Sea-Land Chemical Company, Westlake, USA
R. Stubbs
Sea-Land Chemical Europe Ltd, Byley Cheshire CW10 9NT, UK
Optimization of Boundary Lubrication Properties of Metalworking Lubricants Combining Mixture Design of Experiments with Twist Compression Tests

12:30 – 14:00 Break – Exhibition and Poster Session

13 Jan 2016

Wednesday Morning

C-4

Session: **Engines (3) – Valve Train Coatings (2)**

Chair: **M. Jungk**
Dow Corning GmbH, Wiesbaden, Germany

11:00 – 11:30 M. A. Ofune, V. Khetan, A. Morina, A. Neville
University of Leeds, UK
**Application of DLCs to Engine Valve Train Systems:
Effects of Coating both the Cam and Follower**

11:30 – 12:00 M. B. Diew
HEF Group, St Etienne, France
Effect of DLC on Valve Train Friction Reducing

12:00 – 12:30 C. Héau, P. Maurin Perrier, M. Diew
IREIS/HEF, Andrézieux-Bouthéon, France
**Friction Simulation of a Cam/Tappet Contact Using a
Ring on Flat Tribometer**

12:30 – 14:00 Break – Exhibition and Poster Session

Session: **Machine Elements (1) – Fundamentals**

Chair: **G. Poll**
Leibniz University Hannover, Germany

11:00 – 11:30 M. Scherge
Fraunhofer IWM, Pfinztal, Germany
The Role of Lubricants During Running-in

11:30 – 12:00 A. Kadiric, P. Rycerz
Imperial College London, UK
Propagation of Surface Cracks under Rolling Contact Fatigue Conditions

12:00 – 12:30 A. Clarke, I. Weeks, H. P. Evans, R. Snidle
Cardiff University, UK
Running in and Micropitting Behaviour of Steel Surfaces under Mixed Lubrication Conditions

12:30 – 14:00 Break – Exhibition and Poster Session

13 Jan 2016

Wednesday Morning

C-6

Session: **Nano-Analytical Techniques (1)**

Chair: **E. Gnecco**
IMDEA Nanociencia, Madrid, Spain

11:00 – 11:30 E. Meyer
University of Basel, Switzerland
Nanotribology Experiments with Graphene and Polymer Chains

11:30 – 12:00 R. Bennewitz
INM Leibniz Institute for New Materials, Saarbrücken, Germany
Microscopic Mechanisms in Lubrication Revealed by Force Microscopy

12:00 – 12:30 A. Schirmeisen
Justus-Liebig-University Giessen, Germany
Tribological Properties of Nanoparticles: From Superlubricity to Contact Ageing

12:30 – 14:00 Break – Exhibition and Poster Session

Session: **Condition Monitoring (1)**

Chair: **R. Krethe**
OELCHECK GmbH, Brannenburg, Germany

11:00 – 11:30 S. Lunt
Parker Hannifin Manufacturing Ltd, Littlehampton, UK
Monitoring of Marine Cylinder Lubricating Oils

11:30 – 12:00 P. Martin, N. Röbbken, C. Martin
Innosiris GmbH, Hamburg, Germany
**Online-Monitoring of Particles, Bubbles and Droplets
in Lubricants of Engines and Gears**

12:00 – 12:30 V. Krasnik
Technische Universität Hamburg-Harburg, Germany
N. Röbbken, C. Martin, P. Martin
Innosiris GmbH, Hamburg, Germany
**Characterizing the Wear Behaviour of Lubricated
Metal-Metal Pairings with an Optical Online Particle
Detection System**

12:30 – 14:00 Break – Exhibition and Poster Session

Session: **Tribology Testing (3) – Lubricants Test**

Chair: **M. Grebe**
Mannheim University of Applied Sciences, Germany

11:00 – 11:30 S. Beyer-Faiss
Dr. Tillwisch GmbH Werner Stehr, Horb, Germany
**Prediction of Ageing Stability of Lubricants –
Correlation of Laboratory Tests vs. Sinter Bearing Test
Bench Runs**

11:30 – 12:00 M. Frauscher, C. Besser, N. Dörr
AC²T research GmbH, Wiener Neustadt, Austria
G. Allmaier
Vienna University of Technology, Austria
**Oxidative Degradation Products of Fuel Components
Identified by Mass Spectrometry and Isotope Labelling**

12:00 – 12:30 M. Georgiou, D. Drees, S. Achanta
Falex Tribology NV, Rotselaar, Belgium
**Friction Modifiers Put to the Test – Can we Influence
Friction?**

12:30 – 14:00 Break – Exhibition and Poster Session

13 Jan 2016

Wednesday Afternoon

D-1

Session: **Automotive Lubricants (2) – Rheology**

Chair: **P. Vergne**
LaMCoS & CNRS, Villeurbanne, France

14:00 – 14:30 P. Cusseau, F. Briand
TOTAL, Paris, France
D. Philippon, L. Martinie, N. Bouscharain, P. Vergne
LaMCoS, Villeurbanne Cedex, France
**Physico-Chemistry and High Pressure Rheology of
Polymer-Base Oil Solutions**

14:30 – 15:00 J. Cui, S. Oberoi, S. Briggs
Infineum USA L.P., Linden, USA
**A Viscosity Modifier Solution to Reconcile Fuel
Economy and Durability in Diesel Engines**

15:00 – 15:30 M. K. Patel, V. J. Gatto
Vanderbilt Chemicals LLC, Norwalk, CT, USA
**Utilizing Optimize Molybdenum Dithiocarbamate
Technology in Combination with Organic Friction
Modifiers for Enhanced Fuel Efficiency Possibilities**

15:30 – 16:00 Break – Exhibition and Poster Session

13 Jan 2016

Wednesday Afternoon

D-2

Session: **Grease (1)**

Chair: **R. Westbroek**
Axel Christiernsson International, Nol, Sweden

14:00 – 14:30 P. Lugt
SKF Engineering and Research Centre, Nieuwegein, The Netherlands
Modern Advancements in Lubricating Grease Technology

14:30 – 15:00 D. Gonçalves, J. Seabra, A. Campos, B Graça
INEGI, Porto, Portugal
J. Leckner
Axel Christiernsson International, Sweden
Film Thickness and Friction Behaviour of Polymer Greases

15:00 – 15:30 C. Besser, M. Schandl, A. Grafl
AC²T research GmbH, Wiener Neustadt, Austria
K. Adam
Voestalpine Stahl GmbH, Austria
Performance of Greases under Elevated Temperature Conditions

15:30 – 16:00 Break – Exhibition and Poster Session

13 Jan 2016

Wednesday Afternoon

D-3

Session: **Metalworking Fluids (4)**

Chair: **B. Döbbeler**
RWTH Aachen, Germany

14:00 – 14:30 V. R. Stoldt
Heinrich Heine University of Duesseldorf, Germany
Biomonitoring of MWF: Unit-Specific Optimization of Antimicrobial Strategies

14:30 – 15:00 L. Pedisic, I. Polenus
INA MAZIVA Ltd, Zagreb, Croatia
Possibility of Bio-Emulsions Splitting by INA Method

15:00 – 15:30 H. Dwuletzki
Carl Bechem GmbH, Hagen, Germany
Minimum Quantity Lubrication (MQL) versus Traditional Flood Application – A Breakthrough or only for Niche Applications?

15:30 – 16:00 Break – Exhibition and Poster Session

Session: **Engines (4) – Computational**

Chair: **D. Bartel**
Otto-von-Guericke-University Magdeburg, Germany

14:00 – 14:30 A. Boucke, G. Knoll, A. Winijst
IST GmbH, Aachen, Germany
A. Stapelmann, P. Auerbach
Thyssen Krupp Presta Chemnitz GmbH, Germany
**Reduction of Friction Losses in Journal Bearings of
Valve Train Shaft by Application of Running-in Profile**

14:30 – 15:00 P. Lyubarskyy, D. Bartel
Otto-von-Guericke-University Magdeburg, Germany
**2D CFD-Model of the Piston Assembly in a Diesel
Engine for the Analysis of Piston Ring Dynamics,
Mass Transport and Friction**

15:00 – 15:30 J. Gerken
TU-Clausthal, Institut für Tribologie und Energiewandlungsmaschinen,
Clausthal-Zellerfeld, Germany
**The Influence of Modified Surface-Microstructures on
Friction and Wear Intensity in the Cam-Tappet Tribo-
System**

15:30 – 16:00 Break – Exhibition and Poster Session

Session: **Machine Elements (2) – Concentrated EHL Contacts**

Chair: **M. Scaraggi**
 Università del Salento, Monteroni, Italy

14:00 – 14:30

J. H. Schmidt
 Karlsruhe Institute of Technology, Karlsruhe, Germany
 Robert Bosch GmbH, Stuttgart, Germany
S. Solovyev
 Robert Bosch GmbH, Stuttgart, Germany
W. Seemann
 Karlsruhe Institute of Technology, Karlsruhe, Germany
Efficient Structural Dynamics Modeling in Concentrated Elastohydrodynamic Contacts

14:30 – 15:00

J.-D. Wheeler, N. Fillot, D. Philippon, N. Devaux, P. Vergne
 INSA de Lyon, Villeurbanne Cedex, France
G. E. Morales-Espejel
 SKF Engineering and Research Center, Nieuwegein, The Netherlands
Numerical and Experimental Contributions to the Flange-Roller End Contact Study

15:00 – 15:30

D. Kostal, P. Sperka, I. Krupka, M. Hartl
 Brno University of Technology, Brno, Czech Republic
Relationship between Thickness of Entering Layer and Level of EHL Contact Starvation

15:30 – 16:00

Break – Exhibition and Poster Session

Session: **Nano-Analytical Techniques (2)**

Chair: **M. Kalin**
University of Ljubljana, Slovenia

14:00 – 14:30 C. Grünzweig
Paul Scherrer Institute, Villigen PSI, Switzerland
Visualisation of Lubricant Distributions Behind Solid Metal Objects by Means of Neutron Imaging as a Non-Destructive Test Method

14:30 – 15:00 T. Lutz, K. Gerlach, W. Dreher
Universität Tübingen, Reutlingen, Germany
Nanoanalytical Investigations of Tribologically Stressed Surfaces and Interfaces

15:00 – 15:30 B. Zhmud, M. Berg
Applied Nano Surfaces, Uppsala, Sweden
F. Lemel
Uppsala University, Uppsala, Sweden
B. Brodmann
OptoSurf GmbH, Ettlingen, Germany
Use of Angle-Resolved Light Scattering, X-Ray Fluorescence Spectroscopy and Eddy Current Conductivity Measurements for Surface Condition Monitoring in a Mechanochemical Surface Finishing Process

15:30 – 16:00 Break – Exhibition and Poster Session

13 Jan 2016

Wednesday Afternoon

D-7

Session: **Condition Monitoring (2)**
by OilDoc

Chair: **R. Krethe**
OilDoc GmbH, Brannenburg, Germany

14:00 – 14:30 R. Krethe
OilDoc GmbH, Brannenburg, Germany
S. Bots
OELCHECK GmbH, Brannenburg, Germany
**Foaming and Air Release Characteristics of Industrial
Gear Oils – Standardized Test Procedures and
Practical Experiences in Wind Turbines**

14:30 – 15:00 S. Bots
Oelcheck GmbH, Brannenburg, Germany
**Particle Analysis and Evaluation for Consistent
Lubricants**

15:00 – 15:30 T. Fischer, C. Heine, S. Mitterer
Oelcheck GmbH, Brannenburg, Germany
ASTM D7946 – The New Standard i-pH Measurement

15:30 – 16:00 Break – Exhibition and Poster Session

Session: **Tribology Testing (4) – Composites**

Chair: **A. Albers**
Karlsruhe Institute of Technologie (KIT), Karlsruhe, Germany

14:00 – 14:30 K. Wantzen, A. Albers, M. Blust, B. Lorentz
Karlsruhe Institute of Technologie (KIT), Karlsruhe, Germany
A New Tribological Test Bench for Lightweight Hydraulic Axial Piston Pumps

14:30 – 15:00 B.-C. Jim, R. Sebastian, B. Wetzel
Institut für Verbundwerkstoffe, Kaiserslautern, Germany
In-situ Flash Temperature Measurement in Polymer Compound-Steel Sliding Systems

15:30 – 16:00 Break – Exhibition and Poster Session

Session: **Automotive Lubricants (3)**

Chair: **M. Dienwiebel**
 Karlsruhe Institute of Technology (KIT), Germany

16:00 – 16:30 H. Spikes, A. Kontou
 Imperial College London, UK
 M. Southby
 Shell Global Solutions, London, UK
Influence of Engine Oil Formulation on Wear for Soot-Containing Oils

16:30 – 17:00 D. Boese, A. Ritchie
 Infineum, Oxfordshire, UK
Controlling Low-Speed Pre-Ignition in Modern Automotive Equipment: Defining Approaches to and Methods for Analyzing Data in New Studies of Lubricant-and Fuel-Related Effects

17:00 – 17:30 F. Dassenoy
 Ecole Centrale of Lyon, Ecully, France
Benefits of Nanoparticles in the Lubrication of Engine and Gearboxes

17:30 – 18:00 J. Qu
 Oak Ridge National Laboratory, Oak Ridge, USA
Oil-Miscible Ionic Liquids as Multi-Functional Additives for Low-Viscosity Engine Lubricants

18:15 **Departure for Esslingen (Conference Dinner)**

19:30 **Conference Dinner**

13 Jan 2016

Wednesday Afternoon

E-2

Session: **Grease (2)**

Chair: **P. Lugt**
SKF Engineering and Research Centre, Nieuwegein, The Netherlands

16:00 – 16:30 M. Ratoi, V. B. Niste, D. M. B. Hassan, J. Leckner,
R. Westbroek
University of Southampton, UK
Polymer Thickened Greases with Nanoparticle Additives

16:30 – 17:00 R. Westbroek, J. Leckner
Axel Christiernsson International, Nol, Sweden
Lubrication Mechanism of Polypropylene Thickened Grease: Improved Energy Efficiency and Grease Life

17:00 – 17:30 A. Kailer, C. Dold
Fraunhofer-Institut für Werkstoffmechanik IWM, Freiburg, Germany
G. Dornhöfer
Robert Bosch GmbH, Renningen, Germany
S. Grundeï, P. Altmann, C. Enekes
Klüber Lubrication KG, München, Germany
M. Ahrens, T. Schubert
lolitec Ionic Liquids Technologies GmbH, Heilbronn, Germany
U. Dellwo
Schaeffler Technologies AG & Co.KG, Schweinfurt, Germany
Conductive Lubricants for Functional Tribo-Systems *

18:15 **Departure for Esslingen (Conference Dinner)**

19:30 **Conference Dinner**

* Selected Paper from GfT-Conference (German Society of Tribology)

Session: **Metalworking Fluids (5)**

Chair: **S. Baumgärtel**
German Lubricant Manufacturers Association, Hamburg, Germany

16:00 – 16:30 T. Pullen, F. Klocke, D. Veselovac, M. Brockmann
RWTH Aachen, Germany
**Investigation of Characteristic Particle Contamination
of Cooling Lubricants due to Metal Cutting Processes**

16:30 – 17:00 H. Phan
University of Wollongong, New South Wales, Australia
**A Study of Abrasive Wear on the High Speed Steel
Surface in Hot Rolling**

17:00 – 17:30 M. van Breemen, J. J. Hooijman
Quaker Chemical B.V., Uithoorn, The Netherlands
**Tapping Technology – Simulating Non-Ferrous Cut
Tapping and Roll Tapping Performance in the
Laboratory**

17:30 – 18:00 E. C. Galgoci, W. Brüning
Munzing Corporation, Bloomfield, NJ, USA
**Innovations of 3-Dimensional (3D) Siloxane Defoamer
Technology for Aqueous Metalworking Fluids**

18:15 **Departure for Esslingen (Conference Dinner)**

19:30 **Conference Dinner**

Session: **Engines (5) – Energy Efficiency**

Chair: **M. Jungk**
Dow Corning GmbH, Wiesbaden, Germany

16:00 – 16:30 W.J. Bartz
Technische Akademie Esslingen e.V., Ostfildern, Germany
The Green Automobile – Tribological Aspects of Definition and Realisation

16:30 – 17:00 S. C. Tung
Vanderbilt Chemical LLC, Norwalk, USA
V. Wong
MIT, Cambridge, USA
Engine Friction Reduction and Wear Control for Improving Energy Efficiency

17:00 – 17:30 M. Horn
Volvo Group, Sweden
Heavy-Duty Engine Development Trends for Improving Fuel Economy with Focus on the Engine Lubrication System

17:30 – 18:00 P. M. Lee
South-West Research Institute, USA
Using the Full Range of Tribology Tools to Cost Effectively Reduce Fuel Economy in Engines

18:15 **Departure for Esslingen (Conference Dinner)**

19:30 **Conference Dinner**

Session: **Machine Elements (3) – Gears**

Chair: **K. Topolovec Miklozic**
Powertrib Ltd, Oxford, UK

16:00 – 16:30 R. Beilicke, L. Bobach, D. Bartel
Otto von Guericke University Magdeburg, Germany
Transient Thermal Elastohydrodynamic Simulation of a DLC Coated Helical Gear Pair Considering Limiting Shear Stress Behaviour of the Lubricant

16:30 – 17:00 A. Kadiric, A. Christodoulis
Imperial College London, UK
Prediction of Power Losses in a Simple Spur Gearbox Incorporating a Thermally Coupled Lubrication Model

17:00 – 17:30 M. Omasta, I. Krupka, M. Hartl
Brno University of Technology, Brno, Czech Republic
Elastohydrodynamic Lubrication under Conditions Occurring in Worm Gears

17:30 – 18:00 P. Marques, R. Martins
INEGI, Porto, Portugal
J. Seabra
University of Porto, FEUP
Gear Dynamics and Power Loss

18:15 **Departure for Esslingen (Conference Dinner)**

19:30 **Conference Dinner**

Session: **Nano-Analytical Techniques (3)**

Chair: **E. Meyer**
University of Basel, Switzerland

16:00 – 16:30 R. W. Carpick, F. Streller, D.B. Durham,
G.E. Wabiszewski, J. Yang, Y. Qi, F. Yang, DJ. Srolovitz,
A.M. Rappe
University of Pennsylvania, Philadelphia, PA, USA
**Tribological Challenges in Mechanical Computing:
New Materials and Advanced Characterisation for
Nanoelectromechanical Switch Interfaces**

16:30 – 17:00 M. Kalin, E. Oblak
University of Ljubljana, Slovenia
**Correlation between Several Nano-Scale Tribofilm
Parameters and Friction Behaviour of DLC Coatings in
Boundary Lubrication**

17:00 – 17:30 E. Gnecco, P. Pedraz, P. Nita, R. Wannemacher
IMDEA Nanociencia, Madrid, Spain
P. Nita
Institute of Physics, Maria Curie-Skłodowska University Lublin, Poland
**Surface Rippling in Abrasive Nanowear: A Novel
Interpretation and Ways to Prevent it**

17:30 – 18:00 K. Tamura, M. Ishikawa
Idemitsu Kosan Co., Ltd., Ichihara, Japan
M. Mizukami, K. Kurihara
Tohoku University, Sendai, Japan
**Interfacial Repulsive Force Generated by Polymeric
Lubricant Additives in Single-Asperity Contact**

18:15 **Departure for Esslingen (Conference Dinner)**

19:30 **Conference Dinner**

Session: **Condition Monitoring (3)**

Chair: **H. Schwarze**
TU-Clausthal, Clausthal-Zellerfeld, Germany

16:00 – 16:30 M.Mauntz
cmc Instruments GmbH, Eschborn, Germany
U. Kuipers, J. Peuser
South Westphalia University of Applied Sciences, Hagen, Germany
**Advances in Oil Condition Monitoring Permits
Preventive Maintenance before Damage Occurs
Assuring Asset Protection and Achieving Theoretical
Component Lifetimes**

16:30 – 17:00 J. Alarcon, J. Terradillos
ik4-tekniker, Eibar, Spain
**Prognostics and Condition Base Maintenance - How
far are we?**

17:00 – 17:30 B. Görlach
A&S Chemie, Tübingen, Germany
Modelling Interactions in Tribosystems

17:30 – 18:00 J. K. Duchowski, T. Lang
HYDAC FluidCareCenter GmbH, Sulzbach, Germany
K. O'Donnell
GE Gas Turbine Accessories NPI, Greenville SC, USA
**Elimination of Electrostatic Discharge in Hydraulic and
Lubricating Circuits, Historical Perspective**

18:15 **Departure for Esslingen (Conference Dinner)**

19:30 **Conference Dinner**

Session: **Coatings (3) – Superlubricity**

Chair: **J. Schnagl**
BMW Group, München, Germany

16:00 – 16:30 A. V. Sumant, D. Berman, S. A. Deshmukh,
S. K.R.S. Sankaranarayanan, A. Erdemir
Argonne National Laboratory, Argonne, IL, USA
**Origin of Reproducible Superlubricity at Macroscale
with Graphene/Nanodiamond Ensembles**

16:30 – 17:00 V. Weihnacht
Fraunhofer-Institut für Werkstoff- und Strahltechnik IWS, Dresden,
Germany
**Superlubricity and Wear Phenomena on Hard and
Superhard Carbon Coatings**

17:00 – 17:30 M. Höfer, M. Armgardt, L. Schäfer
Fraunhofer IST, Braunschweig, Germany
**CVD Diamond Coatings as Ultimate Solution for
Reduction of Friction, Wear and Corrosion in
Tribology**

17:30 – 18:00 S. Kosarieh, D. Khaemba, A. Morina, A. Neville
University of Leeds, UK
**Insight on the Mechanism of High DLC Wear in Tests
with MoDTC-containing Lubricants in DLC/Steel
Contacts**

18:15 **Departure for Esslingen (Conference Dinner)**

19:30 **Conference Dinner**

Session: **Plenary Session (3)**

Chair: **F. Franek**
AC²T research GmbH, Wiener Neustadt, Austria

09:00 – 09:30 N. Dörr, P. Aswath
AC²T research GmbH, Wiener Neustadt, Austria
Long-Term Behaviour of Oils Containing Ionic Liquid Additives

09:30 – 10:00 B. N. J. Persson
Multiscale Consulting, Jülich, Germany
Multiscale Contact Mechanics

10:00 – 10:30 J. Luo
State Key Laboratory of Tribology, Beijing, China
Advances in Superlubricity

10:30 – 11:00 Break – Exhibition and Poster Session

14 Jan 2016

Thursday

Morning

F-1

Session: **Automotive Lubricants (4) – Gearbox**

Chair: **M. Priest**
University of Bradford, Faculty of Engineering and Informatics, UK

11:00 – 11:30 Y. Onumata, H. Zhao, C. Wang, A. Morina, A. Neville
University of Leeds, UK
Behaviour of Organic Friction Modifiers at Steel and Paper Clutch Component

11:30 – 12:00 M. Hammami, R. Martins
INEGI, Porto, Portugal
A. Coimbra, J. Seabra
FEUP, Porto Portugal
Axle Gear Oils: Tribological Characterisation Using Film Thickness Measurements and Traction Curves

12:00 – 12:30 D. Shakhvorostov, A. Smirnov, C. Wincierz
Evonik Industries AG, Darmstadt, Germany
Lubricant Role in Shift Performance of Manual Transmissions

12:30 – 14:00 Break – Exhibition and Poster Session

14 Jan 2016

Thursday

Morning

F-2

Session: **Additives (1) – Polymers VI/FM**

Chair: **N.N.**

11:00 – 11:30

K. Trickett

Lubrizol Ltd, Derby, UK

M. Covitch

The Lubrizol Coporation, Wickliffe, Ohio, USA

How Linear and Block Copolymers Behave as Viscosity Index Improvers

11:30 – 12:00

F. S. Qureshi

The Lubrizol Corporation, Wickliffe, OH, USA

Impact of High Pressure and Shear Stress on Polymer Thickened Lubricants

12:00 – 12:30

A. Viadas

Croda, Snaith, UK

Minimising Wear and Friction of Diamond-Like Carbon Surfaces With Polymeric Organic Friction Modifiers

12:30 – 14:00

Break – Exhibition and Poster Session

14 Jan 2016

Thursday

Morning

F-3

Session: **Ionic Liquids (1)**

Chair: **N. Dörr**
AC²T research GmbH, Wiener Neustadt, Austria

11:00 – 11:30 J. Qu
Oak Ridge National Laboratory, USA
Using Ionic Liquids as Anti-Wear Additives to Lubricate Non-Metallic Surfaces

11:30 – 12:00 T. J. S. Schubert, M. A. Ahrens, F. M. Stiemke
IOLITEC Ionic Liquids Technologies GmbH, Heilbronn, Germany
Ionic Liquids and Ionic Liquid-Mediated Dispersions of Nanomaterials as High Performance Additives for Lubricants

12:00 – 12:30 P. Aswath, V. Sharma
University of Texas at Arlington, TX, USA
N. Dörr
AC²T research GmbH, Wiener Neustadt, Austria
A. Erdemir
Argonne National Laboratory, France
Interaction between Boron Additives and Ionic Liquids in Engine Oil

12:30 – 14:00 Break – Exhibition and Poster Session

14 Jan 2016

Thursday

Morning

F-4

Session: **Engines (6) – Coatings (4)**

Chair: **J. Schnagl**
BMW Group, München, Germany

11:00 – 11:30 J. Becker, T. Stelzig
Oerlikon Balzers Coating Germany GmbH, Bingen, Germany
A. Gies, J. Kerner, F. Seibert
Oerlikon Surface Solutions AG, Balzers, Liechtenstein
Alternatives to Carbon-based Coatings in Automotive Applications

11:30 – 12:00 R. Jacobs, R. Tietema, D. Doerwald, I. Kolev,
J. Landsbergen
IHI Hauzer Techno Coating B.V., Venlo, The Netherlands
Developments in PVD/PECVD Coatings for Automotive Applications

12:30 – 14:00 Break – Exhibition and Poster Session

14 Jan 2016

Thursday

Morning

F-5

Session: **Machine Elements (4) – Bearings**

Chair: **A. Rienäcker**
University of Kassel, Germany

11:00 – 11:30 M. Fillon
University of Poitiers, GMSO, Chasseneuil, France
Performance Predictions of Tilting-Pad Journal Bearings Under Thermoelastohydrodynamic Regime

11:30 – 12:00 B. Remy
LaMCoS - INSA Lyon, France
Honeywell Turbo Technologies, Villeurbanne, France
B. Bou-Said
LaMCoS - INSA Lyon, France
T. Lamquin
Honeywell Turbo Technologies, Thaon-les-Vosges, France
Influence of Dynamic Effects on a Turbocharger Thrust Bearing

12:00 – 12:30 P. Sperka, I. Krupka, M. Hartl
Brno University of Technology, Brno, Czech Republic
A Role of Surface Grooves on Transition from Full to Mixed Lubrication

12:30 – 14:00 Break – Exhibition and Poster Session

14 Jan 2016

Thursday

Morning

F-6

Session: **Lubricants Testing**

Chair: **S. Lunt**
Parker Hannifin Manufacturing Ltd, Littlehampton, UK

11:00 – 11:30 M. Bäse, U. Winkelmann
Magdeburg-Stendal University of Applied Sciences, Magdeburg, Germany
Practical Application of Thermotribometrical Investigations for Characterising Different Lubricant Oils

11:30 – 12:00 M. Manning, J. Evans, T. Selby, W. VanBergen
Savant Inc., Midland, USA
Isothermal Study of the Influence of Water on Lubricant Oxidation

12:00 – 12:30 L. Kogel
SGS, Hamburg, Germany
Lubricant Induced Metal Corrosion – an Electrochemical Impedance Spectroscopy Approach

12:30 – 14:00 Break – Exhibition and Poster Session

14 Jan 2016

Thursday

Morning

F-7

Session: **Tribotesting and Surface Characterisation**

Chair: **W. Stehr**
Dr. Tillwich GmbH Werner Stehr, Horb, Germany

11:00 – 11:30 M. Rodriguez Ripoll, V. Totolin
AC²T research GmbH, Wiener Neustadt, Austria
**In-situ Generation of Tungsten Disulfide Using
Functionalised Surfaces and Green Additives**

11:30 – 12:00 M. Novak
Bruker Nano Surfaces Division, Tucson, USA
**Inspection of Engineered Functional Sealing Surfaces:
3D Metrology for Structural and Texture**

12:00 – 12:30 J. Lauger, F. Wolf
Anton Paar Germany GmbH, Ostfildern, Germany
**A Closer Look at Static Friction with an Oscillating
Tribometer**

12:30 – 14:00 Break – Exhibition and Poster Session

14 Jan 2016

Thursday

Morning

F-8

Session: **Contact Mechanic**

Chair: **B. N. J. Persson**
Forschungszentrum Jülich, Germany

11:00 – 11:30 N. Myshkin
Metal-Polymer Research Institute of Belarus National Academy of
Sciences, Gomel, Belarus
Tribology of Electrical Contacts

11:30 – 12:00 R. Jackson
Auburn University, Auburn, USA
**The Average Real Contact Pressure During Elastic-
plastic Rough Surface Contact**

12:00 – 12:30 I. Velkavrh, S. Klien, A. Ristow, F. Ausserer, J. Voyer,
A. Diem
V-Research GmbH, Dornbirn, Austria
M. Lüchinger, M. Schreiner
University of Applied Sciences NTB Buchs, Switzerland
Modelling of Friction in Forming Processes

12:30 – 14:00 Break – Exhibition and Poster Session

Session: **Panel Discussion:
Wassermischbare Kühlschmierstoffe in 2020**

Chair: **S. Baumgärtel**
German Lubricant Manufacturers Association, Hamburg, Germany

11:00 – 12:30

Teilnehmer:

Heinz Dwuletzki, Carl Bechem GmbH, Hagen, Germany
Uwe Falk, Lubrizol Deutschland GmbH, Hamburg, Germany
Sven Giesler, Daimler AG, Stuttgart, Germany
Klaus Terveen, Hermann Bantleon GmbH, Ulm, Germany

12:30 – 14:00

Break – Exhibition and Poster Session

* Panel Discussion in German. No simultaneous translation provided.

14 Jan 2016

Thursday

Afternoon

G-1

Session: **Automotive Lubricants (5)**

Chair: **C. Wincierz**
Evonik Industries AG, Darmstadt, Germany

14:00 – 14:30 C. Warrens, R. Pearson
BP, Reading, UK
Lubricant Effects on Valvetrain Friction and Wear

14:30 – 15:00 C. Besser, K. Steinschütz, N. Dörr, F. Novotny-Farkas,
G. Allmaier
AC²T research GmbH, Wiener Neustadt, Austria
**Influence of Engine Oil Degradation on Corrosion and
Wear in Gasoline Fuelled Engines with Special
Consideration of Acetic Acid**

15:00 – 15:30 N. Marx, H. Spikes
Imperial College London, UK
R. Taylor
Shell Global Solutions, London, UK
**Influence of Polymer Shear Thinning on Friction in
Hydrodynamic Lubricated Contacts**

15:30 – 16:00 B. Zhmud, B. Tatievski
BIZOL, Berlin, Germany
**Fuel Economy Engine Oils: Scientific Rationale and
Controversies**

16:00 – 16:15 Short Break

Session: **Additives (2) – Nanoparticles**

Chair: **M. Ratoi**
University of Southampton, UK

14:00 – 14:30 S. von Haartman
Ab Nanol Technologies Oy, Helsinki, Finland
M. Scherge
Fraunhofer IWM, Pfinztal, Germany
Multi-Phase Friction and Wear Reduction by Colloidal Copper Additive

14:30 – 15:00 Y. Wu, X. Zeng, E. van der Heide
University of Twente, Enschede, The Netherlands
T. Ren
Shanghai Jiao Tong University, China
The Improvement of Stability and Tribological Properties of Oil-in-Water Emulsion by Incorporating Modified Graphene Oxide

15:00 – 15:30 R. S. Notay, M. Mann
Millers Oils Ltd, Brighouse, UK
M. Priest, A. Neville
University of Bradford, Faculty of Engineering and Informatics, UK
The Use of Solid Nanoparticles as Potential Friction and Wear Reducing Additives in Industrial Gear Lubricants

15:30 – 16:00 V. B. Niste, M. Ratoi
University of Southampton, UK
Tungsten Dichalcogenide Lubricant Nanoadditives for Demanding Applications

16:00 – 16:15 Short Break

14 Jan 2016

Thursday

Afternoon

G-3

Session: **Ionic Liquids (2)**

Chair: **I. Minami**
Lulea University of Technology, Lulea, Sweden

14:00 – 14:30 S. Glavatskih
KTH Royal Institute of Technology, Stockholm, Sweden
Ionic Liquids as Additives to Environmentally Friendly Oils

14:30 – 15:00 W. Liu, F. Zhou
Lanzhou Institute of Chemical Physics, Lanzhou, China
Task Specific Ionic Liquids Lubricants

15:00 – 15:30 J. Fernández, F. M. Gacío, X. Paredes, M. J. P. Comuñas
University of Santiago de Compostela, Spain
Pressure-Viscosity Behaviour and Film Thickness in Elastohydrodynamic Regime of Lubrication of Ionic Liquids

15:30 – 16:00 A. Igartua
Tekniker, Eibar, Spain
Ionic Liquids Working under Vacuum and Ultrahigh Vacuum Conditions

16:00 – 16:15 Short Break

Session: **Engines (7) – Applications**

Chair: **G. Wachtmeister**
Technische Universität München, Munich, Germany

14:00 – 14:30 E. Tack
Daimler AG, Ulm, Germany
Application of Cylinder Roller Bearings in Crankshaft of Internal Combustion Engines

14:30 – 15:00 D. Häggström, P. Nyman
Scania CV AB
KTH Royal Institute of Technology, Stockholm, Sweden
U. Sellgren, S. Björklund
KTH Royal Institute of Technology
Predicting Friction in Synchronizer Systems

15:00 – 15:30 I. Sherrington, G. Calderbank, T. Smith
University of Central Lancashire, Preston, UK
A New Approach to Cylinder Lubrication in Large Two Stroke Marine Engines

15:30 – 16:00 J. Biberger
Daimler AG, Ulm, Germany
Development of a Test Method for the Realistic, Single-Parameter Dependent Analysis of the Tribosystem Piston Ring/Cylinder Liner by Means of a Rotational Tribometer *

16:00 – 16:15 Short Break

Session: **Machine Elements (5) – Sealings**

Chair: **F. Bauer**
University of Stuttgart, IMA, Germany

14:00 – 14:30 F. Pérez-Ràfols, R. Larsson, P. Wall, S. Lundström,
A. Almqvist
Luleå University of Technology, Luleå, Sweden
Study of Static Seals by Means of a Stochastic two-scale Model

14:30 – 15:00 A. Bormuth, R. Bactavatchalou, A. Rieder, R. Kreiselmairer
Freudenberg New Technologies SE & Co. KG, Weinheim, Germany
J. Zuleeg, J. Groß, C. Schmitz, R. Spallek
Klüber Lubrication München SE & Co.KG, München, Germany
Influence of Polymer/Lubricant Interaction on the Static Friction in Polymeric Tribo-Systems

15:00 – 15:30 J. Gölz, F. Bauer, W. Haas
University of Stuttgart, Germany
Influences on Sealing Systems with PTFE Lip Seals – Eccentricity, Oil Viscosity and Shaft Surface

15:30 – 16:00 M. Scaraggi
Università del Salento, Monteroni, Italy
B. N. J. Persson
PGI, Juelich Research Center, Juelich, Germany
The Transition from Boundary to Hydrodynamic Lubrication for Viscoelastic Solids: A Novel Consistent Mean Field Theory

16:00 – 16:15 Short Break

Session: **Machine Elements (6) – Journal Bearings**

Chair: **H. Schwarze**
TU-Clausthal, Clausthal-Zellerfeld, Germany

14:00 – 14:30 D.-O. Leimann
ZF Windpower Antwerpen, Lommel, Belgium
Plain Bearing Lubrication in Wind Turbine Gearboxes

14:30 – 15:00 T. Amann, A. Kailer,
Fraunhofer-Institut für Werkstoffmechanik IWM, Freiburg, Germany
S. Beyer-Faiß, W. Stehr
Dr. Tillwich GmbH Werner Stehr, Horb-Ahldorf, Germany
B. Metzger
SL Gleitlagertechnik GmbH, Marburg, Germany
Development of Sintered Bearings with Minimal Friction Losses and Maximum Life Time Using Infiltrated Liquid Crystalline Lubricants

15:00 – 15:30 A. Zogopoulos, D. Bompos, P. Nikolakopoulos
University of Patras, Greece
Tribological Investigation of Grooved Journal Bearings with Cavitation Considerations

15:30 – 16:00 A. Zavos, P. Nikolakopoulos
University of Patras, Greece
Cavitation Effects on Textured Compression Rings in Mixed Lubrication

16:00 – 16:15 Short Break

14 Jan 2016

Thursday

Afternoon

G-7

Session: **Fundamentals of Lubrication**

Chair: **A. Miyamoto**
Tohoku University, Sendai, Japan

14:00 – 14:30 T. Hoffmann, D. Lehmann
Leibniz-Institut für Polymerforschung Dresden, Germany
Chemically Modified PTFE Particles as Solid Lubricant Additive for the Fixation on Substrate Surfaces

14:30 – 15:00 D. Stickel
Universität Duisburg-Essen, Campus Duisburg, Germany
The Specific Dissipated Friction Power Revised: A possible Source of New Design Guidelines For Boundary Lubricated Contacts

15:00 – 15:30 P. M. Ligrani, B. Lund, M. Brown
University of Alabama in Huntsville, AL, USA
A. Fatemi
Technische Akademie Esslingen e.V., Ostfildern, Germany
Onset and Transition to Elastic Turbulence: Effects of Rheological Property Variations for Polyacrylamide-Water Solutions

16:00 – 16:15 Short Break

* Selected Paper from GfT-Conference (German Society of Tribology)

14 Jan 2016

Thursday

Afternoon

G-8

Session:

Materials

Chair:

J. Luo

State Key Laboratory of Tribology, Beijing, China

14:00 – 14:30

A. Pauschitz, L. Jesacher, F. Franek
AC²T research GmbH, Wiener Neustadt, Austria

Evaluation of Porous Friction Plates for Wet Friction Applications by Permeability Measurement

14:30 – 15:00

M. Repka
Daido Metal Co., Ltd., Brno, Czech Republic

Lubricant-Surface Interactions of Polymer Coated Engine Bearings

15:00 – 15:30

M. Ebner, T. Lohner, K. Michaelis, J.-P. Stemplinge,
B.-R. Höhn, K. Stahl
Technische Universität München, FZG, Germany

Self-Lubricated Elastohydrodynamic (EHL) Contacts with Oil-Impregnated Sintered Material *

15:30 – 16:00

C. Kalscheuer, K. Bobzin, T. Brögelmann, R. H. Brugnara
RWTH Aachen University, Germany

Friction and Wear Analysis of Low Temperature Hybrid dcMS/HPPMS (Cr,Al)N Hard Coatings as Alternative to Conventional DLC Coatings *

16:00 – 16:15

Short Break

* Selected Paper from GfT-Conference (German Society of Tribology)

14 Jan 2016

Thursday

Afternoon

P-4

Session: **Plenary (4) – Concluding Session**

Chair: **A. Fatemi**
Technische Akademie Esslingen e.V.

16:15 – 16:45 N. Argibay, M.E. Chandross, J.R. Michael, T.A. Furnish,
M.T. Dugger, B.L. Boyce, B.G. Clark
Sandia National Labs, Materials Science and Engineering Center,
Albuquerque, NM, USA
S. Cheng
Department of Physics, Virginia Institute of Technology, Blacksburg, VA,
USA
**Why is there a Correlation between Hardness, Friction
and Wear of Metal Contacts? Modifying
Microstructural Mechanistic Misconceptions**

17:00 Farewell Party