Monday

10.00	Registration		
12.00	Lunch		
12.40	Opening ceremony The Grand Auditorium		
13.10	Plenary: Helena Ronkainen *Multi-scale modelling of thin films and coatings for scientific and industrial outcomes* The Grand Auditorium Chair: Kenneth Holmberg		
13.50	Break		
14.00	High friction 1 Hall IV Chair: Ulf Olofsson	Modelling 1 Hall IX Chair: Kenneth Holmberg	Coatings 1 Hall X Chair: Sture Hogmark
14.00	[1.1.1] Atmosphere change to act on third-body source flow and the tribological behavior of a squealing brake interface Edouard Davin, Anne-Lise Cristol, Jean-François Brunel, Yannick Desplanques	[1.2.1] A framework for modelling of boundary lubrication Roland Larsson, Andreas Almqvist	[1.3.1] An investigation into the tribological properties of a cobalt-based alloy under combinations of load and velocity for dry reciprocated sliding Paul Cross, Robert Wood, Georges Limbert, David Stewart
14.20	[1.1.2] Effect of the mixing step on brake friction material properties and tribological behaviour Fatma Makni, Anne-Lise Cristol, Mohamed Kchaou, Riadh Elleuch, Yannick Desplanques	[1.2.2] A numerical approach to investigate the influence of the running-in procedure on friction and wear in mixed-lubricated sliding contacts Albert Albers, Stefan Reichert	[1.3.2] Carbide reinforcement of metallic coatings by hybrid powder-suspension plasma spraying for enhanced tribological performance Shrikant Joshi, G Sivakumar, Stefan Björklund, Nicholas Curry
14.40	[1.1.3] Relationship between load-bearing area change and early stages of squeal appearance Narinder Singla, Jean-François Brunel, Alexandre Mege-Revil, Yannick Desplanques	[1.2.3] Model analysis of dynamic sliding friction and wear on dry inclines Kazuo Arakawa	[1.3.3] Slurry and dry particle erosion wear properties of WC-10Co4Cr and Cr3C2-25NiCr hardmetal coatings deposited by HVOF and HVAF spray processes Ville Matikainen, Silvia Rubio Peregrina, Niko Ojala, Heli Koivuluoto, Jan Schubert, Sarka Houdková, Petri Vuoristo
15.00	[1.1.4] Friction material down-scaling to rank brake friction performance Steve Shaffer, Giovanni Ramirez, Chuck Greening, Agusti Sin, Peter Filip, Patrick Markus	[1.2.4] Multi-scale modelling of lubrication between rough surfaces: Application to gas lubrication Noel Brunetiere, Arthur Francisco	[1.3.4] Microstructure and tribological properties of APS NiCrAlY-Mo-Ag coatings from conventional and nanostructured powders Junhong Jia
15.20	Coffee break		
15.50	High friction 2 Hall IV Staffan Jacobson	Modelling 2 Hall IX Chair: Helena Ronkainen	Coatings 2 Hall X Chair: Lars Pleth Nielsen
15.50	[2.1.1] Development of high-performance brake shoe under rain condition with novel evaluation system for bicycle brake Kei Shibata, Kazuya Ito, Hisashi Uchida, Takeshi Yamaguchi, Kauzo Hokkirigawa	[2.2.1] On the understanding of adhesive wear mechanisms Ramin Aghababaei	[2.3.1] The effect of contaminants in gear oil on wear of WC/C coated elements Remigiusz Michalczewski, Agnieszka Tomala, Demófilo Maldonado Cortés, Flavio Castillo Mendoza, Andrzej Wieczorek, Michał Michalak
16.10	[2.1.2] Friction in threaded fasteners: Influence of coatings and tightening strategies Mayank Kumar, Erik Persson, Sergei Glavatskih	[2.2.2] Crystal plasticity modeling of martensitic microstructures undergoing abrasive contact Anssi Laukkanen, Tom Andersson, Matti Lindroos	[2.3.2] Clarification of effect of surface energy on friction properties of carbonaceous hard coatings by in-situ measurement in ESEM Taichi Nakao, Makoto Terada, Noritsugu Umehara, Tomoyuki Murashima
16.30	[2.1.3] A pin-on-disc study of airborne wear particle emissions from studded tyre to concrete road contacts Ulf Olofsson, Minghui Tu, Oleksii Nosko, Senad Dizdar	[2.2.3] Micromechanical modeling of high manganese austenitic steels subjected to abrasion Matti Lindroos, Tom Andersson, Anssi Laukkanen	[2.3.3] Superlow friction of a tetrahedral amorphous carbon (ta-C) film lubricated with an environmentally friendly ester base oil Hikaru Okubo, Shinya Sasaki
16.50		~~[2.2.4] Interdependency of roughness parameters on rough Gaussian surfaces~~ ~~Szerena Krisztina Ujvari, Ivana Ristic, Andras Vernes, Carsten Gachot~~	[2.3.4] Effect of mating material on friction and wear properties of a-C:H DLC in boundry base oil lubrication Kouami Auxence Melardot Aboua, Noritsugu Umehara, Takayuki Tokoroyama, Motoyuki Murashima, Haci Abdullah Tasdemir, Yutaka Mabuchi, Tsuyoshi Higuchi, Masahiro Kawaguchi

18.00	Welcome reception at Norrlands nation

Tuesday

8.10 — Plenary: Mark Gee
The application of scanning electron microscopy and associated techniques including FIB to tribology
The Grand Auditorium
Chair: Cecilia Persson

8.50 — Break

9.00	Tools 1 Hall IV Chair: Markus Varga	Components 1 Hall IX Chair: Ellen Bergseth	Wear 1 Hall X Chair: Susanne Norgren	Biotribology 1 The Grand Auditorium Chair: Cecilia Persson
9.00	[3.1.1] Effect of surface engineered tool steels on friction and wear during sliding against aluminum at high temperatures Justine Decrozant-Triquenaux, Leonardo Pelcastre, Braham Prakash, Jens Hardell	[3.2.1] Rolling fatigue life behaviour of PM-steel with different porosity and surface finish Anders Holmberg, Åsa Kassman Rudolphi	[3.3.1] Wear behavior of WC-Co cemented carbide against copper alloy under reciprocating sliding Toshiro Miyajima, Tomohiro Takahashi, Noriyo Horikawa, Ayumi Kawakami, Hiroko Mikado, Shingo Kawamura	[3.4.1] Deposition and characterisation of silver nanocomposite coatings on orthopaedic grade cobalt chromium alloys and the related antimicrobial effects Liuquan Yang, Sarah Banfield, Laura Richards, Aseem Misha, Julia Shelton, Simon Collins, Harry Hothi, Alister Hart, Laurent Espitalier
9.20	[3.1.2] Macro-tribological behavior of stainless steel modified with alkylphosphonic acids: Influence of chain length Luc Carpentier, Xavier Roizard, Jean-Marc Cote, Jean-Marie Melot, Fabrice Lallemand	[3.2.2] Study of the hydrogen diffusion and segregation into thrust bearing steel using TOF-SIMS Renguo Lu, Hiroshi Tani, Norio Tagawa, Shinji Koganezawa	[3.3.2] Scratch testing of cemented carbides — influence of Co binder phase content and WC grain size on surface deformation and degradation mechanisms Mikael Olsson, Karin Yvell, Kumar Babu Surreddi	[3.4.2] Peculiarities of tribological interactions of TiAl6V4/CoCrMo couples under gross slip fretting Alfons Fischer, Daniel Janssen, Shanoob Balachandran Nair, Michael Herbig, Dierk Raabe, Markus A. Wimmer
9.40	[3.1.3] Tribological behaviour of stamping tools at high temperature — influence of microstructure and surface oxidation Leonardo Pelcastre, Jens Hardell, Braham Prakash	[3.2.3] Simulation of fatigue failure on gear tooth flanks in consideration of pitting initiation and growth Max Weibring, Leonard Gondecki, Peter Tenberge	[3.3.3] Wear and friction of hardened P/M tool steels after selected mechanical processes of surface layer modification Daniel Toboła, Jolanta Cyboroń, Aneta Łętocha	[3.4.3] Characterization and tribological performance of TiTaHfNbZr high-entropy alloy coating for biomedical applications Amir Motallebzadeh, Mustafa Baris Yagci, Elif Bedir, Cem Bahadir Aksoy, Demircan Canadinc, Faiz Muhaffel, Huseyin Cimenoglu
10.00	[3.1.4] Wear mechanisms of WC-Co cemented carbide tools and PVD coated tools used for shearing Cu-alloy wire Jannica Heinrichs, Ayumi Kawakami, Hiroko Mikado, Urban Wiklund, Staffan Jacobson	[3.2.4] Tribological effect of porosity in sintered steel varying sliding/ rolling conditions Guido Boidi, Iramar Tertuliano, Izabel Machado	[3.3.4] EBSD evaluation of damage in micro-tribology experiments on WC/Co hardmetals Mark Gee, Ken Mingard, John Nunn	

10.20 — Coffee break

10.50	Tools 2 Hall IV Chair: Jens Hardell	Components 2 Hall IX Chair: Ian Sherrington	Wear 2 Hall X Chair: Veli-Tapani Kuokkala
10.50	[4.1.1] Wear of cemented carbides in wire drawing Kumar Babu Surreddi, Mikael Olsson	[4.2.1] Effect of long-term exposure to environmentally acceptable lubricants on the tribological performance of elastomers Amin Hossein Zavieh, Nuria Espallargas	[4.3.1] Wear in injection moulding: Assessment of different wear regimes Markus Varga, Ulrike Cihak-Bayr, Andreas Blutmager, Paul Heinz Mayrhofer, Walter Friesenbichler
11.10	[4.1.2] Thin hard CVD and PVD coatings and their potential in steel wire drawing applications Mikael Olsson, Kumar Babu Surreddi	[4.2.2] Excessive shaft wear by radial shaft seals: Analysis and mechanisms Christoph Burkhart, Stefan Emrich, Balázs Magyar, Michael Kopnarski, Bernd Sauer	[4.3.2] Effect of microstructure on the abrasive wear resistance of steels with hardness 450 HV Oskari Haiko, Vuokko Heino, David Porter, Juha Uusitalo, Jukka Kömi
11.30	[4.1.3] Tribological behaviour of self-lubricating laser claddings under hot stamping simulated conditions Hector Torres, Manel Rodriguez Ripoll, Braham Prakash	[4.2.3] Low-friction composites for seal lips in water-based boundary lubrication Takuro Honda, Yuki Yoshioka, Keiji Kasamura, Yuta Nakashima, Hidehiko Higaki, Yoshitaka Nakanishi	[4.3.3] High-temperature wear performance of nano-particles alloyed Mn-Cr steel Bojan Podgornik, Ana Kračun, German Prieto, Walter Tuckart
11.50	[4.1.4] Coatings' impact on the release forces during injection moulding. Is there a correlation between model tests and in situ measured demoulding forces? Lars Pleth Nielsen, Kristian Rechendorff, Bjarke Holl Christensen, Klaus Pagh Almtoft, Borja Zabala, Elena Fuentes, Amaya Igartua, Stefan Hengsberger	[4.2.4] On the behavior of static metal-to-metal seals: The effect of plastic deformation Francesc Pérez-Ràfols, Andreas Almqvist	

12.10 — Lunch

12.50 — Poster Session 1, The Gallery

[P1.01] Estimating the behavior of snow between a tire and runway using electrical conductivity Takaya Abe, Riku Yoshioka, Atsushi Kanda, Yuta Nakashima, Yoshitaka Nakanishi	[P1.02] Design, building and validation of a ball-cratering wear test equipment to measure the coefficient of friction under micro-abrasive wear conditions Amanda Gutierrez, Anderson Andrade, Marcelo Macedo, Danilo Moraes, Ronaldo Câmara Cozza	[P1.03] Cost and time efficient wear generator for statistically valid materials durability databases Dirk Drees, Emmanuel Georgiou	[P1.04] New tribometer for dry friction under high pressure in quasi-static conditions Roxane Massion, Clément Dureau, Laurent Faure, Sylvain Philippon
[P1.05] Evolving surface topography and friction during nano-scale scratch and wear tests Ben Beake, Tomasz Liskiewicz, Adrian Harris	[P1.06] Development of a test to measure dynamic shoe-surface friction Kypros Venetis, Filip Gertz Lysdal, Ion Marius Sivebaek	[P1.07] Wear of polymer against polymer sliding contacts Ion Marius Sivebaek	[P1.08] Effects of frequency and normal load on dry gross fretting of rough surfaces Agnieszka Lenart, Pawel Pawlus, Andrzej Dzierwa, Rafal Reizer
[P1.09] Biotribological investigations as a key to food oral processing Florian Rummel, Kartik S. Pondicherry, Jörg Läuger, Christopher Giehl, Charlotte Reppich	[P1.10] Friction wood welding: A tribological approach Pierre-Henri Cornuault, Luc Carpentier, Xavier Roizard	[P1.11] Tribological properties of PA6 in a self-mated contact or in contact with steel as a function of contact configuration Alja Kupec, Aljaž Pogačnik, Mitjan Kalin	[P1.12] Effect of particle size on tribological behavior of rubbers Ferial Hakami, Alokesh Pramanik, Aminesh Basak, Nigel Ridgway
[P1.13] A note on the pitting life of IQ steel versus 16MnCr5 steel in a back to back gear test rig Ellen Bergseth, Ulf Olofsson, Martin Andersson, Mario Sosa	[P1.14] Experimental and numerical investigation of friction, power loss and lubricant transport between a piston ring and cylinder liner in a diesel engine Hannibal Overgaard, Markus Söderfjäll, Peder Klit, Roland Larsson, Anders Vølund	[P1.15] Rotary tribometer with AK Master and fixed pressure-velocity test to investigate the role of abrasives in brake pad tribology Angela Maria Tortora, Enrico Casamassa, Florence Vivier, Diego Pellerej, Deepak Halenahally Veeregowda	[P1.16] Biomimetic shaft seal for separation of water and air Yuki Yoshioka, Takuro Honda, Keiji Kasamura, Yuta Nakashima, Hidehiko Higaki, Yoshitaka Nakanishi
[P1.17] Non-corrosive green lubricant with dissolved lignin in ionic liquids behave as ideal lubricants for steel-DLC applications Jing Hua, Liwen Mu, Jiahua Zhu, Yijun Shi	[P1.18] Task specific oil miscible ionic liquids to lubricate steel/light metal alloy contacts: A tribochemistry study Qiangliang Yu, Yijun Shi, Feng Zhou	[P1.19] Stimuli-responsive polymer composite materials and their self-lubrication applications Guoxin Xie, Guoliang Zhang, Lin Zhang, Dan Guo, Shizhu Wen, Jianbin Luo	[P1.20] Lubricating performance of cyano-based ionic liquids on nascent surface Shouhei Kawada, Shinya Sasaki
[P1.21] Effect of gradient structure on resistance of PTA welded hardfacing in abrasive or impact conditions Maksim Antonov, Andrei Surženkov, Egidijus Katinas, Vytenis Jankauskas	[P1.22] Frictional properties of Ni-P-SiC composite coatings in water lubrication Norifumi Miyanaga, Mitsumi Nihei, Shigeaki Minamikawa, Jun Tomioka	[P1.23] High temperature tribological performance of Ag/MoS_2-containing laser claddings Tugce Caykara, Hector Torres, Manel Rodriguez Ripoll, Braham Prakash	[P1.24] Life Cycle Cost Analysis of vehicle disc brake Katja Tasala Gradin, Anna Hedlund Åström

13.50 — Break

14.00	Tools 3 Hall IV Chair: Jannica Heinrichs	Components 3 Hall IX Chair: Harald Nyberg	Biotribology 2 Hall X Chair: Alfons Fischer
14.00	[5.1.1] High temperature indentation, scratch and impact testing of PVD TiAlSiN coatings Ben Beake, Andy Bird, Luis Isern Arrom, Adrian Harris, Feng Jiang	[5.2.1] Analysis of the effect of different running-in processes on efficiency Sören Sjöberg, Martin Andersson, Ulf Olofsson	[5.3.1] Hardness and modulus of SiNFeC coatings with compositional gradients Charlotte Skjöldebrand, Håkan Engqvist, Cecilia Persson
14.20	[5.1.2] Improvements in tribo-mechanical properties of WC/C by microstructure selection of tool steel substrate Giselle Ramírez, Arnd Mueller, Montserrat Vilaseca, Daniel Casellas	[5.2.2] Experiences of studying gear tribology in a FZG test set-up Ulf Olofsson, Ellen Bergseth, Martin Andersson, Mario Sosa	[5.3.2] Influence of diamond-like carbon coating and deposition positions on fretting behaviors of Ti-6Al-4V for modular hip implants application Haohao Ding, Vincent Fridrici, Philippe Kapsa
14.40	[5.1.3] Tribological performance of the PVD coated WC-Co cemented carbide tool for shearing Cu-alloy wire Ayumi Kawakami, Hiroko Mikado, Chikako Hiromi, Shingo Kawamura	[5.2.3] Tooth profile form change of powder metal and wrought steel spur gears during FZG pitting tests Jiachun Lin, Edwin Bergstedt, Per Lindholm, Jian Qin, Ulf Olofsson	[5.3.3] Wear in a cohort of explanted polyethylene sockets from revised total hip replacements Richard M Hall, Paul Siney, B Michael Wroblewski
15.00	[5.1.4] Influence of top coatings on tribological characteristics in metal cutting Mikael Fallqvist, Maria Nilsson, Jean-Baptiste Astegiano, Jon Andersson	[5.2.4] Influence of the quality class on the efficiency in honed powder metal and wrought steel gears Edwin Bergstedt, Anders Holmberg, Ulf Olofsson, Per Lindholm	[5.3.4] Wear resistance and ion release of SixNy coatings on CoCrMo full head implants Luimar Correa Filho, Alejandro López, Susann Schmidt, Hans Högberg, Håkan Engqvist, Cecilia Persson

15.20 — Coffee break

15.50	Tools 4 Hall IV Chair: Mikael Olsson	Bearings 1 Hall IX Chair: Arto Lehtovaara	Biotribology 3 Hall X Chair: Philippe Kapsa
15.50	[6.1.1] A comparative study of flank wear characteristics when turning 20MnCrS5 case hardening steel and Alloy 718 superalloy Philipp Hoier, Amir Malakizadi, Uta Klement	[6.2.1] Tribological behaviour of PVD-coated dry-running rolling bearings Julia Kröner, Yashar Musayev, Stephan Tremmel	[6.3.1] Lubricity of synovia constituents on hydrogel artificial cartilage Yoshinori Sawae, Mayo Kubota, Takehiro Morita, Tetsuo Yamaguchi
16.10	[6.1.2] Influences of grinding surface alignment in groundwood pulping of Norway spruce Magnus Heldin, Urban Wiklund	[6.2.2] Dry rolling/sliding wear behaviour of nanostructured carbide-free bainitic steels Pouria Valizadeh Moghaddam, Jens Hardell, Esa Vuorinen, Braham Prakash	[6.3.2] Measurement of two-dimensional linear wear on total knee replacement prostheses using co-ordinate metrology and fitting techniques Matthew Holland, Radu Racasan, Paul Bills
16.30	[6.1.3] Wear mechanism of cemented carbide cutting tool in the turning of 316 L stainless steel Sara Saketi, Mikael Olsson, Ulf Bexell	[6.2.3] Influence of counter surface roughness and orientation on the tribological behavior of self-lubricating bearing materials in dry sliding conditions Maria Rodiouchkina, Kim Berglund, Roland Larsson	[6.3.3] Relationship between friction and wear of dental implant materials Fabio Alemanno, Silvia Maria Spriano, Deepak Halenahally Veeregowda
16.50	[6.1.4] Alternative binder cemented carbides in steel turning Lisa Toller-Nordström, Susanne Norgren	[6.2.4] Contact mechanics and wear of self-lubricating polymer bearings used in hydropower applications André Rudnytskyj, Maria Rodiouchkina, Tobias Hultqvist, Kim Berglund, Roland Larsson	[6.3.4] Wear and damage of CrN coated cervical disc replacements in spine simulator tests Susan Partridge, Kinga Pasko, Joanne Tipper, Richard Hall

17.30 — Tour of town or Gustavianum

Wednesday

8.10 — Plenary: Aldara Naveira Suarez
Tribological challenges in bearing manufacturing
The Grand Auditorium
Chair: Urban Wiklund

8.50 — Break

9.00

Lubrication 1 — Hall IV — Chair: Marcus Björling

[7.1.1] Hydraulic performance of water-based lubricants for offshore applications

Aidan von Bonin, Szymon Bernat, Sergio Armada, Nuria Espallargas

[7.1.2] Improved oxidation stability and solvency of naphthenic/paraffinic blends — a parameter study

Thomas Norrby, Ann-Louise Jonsson

[7.1.3] The mechanisms of carboxylic acids frictional reduction in aqueous lubricants

Szymon Bernat, Sergio Armada, Nuria Espallargas

[7.1.4] Tribological and antioxidant properties of styrenated sulfur- and phosphorus-free organic titanate as lubricant additive

Jian-Qiang Hu, Yong-Guo Zhang, Shi-Zhao Yang

Trains & testing — Hall IX — Chair: Robin Elo

[7.2.1] Tribology of three railway brake block materials tested against railway wheel at low temperatures

Yezhe Lyu, Ellen Bergseth, Ulf Olofsson

[7.2.2] Towards a two-part train traffic emission factors model of airborne wear particles in a railway tunnel

Minghui Tu, Yingying Cha, Jens Wahlström, Ulf Olofsson

[7.2.3] A new novel laboratory scale test equipment for cyclic impact loading conditions combined with sliding; correlation to industrial applications

Reza Karimi Bakhshandi, Anders Gåård, Jens Bergström

Surface texturing 1 — Hall X — Chair: Stephen Hsu

[7.3.1] Improvement of the frictional properties of angular contact ball bearings operating under small pivoting angles by surface texturing

Florian Pape, Oliver Maiss, Henning Lucas, Berend Denkena, Gerhard Poll

[7.3.2] Investigation of friction anisotropy mechanism by surface texturing under boundary lubrication

Shota Ito

[7.3.3] Is there any idea to apply texture to tribological surfaces?

Roland Larsson, Andreas Almqvist

[7.3.4] Experimental and numerical studies on microtextured surfaces for sliding point contacts under EHL conditions

Max Marian, Philipp Grützmacher, Stephan Tremmel, Andreas Rosenkranz, Frank Mücklich, Sandro Wartzack

Tribotronics & monitoring — The Grand Auditorium — Chair: Urban Wiklund

[7.4.1] Numerical modelling and assessment of wave propagation from phased array transducer network through tribological contacts

Vipul Vijigiri, Cedric Courbon, Juliette Cayer-Barrioz, Guillaume Kermouche

[7.4.2] A methodical approach to develop suitable classification systems of acoustic emission data generated in tribological contacts

Knut Wantzen, Tobias Stürmlinger, Albert Albers, Chaoqi Wei

[7.4.3] Approaches to the algorithmic control of tribotronic lip seals

Ian Sherrington, Edward H Smith, Wilbert Sinzara, Hadley Brooks, Ahmed Onsy

[7.4.4] Electro-response of ionic liquid boundary layers in tribological contacts

Kathryn Harris, Georgia Pilkington, Mark Rutland, Sergei Glavatskih, Moritz Ploss

10.20 — Coffee break

10.50

Lubrication 2 — Hall IV — Chair: Sergei Glavatskih

[8.1.1] The effect of oil ageing on friction in elastohydrodynamic lubrication

Marcus Björling, Kim Berglund, Andrew Spencer, Roland Larsson

[8.1.2] Observations of oil film behaviour in impact EHL

Hiroshi Nishikawa, Yuma Mita, Nobuyoshi Ohno

[8.1.3] Effects and consequences of oil compressibility in elastohydrodynamically lubricated finite line contacts

Tobias Hultqvist, Aleks Vrcek, Pär Marklund, Braham Prakash, Roland Larsson

[8.1.4] The asperity mechanism for rolling contact fatigue including the effect of thermal elastohydrodynamic lubrication with slip

Bo Alfredsson, Carl-Magnus Everitt

Testing — Hall IX — Chair: Kati Valtonen

[8.2.1] Combined high vacuum high temperature tribometer with in-situ wear or Raman measurement

Philippe Kempe, Bin Zhang, Bastian Meylan, Kilian Wasmer

[8.2.2] Friction and wear efficient tribosystems operating under oxygen-free conditions in oil and gas industry

Manel Rodríguez Ripoll, Andreas Trausmuth, Gerald Zehethofer, Ewald Badisch

[8.2.3] Wear detection using carbon-based sensor coatings — a novel approach

Tim Weikert, Stephan Tremmel

[8.2.4] Impact testing of rock drill inserts

Erik Borg, Susanne Norgren, Staffan Jacobson

Surface texturing 2 — Hall X — Chair: Andreas Almqvist

[8.3.1] Femtosecond laser surface texturing of diamond-like nanocomposite films to improve friction on the micro and macroscale

Sergei Pimenov, Evgeny Zavedeev, Olga Zilova, Mikhail Shupegin, Beat Jaeggi, Beat Neuenschwander

[8.3.2] Surface texturing of engine components

Stephen Hsu, Govindaiah Patakamuri

[8.3.3] Thermal-controlled frictional behaviour of nanopatterned surfaces

Philippe Stempfle, Anne Domatti, Armand Fahs, Pascal Carriere

[8.3.4] Friction anisotropy of oriented microstructured silicone elastomers

Dominik Paulkowski, Nicolas Richter

12.10 — Lunch

12.50

Poster Session 2, The Gallery

[P2.01] Atomistic modeling of polymer friction

Robin Vacher, Sergio Armada, Astrid S. de Wijn

[P2.02] Yield modes in a coated spherical contact

Zhou Chen, Roman Goltsberg, Izhak Etsion

[P2.03] A new numerical contact model for assessing ball/pipe and ball/taper interactions in a mechanical pipe connector

Waljinder Singh Gill, Bryan Hall, Steve Bolton, Roger Lewis, Matthew B. Marshall

[P2.04] Erosion resistance of 3D printed plastics, metals and silicon

Maksim Antonov, Yaroslav Holovenko, Lauri Kollo

~~[P2.05] Tribological behaviour of aluminium alloy/tool steel pair: Comparison between additively manufactured and bulk tool steels~~

~~Elina Huttunen-Saarivirta, Lauri Kilpi, Timo Hakala, Helena Ronkainen~~

[P2.06] Bio-tribocorrosion behaviour of ZrO_2 reinforced Ti6Al4V in simulated body fluid

Lerato Semetse, Jean Geringer, Babatunde Abiodun Obadele, Peter Apata Olubambi

[P2.07] Spallation failure of silicon nitride coatings upon dissolution in fetal bovine serum

Alejandro López, Luimar Correa Filho, Mathilde Cogrel, Håkan Engqvist, Susann Schmidt, Hans Högberg, Cecilia Persson

[P2.08] Bio-Tribocorrosion characteristics of sintered Titanium-Tantalum-Zirconium shape memory alloys in simulated body fluid

Talita Tayler, Linda Mathebane, Peter Apata Olubambi, Jean Geringer

[P2.09] Influence of surface profile of Co-Cr-Mo alloy on wear behaviour of ultra-high molecular weight polyethylene used in artificial joint

Yoshitaka Nakanishi, Yuta Nakashima, Yukio Fujiwara, Yoshihiro Komohara, Motohiro Takeya, Hiromasa Miura, Hidehiko Higaki

[P2.10] Tribo-corrosion behavior of Ti-6Al-4V with and without coatings: Biomaterials for modular junctions of hip implants

Sara Ehsani Majd, Vincent Fridrici, Yannick Suchier, Laurent Dubost, Christophe Desrayaud, Philippe Kapsa, Jean Geringer

[P2.11] Analysis of Hadfield steels under sliding wear conditions: The effect of the normal load

Gustavo Tressia, Juan Ignacio Pereira, Iramar Tertuliano, Amilton Sinatora

[P2.12] Lifetime analysis of a highly loaded plunger subjected to shear forces

Joep Nijssen, Jord Wiegerink, Anton Kempenaar, Ron van Ostayen

[P2.13] Investigation into tool-component interaction during hot forming of composite materials

Montserrat Vilaseca, Mariano Planells, Giselle Ramírez, Daniel Casellas, María Giménez, Juan José Matarranz

[P2.14] Coating substitution for reduced environmental impact (SUSCOAT) - supersonic water droplet erosion resistant coating

Laurent Espitalier, Sarah Banfield, Adrian Leyland, Allan Matthews, Mark Gee

[P2.15] Comparison of two solid particle erosion test standards: Gas blast vs. centrifugal erosion testing

Markus Varga, Maksim Antonov, Mike Tumma, Karl Adam, Karl-Otto Alessio

[P2.16] Exploration of the lubrication mechanism and fluid features on micro interface lubrication with consideration of surface textures

Zhongliang Xie, Zhushi Rao, Na Ta

[P2.17] Laser claded carbide overlays for soil tillage tools

David Cantu Eugenio Gomez, Senad Dizdar, Stefan Björklund

[P2.18] Investigating lubrication by mapping the evolution of surface topography

Fabio Alemanno, Martijn Middelkamp, Deepak Halenahally Veeregowda

[P2.19] Film thickness behaviors of lithium type greases between smooth and dented surfaces

Kazumi Sakai, David Kostal, Yuji Shitara, Motohiro Kaneta, Ivan Krupka, Martin Hartl

[P2.20] Influence of running-in process on water based lubricating properties of konjac glucomannan

Xuelian Qi, Huichen Zhang

~~[P2.21] Importance of lubricant base oil for controlling hydrogen permeation into bearing steel~~

~~Vlad Bogdan Niste, Hiroyoshi Tanaka, Joichi Sugimura~~

[P2.22] Effects of dimple texture on hydrodynamic lubrication of parallel plate bearings

Norifumi Miyanaga, Terunao Kishida, Jun Tomioka

[P2.23] Determination of thermo-oxidative reaction kinetics of greases via thermogravimetric analysis and Chemiluminescence methode

Simon Eiden

[P2.24] The influence of centrifugal forces on friction and wear in rotational sliding

Philipp Grützmacher, Andreas Rosenkranz, Carsten Gachot, Frank Mücklich

13.50 — Break

14.00

Lubrication 3 — Hall IV — Chair: Roland Larsson

[9.1.1] Graphene as a novel additive in water lubricated contacts

Patrick Rohlmann, Nishant Katyal, Shannon Notley, Mark W. Rutland, Sergei Glavatskih

[9.1.2] Performance of MoS_2 nanotubes based lubricant in steel/coating configuration

Agnieszka Tomala, Remigiusz Michalczewski, Manel Rodríguez Ripoll

~~[9.1.3] Lignin from hardwood and softwood biomass as lubricating additives in ethylene glycol and poly(ethylene glycol)~~

~~Liwen Mu, Jiahua Zhu, Paul Christakopoulos, Yijun Shi, Jing Hua~~

[9.1.4] Graphene-based composites as lubricating oil additives

Jinqing Wang, Shengrong Yang

Engines 1 — Hall IX — Chair: Svend Eskilsen

[9.2.1] On the sliding wear behaviour of two hardfacing alloys at elevated temperatures

Alexander Renz, Jens Hardell, Oliver Lehmann, Braham Prakash

[9.2.2] Role of the temperature on force and wear measurements of AlSi coatings under extreme interaction conditions

Baptiste Martinet, Stéphane Skiba, Andrea Cappella, Laurent Faure, Sylvain Philippon, Serge Selezneff

[9.2.3] Single impingement testing to investigate water droplet erosion of aeroengine fan blades

Charles Burson-Thomas, Richard Wellman, Terry Harvey, Robert Wood

[9.2.4] Tribofilm formation of a boric acid fuel additive — Investigation of tribofilm properties

Elin Larsson, Petra Olander, Staffan Jacobson

Polymers 1 — Hall X — Chair: Åsa Kassman Rudolphi

[9.3.1] Tribological characterisation of experimentaly made PPS hybrid composites for tribological application

Nazanin Emami, Ayush Jain

[9.3.2] Tribological, mechanical and thermal performances of UHMWPE blended vitamin E reinforced carbon nanoparticle composites

Latifa Melk, Nazanin Emami

[9.3.3] Abrasive wear resistance of polymers and PEEK compounds

Helena Ronkainen, Mikko Karttunen, Jani Pelto, Jarkko Metsäjoki

[9.3.4] Influence of counter surface topography on the tribological behavior of hybrid UHMWPE composites

Luca Palmeira Belotti, Hari Vadivel, Nazanin Emami

15.20 — Coffee break

15.50

Additive manufacturing — Hall IV — Chair: Bojan Podgornik

[10.1.1] Material characterization and tribological performance of S136 fabricated by additive manufacturing

Yi Zhu, Yang Yang, Huayong Yang

[10.1.2] Abrasion resistance of new wear resistant AM steels

Per Söderbäck, Ulrik Beste, Urban Wiklund

[10.1.3] Rolling contact fatigue test performed on additively manufactured inconel 718 produced by selective laser melting

Carl Johan Hassila Karlsson, Urban Wiklund

Engines 2 — Hall IX — Chair: Mikael Olsson

[10.2.1] On the dramatic wear protecting effect of tribofilms on wear of combustion engine valves

Robin Elo, Staffan Jacobson

[10.2.2] Mechano-chemical surface modification for friction reduction in segment of piston ring liner

Ori Stav, Haytam Kasem, Yuri Kligerman, Izhak Etsion

[10.2.3] Test of scuffing resistance of cermet coatings for piston rings for marine two-stroke diesel engines

Dennis Thing, Anders Vølund, Svend Stensig Eskildsen

[10.2.4] Wear characterization of flex-fuel engine intake and exhaust valves and valve seats tested in an experimental workbench at room temperature

Alexander Zuleta Durango, Vinicius Rosário Dyonisio, Roberto Martins Souza

Polymers 2 — Hall X — Chair: Nazanin Emami

[10.3.1] Physical mixing versus chemical bonding — Polyamideimide sliding lacquers with PTFE as a solid lubricant

Michaela Gedan-Smolka, Anne Marschner, Dieter Lehmann, Kartik S. Pondicherry

[10.3.2] Is the performance of PTFE as a low friction and wear additive dependent on the polymer composite itself?

Jonna Lind, Åsa Kassman Rudolphi

[10.3.3] Synergistic effect of PEEK and nano-ZrO_2 on tribological behavior of the PTFE composites

Honggang Wang, Yuan Qi, Junfang Ren, Gui Gao, Jun Gong

18.30 — Conference dinner

Thursday

8.10	Plenary: Stephen Hsu *Predicting interfacial friction: Challenges and opportunities* The Grand Auditorium Chair: Sture Hogmark			
8.50	Break			
9.00	Solid lubrication Hall IV Chair: Martina Gradin	Bearings 2 Hall IX Chair: Marika Torbacke	Rock tools 1 Hall X Chair: Vuokko Heino	Friction The Grand Auditorium Chair: Sture Hogmark
9.00	[11.1.1] Mechano-chemical optimisation of tribological properties: Mechanical finishing and Cu_2S microparticles to improve lubricity James Firth, Karl D Dearn	[11.2.1] Storage ageing of grease in sealed-for-life rolling bearings Yuri Kligerman, Michael Varenberg, Haytam Kasem, Saad Nakad, Grigory Halperin	[11.3.1] Research methods for the evaluation of the relevance of application oriented laboratory wear tests Kati Valtonen, Veli-Tapani Kuokkala	[11.4.1] Effect of sliding speed on the formation of tribolayers and near surface transformations during high speed steel sliding against ferritic-pearlitic steel Jens Hardell, Justine Decrozant-Triquenaux, Cédric Courbon
9.20	[11.1.2] Tuning tribological, mechanical and electrical properties of silver-based electrical contacts Mamoun Taher	[11.2.2] Improved performance by ionic additives in hydrocarbon base fluids for mixed-rolling/sliding contacts Jonny Hansen, Marcus Björling, Ichiro Minami, Roland Larsson	[11.3.2] Specific wear energy in high stress abrasion of metals Juuso Terva, Veli-Tapani Kuokkala	[11.4.2] Experimental study of Schallamach waves and self-excited oscillations in a model belt drive Yingdan Wu, Michael Varenberg, Michael Leamy
9.40	[11.1.3] Improving fuel efficiency and durability of internal combustion engines by using a mechanochemical surface finishing process Boris Zhmud, Jonas Lundmark, Lars Hammerström	[11.2.3] Effects of stray currents in lubricated contacts relevant to rolling bearing applications Ileana Nedelcu, Reinder Hindrik Vegter	[11.3.3] Wear mechanisms in reciprocal and unidirectional sliding of high-strength steels in dry contact Abdulbaset Mussa, Pavel Krakhmalev, Jens Bergström	[11.4.3] The P3CAN project: Open-source friction energy analysis for research and education Moritz Ploss, Sergei Glavatskih
10.00	[11.1.4] Friction-induced rapid restructuring of graphene nanocrystallite cap layer at sliding surfaces: Short run-in period Dongfeng Diao, Cheng Chen	[11.2.4] Experimental multiscale approach to develop a water-based lubricant for galvanically coupled slide bearings Tobias Amann, Wei Chen, Andreas Kailer, Jürgen Rühe	[11.3.4] Study on wear and material performance by using a pilot jaw crusher Vinay Bagare, Johan Ekengård, Rohollah Ghasemi, Latifa Melk	[11.4.4] The evaluation of powder abrasivity in dry or wet conditions with predefined frictional energy approach Maksim Antonov, Dmitri Goljandin
10.20	Coffee break			
10.50	Ionic liquids Hall IV Chair: Thomas Norrby	Bearings 3 Hall IX Chair: Roland Larsson	Rock tools 2 Hall X Chair: Mark Gee	
10.50	[12.1.1] Influence of atmosphere on boundary film formation from ionic liquids Erik Nyberg, Ichiro Minami	[12.2.1] Comparison between tribocorrosion behaviour of aluminium bronze and leaded tin bronze in simulated sea water Elina Huttunen-Saarivirta, Jarkko Metsäjoki, Leena Carpén, Helena Ronkainen	[12.3.1] Thermo-mechanical and tribological behavior of WC-Co and WC-CoNi cemented carbides during rotary-percussive drilling of reinforced concrete Steven Moseley, Siavash Momeni, Carsten Peters	
11.10	[12.1.2] Traction performance of ionic liquids as additives to oils Akepati Bhaskar Reddy, Jan Wikander, Mark Rutland, Sergei Glavatskih	[12.2.2] Running-in effects on friction of journal bearings under slow sliding speeds Aki Linjamaa, Arto Lehtovaara, Marke Kallio, Alain Léger	[12.3.2] Tribo-chemical wear testing of rock drill inserts Felix Jacobson, Urban Wiklund, Susanne Norgren	
11.30	[12.1.3] Tribological performance of halogen-free ionic liquids in steel-alumina contacts Jules Bossert, Patrick De Baets, Oleg N. Antzutkin, Sergei Glavatskih	[12.2.3] Enhanced growth of ZDDP-Based tribofilms on laser-interference patterned cylinder roller bearings Chia-Jui Hsu, Andreas Stratmann, Carsten Gachot	[12.3.3] Characterization of surface degradation and wear damage of cemented carbide in rock drilling Kumar Babu Surreddi, Karin Yvell, Susanne Norgren, Mikael Olsson	
11.50	[12.1.4] Tribology of neat orthoborate ionic liquids Bulat Munavirov, Oleg Antzutkin, Sergei Glavatskih	[12.2.4] Predicting the behaviour of magnetorheological textured bearings Stefan G.E. Lampaert, Ron A.J. van Ostayen	[12.3.4] Abrasion resistance of drill bit steels in flowing saltwater Urban Wiklund	
12.10	Closing ceremony			
12.40	Lunch			