## TUESDAY 4 SEPTEMBER 2018

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>12:30 – 15:15</td>
<td>Registration and lunch in the Dining Room (lunch will be served 12:30 – 14:00)</td>
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</tbody>
</table>
| 15:15 – 15:30 | **INTRODUCTION AND WELCOME**  
Chaired by Professors Duncan Dowson and Anne Neville  
Auditorium                                           |
| 15:30 – 17:30 | **SESSION 1 – KEYNOTE PAPERS**  
Chaired by Professor Anne Neville  
Auditorium                                           |
| 15:30 – 16:15 | Paper 1.1  
**Performing Virtual Testing through Modelling in Tribology: a Journey Across the Scales and Future Opportunities**  
Professor Daniele Dini  
*Imperial College London, UK*                               |
| 16:15 – 16:45 | Refreshments in the Conference Suite                                                      |
| 16:45 – 17:30 | Paper 1.2  
**Reducing friction and wear, paths from lab to real applications**  
Eduardo Tomanik  
*University of São Paulo, Brazil*                           |
| 17:30 – 18:30 | **POSTER SESSION AND DRINKS RECEPTION**  
Conference Suite                                        |
| 18:30 – 23:00 | **EVENING RECEPTION AND SYMPOSIUM DINNER**  
Rudding Park  
*Coaches to depart at 18:30 prompt*                        |
<table>
<thead>
<tr>
<th>Time</th>
<th>Session Description</th>
<th>Chaired By</th>
<th>Location</th>
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<tbody>
<tr>
<td>08:45 – 09:15</td>
<td>SESSION 2 – PLENARY PAPER 1</td>
<td>TBC</td>
<td>Auditorium</td>
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<tr>
<td></td>
<td><strong>Tribofilm formation and properties in biotribocorrosion systems</strong></td>
<td>Yu Yan</td>
<td>University of Science and Technology, Beijing, China</td>
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<td>09:30 – 10:30</td>
<td>PARALLEL SESSIONS 3 TO 6</td>
<td>TBC</td>
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<tr>
<td>Wednesday</td>
<td>SESSION 3 – LUBRICANTS I</td>
<td>TBC</td>
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<td>09:30 – 10:30</td>
<td><strong>Tribological investigation of organic and inorganic friction modifiers with varying quantities of dispersants</strong></td>
<td>Jamal Umer&lt;sup&gt;a&lt;/sup&gt;, Michael Leighton&lt;sup&gt;a&lt;/sup&gt;, Nick Morris&lt;sup&gt;a&lt;/sup&gt;, Ramin Rahmani&lt;sup&gt;a&lt;/sup&gt;, Homer Rahnejat&lt;sup&gt;a&lt;/sup&gt;, Sashi Balakrishnan&lt;sup&gt;b&lt;/sup&gt;</td>
<td>University of Science and Technology, UK, Castrol Technology Centre, UK</td>
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<td></td>
<td><strong>Self-repairing properties of complex titanium grease containing hydroxyl magnesium silicate</strong></td>
<td>Jianjun Qu&lt;sup&gt;a&lt;/sup&gt;, Huajie Qu&lt;sup&gt;a&lt;/sup&gt;, Yunxia Luo&lt;sup&gt;a&lt;/sup&gt;</td>
<td>Harbin Institute of Technology, China</td>
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<td></td>
<td><strong>A new methodology on the relationship between friction coefficient and MoS₂ tribofilm coverage in boundary lubrication using raman spectroscopy</strong></td>
<td>Dichu Xu&lt;sup&gt;a&lt;/sup&gt;, Cayetano Espejo Conesa&lt;sup&gt;a&lt;/sup&gt;, Chun Wang&lt;sup&gt;a&lt;/sup&gt;, Jiugen Wang&lt;sup&gt;b&lt;/sup&gt;, Anne Neville&lt;sup&gt;a&lt;/sup&gt;, Ardian Morina&lt;sup&gt;a&lt;/sup&gt;</td>
<td>University of Leeds, UK, Zhejiang University, China</td>
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<td>Wednesday</td>
<td>SESSION 4 – BIO I</td>
<td>TBC</td>
<td>Mary Hallaway Lecture Theatre</td>
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<td>09:30 – 10:30</td>
<td><strong>Computed tomography techniques help understand wear patterns in retrieved total knee replacement</strong></td>
<td>Arianna Cerquiglini&lt;sup&gt;a&lt;/sup&gt;, Johann Henckel&lt;sup&gt;a&lt;/sup&gt;, Harry Hothi&lt;sup&gt;a&lt;/sup&gt;, Lorenzo Dall’Av&lt;sup&gt;a&lt;/sup&gt;, Paul Shearing&lt;sup&gt;a&lt;/sup&gt;, Michael T. Hirschmann&lt;sup&gt;a&lt;/sup&gt;, Alister Hart&lt;sup&gt;a&lt;/sup&gt;</td>
<td>University College London, UK, Kantonsspital Baselland (Bruderholz, Liestal, Laufen), Switzerland</td>
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<td></td>
<td><strong>Bearing wear rates of retrieved metal-on-metal pinnacle hip replacements implanted before and after 2007</strong></td>
<td>Sean Bergiers&lt;sup&gt;a,b&lt;/sup&gt;, Harry Hothi&lt;sup&gt;a,b&lt;/sup&gt;, Johann Henckel&lt;sup&gt;a,b&lt;/sup&gt;, Antti Eskelinen&lt;sup&gt;c&lt;/sup&gt;, Alister Hart&lt;sup&gt;a,b&lt;/sup&gt;</td>
<td>University College London, UK, Royal National Orthopaedic Hospital, UK, The Coxa Hospital for Joint Replacement, Finland</td>
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<td></td>
<td><strong>Identification of in vivo wear mechanisms in total hip replacements with ceramic-on-ceramic bearings</strong></td>
<td>Marwa Ben Brahem&lt;sup&gt;a,b&lt;/sup&gt;, Ana-Maria Trunfio-Sfarghiu&lt;sup&gt;a&lt;/sup&gt;, Eric Renault&lt;sup&gt;d&lt;/sup&gt;, Jean Geringer&lt;sup&gt;d&lt;/sup&gt;, Yves Berthier&lt;sup&gt;a&lt;/sup&gt;, Benyebka Bou-Said&lt;sup&gt;a&lt;/sup&gt;, Samir Hamza&lt;sup&gt;a&lt;/sup&gt;</td>
<td>INSA-Lyon, France, Université de Tunis El Manar, Tunisia, Corin France, France, École Nationale Supérieure des Mines, France, Université de Carthage, Tunisia</td>
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<tr>
<td>Wednesday</td>
<td>SESSION 5 – FRETTING/FATIGUE I</td>
<td>TBC</td>
<td>Room AG100</td>
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<td>09:30 – 10:30</td>
<td><strong>Debris development in fretting contacts - debris particles and debris beds</strong></td>
<td>Adam Kirk, Philip Shipway, Wei Sun, Chris Bennett</td>
<td>University of Nottingham, UK</td>
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<td><strong>Influence of the silver top layer thickness on the electrical contact resistance endurance subjected to fretting-wear</strong></td>
<td>Julie Laporte&lt;sup&gt;a&lt;/sup&gt;, Siegfried Fouvy&lt;sup&gt;a&lt;/sup&gt;, Olivier Alquier&lt;sup&gt;a&lt;/sup&gt;, Jérémy Sautel&lt;sup&gt;a&lt;/sup&gt;, Anthony Chavanne&lt;sup&gt;a&lt;/sup&gt;</td>
<td>École Centrale de Lyon, France, PSA, France, RADIAL, France, Institut de recherches en ingénierie des surfaces (IREIS), France</td>
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</table>
Paper 5.3  Fretting-corrosion of nitinol as an implantable cardiovascular stent material in a simulated inflammatory environment
Alexander Smith, Michael Bryant, Anne Neville
University of Leeds, UK

Wednesday 09:30 – 10:30  SESSION 6 – REAL-TIME/IN-SITU I
Chaired by TBC, Room AG21

Paper 6.1  Numerical study of in-situ imaging of a rough contact interface using an ultrasonic array
Vipul Vijigiri\(^a,b\), Juliette Cayer-Barrioz\(^a\), Guillaume Kermouche\(^c\), Cédric Courbon\(^b\)
\(^a\)Ecole nationale d'ingénieurs de Saint-Etienne, France
\(^b\)École Centrale de Lyon, France
\(^c\)MINES Saint-Étienne, France

Paper 6.2  Local measurement of temperature and pressure in elastohydrodynamic contacts
Tarek Seoudi\(^a\), David Philippin\(^a\), Sayed Albahrani\(^a\), Peter Reiss\(^b\), Hatem Diaf\(^c\), Alfonso San Miguel\(^c\), Philippe Vergne\(^a\)
\(^a\)INSA-Lyon, France
\(^b\)Université Grenoble Alpes, France
\(^c\)Université Claude Bernard Lyon 1, France

Paper 6.3  In-situ Raman-SLIM observation for formation processes of tribofilms under boundary lubrication
Hikaru Okubo\(^a\), Chiharu Tadokoro\(^b\), Shinya Sasaki\(^a\)
\(^a\)Tokyo University of Science, Japan
\(^b\)Saitama Science, Japan

10:30 – 11:00  Refreshments in the Conference Suite

11:00 – 12:50  PARALLEL SESSIONS 7 TO 10

Wednesday 11:00 – 12:50  SESSION 7 – LUBRICANTS II
Chaired by TBC, Auditorium

Paper 7.1  Quantitative monitoring of lubrication conditions in rolling bearings
Taisuke Maruyama\(^a\), Ken Nakano\(^b\)
\(^a\)NSK Ltd., Japan
\(^b\)Yokohama National University, Japan

Paper 7.2  The determination of the pressure viscosity coefficient of a lubricant through an accurate film thickness formula and accurate film thickness measurements (III) – a novel accurate formula
Harry van Leeuwen
Eindhoven University of Technology, The Netherlands

Paper 7.3  Layering formation of anti-wear sodium borate lubricant on Fe/Fe\(_2\)O\(_3\) surface at high temperature: a combination of DFT and first principle molecular dynamics simulations
Huong Thi Thuy Ta, Anh Kiet Tieu, Hongtao Zhu, Haibo Yu, Van Nam Tran, Dinh Thi Ta, Manh Ha Le
University of Wollongong, Australia

Paper 7.4  Investigations of boundary layers generated in a micro-pin-on-disk tester
Florian Pape\(^a\), Dennis Mallach\(^b\), Dieter Lipinsky\(^b\), Heinrich F. Arlinghaus\(^b\), Gerhard Poll\(^a\)
\(^a\)Leibniz Universitaet Hannover, Germany
\(^b\)Universitaet Muenster, Germany

Paper 7.5  Uncovering environmental effect on graphene and graphite lubrication properties by means of ab initio molecular dynamics
Paolo Restuccia, Mauro Ferrario, Maria Clelia Righi
Universita' degli Studi di Modena e Reggio Emilia, Italy

Wednesday 11:00 – 12:50  SESSION 8 – TEXTURE/SURFACES I
Chaired by TBC, Mary Hallaway Lecture Theatre

Paper 8.1  Generation mechanism of friction anisotropy by surface texturing under boundary lubrication
Shota Ito\(^a\), Kenta Takahashi\(^a\), Shinya Sasaki\(^b\)
\(^a\)Graduate School of Tokyo University of Science, Japan
\(^b\)Tokyo University of Science, Japan
| Paper 8.2 | Capacity study on a novel design of high-power roll-ring current collector under tribological/electric contact  
Liu Zili\(^a\), Song Chenfei\(^b\), Hou Xinhong\(^a\), Wang Li\(^a\), Zhang Yongzhen\(^b\)  
\(^a\)Qian Xuesen Laboratory of Space Technology, China  
\(^b\)Henan University of Science and Technology, China |
| --- | --- |
| Paper 8.3 | Effect of laser surface texturing on friction behaviour of lubricated contact under different sliding-rolling conditions  
Guido Boidi\(^a\), Iramar Tertulliano\(^a\), Francisco Profto\(^b\), Wagner de Rossii\(^b\), Izabel Machado\(^a\)  
\(^a\)University of São Paulo, Brazil  
\(^b\)Institute of Energy and Nuclear Research – IPEN, Brazil |
| Paper 8.4 | Surface texture characterization for ice friction research  
Janis Lungevics, Ernests Jansons, Karlis Agris Gross  
Riga Technical University, Latvia |
| Paper 8.5 | Friction characteristics of mechanically microtextured metal surface in dry sliding  
Jun Shimizu, Tomotaka Nakayama, Kouta Watanabe, Takeyuki Yamamoto, Tepppei Onuki, Hirotaoka Ojima, Libo Zhou  
Ibaraki University, Japan |

**Wednesday 11:00 – 12:50**  
**SESSION 9 – EHL I**  
**Chaired by TBC, Room AG100**

| Paper 9.1 | Nonlinear model order reduction for elastohydrodynamic lubrication simulations of polymer seals  
Felix Ischinger\(^a\), Dirk Bartel\(^b\), Markus Brunk\(^a\), Sergey Solovyev\(^a\)  
\(^a\)Robert Bosch GmbH, Germany  
\(^b\)Otto von Guericke University Magdeburg, Germany |
| --- | --- |
| Paper 9.2 | Permeability computation of sliding contact between rods and reciprocating lip seals  
Camille Bataille\(^a\), Franck Plouraboué\(^b\), Thomasz Barkowiak\(^c\), Christopher Brown\(^d\), Maxence Bigerelle\(^a\)  
\(^a\)Université de Valenciennes, France  
\(^b\)Institut de Mécanique des Fluides de Toulouse, France  
\(^c\)Poznan University of Technology, Poland  
\(^d\)Worcester Polytechnic Institute, USA |
| Paper 9.3 | Numerical investigation on load carrying capacity of parallel slider bearings operating under thermoelastohydrodynamic (TEHD) regime  
Anastassios Charitopoulos\(^a\), Michel Fillon\(^a\), Christos Papadopoulos\(^b\)  
\(^a\)University of Poitiers, France  
\(^b\)National Technical University of Athens, Greece |
| Paper 9.4 | Numerical analysis of grease film thickness and thickener concentration in EHL line contacts  
Takashi Nogi\(^a\), Masataka Sakai\(^b\), Tsuyoshi Kochi\(^a\), Daming Dong\(^a\), Yoshitsugu Kimura\(^b\)  
\(^a\)Kyodo Yushi Co., Ltd., Japan  
\(^b\)The University of Tokyo/Kagawa University, Japan |
| Paper 9.5 | A two-scale quasi-asymptotic model dedicated to rough elastohydrodynamic lubricated contacts  
Hugo Checo\(^a\), David Dureisseix\(^a\), Jonathan Raisin\(^b\), Nicolas Fillot\(^a\)  
\(^a\)INSA-Lyon, France  
\(^b\)Total Marketing and Services, France |

**Wednesday 11:00 – 12:50**  
**SESSION 10 – BEARINGS I**  
**Chaired by TBC, Room AG21**

| Paper 10.1 | Methods for variable bearing properties using magnetic fluids  
Stefan Lampaert, Jo Spronck, Ron van Ostayen  
Delft University of Technology, The Netherlands |
| --- | --- |
| Paper 10.2 | Design and optimization of the water ring thrust bearing  
Jun Wen, Daniele Dini, Thomas Reddyhoff  
Imperial College London, UK |
| Paper 10.3 | The influence of micropitting on the friction coefficient of two lubricated surfaces - an experimental investigation  
Thomas Touret\(^a\), Christophe Changenet\(^b\), Fabrice Ville\(^a\), Samuel Becquerelle\(^c\)  
\(^a\)INSA-Lyon, France  
\(^b\)ECAM Lyon, France  
\(^c\)Safran transmission systems, France |
| Paper 10.4 | Tribological characteristics of dimple-textured thrust bearings operated in vacuum  
Noriko Matsuoka, Hiroshi Shiomi, Shingo Obara  
Japan Aerospace Exploration Agency, Japan |
| Paper 10.5 | A dynamic model for the detection of distributed faults in the planet bearings of wind turbine gearboxes  
William James Mcbride, Hugh Hunt  
University of Cambridge, UK |

12:50 – 14:00 Lunch in the Dining Room

14:00 – 15:30 PARALLEL SESSIONS 11 TO 14

**Wednesday 14:00 – 15:30**  
**SESSION 11 – LUBRICANTS III**  
Chaired by TBC, Auditorium

| Paper 11.1 | Effects of zinc dialkyldithiophosphate (ZDDP) and ionic liquids with different cations on tribological properties under boundary lubrication  
Kaisei Sato\(^a\), Hikaru Okubo\(^a\), Shouhei Kawada\(^a\), Shinya Sasaki\(^b\)  
\(^a\)Graduate School of Tokyo University of Science, Japan  
\(^b\)Tokyo University of Science, Japan |
| Paper 11.2 | A numerical analysis of the behavior of benzyl benzoate under high shear and high stress: seeking the origins of the limiting shear stress phenomenon  
Alejandro Porras-Vazquez\(^a\), Laetitia Martinie\(^a\), Nicolas Fillot\(^a\), Philippe Vergne\(^a\), Guillermo Morales-Espejel\(^b\)  
\(^a\)INSA-Lyon, France  
\(^b\)SKF, The Netherlands |
| Paper 11.3 | Effect of heavy metals on sodium polyphosphate network depolymerization during metal forming process  
Manh Ha Le, Dinh Thi Ta, Hongtao Zhu, Anh Kiet Tieu, Thi Thuy Huong Ta, Van Nam Tran  
University of Wollongong, Australia |
| Paper 11.4 | Combined lubricant–surface system approach for potential passenger car CO\(_2\) reduction on piston-ring-cylinder bore assembly  
Eduardo Tomanik, Francisco Profito, Roberto Souza  
Polytechnic School, University of São Paulo, Brazil |

**Wednesday 14:00 – 15:30**  
**SESSION 12 – WEAR I**  
Chaired by TBC, Mary Hallaway Lecture Theatre

| Paper 12.1 | Effect of load sequence on contact fatigue life of a wind turbine gear based on an elastic-plastic continuous damage model  
Haifeng He, Huaiju Liu, Caichao Zhu  
Chongqing University, China |
| Paper 12.2 | The effects of rail vibration absorbers on suppressing short pitch rail corrugation due to multiple wheelsets  
Weiji Qian, Zhiqiang Huang  
Southwest Petroleum University, China |
| Paper 12.3 | Wear intensity evaluation in conveying systems – an acoustic emission and vibration measurement approach  
Markus Varga\(^a\), Michael Haas\(^a\), Christoph Schneidhofer\(^a\), Karl Adam\(^b\)  
\(^a\)AC2T research GmbH, Austria  
\(^b\)Voestalpine Stahl GmbH, Austria |
| Paper 12.4 | Evolution of the road bitumen/aggregate interface under traffic-induced polishing  
Veronique Cerezo, Christophe Ropert, Yosra Hichri, Minh-Tan Do  
IFSTTAR, France |

**Wednesday 14:00 – 15:30**  
**SESSION 13 – EHL II**  
Chaired by TBC, Room AG100

| Paper 13.1 | Measurements of lubricant and surface temperatures within an Elastohydrodynamic contact  
Jia Lu, Thomas Reddyhoff, Daniele Dini  
Imperial College London, UK |
| Paper 13.2 | Prediction of the Stribeck curve under full-film elastohydrodynamic lubrication  
Yuanyuan Zhang\(^a\), Nans Biboulet\(^a\), Cornelis Venner\(^b\), Antonius Lubrecht\(^a\)  
\(^a\)INSA-Lyon, France  
\(^b\)University of Twente, The Netherlands |
| Paper 13.3 | Investigation into the influence of temperature and contact geometry on traction  
Norbert Bader, Hai Chao Liu, Tim Briese, Jan Torben Terwey, Gerhard Poll  
Leibniz Universität Hannover (IMKT), Germany |
| Paper 13.4 | Global sensitivity analysis of static characteristics of tilting-pad journal bearing to manufacturing tolerance  
Mingyang Lou\(^a\)\(^b\), Olivier Bareille\(^b\), Wengqi Chai\(^b\), Mohamed Ichchou\(^b\), Wei Chen\(^a\)  
\(^a\)Xi’an Jiaotong University, China  
\(^b\)École Centrale de Lyon, France |

**Wednesday**  
**14:00 – 15:30**  
**SESSION 14 – ENGINE I**  
Chaired by TBC, Room AG21

| Paper 14.1 | Estimation method of traction curves under practical operating conditions  
Kazumasa Ohama\(^a\), Hirofumi Itagaki\(^b\), Aravindh Nammalvar Raja Rajan\(^b\)  
\(^a\)NSK Ltd., Japan  
\(^b\)University of Duisburg-Essen, India |
| Paper 14.2 | How much mixed/boundary friction is in an engine - and where is it?  
Ian Taylor  
Shell Global Solutions, UK |
| Paper 14.3 | A new insight on inducted-tribological behavior of hypereutectic Al-Si alloys manufactured by selective laser melting  
Nan Kang, Mohammed El Mansori  
École Nationale Supérieure d’Arts et Métiers, France |
| Paper 14.4 | Beneficial effects of surface laser texturing for mixed lubrication regime: influence of the geometrical parameters  
Giulia Fiaschi\(^a\), Antonio Ballestrazzi\(^b\), Alberto Rota\(^b\), Sergio Valeri\(^a\)  
\(^a\)Università degli Studi di Modena e Reggio Emilia, Italy  
\(^b\)Centro Interdipartimentale per la Ricerca Applicata e i Servizi nella Meccanica Avanzata e nella Motoristica, Italy |

15:30 – 16:00  
Refreshments in the Conference Suite

**16:00 – 17:30**  
**PARALLEL SESSIONS 15 TO 18**

**Wednesday**  
**16:00 – 17:30**  
**SESSION 15 – LUBRICANTS IV**  
Chaired by TBC, Auditorium

| Paper 15.1 | Line contact lubrication at zero entrainment velocity: influential parameters and behaviors  
Bilel Meziane\(^a\), Nicolas Fillot\(^a\), Guillermo Morales-Espejel\(^b\)  
\(^a\)INSA-Lyon, France  
\(^b\)SKF, The Netherlands |
| Paper 15.2 | Characterization of Mo-based tribofilms formed during two types of lubricated tests  
Roberto Balarini, Gabriel Diniz, Francisco Profito, Roberto Souza  
Polytechnic School of University of São Paulo, Brazil |
| Paper 15.3 | The roles of alkali element on oxidized steel contacts under melt lubrication  
Bach Tran, Anh Kiet Tieu, Shanhong Wan, Hongtao Zhu  
University of Wollongong, Australia |
| Paper 15.4 | Lubricant-surface system characterisation for high performance transmissions  
Edward Humphrey, Nicholas Morris, Ramin Rahmani, Homer Rahnejat, Greg Rapson  
Loughborough University, UK |

**Wednesday**  
**16:00 – 17:30**  
**SESSION 16 – WEAR II**  
Chaired by TBC, Mary Hallaway Lecture Theatre

| Paper 16.1 | Multigrid Solution of 2D and 3D Stress Fields in Contact Mechanics of Anisotropic Inhomogeneous Materials  
Binbin Zhang\(^a\), Hugo Boffy\(^b\), Cornelis Venner\(^a\)  
\(^a\)University of Twente, The Netherlands  
\(^b\)SKF, The Netherlands |
| Paper 16.2 | Online wear measurement of roller presses under harsh environmental conditions  
Markus Varga\(^a\), Reinhard Grundtner\(^a\), Alexander Maurer\(^a\), Franz Pirker\(^a\), Martin Kirchgäßner\(^b\)  
\(^a\)AG2T research GmbH, Austria  
\(^b\)Castolin GmbH, Austria |
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<tr>
<th>Paper 16.3</th>
<th>The wear and fatigue behaviors of hollow head &amp; sodium filled engine valve</th>
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<tbody>
<tr>
<td>Fuqiang Lai\textsuperscript{a,b}, Shengguan Qu\textsuperscript{a}, Yong Duan\textsuperscript{b}, Roger Lewis\textsuperscript{b}, Lianmin Yin\textsuperscript{a}, Xiaoqiang Li\textsuperscript{a}, Huahuan Luo\textsuperscript{c}, Ge Sun\textsuperscript{c}</td>
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<td>\textsuperscript{a}South China University of Technology, China</td>
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<td>\textsuperscript{b}University of Sheffield, UK</td>
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<tr>
<td>\textsuperscript{c}Huajii Dengyun Auto-parts (Holding) CO., LTD., China</td>
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<tr>
<th>Paper 16.4</th>
<th>Wear mechanisms analysis of plastic and elastomer materials under two-body and three-body abrasion conditions</th>
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<tbody>
<tr>
<td>Céline Trevisiol\textsuperscript{a}, Yan-Ming Chen\textsuperscript{a}, Sébastien Viale\textsuperscript{a}, Johann Rongau\textsuperscript{b}, Florence Bruno\textsuperscript{c}, Patrick Heuillet\textsuperscript{e}, David Cazé\textsuperscript{a}, Kevin Leclerc\textsuperscript{a}</td>
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<tr>
<td>\textsuperscript{a}CETIM, France</td>
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<td>\textsuperscript{b}TechnipFMC, France</td>
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<tr>
<td>\textsuperscript{c}Laboratoire de Recherches et de Contrôle du Caoutchouc et des Plastiques, France</td>
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**Wednesday**

16:00 – 17:30

**SESSION 17 – TEXTURE/SURFACES II**

Chaired by TBC, Room AG100

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<thead>
<tr>
<th>Paper 17.1</th>
<th>Effect of plastic deformation and formation of mechanically mixed layers (MML) on wear and frictional behavior of Ti64 pin against SS316L under vacuum conditions</th>
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<tbody>
<tr>
<td>Ashok Raj J, Satish Vasu Kailas</td>
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<td>\textit{Indian Institute of Science (IISc), Bangalore, India}</td>
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<tr>
<th>Paper 17.2</th>
<th>Extension of the area-scale method and assessment of its relevancy in distinguishing between two classes of tribological surfaces</th>
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<tbody>
<tr>
<td>Julie Marteau\textsuperscript{a}, Hervé Morvan\textsuperscript{b}, Maxence Bigerelle\textsuperscript{c}, Chris Brown\textsuperscript{c}</td>
<td></td>
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<tr>
<td>\textsuperscript{a}Université de Technologie de Compiègne, France</td>
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<td>\textsuperscript{b}Université de Valenciennes, France</td>
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<tr>
<td>\textsuperscript{c}Worcester University, USA</td>
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<tr>
<th>Paper 17.3</th>
<th>Roughness study of computer-generated textured surfaces</th>
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<tbody>
<tr>
<td>Szeréna Ujvári, Ivana Ristic, Carsten Gachot, András Vernes</td>
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<tr>
<td>\textsuperscript{a}Technische Universität Wien, Austria</td>
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<tr>
<td>\textsuperscript{b}Austrian Center of Competence for Tribology, AC2T research GmbH, Austria</td>
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<tr>
<th>Paper 17.4</th>
<th>Surface as a carrier of information about the tribological process</th>
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<tbody>
<tr>
<td>Wieslaw Grabon</td>
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<tr>
<td>\textit{Rzeszow University of Technology, Poland}</td>
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16:00 – 17:30

**SESSION 18 – BIO II**

Chaired by TBC, Room AG21

<table>
<thead>
<tr>
<th>Paper 18.1</th>
<th>Development of an instrumented artificial finger for textile surfaces</th>
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</thead>
<tbody>
<tr>
<td>Kevin Peyre\textsuperscript{a}, Michel Tourlonias\textsuperscript{a}, Marie-Ange Bueno\textsuperscript{a}, Fabrizio Spano\textsuperscript{b}, René Rossi\textsuperscript{b}</td>
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<tr>
<td>\textsuperscript{a}Université de Haute Alsace, France</td>
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<tr>
<td>\textsuperscript{b}Empa, Swiss Federal Laboratories for Materials Science and Technology, Switzerland</td>
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<tr>
<th>Paper 18.2</th>
<th>Mechanisms of hydrogel lubricity</th>
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</thead>
<tbody>
<tr>
<td>Juan Manuel Urueña, Eric McGhee, Duncan Dowson, Thomas Angelini, Gregory Sawyer, Angela A. Pitenis</td>
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<td>\textit{University of Florida, USA}</td>
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<tr>
<th>Paper 18.3</th>
<th>Study of the interaction between human fingerpad and isotropic rough surfaces for tactile stimulators improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pierre-Henri Cornuault\textsuperscript{a}, Eric Chatellet\textsuperscript{b}, Francesco Massi\textsuperscript{c}</td>
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<tr>
<td>\textsuperscript{a}Département de Mécanique Appliquée, UBFC, France</td>
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<td>\textsuperscript{b}INSA-Lyon, France</td>
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<tr>
<td>\textsuperscript{c}Università di Roma La Sapienza, Italy</td>
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<tr>
<th>Paper 18.4</th>
<th>Soft matter tribology: gels, cells, and shear</th>
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<tbody>
<tr>
<td>Juan Manuel Urueña, Samuel Hart, Angela Pitenis, Padraic Leving, Gregory Sawyer</td>
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<td>\textit{University of Florida, USA}</td>
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17:30 – 18:00

**Symposium Photograph**

18:00 – 19:00

**Dinner in the Dining Room**

19:00 – 20:00

**POSTER SESSION AND DRINKS RECEPTION**

Conference Suite

**THURSDAY 6 SEPTEMBER 2018**
<table>
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<tr>
<th>Time</th>
<th>Session Title</th>
<th>Chaired by TBC, Location</th>
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</thead>
<tbody>
<tr>
<td>08:45 – 09:15</td>
<td>PLENARY PAPER 2</td>
<td>Chaired by TBC, Auditorium</td>
</tr>
<tr>
<td></td>
<td>Paper 19.1 Processing of high performance thermoplastic multiscale composites for tribological applications Nazanin Emami Luleå University of Technology, Sweden</td>
<td></td>
</tr>
<tr>
<td>09:30 – 11:00</td>
<td>PARALLEL SESSIONS 20 TO 23</td>
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<tr>
<td>Thursday</td>
<td>SESSION 20 – WEAR III</td>
<td>Chaired by TBC, Auditorium</td>
</tr>
<tr>
<td>09:30 – 11:00</td>
<td>Paper 20.1 Fundamental criteria for prediction of scuffing in friction of metals Łukasz Wojciechowski⁵, Krzysztof Kubiak⁵, Thomas Mathia² ¹Poznan University of Technology, Poland ²University of Huddersfield, UK ³École Centrale de Lyon, France</td>
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<td>Paper 20.2 Orthogonal cut of SPS-sintered composites with ferrous matrix and Fe-Mo-S particles: Numerical and experimental analysis Roberto Souza², Ordoñez Michelli², Sabeur Mezghani², Samuel Crequy², Newton Fukumasa², Izabel Machado², Mohamed El Mansori² ¹University of São Paulo, Brazil ²École Nationale Supérieure d’Arts et Métiers, France</td>
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<td>Paper 20.3 Thermomechanical modelling of white etching layer formation in pearlitic rail steel Loic Saint-Aimé², Léo Thiercelin², Aurélien Saulot², Frédéric Lebon² ¹IRT Railenium, France ²INSA-Lyon, France ³Aix-Marseille Université, France</td>
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<td>Paper 20.4 An investigation into the influence of secondary hard-phases on the sliding wear of a cobalt-chromium alloy using finite element methods Paul Cross, David Stewart, Georges Limbert, Robert Wood, ¹University of Southampton, UK ²Rolls-Royce, plc., UK</td>
<td></td>
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<tr>
<td>Thursday</td>
<td>SESSION 21 – BIO III</td>
<td>Chaired by TBC, Mary Hallaway Lecture Theatre</td>
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<tr>
<td>09:30 – 11:00</td>
<td>Paper 21.1 Organic substances effect to the tribo-corrosion behavior Mohamad Taufiqurrakhman, Michael Bryant, Anne Neville University of Leeds, UK</td>
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<tr>
<td></td>
<td>Paper 21.2 Role of phospholipid membrane fluidity in the tribological properties of phospholipid biomimetic vesicles. application in the synovial fluid substitute development Nesrine Darragi Raies⁴, Ofelia Maniti⁴, Laetitia Martinie⁴, Agnès Plednoir⁴, Yves Berthier⁴, Ahmed Landoulsi⁴, Ana-Maria Trunfio-Sfarghiu⁴ ¹INSA-Lyon, France ²Université de Carthage, Tunisia ³Université Claude Bernard Lyon 1 France</td>
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<td>Paper 21.3 A porohyperelastic lubrication model for articular cartilage in the natural synovial joint Gregory de Boer, Nicholas Raske, Robert Hewson, Siavash Soltanahmadi, Michael Bryant, Duncan Dowson ¹University of Leeds, UK ²Imperial College London, UK</td>
<td></td>
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<td>Paper 21.4 Effects of surface texturing on tribological properties of concentrated polymer brushes Eri Kodama⁵, Keisuke Sato⁵, Hikaru Okubo⁵, Yoshinobu Tsujii⁵, Shinya Sasaki⁵ ¹Graduate School of Tokyo University of Science, Japan ²Kyoto University, Japan ³Tokyo University of Science, Japan</td>
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<tr>
<td>Thursday</td>
<td>SESSION 22 – EHL III</td>
<td>Chaired by TBC, Room AG100</td>
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<tr>
<td>09:30 – 11:00</td>
<td>Paper 22.1 Dynamic study of a roller bearing in a centrifugal field considering the hydrodynamic lubrication of the roller/cage contact Martin Denni², Nans Biboulet², Vincent Abousleiman², Antonius Lubrecht² ¹SAFRAN Transmission Systems, France ²INSA-Lyon, France</td>
<td></td>
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</tbody>
</table>
| Paper 22.2 | Measurement of EHL contact temperature by thin film sensors - thermal insulation effects  
Martin Ebner, Andreas Ziegler, Thomas Lohner, Karsten Stahl  
Technical University of Munich (TUM), Germany |
| Paper 22.3 | Transient modelling of reciprocating seals  
Abdelhak Azizi, Aurelian Fatu, Dominique Souchet, Abdelghani Maoui, Didier Fribourg  
\(^a\)University of Poitiers, France  
\(^b\)CETIM, France |
| Paper 22.4 | Fluid film friction in two directions of EHL contact under lateral micro-oscillations  
Josef Fryza, Petr Sperka, Ivan Krupka, Martin Hartl  
Brno University of Technology, Czech Republic |

**Thursday**  
09:30 – 11:00  
**SESSION 23 – FRETTING/FATIGUE II**  
Chaired by TBC, Room AG21

| Paper 23.1 | Effects of temperature on fretting corrosion behaviors of silver-plated and gold-plated electrical contacts  
Florent Pompanon, Siegfried Fouvry, Olivier Alquier  
\(^a\)École Centrale de Lyon, France  
\(^b\)PSA Groupe, France |
| Paper 23.2 | Study on contact fatigue of a wind turbine gear pair using the EHL model considering surface roughness  
Heli Liu, Huaiju Liu, Caichao Zhu  
Chongqing University, China |
| Paper 23.3 | Understanding of the changes of the HS25 wear mechanisms subjected to fretting against alumina at various temperatures  
Alixe Dreano, Gaylord Guillonneau, Siegfried Fouvry  
École Centrale de Lyon, France |
| Paper 23.4 | The influence of ultrasonic vibration on the frictional sliding characteristics of PTFE-based composite / phosphor bronze in vacuum  
Huajie Qu, Jianjun Qu  
Harbin Institute of Technology, China |

11:00 – 11:30  
**Refreshments in the Conference Suite**

11:30 – 13:00  
**PARALLEL SESSIONS 24 TO 27**

**Thursday**  
11:30 – 13:00  
**SESSION 24 – LUBRICANTS V**  
Chaired by TBC, Auditorium

| Paper 24.1 | Implementing liquid lubrication in micro-electro-mechanical systems  
Peng Wang, Francisco Profto, Daniele Dini, Thomas Reddyhoff, Andrew Holmes  
\(^a\)Imperial College London, UK  
\(^b\)University of São Paulo, Brazil |
| Paper 24.2 | Effects of organic friction modifiers on tribofilm and lubricity of zinc dialkyldithiophosphate  
Haruka Ouchi, Kaisei Sato, Hikaru Okubo, Shinya Sasaki  
\(^a\)Graduate School of Tokyo University of Science, Japan  
\(^b\)Tokyo University of Science, Japan |
| Paper 24.3 | Tribological characterization of epoxy coatings modified with ionic liquids and graphene  
María Dolores Aviles, Noelia Saurín, Ana Eva Jimenez Ballesta, María-Dolores Bermúdez, Francisco-José Carrión, José Sanes  
Universidad Politécnica de Cartagena, Spain |
| Paper 24.4 | Influence of hydroxyl termination and roughness on adsorption and lubrication of aqueous triblock copolymer lubricant in hydrodynamic and mixed lubrications  
Thi Ta, Anh Kiet Tieu, Hongtao Zhu  
University of Wollongong, Australia |

**Thursday**  
11:30 – 13:00  
**SESSION 25 – WEAR IV**  
Chaired by TBC, Mary Hallaway Lecture Theatre

| Paper 25.1 | Understanding the behavior of fine particles at the tire/road interface  
Yosra Hichri, Sylvie Descartes, Veronique Cerez, Minh-Tan Do  
\(^a\)IFSTTAR, France  
\(^b\)INSA-Lyon, France |
| Paper 25.2 | Finite element method based sliding wear prediction of steel-on-steel contacts using extrapolation techniques  
Kunal Kumar Bose, Penchaliah Ramkumar  
*Indian Institute of Technology Madras, India* |
|---|---|
| Paper 25.3 | Dynamic wear monitoring of wind turbine gearbox using wavelet transform  
Alexandre A. S. Medeiros, Jose Oliveira Jr  
*Universidade Federal do Rio Grande do Norte, Brazil* |
| Paper 25.4 | Modeling adhesive wear of complex surfaces on multiple scales  
Tobias Brink, Lucas Frérot, Jean-François Molinari  
*École Polytechnique Fédérale de Lausanne, Switzerland* |

**Thursday, 11:30 – 13:00**  
**SESSION 26 – FRICTION I**  
**Chaired by TBC, Room AG100**

| Paper 26.1 | Original free sliding oscillating ball-on-flat tribotests reveal some features of the frictional behaviour of alkylphosphonic acid self-assembled molecules  
Pierre-Henri Cornuault\(^a\), Emmanuel Rigaud\(^b\), Xavier Roizard\(^c\), Michel Belin\(^c\), Jean-Marie Melot\(^c\)  
\(^a\)Femto-ST Institute, France  
\(^b\)École Centrale de Lyon, France  
\(^c\)UTINAM Institute, France |
|---|---|
| Paper 26.2 | Friction behaviour of squeezed grease film  
Hiroshi Nishikawa  
*Kyushu Institute of Technology, Japan* |
| Paper 26.3 | A universal model for the static friction coefficient in a full stick elastic-plastic coated spherical contact  
Zhou Chen, Izhak Etsion  
*Technion, Israel Institute of Technology, Israel* |
| Paper 26.4 | Experimental study of transient traction characteristics between wheel and rail using ultrasound reflectometry  
Shinya Fukagai, Henry Brunskill, Andrew Hunter, Roger Lewis  
*The University of Sheffield, UK* |

**Thursday, 11:30 – 13:00**  
**SESSION 27 – COATINGS/DLC I**  
**Chaired by TBC, Room AG21**

| Paper 27.1 | Finite element modelling of combined fracture and delamination on a coated substrate  
Abdul Mohd Tobi\(^a\), Mohammad Lokman Mohsin\(^a\), W. A. Siswanto\(^b\), N. N. Tamin\(^c\)  
\(^a\)Universiti Tun Hussein Onn Malaysia (UTHM), Malaysia  
\(^b\)Universitas Muhammadiyah Surakarta, Indonesia  
\(^c\)Universiti Teknologi Malaysia, Malaysia |
|---|---|
| Paper 27.2 | Properties of RAAMS Cr-based coatings for high performance tribological applications  
Ganesh Kamath\(^a\), Klaus Brondum\(^b\), Sterling Myers\(^a\), Chris Konsta\(^b\), Bryce Anton\(^a\)  
\(^a\)Vapor Technologies Inc, USA  
\(^b\)Masco Corporation, USA |
| Paper 27.3 | Friction and wear characteristics evaluation of lead-free Sn-based coatings using ball-on-disc tribotester  
Rizwan Bajwa, Ignacio Tudela, Rolandas Verblickas, Ion Palamarciuc, Yi Zhang  
*Daido Metal Co., Ltd. European Technical Centre, UK* |
| Paper 27.4 | Influence of film thickness on the microstructure, nano-mechanical and tribological behaviors of Ti-containing graphite-like carbon films  
Xiangru Shi\(^{ab}\), Tomasz Liskiewicz\(^b\), Ben Beake\(^c\), Jian Chen\(^a\)  
\(^a\)Southeast University, China  
\(^b\)University of Leeds, UK  
\(^c\)Micro Materials Ltd., UK |

**13:00 – 14:00**  
**Lunch in the Dining Room**

**14:15-22:00**  
**SYMPOSIUM TRIP (RECEPTION AND BUFFET)**  
*Visit to Harrogate, followed by dinner at Pavilions at Harrogate*  

**FRIDAY 7 SEPTEMBER 2018**
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<tr>
<th>Time</th>
<th>Session/Session Title</th>
<th>Chair(s)</th>
<th>Location</th>
<th>Presenters/Authors</th>
</tr>
</thead>
</table>
| 08:45 – 09:15 | SESSION 28 – PLENARY PAPER 3 | Chaired by TBC, Auditorium |          | Paper 28.1  
Filippo Mangolini  
*University of Texas*  |
| 09:30 – 10:30 | PARALLEL SESSIONS 29 TO 32 |          |          |  |
| Friday 09:30 – 10:30 | SESSION 29 – LUBRICANTS VI | Chaired by TBC, Auditorium |          | Paper 29.1  
*Boundary tribofilm formation from microencapsulated graphene platelet with fully formulated engine oil*  
Shanhong Wan, The Sang Pham, Anh Kiet Tieu, Hongtao Zhu  
*University of Wollongong, Australia*  |
| Paper 29.2  | *Formation of MoS\(_2\) flakes from molybdenum dithiocarbamate-based molecules in a severe lubricated contact: toward a better understanding*  
Mayssa Al Kharboutly\(^a\), Gleb Veryasov\(^a\), Jules Galipaud\(^a\), Thierry Le Mogne\(^a\), Alessandra Quadrelli\(^b\), Clement Camp\(^a\), Bruno Reynard\(^a\), Manuel Cobian\(^a\), Clotilde Minfray\(^a\)  
\(^a^\)École Centrale de Lyon  
\(^b^\)Université Claude Bernard Lyon 1, France  
\(^c^\)École Normale Supérieure de Lyon, France  |
| Paper 29.3  | *Local behaviour of lubricants in tribological contacts*  
Janet Wong  
*Imperial College London, UK*  |
| Friday 09:30 – 10:30 | SESSION 30 – BIO IV | Chaired by TBC, Mary Hallaway Lecture Theatre |          | Paper 30.1  
*Role of polysaccharides – phospholipids interactions in the tribological behavior of synovial fluid substitutes*  
Mirela-Maria Sava\(^a\), Nesrine Darragi-Raies\(^a,b,d\), Frederic Harb\(^a\), Dana Mihaela Sulfet\(^a\), Bogdan Munteanu\(^a\), Irina Popescu\(^a\), Irina Mihaela Pelin\(^d\), Bernard Tinland\(^e\), Ana-Maria Trufnio-Sfarghiu\(^a\)  
\(^a^\)INSA-Lyon, France  
\(^b^\)Université de Carthage, Tunisia  
\(^c^\)Laboratory of Natural Polymers, Romania  
\(^d^\)Aix-Marseille Université, France  
\(^e^\)Lebanese University, Lebanon  |
| Paper 30.2  | *Protein film formation and its protective role on dental tissues under tribological and acidic conditions*  
Pravin Smart, Anne Neville, Michael Bryant  
*University of Leeds, UK*  |
| Paper 30.3  | *Lubrication of surfaces through surface-attached hydrogels – Slippery when wet*  
Maryam Bahrami\(^a\), Vincent Le Houerou\(^b\), Jürgen Rühe\(^a\)  
\(^a^\)University of Freiburg, Germany  
\(^b^\)University of Strasbourg, France  |
| Friday 09:30 – 10:30 | SESSION 31 – FRICTION II | Chaired by TBC, Room AG100 |          | Paper 31.1  
*Ideal adhesive and shear strengths of solid interfaces ab initio*  
Paolo Restuccia, Michael Wolloch, Mauro Ferrario, Maria Clelia Righi  
*Universita' degli Studi di Modena e Reggio Emilia, Italy*  |
| Paper 31.2  | *Mutual influence of cylinder liner surface and lubricant properties on friction*  
Amal Hriouech\(^a,b\), Joël Perret-Liaudet\(^a\), Maria-Isabel De Barros Bouchet\(^a\), Michel Belin\(^a\), Moussa Diaby\(^b\)  
\(^a^\)École Centrale de Lyon, France  
\(^b^\)PSA, France  |
| Paper 31.3  | *First experimental results with an apparatus for friction measurements*  
Enrico Ciulli, Francesca Di Puccio, Marco Mancino  
*University of Pisa, Italy*  |
| Friday 09:30 – 10:30 | SESSION 32 – ENGINE II | Chaired by TBC, Room AG21 |          | Paper 32.1  
*The effect of cylinder liner surface topography on friction and wear of liner-ring system in cold-start simulation*  
Wieslaw Grabon\(^a\), Pawel Pawlus\(^a\), Slawomir Wos\(^a\), Waldemar Koszela\(^a\), Michal Wieczorowski\(^b\)  
\(^a^\)Rzeszow University of Technology, Poland  
\(^b^\)Poznan University of Technology, Poland  |
### Paper 32.2
**Churning losses of spiral-bevel gears at high rotational speed**  
Romain Quiban\(^a\), Christophe Changenet\(^b\), Yann Marchesse\(^b\), Fabrice Ville\(^a\), Jérôme Belmonte\(^c\)  
\(^a\)INSA-Lyon, France  
\(^b\)ECAM Lyon, France  
\(^c\)Airbus – Helicopters, France

### Paper 32.3
**Correlation between tribofilm formed by CVT fluid and friction coefficient**  
Ayako Omura\(^a\), Hiroki Mano\(^a\), Atsushi Korenaga\(^a\), Tsuguyori Ohana\(^a\), Akira Sugimura\(^a\), Akira Mizuno\(^b\), Yoshiyuki Tanaka\(^b\)  
\(^a\)National Institute of Advanced Industrial Science and Technology (AIST), Japan  
\(^b\)JATCO Ltd., Japan

### 10:30 – 11:00
*Refreshments in the Conference Suite*

### 11:00 – 12:50
#### PARALLEL SESSIONS 33 TO 36

**Friday**  
**11:00 – 12:50**  
**SESSION 33 – LUBRICANTS VII**  
Chaired by TBC, Auditorium

#### Paper 33.1
**Relating the morphological description of the third body to its rheological behaviour**  
Rabii Jaza, Mollon Guilmel, Sylvie Descartes, Amandine Paquet, Yves Berthier  
INSA-Lyon, France

#### Paper 33.2
**Roller sliding in engine valve train: Effect of film strength considering lubricant composition**  
Muhammad Khurram, Riaz Ahmad Mufti, Muhammad Usman Bhutta, Naqash Afzal, Muhammad Usman Abdullah, Samiur Rahman Shah, Rehan Zahid, Mian Ashfaq Ali  
National University of Sciences & Technology (NUST), Islamabad, Pakistan

#### Paper 33.3
**Tribolayer formation duration microscale cyclic contact**  
Steffen Brinckmann, Gerhard Dehm  
Max-Planck-Institut für Eisenforschung GmbH, Germany

#### Paper 33.4
**Dynamics of complex liquids under boundary lubrications**  
Washizu Hitoshi, Akiyama Hirotoshi, Konishi Masakazu, Kohei Nishikawa, Soma Usui, Taiki Kawate  
University of Hyogo, Japan

**Friday**  
**11:00 – 12:50**  
**SESSION 34 – WEAR V**  
Chaired by TBC, Mary Hallaway Lecture Theatre

#### Paper 34.1
**The effects of applied loads on running-in behaviours of nitrided steel**  
Yukio Tamura\(^a\), Hiroto Aota\(^a\), Shinji Tanaka\(^a\), Masao Kikuchi\(^b\), Masabumi Masuko\(^b\), Naoto Ohtake\(^b\)  
\(^a\)Komatsu Ltd., Japan  
\(^b\)Tokyo Institute of Technology, Japan

#### Paper 34.2
**Damage detection in high performance gears using a magnetoelastic sensor to measure rate of change of torque**  
Alastair Clarke, Ben Cahill, Rhys Pullin, Karen Holford  
Cardiff University, UK

#### Paper 34.3
**Self-tuning adaptive control model to prevent catastrophic damage by scuffing**  
Łukasz Wojciechowski\(^a\), Krzysztof Kubiak\(^b\), Thomas Mathia\(^c\)  
\(^a\)Poznan University of Technology, Poland  
\(^b\)University of Huddersfield, UK  
\(^c\)École Centrale de Lyon, France

#### Paper 34.4
**Factors affecting citations of papers published in tribology journals**  
Tomasz Liskiewicz\(^a\), Grzegorz Liskiewicz\(^b\)  
\(^a\)University of Leeds, UK  
\(^b\)Lodz University of Technology, Poland

**Friday**  
**11:00 – 12:50**  
**SESSION 35 – TEXTURE/SURFACES III**  
Chaired by TBC, Room AG100

#### Paper 35.1
**Dimple influence on the load carrying capacity of parallel surfaces**  
Marie-Pierre Noutary, Nans Biboulet, Antonius Lubrecht  
INSA-Lyon, France

#### Paper 35.2
**Adjoint method for surface texture optimization**  
Andrea Codrignani\(^a\), Daniele Savio\(^b\), Bettina Frohnapfel\(^a\)  
\(^a\)Karlsruhe Institute of Technology, Germany  
\(^b\)MicroTribology Center μTC, Germany
Feasibility study of micro-groove cross hatched surface texturing on Ti6Al4V for improved biotribological performance in metal-on-polymer hip implant
Vivek Kashyap, Penchaliah Ramkumar
Indian Institute of Technology Madras, India

Development of variable-geometry tribo-surface-system for controlling tribological characteristics
Naoto Yamashita, Shota Ito, Kenta Takahashi, Hiroaki Maeda, Hikaru Okubo, Shinya Sasaki
Graduate School of Tokyo University of Science, Japan
Tokyo University of Science, Japan

Friday 11:00 – 12:50 SESSION 36 – POLYMERS I
Chaired by TBC, Room AG21

Tribological performance of PEEK and a PEEK composite in reciprocating sliding under various conditions
Heather McLaren, Michael Bryant, Nazanin Emami, Anne Neville
University of Leeds, UK
Luleå University of Technology, Sweden

Bearing capacity of self-lubricating composite bushes for articulating landing gear pin joints
Juanjuan Zhu, Rob Dwyer-Joyce
The University of Sheffield, UK

Tribology of additive manufactured polymers
Frank Dangnan, Anne Neville, Tomasz Liskiewicz, Matthias Gester
University of Leeds, UK
P&G, UK

Thermomechanical data capture and processing in the machining tribology of natural fiber composites
Faissal Chegdani, Iskander El Amri, Satish Bukkapatnam, Mohamed El Mansori
École Nationale Supérieure d'Arts et Métiers, France
Texas A&M University, USA

12:50 – 13:10 SESSION 37 – PLENARY PAPER 4
Chaired by TBC, Auditorium

Applied Polymer Tribology
Malcolm Fox
University of Bradford, UK
Nylacast Ltd, UK

Dowson Prize Award, Poster Prize award and Symposium Close
Chaired by Professors Ardian Morina and Philippe Vergne
Auditorium

13:30 – 14:30 Lunch in the Dining Room
<table>
<thead>
<tr>
<th>No.</th>
<th>Title</th>
<th>Authors</th>
<th>Institutions</th>
</tr>
</thead>
</table>
| 1.   | Precision of the stressed state approximations of functionally graded elastic solid contacts | Ilya Kudish\(^a\), Andrey Vasiliev\(^b\), Sergei Volkov\(^b\), Arkadiy Soloviev\(^c\), Sergei Aizikovich\(^c\) | \(^a\)Kettering University, USA  
\(^b\)State University of Nizhni Novgorod, Russia  
\(^c\)Don State Technical University, Russia |
| 2.   | A distribution design for circular micro-textures on slider bearings based on genetic algorithm | Hui Zhang, Liguo Qin, Guangneng Dong | Xi'an Jiaotong University, China |
| 3.   | Biocompatible PEGylated MoS\(_2\) nanoparticles used as lubricant and its application in marine biofouling | Liguo Qin, Hui Zhang, Guangneng Dong, Mahshid Hafezi, Xinan Feng | Xi'an Jiaotong University, China |
| 4.   | A life test of ultrasonic motors with different torque loads and the characteristics analysis on wearing surfaces | Shouwen Liu\(^a\), Shouqing Huang\(^a\), Wu Zhang\(^a\), Zhiwei Lv\(^a\), Bo Pang\(^a\) | \(^a\)Beijing Institute of Spacecraft Environment Engineering, China  
\(^a\)Xi'an Chuanglian Ultrasonic Technology Co., Ltd., China |
| 5.   | Influences of experimental condition on friction coefficient of polyimide porous oil containing material | Yunxia Luo, Huajie Qu, Jianjun Qu | Harbin Institute of Technology, China |
| 6.   | An adaptive modeling method for multi-throttle aerostatic thrust bearing | Zhongpu Wen, Jianwei Wu | Harbin Institute of Technology, China |
| 7.   | Modelling of impact-abrasive wear processes and materials | Ramin Rahmani Ahranjani, Maksim Antonov, Lauri Kollo | Tallinn University of Technology, Estonia |
| 8.   | Flow field analysis of three-screw pump based on the theory of dynamic pressure lubrication | Shuaiyu Zhou, Xiqun Lu, Zhijun Shuai, Wanyou Li | Harbin Engineering University, China |
| 9.   | Effects of the stirring action during friction on the electrode processes of the AISI 304 Stainless Steel in sulfuric acid | Zening Wang, Yu Yan, Lijie Qiao | University of Science and Technology Beijing, China |
| 10.  | Experimental determination and identification of temporary fade limits of dry friction pairings | Albert Albers, Sascha Ott, Thomas Klotz | IPEK - Institute of Product Engineering, Germany |
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