50th Leeds-Lyon Symposium on Tribology

Tribological Challenges Underpinning the Innovations of the Next 50 Years

Tuesday 2 – Thursday 4 September 2025

University of Leeds, UK

PROGRAMME
(subject to change)

TUESDAY 2 SEPTEMBER 2025		
08:15 – 09:30	*Registration and coffee in Newlyn*	
	INTRODUCTION AND WELCOME Chaired by Ardian Morina Lecture Theatre LG.08, Esther Simpson	
09:45 – 10:30	**SESSION 1** Chaired by Ardian Morina Lecture Theatre LG.08, Esther Simpson	
	Paper 1.1	**KEYNOTE 1** **Future Trends in Lubricants** *Professor Ian Taylor, University of Central Lancashire, UK*
10:30 – 11:00	*Refreshments, posters and exhibition in Newlyn*	
	PARALLEL SESSIONS 2 TO 6	
Tuesday 11:00 – 12:30	**SESSION 2 – LUBRICANTS AND LUBRICATION MECHANISMS 1** Lecture Theatre LG.08, Esther Simpson	
	Paper 2.1	**Molecular Origins of Tribology: From Reactions to Shear Thinning** Wilfred Tysoe, Nicholas Hopper and Rosa Espinosa-Marzal *University of Illinois Urbana-Champaign, USA; University of Wisconsin-Milwaukee, USA*
	Paper 2.2	**Performance of antiwear additives in low oxygen environment** Vojin Lukic, Jie Zhang, Janet Wong and Hugh Spikes *Imperial College London, UK*
	Paper 2.3	**Tribofilm Formation with Polymer Colloid Friction Modifiers** Kenji Yamamoto and Kazuki Maumo *Adeka Corporation, Japan*
	Paper 2.4	**Quantum-scale energy dissipation mechanisms of modulating interfacial slip at MoS2-water interfaces** Yishu Han, Rui Zhang, Zhuolin Wu, Huan Liu, Jiabin Luo and Dameng Liu *Tsinghua University, China*
Tuesday 11:00 – 12:30	**SESSION 3 – MACHINE ELEMENTS 1** Lecture Theatre 1.01, Esther Simpson	
	Paper 3.1	**On the Influence of Third Body Thickness on Surface Damage – A Numerical Study** Olivier Bouillanne, Guilhem Mollon, Sylvie Descartes and Aurelien Saulot *LaMCoS - INSA de Lyon, France*
	Paper 3.2	**Study on the Generation and Motion Characteristics of Particle Wear in Large Ship Stern Bearings Using Coupled FEA-DEM** Chunhao, LV, Chen He, Yutong Gao and Kun Yang *Wuhan University of Technology, China*
	Paper 3.3	**Lowering Rotational Friction of a Servo Needle Valve Via Driving with Smart Control Strategies** Fırat Günkan, Bülent Sümer and İlker Murat Koç *Istanbul Technical University, Turkey; The Scientific & Technical Research Council of Turkey-Defence Industries Research & Dev. Institute TUBITAK-SAGE, Turkey*
	Paper 3.4	**Fatigue Life of Bearings Supporting Edgewise Rotary Wing Loads in E-VTOLs** Robert Wragge-Morley, George Barnaby, Jason Yon and Phil Mellor *University of Bristol, UK*

Tuesday 11:00 – 12:30	**SESSION 4 – POLYMER TRIBOLOGY 1** Seminar Room 2.11, Esther Simpson	
	Paper 4.1	**Friction of BaTiO3 filled HDPE nanocomposites** Fida Majdoub, M-I. De Barros Bouchet, P. Tuttipongsawat, A. Atli and J. Perret-Liaudet *ECAM LaSalle, France; Ecole Centrale de Lyon, France; Kasetsart University, Thailand*
	Paper 4.2	**Polymer bearings: On the role played by the viscoelastic rheology** Carmine Putignano, Michele Santeramo, Stefan Krenn and Giuseppe Carbone *Polytechnic University of Bari, Italy; AC2T, Austria*
	Paper 4.3	**Mechanical Characterization of Polymers through Micro-Indentation Testing** Kapil Singh and Mihir Sarangi *IIT Kharagpur, India*
	Paper 4.4	**Effects of UHMWPE Properties and Counterface Surface Texturing on the Wear Behaviour of UHMWPE in Artificial Joints** Yoshitaka Nakanishi, Yuta Nakashima and Hidehiko Higaki *Kumamoto University, Japan; Kyushu Sangyo University, Japan*
Tuesday 11:00 – 12:30	**SESSION 5 – GREASES** Seminar Room 2.12, Esther Simpson	
	Paper 5.1	**New generation of hybrid greases: Ionic liquids and nickel-functionalised carbon nanotubes in metal-polymer lubrication** Lukasz Wojciechowski, Magdalena Skrzypek, Krzysztof Kubiak, Slawomir Boncel, Tomasz Runka, Bartosz Gapinski, Szymon Ruczka, Adam Marek, Jaroslaw Kaluzny and Thomas Mathia *Poznan University of Technology, Poland; University of Leeds, UK; Silesian University of Technology, Poland; LTDS, Ecole Centrale de Lyon, France*
	Paper 5.2	**Triboelectric Lubrication Model with Joule Heating for Protic Ionic Liquid-based Grease** Nur Aisya Affrina Mohamed Ariffin, Haris Ahmad Israr Ahmad, Jo-Han Ng and William Woei Fong Chong *Universiti Teknologi Malaysia (UTM), Malaysia; University of Southampton Malaysia, Malaysia*
	Paper 5.3	**Effects of Grease Availability on the Friction Behavior of Grease-Lubricated Rolling Contacts** Shuo Zhang, Benjamin Klinghart, Georg Jacobs, Florian König and Yujun Wang *RWTH Aachen University, Germany*
	Paper 5.4	**Effect of Lubricant Components on the Film Thickness of Grease** Sari Okazaki, Tomoki Kamihata and Kazumi Sakai *ENEOS Corporation, Japan*
Tuesday 11:00 – 12:30	**SESSION 6 – TEXTURE/SURFACE 1** Seminar Room 3.02, Esther Simpson	
	Paper 6.1	**Surface Waviness Effect on Machining and Wear on Engine Components** Eduardo Tomanik, Francisco Profito, Javier Blanco-Rodríguez, Joao Queiroz and Roberto Souza *University of Sao Paulo, Brazil; Universidade de Vigo, Spain*
	Paper 6.2	**The Effect of Groove Geometry on the Flow Dynamics in Surface Textured Mechanical Seals by Particle Tracking Velocimetry** So Makishima, Iwa Ou, Yuichiro Tokunaga and Kazuyuki Yagi *Eagle Industry Co., Ltd., Japan; Kyushu University, Japan*
	Paper 6.3	**Numerical Investigation of Micro-Texture Tribological Performance under Hydrodynamic Lubrication** Marc Chamoun and Roland Bejjani *Lebanese American University, Lebanon*
	Paper 6.4	**Surface Texture Designing of Gear Surfaces and its Tribological Performances** Qingwen Dai, Yunlong Ma, Xiaolei Wang and Wei Huang *Nanjing University of Aeronautics and Astronautics, China*
12:30 – 13:45	*Lunch in the Refectory*	
Tuesday 13:45 – 14:30	**SESSION 7** Lecture Theatre LG.08, Esther Simpson	
	Paper 7.1	**KEYNOTE 2** **Robust Lubrication of Soft Matters** *Dr Feng Zhou, Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences, China*
14:30 – 15:00	*Refreshments, posters and exhibition in Newlyn*	

	PARALLEL SESSIONS 8 TO 12	
Tuesday 15:00 – 16:40	**SESSION 8 – LUBRICANTS AND LUBRICATION MECHANISMS 2** Lecture Theatre LG.08, Esther Simpson	
	Paper 8.1	**Asphalt Tribology- Influence of Polymers on Bitumen Performance** Paul Staudinger, R Zhang, Kartik Pondicherry and Julius Heinrich *Anton Paar GmbH, Austria; University of Wisconsin, USA; Anton Parr Germany GmbH, Germany*
	Paper 8.2	**Relationship between Surface Observations Using a High-Speed Camera and Acoustic Emission Signals in Rolling Contact Fatigue Tests** Yu Mukai and Alan Hase *Nippon Steel Technology Co., Ltd., Japan; Saitama Institute of Technology, Japan*
	Paper 8.3	**Neutron Reflection Characterisation of Ionic Liquids Additives Adsorption at Steel/Water Interface for Water-Based Lubrication** Bin Li and Xuzhi Hu *Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences, China*
	Paper 8.4	**Evaluating Rotational Torque of Tapered Roller Bearings with Various Oils Using the KRL Shear Stability Tester** Sadayuki Kikawa and Ken Takahashi *Railway Technical Research Institute, Japan*
	Paper 8.5	Advancing Online Oil Fluid Particle Monitoring Integration of Simulation Systems and GAN Yutong Gao *Wuhan University of Technology*
Tuesday 15:00 – 16:20	**SESSION 9 – MACHINE ELEMENTS 2** Lecture Theatre 1.01, Esther Simpson	
	Paper 9.1	**Frictional Vibration Behavior and Mechanism of Water-Lubricated Stern Bearings Material under Creep Effects** Xu Guo, Xincong Zhou, Jian Huang, Ruipu Wang and Binbin Li *Wuhan University of Technology, China*
	Paper 9.2	**Uncertainty Analysis of a Complex Load-Case Tribometer with Frictional and Inertial Parasitic Compensation** George Barnaby, Jason Yon and Robert Wragge-Morley *University of Bristol, UK*
	Paper 9.3	**Investigating the Influence of Lubricating Conditions on Spin Power Losses Generated in a Planetary Gear Set Using Thermal Network Method** Marie Winger, Yann Marchesse, Fabrice Ville, Christophe Changenet and Patrice Gédin *LaMCoS - INSA de Lyon, France; LabECAM, France; Safran Transmission Systems, France*
	Paper 9.4	**Performance behaviours of a gas foil bearing using novel bump design** Neha Pandey *Indian Institute of Technology, India*
Tuesday 15:00 – 16:20	**SESSION 10 – POLYMER TRIBOLOGY 2** Seminar Room 2.11, Esther Simpson	
	Paper 10.1	**Enhancing Friction with Inclined-Groove Tread Rubber to Generate Negative Fluid Pressure** Arata Ishizako, Aoi Nishimoto, Toshiaki Nishi and Takeshi Yamaguchi *Tohoku University, Japan*
	Paper 10.2	**Effect of Elastomer Hardness and Surface Roughness on Friction Between Shoe Soles and Particle-Contaminated Floors** Michal Zurek, David Markusik, David Rebenda, Lukáš Kalina and Martin Vrbka *Brno University of Technology, Czech Republic*
	Paper 10.3	**Enhancing the adhesive strength of soft viscoelastic contacts with microvibrations: an experimental and numerical study** Michele Tricarico, M Ciavarella and A Papangelo *Politecnico di Bari, Italy; Hamburg University of Technology, Germany*
	Paper 10.4	**Investigation of Tribological Behaviour of Laser Induced Graphene Thin Films on Polymer Substrates** Korhan Sahin *Istanbul Technical University, Turkey*

Tuesday 15:00 – 16:20	**SESSION 11 – TEXTURE/SURFACE 2** Seminar Room 2.12, Esther Simpson	
	Paper 11.1	**Effect of Surface Texturing on Sliding Behavior of Adhered Snow and Ice on Material Surfaces** Ryo Suzuki, Yuta Nakashima and Yoshitaka Nakanishi *Kumamoto University, Japan*
	Paper 11.2	**Unified Computational Framework for Triboelectric Nanogenerators Accounting for Surface Roughness** MD Tanzib Ehsan Sanglap, Charchit Kumar, Ross Williams, Callum Runcie, Daniel Mulvihill, Lukasz Kaczmarczyk and Andrei Shvarts *University of Glasgow, UK*
	Paper 11.3	**Striped fluid-guiding surface textures for wetting adjustment and lubrication improvement** Songjie Dai, Hui Zhang, Jiawei Chen, Shili Guo and Guangneng Dong *Xi'an Jiaotong University, China*
	Paper 11.4	**Exploration for replacement of babbitt coating by textured surface in a bush bearing** Nitish Jammoria, Raj Kumar Pandey, Deepak Kumar and Dinesh Kalyanasundaram *Indian Institute of Technology Delhi, India*
Tuesday 15:00 – 16:20	**SESSION 12 – MOBILITY GT – GREEN TRIBOLOGY 1** Seminar Room 3.02, Esther Simpson	
	Paper 12.1	**Synthesis and tribological characterization of N-alloyed MoSe2 coatings for diverse environment sliding** Talha Bin Yaqub, Irfan Nadeem, Parveen Kumar, Albano Cavaleiro and Mitjan Kalin *University of Ljubljana, Slovenia; University of Coimbra, Portugal*
	Paper 12.2	**The design and deposition of the self-lubricant multilayered coatings for green wide-range temperature tribology applications** Hongbo Ju, Jing Luan, Mitjan Kalin and Albano Cavaleiro *Universidade de Coimbra, Portugal; University of Ljubljana, Slovenia*
	Paper 12.3	**Effect of different performance enhancing additives on Hydrogen Permeation into Steel** Ajay Pratap Singh Lodhi, Alaaeddin Al Sheikh Omar, Mitjan Kalin and Ardian Morina *University of Leeds, UK; University of Ljubljana, Slovenia*
	Paper 12.4	**Effect of Electrification on the Tribological Performance of PPS-Based Composites Under Dry and Lubricated Conditions** Neuma Pereira, Mitjan Kalin and Nazanin Emami *University of Ljubljana, Slovenia; Luleå University of Technology, Sweden*
16:30 – 17:30	**POSTER SESSION AND DRINKS RECEPTION** Newlyn	
18:00 – 19:00	**DRINKS RECEPTION** Civic Hall, Millennium Square (delegates to make their own way there)	

WEDNESDAY 3 SEPTEMBER 2025		
08:45 – 09:30	**SESSION 13** Lecture Theatre LG.08, Esther Simpson	
	Paper 13.1	**KEYNOTE 3** **Lubricant Inerting – a Sustainable Way Forward** *Dr Janet Wong, Imperial College London, UK*
	PARALLEL SESSIONS 14 TO 18	
Wednesday 09:40 – 11:10	**SESSION 14 – NANOTRIBOLOGY** Lecture Theatre LG.08, Esther Simpson	
	Paper 14.1	**Influence of Lattice Mismatch on the Sliding Contact of Nano Asperities** Jinwei Shao and Yonggang Meng *Tsinghua University, China*
	Paper 14.2	**Tribological synergistic interaction between ZDDP and C-based nanoparticles** Juan Abdelnabe, Walter Tuckart, Eduardo Tomanik, Wania Chistinelli and Germán Prieto *CONICET, Argentina; Universidad Nacional del Sur, Argentina; Gerdau Graphene, Brazil*
	Paper 14.3	**Tribological Performances of Nanoparticles as Lubricant Additives in Palm Kernel Oil** Syahrullail Samion, Zulhanafi Paiman and Nurul Farhanah Azman *Universiti Teknologi Malaysia (UTM), Malaysia*
	Paper 14.4	**Nanotribological Characteristics of Bioinspired Titania Nanorod Patterned Surfaces** Debottam Datta, Nitya Nand Gosvami and J. P. Singh *Indian Institute of Technology Delhi, India*
Wednesday 09:40 – 11:10	**SESSION 15 – WEAR 1** Lecture Theatre 1.01, Esther Simpson	
	Paper 15.1	**High-Speed Imaging of Contact Area Evolution in Dry Metallic Impacts** Jaffry Jaman, Roland Jones, Amir Kadiric and Alfredo Fantetti *Imperial College London, UK*
	Paper 15.2	**Study on Erosion Characteristics of Blind Tee Structure in High-Pressure Pipe Manifolds** Zihan Guo, Jianchun Fan and Yang Yunpeng *China University of Petroleum, China; CNPC Research Institute of Safety and Environment Protection Technology, China*
	Paper 15.3	**Effect of the aging process in the performance of composite materials under erosive wear** Edgar Ernesto Vera Cardenas, Abel Eslava Hernández, Julio Alejandro Rodriguez Gonzalez, Armando Irvin Martínez Pérez and Carlos Rubio González *Instituto Tecnológico de Pachuca, Mexico; Centro de Ingeniería y Desarrollo Industrial, Mexico; Tecnológico de Monterrey, Mexico*
	Paper 15.4	**Mechanisms of Adhesive Layer Formation in Titanium Alloy Machining: An Integrated Experimental and Numerical Investigation** Nan Xu, Ardian Morina and Dongze Wang *University of Leeds, UK*
Wednesday 09:40 – 11:10	**SESSION 16 – EHD/MIXED LUBRICATION 1** Seminar Room 2.11, Esther Simpson	
	Paper 16.1	**Drop on Demand lubrication: Drop spreading, film build-up, pressure, and subsurface stress modulations induced by a droplet train in a circular EHL contact** Jun Tong, Norbert Bader, Antonius Lubrecht and Cornelis Venner *University of Twente, The Netherlands*
	Paper 16.2	**A Numerical Study of EHD Lubrication Between Rough Surfaces** Fan Zhang, J-D Wheeler, E Tinguy and V Bruyere *TotalEnergies, France; SIMTEC, France*
	Paper 16.3	**Analytical predictions and experimental measurements of EHL film thickness in wide elliptical and line contacts** Min Gao, Jude Osara, Marco van Zoelen, Ralph Meeuwenoord, Rihard Pasaribu and Piet Lugt *University of Twente, The Netherlands; SKF Research and Technology Development, The Netherlands; Shell Downstream Services International B.V., The Netherlands*
	Paper 16.4	**A Generalized Reynolds-Type Equation for Sliders and Journal Bearings with Stochastic Surface Roughness under the Effect of Electric Double Layer** Dimitrios Skaltsas, Xiaoman Wang, Qian Jane Wang and Christos I. Papadopoulos *National Technical University of Athens, Greece; Center for Surface Engineering and Tribology, Northwestern University, USA*

Wednesday 09:40 – 11:10	**SESSION 17 – MACHINE LEARNING AND DEEP LEARNING IN TRIBOLOGY 1** Seminar Room 2.12, Esther Simpson	
	Paper 17.1	**Bridging Scales in Boundary Lubrication: Atomistic-Continuum Coupling Enabled by Machine Learning** Hannes Holey, Peter Gumbsch and Lars Pastewka *University of Milan, Italy; Karlsruhe Institute of Technology, Germany; University of Freiburg, Germany*
	Paper 17.2	**Machine Learning-Driven Design of Wear-Resistant Refractory High-Entropy Alloys** Chaoze Lu and Tianmin Shao *Tsinghua University, China*
	Paper 17.3	**Predicting Friction Coefficients from SEM Images Using Deep Learning** Khalef Abd El Illeh Boulefrakh, G Mollon, S Descartes, A Bouchot and Y Gavet *LaMCoS - INSA de Lyon, France; Ecole des Mines de Saint-Etienne, France*
	Paper 17.4	**Intelligent Wear Localization in Artificial Joints Using Friction Acoustic Signatures and Deep Learning** Zheng Jiaxin, Jiang Sen and Dong Guangneng *Xi'an Jiaotong University, China*
Wednesday 09:40 – 11:10	**SESSION 18 – BIOTRIBOLOGY 1** Seminar Room 3.02, Esther Simpson	
	Paper 18.1	**Ex vivo Tribological Assessment of Endoscopic Capsule Intestinal Interactions for Robotic Capsule Endoscopes** Xuan Wang, Sam Davison, Roger Lewis and Matt Carre *University of Sheffield, UK*
	Paper 18.2	**Frictional Behaviour and Lubricant Effects on Polymer-Based Thin-Film Electrode Arrays for Cochlear Implants** Gülçin Şefiye Aşkın, Sercan Gökçeli, Bilsay Sümer, Onur Ergün, İlker Murat Koç and Fırat Mehmet Gürkan *Hacettepe University, Turkey; Bayındır İçerenköy Hospital, Turkey; İstanbul Technical University, Turkey*
	Paper 18.3	**Investigating the Impact of Daily Gait Cycle Loading Conditions on Hip Implant Longevity Using Contact Modelling and Experimental Approach** Manish Kukreja, Kumaran Nitish Prasad and Penchaliah Ramkumar *Indian Institute of Technology Madras, India*
	Paper 18.4	**Biomimetic Aqueous Lubrication Based on Interfacial Supramolecular Host-guest Interaction** Haiyuan Hu and Yang Wu *Lanzhou Institute of Chemical Physics, China*
11:10 – 11:40	*Refreshments, posters and exhibition in Newlyn*	
	PARALLEL SESSIONS 19 TO 23	
Wednesday 11:40 – 13:00	**SESSION 19 – EHD/MIXED LUBRICATION 2** Lecture Theatre LG.08, Esther Simpson	
	Paper 19.1	**Influence of Surface Wear and Asperity Deformation on Deterministic Mixed Lubrication Simulations** João Carlos de Queiróz, Leonardo Xavier, Eduardo Tomanik and Francisco Profito *University of São Paulo (USP), Brazil*
	Paper 19.2	**Thermoviscous EHL traction behaviour of lubricating oils using a new ultra-high-speed tribometer** Alexander MacLaren and Tom Welham *PCS Instruments, UK*
	Paper 19.3	**Study on Transient Lubrication and Dynamic Characteristics of Floating Bush in High-Pressure Fuel Pump Considering Camshaft Bending Vibration** Huaiqian Guo, Yazhou Li, Bin Zhao, Yuan Guo, Zhongliang Xie, Ardian Morina and Xiqun Lu *Harbin Engineering University, China; Shanghai Jiaotong University, China; Chongqing Hongjiang Machinery Co. Ltd., China; Northwestern Polytechnical University, China; University of Leeds, UK*
	Paper 19.4	**Influence of Traction Experiment on the prediction of losses in EHL contacts** Norbert Bader *University Twente, The Netherlands*

Wednesday 11:40 – 13:00	**SESSION 20 – MACHINE LEARNING AND DEEP LEARNING IN TRIBOLOGY 2** Lecture Theatre 1.01, Esther Simpson	
	Paper 20.1	**Machine learning-driven optimization of wear resistance in LPBF-fabricated AlMgScZr alloy via process parameter control** Changshan Zhou, Nan Kang and Mohamed El Mansori *Arts et Métiers Institute of Technology, France*
	Paper 20.2	**Monitoring and predicting pitting in bearing steel contacts using machine learning on vibration data** Zaihao Tian, Jo Grundy and Robert Wood *University of Southampton, UK*
	Paper 20.3	**Digital twin of kinetic model of tribocorrosion using electron-phonon, quantum chemical molecular dynamics and machine learning** Chao Zhang *Shanghai University, China*
Wednesday 11:40 – 13:00	**SESSION 21 – BIOTRIBOLOGY 2** Seminar Room 2.11, Esther Simpson	
	Paper 21.1	**Enhancing the Friction of Hydrogels in Water by Covering with Mesh Material** Shin Ito, Toshiaki Nishi, Yuto Sakaguchi, Noriko Tsuruoka, Yoichi Haga and Takeshi Yamaguchi *Tohoku University, Japan*
	Paper 21.2	**Tribological performance of transparent pHEMA hydrogels as a model for articular cartilage** David Rebenda, Ivana Chamradova, Zuzana Kadlecova, Pavel Cipek, Jan Gregora, Martin Vrbka, Lucy Vojtova and Martin Hartl *Brno University of Technology, Czech Republic; Tomas Bata University in Zlin, Czech Republic*
	Paper 21.3	**Estimation of wear in hard-on-hard hip implants under dynamic micro-separation case** Kumaran Nitish Prasad and Penchaliah Ramkumar *Indian Institute of Technology Madras, India*
	Paper 21.4	**A fluid solid coupled solver for cartilage lubrication** Arshad Kalathil Ashik, Daniele Dini and Carmine Putignano *Imperial College London, UK; Politecnico di Bari, Italy*
Wednesday 11:40 – 13:20	**SESSION 22 – LUBRICANTS AND LUBRICATION MECHANISMS 3** Seminar Room 2.12, Esther Simpson	
	Paper 22.1	**Effect of an Antioxidant Agent in Palm Oil-Based Lubricant on the Performance of a Hydrogen Internal Combustion Engine** Syahrullail Samion, Zulhanafi Paiman and Kamitani Shunpei *Universiti Teknologi Malaysia, Malaysia; Kagoshima University, Japan*
	Paper 22.2	**Effect of Tribofilm Characteristics derived from Transmission Fluids on Improving Gear Fatigue Life** Keiichi Narita, Hidenori Torii and Susumu Ishii *Idemitsu Kosan Co., Ltd., Japan*
	Paper 22.3	**From Lab to Product: How Oral Tribology Can Streamline Protein Smoothie Formulation** Ben Kew, Alice Heath and Anwesha Sarkar *University of Leeds, UK; Innocent Drinks, UK*
	Paper 22.4	**Evaluation of Relationship between Adsorption/Friction Properties and Molecular Properties of Additives by Vertical-Objective Type Ellipsometric Microscopy** Kenji Fukuzawa, Yuxi Song, Shintaro Itoh, Naoki Azuma and Hedong Zhang *Nagoya University, Japan*
	Paper 22.5	**Influence of a Transmission Oil Degradation on Gearbox Efficiency** Busra Duran, Fabrice Ville, David Philippon and Arnaud Ruellan *LaMCoS - INSA Lyon University, France; SKF Aerospace, France*

Wednesday 11:40 – 13:00	**SESSION 23 – MOBILITY GT – GREEN TRIBOLOGY 2** Seminar Room 3.02, Esther Simpson	
	Paper 23.1	**Hydrogen Effect on Tribological Performance of Lubricated Interfaces in Hydrogen Combustion Engines** Alaaeddin Al Sheikh Omar and Ardian Morina *University of Leeds, UK*
	Paper 23.2	**Coconut Shell-Derived Carbon Additives in liquid lubricants: A Sustainable Pathway for Friction Reduction in Biobased Lubricants** Sreed Sharma Kanakkillam, Mitjan Kalin and Nazanin Emami *University of Ljubljana, Slovenia; Luleå University of Technology, Sweden*
	Paper 23.3	**Friction Contact Heat Transfer Model for Pin-on-Disc Configuration Coated by Diamond-Like Carbon (DLC) for Tribology Applications** Khodor Nasser and Mitjan Kalin *University of Ljubljana, Slovenia*
13:20 – 14:30	*Lunch in the Refectory*	
	PARALLEL SESSIONS 24 TO 28	
Wednesday 14:30 – 15:50	**SESSION 24 – WEAR 2** Lecture Theatre LG.08, Esther Simpson	
	Paper 24.1	**Sn and MoS2 Particle Peening: Promoted Oxide Layer Formation and Reduced Fretting Wear of Ni-based Alloys at Elevated Temperatures** Kento Ihara, Azumi Yoshida, Nobuhiro Kunitake and Norihisa Horaguchi *Mitsubishi Heavy Industries Ltd., Japan*
	Paper 24.2	**Erosion behavior of high-pressure manifolds: An experimental and simulation study on gas-liquid-solid three-phase flow erosion involving fluctuating loads** Siwei Dai, Jianchun Fan and Zihan Guo *China University of Petroleum-Beijing, China*
	Paper 24.3	**Innovations in Laser Powder Bed Fusion: High-Temperature Fretting of Bi-Metallic IN718-L605 Superalloys** C.H. Sathisha, D. Kesavan and M.R. Sridhar *GE Aerospace Research, India; Indian Institute of Technology, Palakkad, India; GE Vernova Research, India*
	Paper 24.4	**Effect of Deposition Orientation and Preheating Temperature on Fatigue Behavior of Laser Powder Bed Fusion Processed H13 Tool Steel** Zehao Qin and Nan Kang *Ecole Nationale Supérieure d'Arts et Métiers (ENSAM), France*
Wednesday 14:30 – 16:10	**SESSION 25 – LUBRICANTS AND LUBRICATION MECHANISMS 4** Lecture Theatre 1.01, Esther Simpson	
	Paper 25.1	**Emulsified Palm TMP Ester Lubricant with Protic Ionic Liquid for Hydrogen-Fuelled Internal Combustion Engines** Nur Aisya Affrina Mohamed Ariffin, Chiew Tin Lee, Keng Yinn Wong, Jo-Han Ng and William Woei Fong Chong *Universiti Teknologi Malaysia (UTM), Malaysia; Universiti Malaysia Sarawak, Malaysia; University of Southampton Malaysia, Malaysia*
	Paper 25.2	**Effects of the atmosphere on lubricant degradation monitored via UV-Vis** Renato Siqueira, Jie Zhang, Janet Wong, Hugh Spikes, Henara Costa *Universidade Federal do Rio Grande, Brazil; Imperial College London, UK*
	Paper 25.3	**Tribological Properties of Magnetic Fluids under Magnetic Field and Particle Size Control** Qi Lou and Min Yu *Imperial College London, UK*
	Paper 25.4	**Evaluation of Lubrication Performance of Low Viscosity PAO Formulated with Phosphate Esters under High Vacuum** Ryunosuke Tanaka, Saiko Aoki and Takashi Yokoyama *Institute of Science Tokyo, Japan; Japan Aerospace Exploration Agency, Japan*
	Paper 25.5	**Investigating the action of zinc-based and ashless anti-wear additives on non-ferrous surfaces** Robert Crowther, Waleed Al-Sallami and Nathaniel Cain *University of York, UK; Afton Chemical Limited, UK; Afton Chemical Corporation, USA*

Wednesday 14:30 – 15:50	**SESSION 26 – MACHINE ELEMENTS 3** Seminar Room 2.11, Esther Simpson	
	Paper 26.1	**Influence of multi-circumferential discontinuous micro-grooves on the tribodynamic performance of a radial ball bearing** Ajay Sharma, Satpal Sharma and Raj Pandey *Gautam Buddha University, India; IIT Delhi, India*
	Paper 26.2	**Influence of Corrosion Inhibitors on the Performance of Extreme Pressure / Anti Wear Additives and the Resulting Corrosion Protection of Oil-Lubricated Rolling Bearings** Merle Reimers, Georg Jacobs and Florian König *RWTH Aachen University, Germany*
	Paper 26.3	**Cage-ring contact, an underrated contributor to the power losses of a high-speed roller bearing** Valentin Rion, Nicolas Fillot and Laetitia Martinie *LaMCoS - INSA de Lyon, France*
Wednesday 14:30 – 15:50	**SESSION 27 – MOBILITY GT – GREEN TRIBOLOGY 3** Seminar Room 2.12, Esther Simpson	
	Paper 27.1	**Tribological behaviour of self-lubricating bearings for dry-sliding in wave energy convertors — Effect of speed** Rahul Kumar, Mitjan Kalin and Nazanin Emami *University of Ljubljana, Slovenia; Luleå University of Technology, Sweden*
	Paper 27.2	**Investigation of the superlubricity in DLC coating on bearing steel under electric stimulation** Parveen Kumar, Irfan Nadeem, Talha Bin Yaqub, Ardian Morina and Mitjan Kalin *University of Ljubljana, Slovenia; University of Leeds, UK*
	Paper 27.3	**Influence of boundary films on Elastohydrodynamic lubrication in interfaces coated with Diamond-Like Carbon (DLC) coatings** Elton Savi, Yunbo Hao, Marko Polajnar, Ardian Morina and Mitjan Kalin *University of Ljubljana, Slovenia; University of Leeds, UK*
	Paper 27.4	**Micropitting Performance of Ester and Sulfur-based Additives in Gear Transmission System** Alaaeddin Al Sheikh Omar, Farnaz Motamen Salehi, David Gillespie, Kevin Duncan, Gareth Moody, Mitjan Kalin and Ardian Morina *University of Leeds, UK; University of Ljubljana, Slovenia; Cargill Ltd, UK*
Wednesday 14:30 – 15:50	**SESSION 28 – TEXTURE/SURFACE 3** Seminar Room 3.02, Esther Simpson	
	Paper 28.1	**Investigations on Mechanism of the Friction-assisted Selective Area Electrodeposition and its Application in Worn Surface Repairing** Yang Song, Chenxu Liu and Yonggang Meng *Tsinghua University, China*
	Paper 28.2	**PIV Analysis around the Contact Area Lubricated with Urea Grease Containing Different Thickeners** Shunsuke Nakamizo, Ryuya Nishida, Ryota Ishii, Toru Izumi, Kazumi Sakai and Norifumi Miyanaga *Kanto Gakuin University, Japan; ENEOS Corporation, Japan; Waseda University, Japan*
	Paper 28.3	**Homogenization of the Elrod-Adams System for Journal Bearings with Textured Shafts** Matti Schultz, Michael Rom and Siegfried Müller *RWTH Aachen University, Germany*
	Paper 28.4	**Influence of Roughness Orientation on Friction Coefficient** Matthieu Cordier, Yasser Diab, Fida Majdoub, Christophe Changenet, Fabrice Ville and Karine Petuya *LaMCoS - INSA de Lyon, France; ECAM, France; Safran Helicopter Engines, France*
16:10 – 16:40	*Refreshments, posters and exhibition in Newlyn*	
19:00 – 22:00	*Evening Reception and Symposium Dinner at The Queens Hotel, City Square (delegates to make their own way there)*	

THURSDAY 4 SEPTEMBER 2025

08:45 – 09:30	**SESSION 29** Lecture Theatre LG.08, Esther Simpson	
	Paper 29.1	**KEYNOTE 4** **Tribology of Lubricated Mechanisms: A Way to Sustainability** *Professor Fabrice Ville, INSA Lyon, France*
	PARALLEL SESSIONS 30 TO 34	
Thursday 09:40 – 11:10	**SESSION 30 – TRIBOLOGY IN TRANSPORT SYSTEMS 1** Lecture Theatre LG.08, Esther Simpson	
	Paper 30.1	**How to understand the influence of ammonia on piston ring-liner tribology system?** Xuan Ma, Xing Xu, Chang Ge and Xiqun Lu *Harbin Engineering University, China*
	Paper 30.2	**Fundamental understanding of water-based lubricants for hydraulic and EV applications** Isabella Dunn Dias Ferreira, Daniele Dini and Janet S. S. Wong *Imperial College London, UK*
	Paper 30.3	**An advanced method for measuring shim and tappet dynamics and analysing the effects of friction modifiers in engine valvetrains** Sehrish Shahnawaz, Riaz Mufti, Waleed Al-Sallami, Mian Ashfaq, Rehan Zahid and Jawid Aslam *National University of Sciences and Technology, Pakistan; Afton Chemical Ltd, UK*
	Paper 30.4	**Electrical pitting analysis of rolling bearings** Junichi Suzumura *Railway Technical Research Institute, Japan*
Thursday 09:40 – 11:10	**SESSION 31 – ADHESION** Lecture Theatre 1.01, Esther Simpson	
	Paper 31.1	**An innovative energy-based numerical procedure for 3D adhesive contacts** Michele Santeramo, Giuseppe Carbone, Stefan Krenn and Carmine Putignano *Politecnico di Bari, Italy; AC2T research GmbH, Austria*
	Paper 31.2	**Rate-Dependent Adhesion and Dissipation in Viscoelastic Crack Propagation: Contributions from Bulk and Fracture Process Zone** Ali Maghami, Qingao Wang, Michele Tricarico, Michele Ciavarella, Qunyang Li and Antonio Papangelo *Politecnico di Bari, Italy; Tsinghua University, China*
	Paper 31.3	**Study on Adhesion and Static Friction Behavior of Superalloys at Elevated Temperatures** Yuhui Zou and Tianmin Shao *Tsinghua University, China*
	Paper 31.4	**Numerical Analysis of Adhesive Wear of Gears with Constant Relative Curvature Under Mixed Elastohydrodynamic Lubrication** Lei Liu *Nanjing University of Aeronautics and Astronautics, China*
Thursday 09:40 – 11:10	**SESSION 32 – CONTACT MECHANICS** Seminar Room 2.11, Esther Simpson	
	Paper 32.1	**Characterisation of Granular Materials Using Acoustic Emission Wavelets and K-Means Clustering** Beikang Liu, Min Yu and Thomas Reddyhoff *Imperial College London, UK*
	Paper 32.2	**Acoustic Emission for Condition Monitoring of Roller Bearings and an Experimental Comparison to the Vibration-Based Approach** Nico Gregarek, Georg Jacobs, Benjamin Klinghart and Florian König *RWTH Aachen University, Germany*
	Paper 32.3	**Multi-scale model of Contact Temperature in Line-Contact under Boundary Lubrication** Yichun Xia and Yonggang Meng *Tsinghua University, China*
	Paper 32.4	**Friction monitoring during vibration using solitary waves** Alfredo Fantetti, Jean Myung Jung, Alexander F. Vakakis and Kathryn H. Matlack *Imperial College London, UK; University of Illinois at Urbana-Champaign, USA*

Thursday 09:40 – 11:10	**SESSION 33 – COMPUTATIONAL AND DATA DRIVEN METHODS IN TRIBOLOGY** Seminar Room 2.12, Esther Simpson	
	Paper 33.1	**Data Science Methods for the Detection of impending Component Failure** Surya Kannan Peesapati, Josef Prost, Georg Vorlaufer and Markus Varga *AC2T research GmbH, Austria*
	Paper 33.2	**Parallel Computing Technique OpenMP and Its Application to Lubrication Analysis** Siyi Li, Chengwei Wen and Hang Zhang *China University of Petroleum, China*
	Paper 33.3	**Multi-factor Coupled Tribo-dynamics Modeling and Online Monitoring Methods for the Failure of Key Friction Pairs in Marine Engines** Jiabao Yin and Xianghui Meng *Shanghai Jiao Tong University, China*
	Paper 33.4	**Solving the Vanishing Film Problem: Modelling Mixed Lubrication using the Heterogenous Multiscale Methods** *Joshua Montgomery* *University of Leeds, UK*
Thursday 09:40 – 11:10	**SESSION 34 – COATINGS 1** Seminar Room 3.02, Esther Simpson	
	Paper 34.1	**The evolution mechanism of graphene-like structure during superlubricity achievement of Si3N4/ta-C friction pairs** Huajie Tang and Xinchun Chen *Tsinghua University, China*
	Paper 34.2	**Wear Behaviour of Si doped tetrahedral amorphous carbon coatings with surface roughness variations in water lubrication** Young-Jun Jang, Ji-Woong Jang and Jae-Il Kim *Korea Institute of Materials Science, South Korea*
	Paper 34.3	**Effect of Surface Treatment and Lubricant Additives on Valve Train Performance** Muhammad Khurram, Riaz Ahmad, Muhammad Ubaid Ur Rehman, Muhammad Usman Abdullah, Usman Bhutta, Naqash Afzal and Rehan Zahid *National University of Technology, Pakistan; National University of Sciences and Technology, Pakistan; Canterbury Christ Church University, UK*
	Paper 34.4	**Friction and Wear Analysis of DLC, Ti-DLC, and Co-DLC Coatings in Boundary Lubrication at 100 °C Using Synthetic Base Oil and Sustainable Low-SAPS Additives** Mobeen Haneef, Manuel Evaristo, Liuquan Yang, Ardian Morina and Bruno Trindade *University of Coimbra, Portugal; University of Leeds, UK*
11:10 – 11:40	*Refreshments, posters and exhibition in Newlyn*	
	PARALLEL SESSIONS 35 TO 39	
Thursday 11:40 – 13:00	**SESSION 35 – TRIBOLOGY IN TRANSPORT SYSTEMS 2** Lecture Theatre LG.08, Esther Simpson	
	Paper 35.1	**Unveiling the relationship between pavement surface texture and roughness and the energy loss of a tire: the rolling resistance in a battery electric vehicle** Gerardo Gravante, João Santos, Ahmed Es-Sabar, Samuel Louis and Véronique Cerezo *Université Gustave Eiffel, France; University of Twente, The Netherlands*
	Paper 35.2	**Graphene oxide as an additive in aqueous lubricants for electric drive units: Synthesis, preparation, and tribological performance** Mohammad Reza Najjari, Mahdi Mohammadpour and Sina Saremi-Yarahmadi *Loughborough University, UK*
	Paper 35.3	**The Effects of Alternating Current (AC) Electrification on the Tribological Performance of Gear Materials with Internal Combustion Engine (ICE) and Electric Vehicle (EV) Transmission Lubricants** Thawhid Khan, Joshua Armitage and Michael Bryant *University of Sheffield, UK; University of Leeds, UK; University of Birmingham, UK*
	Paper 35.4	**Study of Methanol Engine on Tribology Properties: ZDDP Additive Degradation and Tribofilm Behavior** Chang Ge, Xuan Ma, Xing Xu, Xiqun Lu and Zhigang Liu *Harbin Engineering University, China*

Thursday 11:40 – 13:00	**SESSION 36 – COATINGS 2** Lecture Theatre 1.01, Esther Simpson	
	Paper 36.1	**Tribological characterization of WSe2 based solid lubricant coating** Yue Wang, Himanshu Rai and Tomas Polcar *Czech Technical University in Prague, Czech Republic*
	Paper 36.2	**Influence of Hard Surface Coatings on Tappet Rotation of Direct-Acting Engine Valve Train** Muhammad Bhutta, Rehan Zahid, Muhammad Khurram, Muhammad Usman Abdullah, Riaz Ahamd Mufti, Chaudhry Kashif Iqbal, Jawad Aslam and Mian Ashfaq Ali *National University of Sciences and Technology, Pakistan; Canterbury Christ Church University, UK*
	Paper 36.3	**Influence of Nb doping on microstructure and tribological performance of MoS_2 coatings** Newton Fukumasu, Miguel Danelon, Ronnie Rego, André Tschiptschin, Izabel Machado and Roberto Souza *University of São Paulo, Brazil; Aeronautics Institute of Technology, Brazil*
	Paper 36.4	**Counterpart-dependent friction and wear of hydrogenated tetrahedral amorphous carbon under high vacuum** Jae-Il Kim, Ji-Woong Jang and Young-Jun Jang *Korea Institute of Materials Science, South Korea*
Thursday 11:40 – 13:00	**SESSION 37 – POLYMER TRIBOLOGY 3** Seminar Room 2.11, Esther Simpson	
	Paper 37.1	**Influence of Normal Load on Strain Distribution in Rubber during Friction against a Resin Sphere** Toshiaki Nishi, Tomohiro Nomoto, Kentaro Hanzawa, Shun Tanemura, Ken Yamaguchi, Isao Kuwayama and Takeshi Yamaguchi *Tohoku University, Japan; Bridgestone Corporation, Japan*
	Paper 37.2	**Multiple-Grid Approach for Transient Thermo-EHL analysis of Elastomeric Reciprocating Rod Seal** Neha Pandey and Badri Prasad Patel *Indian Institute of Technology Delhi, India*
	Paper 37.3	**Water-lubrication of UHMWPE through carbon nanotube under different temperature** Binbin Li, Xincong Zhou, Jian Huang and Xu Guo *Wuhan University of Technology, China*
	Paper 37.4	**Investigations around thermal and tribological effects on a Carbon/Carbon composite interface** Hugo Bergère, Aurélien Saulot, Jean-Philippe Noyel, Christophe Changenet and Valentin Ripard *LaMCoS - INSA de Lyon, France; ECAM LaSalle, France; Safran Landing Systems, France*
Thursday 11:40 – 13:00	**SESSION 38 – WEAR 3** Seminar Room 2.12, Esther Simpson	
	Paper 38.1	**Tribological evaluation of reindustrialized liners applied in tertiary crushers in mining** Wivyan Castro Lage, Fabricio Andrade and Gustavo Tressia *Universidade Federal de Itajuba, Brazil; Instituto Tecnologico Vale, Brazil*
	Paper 38.2	**Influence of soil type on initial wear mechanisms of tillage tools when studied in a new mobile pendulum test** Maria Wojtowicz, Robin Elo, Jannica Heinrichs Lindgren, Urban Wiklund, Anders Bäckström and Staffan Jacobson *Uppsala University, Sweden; Väderstad Components AB, Sweden*
	Paper 38.3	**Evolution on surface, friction and wear behavior of NiTi alloys fabricated by forging and additive manufacturing** Xianghui Huang, Nan Kang, Tianyu Yu and Mohamed El Mansori *Harbin Institute of Technology, China; École Nationale Supérieure d'arts et Métiers, France*
	Paper 38.4	**Tribological Testing as a Predictive Tool for Achieving Sustainability** Paula Cuervo *Universidad Industrial de Santander, Colombia*

Thursday 11:40 – 13:20	**SESSION 39 – LUBRICANTS AND LUBRICATION MECHANISMS 5** Seminar Room 3.02, Esther Simpson	
	Paper 39.1	**Biodegradable Amino Acid-Based Ionic Liquids Additives for water-based lubricating fluids: An Effective Approach to Achieve Green Lubrication** Meirong Cai, Xiao Liu, Haiyuan Hu and Feng Zhou *Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences, China;* *Shandong Laboratory of Advanced Materials and Green Manufacturing at Yantai, China*
	Paper 39.2	**Characterization and Tribological Study of Oleic Acid-Based Bio-Lubricant with Phenolic Anti-oxidant and Co-Polymer Viscosity Improver** Zulhanafi Paiman, Syahrullail Samion and Amanda Maisarah Norazman *Universiti Teknologi Malaysia, Malaysia*
	Paper 39.3	**Influence of dynamic Effects on the Lubrication and Friction Condition** Markus Varga, Fabio Tatzgern and Anton Mario Puhwein *AC2T research GmbH, Austria*
	Paper 39.4	**Lubrication and Adsorption Characteristics of Phosphorus Compound in Ester Base Stocks** Tomohiro Takaki, Takeshi Kimura, Tasuku Onodera, Kyosuke Arakawa, Hideki Sakai and Kenichi Sakai *ENEOS Corporation, Japan; Tokyo University of Science, Japan*
	Paper 39.5	**Magnetic Response and Tunable Friction of Magnetic Solvent-Free MXene@Fe3O4 Nanofluids** Wenjing Lou, Xiaoyu Wang, Yan Zhao, Bo Dai and Jun Yang *Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences, China*
13:20 – 14:30	*Lunch in the Refectory*	
	PARALLEL SESSIONS 40 TO 43	
Thursday 14:30 – 15:50	**SESSION 40 – LUBRICANTS AND LUBRICATION MECHANISMS 6** Lecture Theatre LG.08, Esther Simpson	
	Paper 40.1	**Mechanistic insights into H2O-enhanced iron sulfide formation: A DFT study for sulfur fire prevention and environmental hazard mitigation** Haoyuan Dai and Mengrong Gao *Beijing Institute of Petrochemical Technology, China*
	Paper 40.2	**Co-located dual-wave ultrasonics for simultaneous monitoring of lubricant film thickness and its temperature** Pan Dou, Tonghai Wu, Min Yu and Tom Reddyhoff *Imperial College London, UK; Xi'an Jiaotong University, China*
	Paper 40.3	**Influence of Hydrogen Gas on the Friction and Wear Characteristics of Lubricant Additives** Shogo Eryu, Hiroyoshi Tanaka, Ko Onodera and Kazuyuki Yagi *ENEOS Corporation, Japan; Kyushu University, Japan*
	Paper 40.4	**Investigation of environmentally acceptable lubricant formulations with regard to their degradation-related change in tribological performance** Marius Bürger, Maximillian Koch, Ludger Brühl, Georg Jacobs and Florian König *RWTH Aachen University, Germany; Max Rubner-Institute, Germany*

Thursday 14:30 – 15:50	**SESSION 41 – MACHINE ELEMENTS 4** Lecture Theatre 1.01, Esther Simpson	
	Paper 41.1	**Effects of flexible clearance of bush, textured shaft and oil viscosity on the stability of a vertical rotor** Pranabesh Ganai, Jeewan Atwal, Raj Pandey and Jayanta Dutt *Indian Institute of Technology Delhi, India; MNNIT Allahabad, India;* *Shri G. S. Institute of Technology and Science, India*
	Paper 41.2	**Break-away/Running-in frcition of sliding bearing in lubricated condition** Jian Huang, Yong Jin, Wu Ouyang, Qilin Liu and Xincong Zhou *Wuhan University of Technology, China*
	Paper 41.3	**Numerical Analysis of the Static Characteristics of Gas Foil Journal Bearings Using Fluid-Structure Interaction Analysis** Soki Kuroda, Seiya Naka, Masaaki Miyatake, Akihiro Ueda, Satoshi Yamaguchi and Naotoshi Shimizu *Tokyo University of Science, Japan; IHI Corporation, Japan*
	Paper 41.4	**A Tribological Investigation of Discontinuous Tightening** Daniele Limiti, Benyebka Bou-Saïd, Francesco Massi and Rémi Béguin *LaMCoS - INSA de Lyon, France; DIMA - "La Sapienza" University of Rome, Italy;* *Chicago Pneumatic, France*
Thursday 14:30 – 15:50	**SESSION 42 – TRIBOLOGY IN TRANSPORT SYSTEMS 3** Seminar Room 2.11, Esther Simpson	
	Paper 42.1	**Tribological Challenges in Methanol-Fueled Engines: Research Approach and Preliminary Insights** Yelvin Ragimov, A. Gotze, M. Reimers, G. Jacobs, F. Konig, M. Golemanov and Frank Atzler *RWTH Aachen, Germany; Technische Universitat Dresden, Germany*
	Paper 42.2	**Effect of hydrogen atmosphere on tribological behaviour on austenitic stainless steel 304L after ball-on-disc tribotests** Ana Cecilia Rodrigues, Odeed Sobol and Geraldine Theiler *Ecole Centrale de Lyon, France; Bundesanstalt für Materialforschung und-prüfung, Germany*
	Paper 42.3	**Development and Application of an Online Detection Device for Dissolved Ammonia Volume in Lubricants of Ammonia-Fueled Engines** Yuxuan Sheng, Xing Xu, Xuan Ma, Yuanqi Mai and Zetong Wang *Harbin Engineering University, China*
	Paper 42.4	**Electrical Fluting Damage of Rolling Element Bearings- Influences of AC Electrical Parameters and Operating Conditions** Haichao Liu, Hai Ye, Wenjing Lou, Peng Liang and Xiaobo Wang *Lanzhou Institute of Chemical Physics, China; Qingdao University of Technology, China*
Thursday 14:30 – 15:50	**SESSION 43 – TEXTURE/SURFACE 4** Seminar Room 2.12, Esther Simpson	
	Paper 43.1	**How Roughness Scale Affects Lubrication Regime Parameters** Robert Jackson, Arshia Fatemi and Charlotte Spies *Auburn University, USA; Robert Bosch GmbH, Germany*
	Paper 43.2	**Tribological Performance of Positive Deterministic Textured Surfaces: The Influence of Texture Orientation in Parallel Sliding Lubricated Contacts** Mizan Ahmed and Mihir Sarangi *IIT Kharagpur, India*
	Paper 43.3	**Lubricant Vector-Guided Surface Texture Design and Enhancement Mechanisms for Starved Lubrication** Yang Liu, Ling Li and Zhiwei Zhang *Xi'an University of Architecture and Technology, China*
	Paper 43.4	**Shape-Morphing Contact Interfaces for Enhanced Torque Capacity in Power Transmission Systems** Nikolaos Rogkas, Alexandros Manios, Matheos Pelekis, Georgios Papamichail, Ioannis Iliopoulos, Stephanos Balas, Pavlos Zalimidis, Dimitrios Rakopoulos, Stelios K. Georgantzinos and Vasilios Spitas *National and Kapodistrian University of Athens, Greece; School of Pedagogical and Technological Education, Greece; Centre for Research Technology Hellas, Greece*
16:00 – 16:15	**Awards and Symposium Close** Lecture Theatre LG.08, Esther Simpson	
16:15 – 16:45	Close *(and refreshments in Newlyn)*	