46th LEEDS LYON

SYMPOSIUM ON TRIBOLOGY

SEPTEMBER
2-4, 2019
LYON - FRANCE

TRIBOLOGY IN DAILY LIFE

http://leeds-lyon.sciencesconf.org/

Organized by LaMCoS with LTDS

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PROGRAMME AT A GLANCE

	Sunday 1st September	Monday 2nd September	Tuesday 3rd September	Wednesday 4th September
8:00		Welcome / Registration	Invited talk 1: F. Massi Invited talk 2: J. Wollbrett-Blitz Invited talk 3: T. Hirayama	Invited talk 4: S. Mischler Invited talk 5: H. Washizu Invited talk 6: S. de Beer
9:00		Opening and Welcome address Keynote 1- **Cartilage, Contacts and Catheters** Nicholas Spencer	Coffee break Session 4.1: Tactile perception Session 5.1: Everyday life: Sport tribology Session 6.1: EHL1	Coffee break Session 7.1: Physico-chemistry Session 8.1: Phosphate based additives Session 9.1: Fluid and grease lubrication
10:00		Coffee break Keynote 2-**Thin Film Lubrication: Molecular Behaviours of Confined Liquids** Jianbin Luo	Coffee break Session 4.2: Surface topography Session 5.2: Abrasion and scratch Session 6.2: EHL2	Coffee break Session 7.2: Molybdenum based lubrication Session 8.2:Organic friction modifiers Session 9.2: Ionic liquid
11:00		Keynote 3- **Oral Friction and Texture Perception of Food: Red Wine, Chocolate and Cream** Philippa Cann		
12:00		Group Picture Lunch	Lunch	Lunch
13:00				
14:00		Session 1.1: In-situ measurement Session 2.1: Modelling - Nanoscale Session 3.1: Seal 1	Session 4.3: Coating 1 Session 5.3: Biotribology 1 Session 6.3: Texturation	Session 7.3: Modelling - Dry contact Session 8.3: Fretting and oscillatory conditions Session 9.3: Friction and wear
15:00		Coffee break	Coffee break	Awards and Closure Plenary Room
16:00	On-site registration opening (from 16:00 to 21:00)	Session 1.2: Micro and nano-tribology Session 2.2: Modelling - Fluid lubrication Session 3.2: Seal 2	Session 4.4: Coating 2 Session 5.4: Biotribology 2 - human joints Session 6.4: Bearings: rolling and plain	
17:00				
18:00	Buffet	Poster Session & Poster Party		
19:00				
20:00			Banquet	
21:00				
22:00				

46th LEEDS LYON

SYMPOSIUM ON TRIBOLOGY

Welcome

to Valpré, venue for the

46TH LEEDS LYON SYMPOSIUM ON TRIBOLOGY

TRIBOLOGY IN DAILY LIFE

Tribology includes the themes of lubrication, friction and wear. We are first inclined to think tribology in the context of industrial applications but lose sight of the myriad of ways it affects our daily lives.

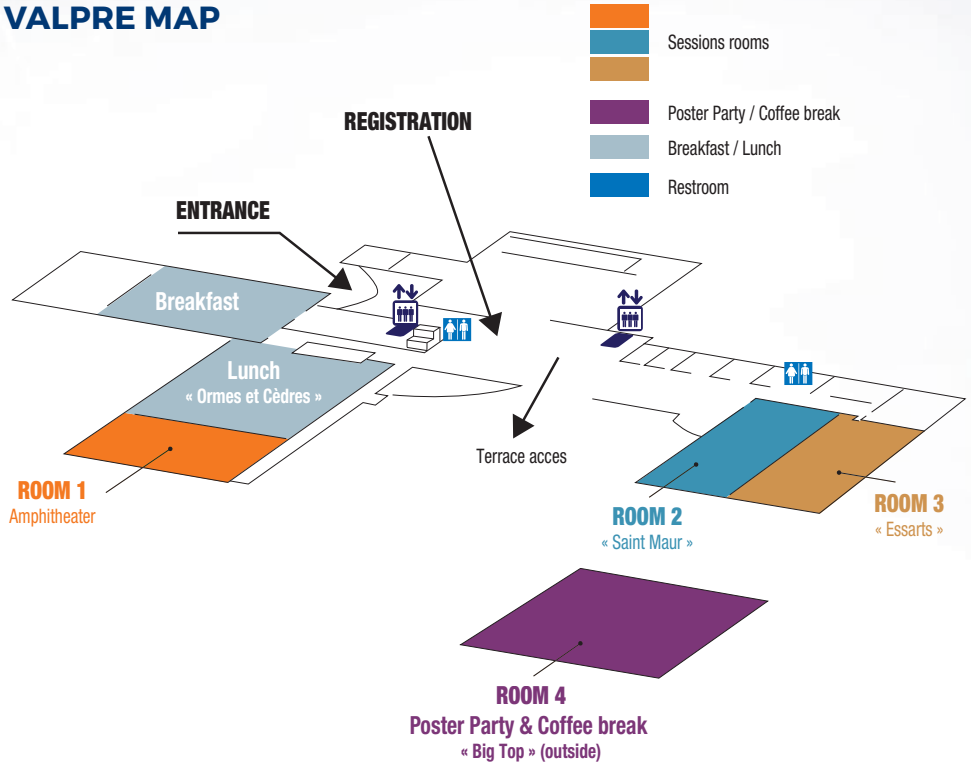
We wake up and blink our eyes. We chew and taste our food and we brush our teeth. We use a sponge to clean the table. We put on slippers to get around the house and sport-shoes for a run sometimes in rainy conditions. We take our car or our bike to get around. We interact with computers and phones through touchscreens. We participate in sports and fitness activities during our leisure hours. In all these actions and activities, tribology is present. It is part of our daily life. It conditions our attitude, our behaviour and our interactions with the many environments.

This Leeds-Lyon 2019 will be dedicated to tribology in daily life. During conference, close to 230 presentations (oral and poster) among the unprecedented number submitted will be given.

#LeedsLyon

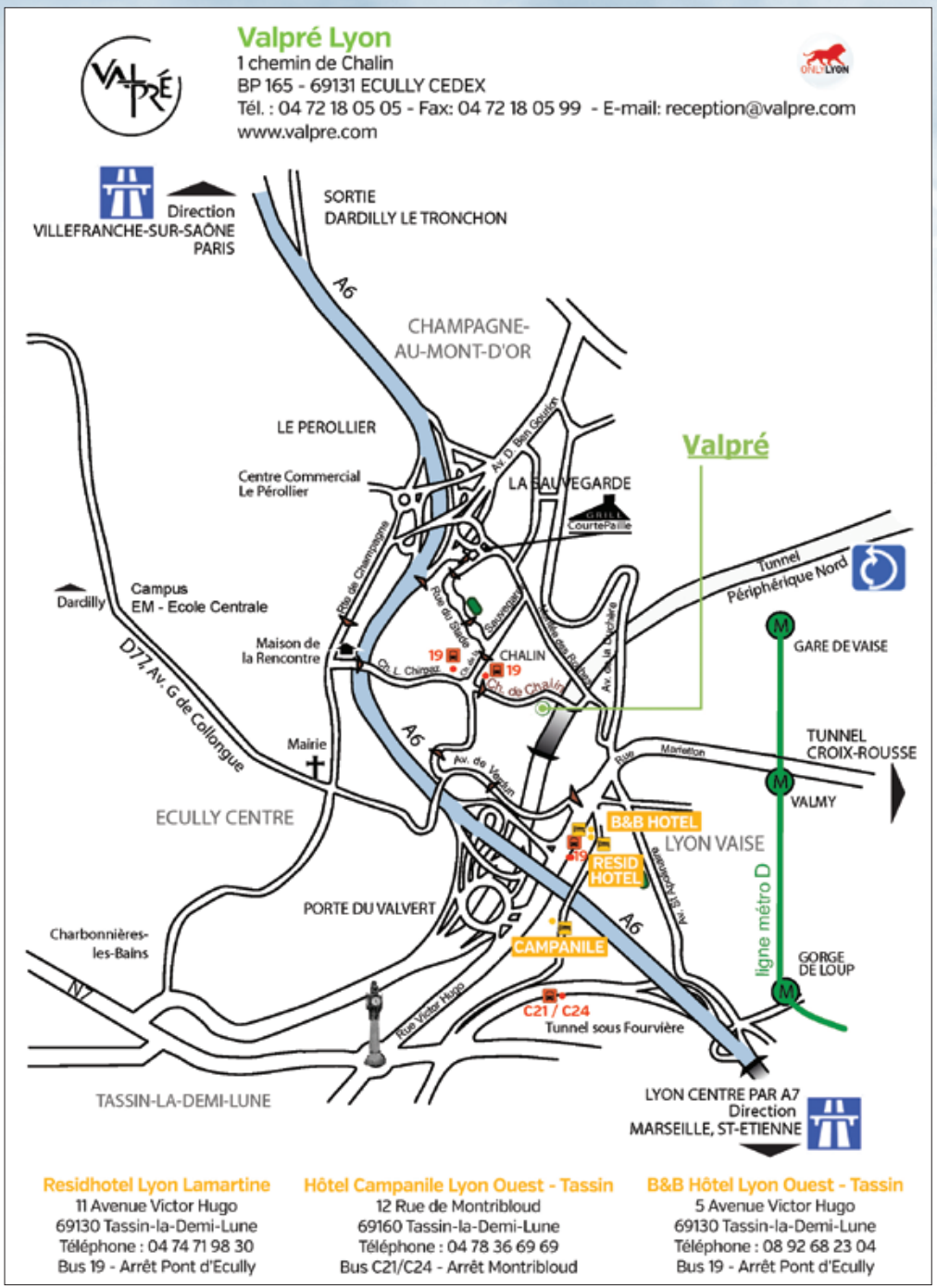
#Tribology

VALPRE MAP



Presentations will be held in the **Room 1 (Theater)**, **Room 2 ("Saint Maur")** or **Room 3 ("Essarts")** sign-posted from reception. Poster session and coffee breaks will be held in **Room 4** located outside, under the big top, on the lawn. Please see the full programme for the appropriate room.

• ACCESS MAP



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12 Rue de Montribloud
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Bus C21/C24 - Arrêt Montribloud

B&B Hôtel Lyon Ouest - Tassin
5 Avenue Victor Hugo
69130 Tassin-la-Demi-Lune
Téléphone : 08 92 68 23 04
Bus 19 - Arrêt Pont d'Ecully

• WALKING ACCESS (FROM B&B HOTEL)

A shuttle from B&B Hotel to Valpré runs every morning at 8:00.

• PRACTICAL INFORMATION

CONTACT

If you need assistance, please contact **Sophie De Oliveira or Emmanuel Montero** (Leeds-Lyon Symposium Secretariat: leeds-lyon@insa-lyon.fr) who will be happy to assist you.

VENUE / DIRECTIONS

Valpré Lyon - BP 165, 1 chemin de Chalin, 69131 ECULLY Cedex
Tel: +33 4 72 18 05 05 - E-mail: reception@valpre.com - www.valpre.com

VALPRÉ DIRECTIONS AND TRANSPORTATION

- **Free shuttles will be available after the Symposium closure on Wednesday afternoon (16:45)**
  - from Valpré to Part-Dieu railway station
  - from Valpré to Saint Exupery Airport.

Booking on-site, on a first arrived first served basis.

- **By car**: Valpré is located at 3 minutes from the highway intersection Valvert (A6 to Paris/Marseille, Peripherique TEO to Geneva/Grenoble).

- **Taxi to St Exupery Airport**: This should take about 40 minutes and cost approximately 60 euros (85 euros after 19:00).

- **Taxi to Part Dieu Train Station**: This should take about 30 minutes and cost approximately 30 euros.

- **Bus/Metro/Rhônexpress**

  > **To the Part Dieu Train station (45 minutes):**
  Take the bus n°19 (see access map) direction Hotel de Ville, stop Gorge de Loup.
  Then take Metro D direction Gare de Vénissieux, stop Saxe Gambetta.
  Then take Metro B direction Charpennes, stop Part Dieu.

  otherwise:
  Take the bus n°19 (see access map) direction "Hotel de Ville", stop "Hotel de Ville".
  Then take Metro A direction "Vaulx-en-Velin-La Soie", stop "Charpennes".
  Then take Metro B direction "Oullins", stop "Part Dieu".

  > **To the St Exupery Airport:** follow the instructions to go to Part Dieu train station then take Rhônexpress direction Airport (30 minutes).

TECHNICAL PROGRAMME

There may be some amendments to the Provisional Technical Programme displayed on the Leeds-Lyon website, please check the programme displayed at each front door session room.

SYMPOSIUM BANQUET

The Symposium banquet will take place on the evening of Tuesday 3 September at the "Les Subsistances" (address: 8 bis Quai Saint-Vincent, 69001 Lyon).
For security reason, Symposium Banquet can be accessed only upon presentation of the entry ticket (provided with delegate bags).
Coaches will leave Valpré between 18:15 and 18:30 to the dinner place. A guided tour of the place will be possible.

GROUP PICTURE

The group picture will be taken on Monday at 11:50 prompt on the lawn.

SYMPOSIUM MEAL TIMES

Sunday 1 September
18:00 – 21:00 Buffet

Monday 2 September
07:30 – 8:30 Breakfast
12:00 – 13:40 Lunch
18:00 – 21:30 Wine/Cheese party (in parallel with Poster Party and Concert)

Tuesday 3 September
07:30 – 08:30 Breakfast
12:20 – 13:40 Lunch
18:15 – 22:30 Symposium Dinner at « The Subsistances »

Wednesday 4 September
07:30 – 08:30 Breakfast
12:20 – 13:40 Lunch

INTERNET ACCESS

Free WiFi access is available in Valpré.

SMOKING POLICY

Valpré is a designated no-smoking building. If you wish to smoke, please do so outside the buildings.

POSTER SESSION AND AWARDS

Posters may be fixed from Sunday 16:00 (in Room 4), and should be removed before 14:00 on Wednesday.
A poster party including a poster session will take place on Monday from 18:00 to 21:30. Authors who are willing to present their poster work are encouraged to stand close to it during the main poster session.
Approximately 100 posters are going to be exposed during the conference, and all of them will compete for the poster prizes. During the poster party, all the attendees will be invited to vote for the two best posters. The most rated posters will be announced at the beginning of the Tuesday morning sessions, and their authors will be invited to present their work to an international jury during the Tuesday Coffee breaks. Afterwards, the jury will elect the best and the second best posters. The results will be announced during the closing ceremony, and the first authors of these two posters will be awarded 300 and 200 euros respectively. Both recipients will be asked to make a quick presentation of their poster during the closing ceremony on Wednesday.

MAURICE GODET AWARD

To honour the memory of Professor Maurice Godet, a prize of 500 euros will be given to the best oral presentation by a young researcher. To be eligible the following criteria are applied:
- her/his abstract has been accepted for oral presentation in the regular process,
- the applicant has submitted an extended abstract (2 pages max) and a CV before June 28th,
- the majority of the work presented has been performed by the applicant,
- the first author (the applicant) is a registered PhD student or has defended his/her PhD in 2019
- the applicant must present the work at the symposium.

A panel experts is constituted to consider the work of each applicant.

• SPEAKERS GUIDELINES

The schedule for the sessions is important and so please respect your allotted presentation time:
- **Keynotes speakers: 30-35 minutes presentation plus 5-10 minutes for discussion/ questions**
- **Invited speakers: 20-25 minutes presentation plus 5-10 minutes for discussion/ questions**
- **Parallel Session speakers: 15 minutes presentation plus 5 minutes for discussion/ questions**

Each room is equipped with a podium, screen, microphone, laptop computer and data projector. Presenters may bring their own laptop computer. All computers for a particular session will be active during the session with a port video switch used to allow a quick transition from one presenter to the next.
Hopefully, **speakers** will arrive at the meeting rooms at the beginning of the break to set up and test their equipment and presentation. Technical support will be available to assist.

Thank you and enjoy the conference!

• SESSION CHAIRS GUIDELINES

A session folder for your session will be located on the table. The folder will contain your schedule, the addendum to show last minute changes to the program (changes and cancellations).
Ensure you have a full complement of speakers and some bibliographical details to introduce each speaker. Only the nominated presenter appears in the program.
Double-check with your speakers on required visual aids and remind your Chair Assistant to work with the Audio Visual Technician to be sure the equipment is in good working order prior to the session start time.
Begin on time and stay on schedule. Keep your opening remarks brief. Consider reminding the speaker that he has between two and three minutes remaining time. If there is a no-show, do not move the later speakers up into the no-show slot. Presentations are scheduled in the program guide and changing times could result in attendees missing a presentation they were looking for. Rather, take a short “stretch break” until the next speaker.
Members and member representatives should conduct themselves and their activities in a professional manner marked by integrity and a spirit of fair play so as to not disrupt meeting activity.

Thanks to all the speakers for their participation.

• SYMPOSIUM DINNER

The conference banquet will take place on the evening of Tuesday, September 3rd, 2019, in Les Subsistances («The Subsistences» in English), a place currently dedicated to artistic creation, located on the banks of the Saône river, at the bottom of Croix-Rousse hill.

Since the 17th century, The Subsistences have had 3 major assignments. By simply looking at the site, we can see the different occupations that have followed one another.

The parts of the site architecture that are in pink ocher are those that date from the occupation of the nuns, the Sisters of the Visitation. The Subsistences were then a convent.

The parts in yellow ocher are those that were built later by the military, when The Subsistences were a site of the army. During the French revolution, the buildings were taken from the nuns and used by the army instead. The place was then dedicated to food storage and processing, hence its name!

The army has left the place in 1991, and since 2000, The Subsistences are a laboratory dedicated to the artistic creation: it is a place of residence which welcomes artists all year long. They work on live performance: theater, dance and contemporary circus. A guided tour of the place will be proposed upon arrival.

• POSTER PARTY - WINE, CHEESE & LIVE MUSIC !

The poster party will take place on the evening of Monday from 18:00 to 21:30.

• 18:00 - 18:30 - Live music with John Tichy and his Blue Boys (part 1)

John Tichy was a founding member of the band Commander Cody and his Lost Planet Airmen as singer guitarist and songwriter. In the 1970s they sold millions of records with all seven albums making the charts including several hit singles. They are mentioned in the Who's Who of Rock 'n' Roll and the Encyclopedia of Rock 'n Roll. Their album Live from Deep in the Heart of Texas was once noted as one of the 100 best of all time by Rolling Stone Magazine. John is a frequent visitor to Lyon and his band here is called his Blue Boys consisting of Pascal Quircentes (guitar), Pascal Toucheboeuf (harmonica) and Alex Argyre (percussion).

• 18:30 - 19:30 - Poster session

Approximately 100 posters are going to be exposed during the poster session, and all of them will compete for the poster prizes. During the poster party, all the attendees will be invited to vote for the two best posters. Authors who are willing to present their poster work are encouraged to stand close to it during the main poster session.

• 19:30 - *Nunc Est Bibendum:* Wine & cheese tasting

Tasting of some of the best French cheese and French wine accompanied and commented by an oenologist (https://www.nuncbibendum.com). Salads and vegetable buffet, Quenelle (traditional dish of Lyon), … will be also served.

• 20:45 - 21:30 - Live music (part 2)

Monday 2nd September 2019

MORNING

8:00 - 9:00	Registration	
9:00 - 9:20	**Opening and Welcome address**	
9:20 - 10:00	**Plenary Keynote 1 (Room 2+3)** ***Nicholas Spencer***	Cartilage, Contacts and Catheters - ***Chair: Ph. Vergne***
10:00 - 10:30	**COFFEE BREAK**	
10:30 - 11:10	**Plenary - Keynote 2 (Room 2+3)** ***Jianbin Luo***	Thin Film Lubrication: Molecular Behaviours of Confined Liquids - ***Chair: F. Ville***
11:10 - 11:50	**Plenary - Keynote 2 (Room 2+3)** ***Philippa Cann***	Oral Friction and Texture Perception of Food: Red Wine, Chocolate and Cream - ***Chair: F. Ville***
11:50 - 12:10	**Group picture**	
12:10 - 13:40	**LUNCH**	

AFTERNOON

	ROOM 1	ROOM 2	ROOM 3
13:40 - 15:20	**1.1 In-situ measurement** ***Chair: M. Hartl***	**2.1 Modelling Nanoscale** ***Chair: H. Washizu***	**3.1 Seal 1** ***Chair: N. Brunetiere***
13:40 14:00	High-resolution lif-imaging of the oil film thickness in the piston-ring / cylinder-liner contact in an optical tribometer, ***Cheong Jiyeon*** / *Department of Tribology, R&D, Daimler AG (Germany)*	Morphology-dependent friction of adsorption films: molecular dynamics of SDS and CTAB at the H2O/ Au(111) interface, ***Hoermann Johannes*** / *Department of Microsystems Engineering, University of Freiburg (Germany)*	Design and analysis of a hydraulically controllable mechanical seal for nuclear applications, ***Salant Richard*** / *Georgia Institute of Technology (United States)*
14:00 14:20	Switchable friction at randomly rough multi-asperity interfaces through capillary condensation? ***Weber Bart*** / *Advanced Research Center for Nanolithography (Netherlands)*	Frictional regimes on some particular nature-inspired aperiodic atomic chains, ***Vernes Andras*** / *AC2T research GmbH (Austria)*	Models for two-component lubrication flow, ***Tichy John*** / *Rensselaer Polytechnic Institute (United States)*
14:20 14:40	Electrical probing of sheared metallic rough interfaces, ***Chevallier Eddy*** / *Laboratoire « Physique des Systemes Complexes » (PSC - EA 4663) (France)*	Phononic excitations during sliding friction, ***Griesser Jan*** / *Department of Microsystems Engineering, University of Freiburg (Germany)*	Transportation of liquid and dissolved gas and their dependence on surface topography in radial shaft seal, ***Sugimura Joichi*** / *Kyushu University (Japan)*
14:40 15:00	Frictional sliding of an elastomeric/glass contact: experimental study of real contact area, ***De Souza Mariana*** / *Laboratoire de Tribologie et Dynamique des Systemes (France)*	MD simulations of friction and wear of fuel surrogates, ***Harrison Judith*** / *United States Naval Academy (United States)*	Optical investigations into rotating and oscillating radial lip seal contacts, ***Wennehorst Bengt*** / *IMKT, Leibniz Universitat Hannover (Germany)*
15:00 15:20	Real-time measurements of piston ring and liner lubrication and lube oil inlet viscosity in a marine diesel engine using ultrasound, ***Brunskill Henry*** / *Department of Mechanical Engineering, The University of Sheffield (UK)*	Wettability@Al_2O_3: a molecular modeling study of adsorption of lubricant additives, ***Blanck Sarah*** / *Ecole Normale Supérieure de Lyon (France)*	Numerical modelling of a grease lubricated pneumatic seal, ***Fatu Aurelian*** / *Institut Pprime (France)*
15:20 - 15:50	**COFFEE BREAK**		

Monday 2nd September 2019

AFTERNOON

	ROOM 1	ROOM 2	ROOM 3
15:50 - 17:30	**1.2 Micro and nano-tribology** ***Chair: R. Bennewitz***	**2.2 Modelling - Fluid lubrication** ***Chair: W. Seemann***	**3.2 Seal 2** ***Chair: R. Salant***
15:50 16:10	The evolution of surface damage on nial-bronze due to cavitation of repeated single laser-induced bubbles ***Hanke Stefanie*** / *ITM, University of Duisburg-Essen (Germany)*	Grease flow based on a two-component mixture model, ***Tichy John*** / *Rensselaer Polytechnic Institute (United States)*	Cavitation in a wavy mechanical seal, ***Brunetiere Noel*** / *Institut P' CNRS - Université de Poitiers - ENSMA UPR 3346 SP (France)*
16:10 16:30	Non-linear dynamical effects in frictional energy dissipation, ***Hirano Motohisa*** / *Hosei University (Japan)*	Numerical simulation of hydrodynamic lubrication by sph method, ***Tanaka Kentaro*** /*Tokyo University of Marine Science and Technology (Japan)*	Film formation and temperature development in textured rectangular face seals, ***Bulut Dilek*** / *Institut fur Konstruktion und Tribologie, Leibniz Universitaet Hannover (Germany)*
16:30 16:50	Severe deformation of pearlitic steel during microscale tribology, ***Brinckmann Steffen*** / *Max-Planck-Institut fur Eisenforschung (Germany)*	Characterization of grease aging based on chemical and mechanical degradations, ***Oumahi Camella*** / *Agence d'Essai Ferroviaire, SNCF (France)*	Thin film lubrication of a hydraulic rod seal - experimental study using ellipsometry, ***Feuchtmueller Oliver*** / *Institute of Machine Components - University of Stuttgart (Germany)*
16:50 17:10	Enhancing of CuO nanolubricant performance using organic dispersants, ***Mello Valdicleide*** / *Federal University of Espirito Santo (Brazil)*	Hydrodynamic lubrication theory for an exact Bingham plastic fluid model, ***Lampaert Stefan*** / *Delft University of Technology, Faculty 3mE, Department PME (Netherlands)*	Hydrodynamic lubrication of parallel surfaces with random roughness and grooves, ***Ma Wan*** /*Jiangsu Normal University, School of Mechatronic Engineering (China)*
17:10 17:30	The effect of micro-EHL at asperity scale on the simulated stribeck curve of conformal contact mixed lubrication, ***Wang Yuechang*** / *University of Leeds (UK)*	Viscosity Index Improvers from first-principles in-silico screening, ***Jaramillo-Botero Andres*** / *Materials and Process Simulation Center, California Institute of Technology (U. States)*	Gas flow visualization on dry gas seal with vibration, ***Ochiai Masayuki*** / *Tokai University (Japan)*
18:00 - 21:30	**ROCK, WINE AND CHEESE POSTER PARTY (ROOM 4)** - *Detailed list of posters at the end of the programme*		

Tuesday 3rd September 2019

MORNING

	ROOM 1	ROOM 2	ROOM 3
8:30 - 9:00	***Invited speaker 1*** ***F. Massi (Chair: D. Philippon)*** Tactile perception and the role of friction-induced vibrations - *Dipartimento di Ingegneria Meccanica e Aerospaziale, University of Rome «La Sapienza»*	***Invited speaker 2 - J. Wollbrett-Blitz (Chair: B. Bou-Said)*** From fibre coating to Hair cosmetic properties: Tribology in daily hairy life - *Hair Advanced Research, L'Oréal*	***Invited speaker 3*** ***T. Hirayama (Chair: C. Minfray)*** Neutron and AFM Studies for Understanding of Boundary Lubrication *Faculty of Engineering, Kyoto University*
9:00 - 9:10			
9:10 - 10:10	**4.1 Tactile perception** ***Chair: F. Massi***	**5.1 Everyday life: Sport tribology** ***Chair: J. Wollbrett-blitz***	**6.1 EHL 1** ***Chair: T. Hirayama***
09:10 09:30	Tribological interactions related to the tactile perception of deterministic micro-textured surfaces, ***Cornuault Pierre-Henri*** */ Femto-ST Institute, Department of Applied Mechanics, (France)*	New insights in the physics of ice skating, ***Liefferink Rinse*** */ Institute of Physics, University of Amsterdam (Netherlands)*	Fast traction prediction in rolling/sliding ehl contacts, ***Liu Haichao*** */ Institute of Machine Design and Tribology, University of Hannover (Germany)*
09:30 09:50	Fingertip friction and tactile perception of surface structure, ***Bennewitz Roland*** */ INM Leibniz Institute for New Materials (Germany)*	Experimental evidence of friction effect involved in playing french billiard, ***Descartes Sylvie*** */ Laboratoire de Mécanique des Contacts et des Structures (France)*	EHL modeling of anisotropic material for point contacts, ***Zhang Bin Bin*** */ University of Twente (Netherlands)*
09:50 10:10	Loading response to frictional stimulus applied to a finger sliding against glass surfaces striped with a molecular layer, ***Aoki Saiko*** */ Tokyo Institute of Technology (Japan)*	A model to predict the friction forces generated during skiing on artificial ski matting, ***Sherrington Ian*** */ University of Central Lancashire (UK)*	Lubricant viscoelasticity: is it of any relevance to quantitative ehl friction predictions? ***Habchi Wassim*** */ Lebanese American University, Department of Industrial and Mechanical Engineering (Lebanon)*
10:10 - 10:30	**COFFEE BREAK**		
10:30 - 12:10	**4.2 Surface topography** ***Chair: A. Soom***	**5.2 Abrasion and scratch** ***Chair: Th. Blanchet***	**6.2 EHL 2** ***Chair: I. Krupka***
10:30 10:50	Loss of contact of a rough slider on a rough surface upon increased dry sliding speed, ***Scheibert Julien*** */ Laboratoire de Tribologie et Dynamique des Systemes (France)*	Scratch resistance of floor covering surfaces, ***Wittmann Benoit*** */ MINES ParisTech, PSL Research University (France)*	Engine Tribology in Daily Life, ***Malcolm Fox*** */ University of Bradford (UK)*
10:50 11:10	Interference effect of large and small grooves on the real contact area growth of one-dimensional regular wavy surface, ***Matsuda Kenji*** */ Kyushu Institute of Technology (Japan)*	Investigation on the wear resistance of geocorail: a new natural concrete, ***Fabre Agnes*** */ MSMP Laboratory, Arts et Métiers ParisTech (France)*	Experimental study of the mixed-elastohydrodynamic transition with low viscosity lubricants, ***Alexandre Yann*** */ Laboratoire de Tribologie et Dynamique des Systemes (France)*
11:10 11:30	Wetting simulation on rough surfaces by lattice boltzmann method, ***Neyrand Vincent*** */ Laboratoire de Tribologie et Dynamique des Systemes (France)*	Scratch damage of aluminium surfaces, an assessment of damage mechanisms on different scales, ***Pauschitz Andreas*** */ AC2T research GmbH (Austria)*	Changes in cavitation and contact oil film due to increase in peripheral velocity in traction drive under high load, ***Taira Hayato*** */ Graduation school of Engineering, Tokai University (Japan)*
11:30 11:50	In-liquid AFM observation of rubbing surface in CVT fluid, ***Omura Ayako*** */ National Institute of Advanced Industrial Science and Technology (Japan)*	Characterization of varnish / nylon fibre adhesion, ***Benzarti Meriem*** */ Laboratoire de Physique et Mecanique Textiles, IUT de Mulhouse (France)*	Fundamental aspects of friction in starved EHL contact, ***Sperka Petr*** */ Brno University of Technology (Czech Republic)*
11:50 12:10	Improving processing quality and tribological behavior of laser surface textures using oil mask method, ***Zhang Hui*** */ Xian Jiaotong University (China)*	Abrasion wear resistance of modified hadfield steels, ***Varela Luis*** */ Metallurgical and Materials Engineering Department, University of Sao Paulo (Brazil)*	Friction of PEEK with steel counterparts in EHL and mixed lubrication, ***Tatsumi Go*** */ National Centre for Advanced Tribology at Southampton (nCATS), University of Southampton (UK)*
12:10 - 13:40	**LUNCH**		

Tuesday 3rd September 2019

AFTERNOON

	ROOM 1	ROOM 2	ROOM 3
13:40 - 15:20	**4.3 Coating 1** *Chair: N. Doerr*	**5.3 Biotribology 1** *Chair: N. Spencer*	**6.3 Texturation** *Chair: M. Kalin*
13:40 14:00	In situ obsevation of friction induced structural change, ***Hayashi Yuya*** */ DENSO CORPORATION (Japan)*	Effects of mucin on medical glove tribology and performance, ***Preece Daniel*** */ University of Sheffield (UK)*	Lubrication characteristic of surface texturing under reciprocating motion, ***Matsumura Tetsuta*** */ Tokyo University of Marine Science and Technology (Japan)*
14:00 14:20	The role of TIC renforcement on the friction and wear of cold sprayed Ti6Al4V coatings, ***Munagala Venkata Naga Vamsi*** */ McGill University (Canada)*	Nanotribology of pearls, an influence of the organics' content on the frictional dissipation of sheet nacre, ***Stempfle Philippe*** */ Institut FEMTO-ST (France)*	Effects of dimple shape and arrangement pattern on oil film pressure between two sliding surfaces, ***Tsubasa Furuki*** */ University of Fukui (Japan)*
14:20 14:40	The impact of biofuels on the running-in of a thermal spray coating, ***Linsler Dominic*** */ MikroTribologie Centrum, Fraunhofer IWM (Germany)*	The tribological properties of methyl cellulose as a model oviductal fluid, ***Kothandaraman Anjana*** */ The University of Birmingham (UK)*	Effects of thermal deformations on textured thrust bearings optimally designed by isothermal and THD calculation methods, ***Charitopoulos Anastassios*** */ Institut Pprime (France)*
14:40 15:00	Evaluation of the cutting forces of a thermal spray coating by scratch test in different orientations, ***Santos Marcionila*** */ University of Sao Paulo (Brazil)*	Sustained release of agarose-hyaluronan hydrogel with anti-friction performance, ***Hafezi Mahshid*** */ School of Mechanical Engineering, Xi'an Jiaotong University (China)*	Bearing characteristic of journal bearing applied biomimetics, ***Goto Kairi*** */ Graduate School of Engeneering. Tokai University (Japan)*
15:00 15:20	An alternative to hard chrome plating by using thermal spraying for various tribological conditions, ***Trevisiol Céline*** */ Cetim, Laboratoire Tribologie, Pôle Matériaux Métalliques et Surface (France)*	Protein film formation and its protective role on dental tissues under tribological and acidic conditions, ***Smart Pravin*** */ University of Leeds (UK)*	Numerical and experimental optimization of surface textures through the adjoint method, ***Codrignani Andrea*** */ Department of Microsystem Engineering IMTEK, Albert-Ludwigs-University Freiburg (Germany)*
15:20 - 15:50	**COFFEE BREAK**		
15:50 - 17:50	**4.4 Coating 2 - *Chair: S. de Beer***	**5.4 Biotribology 2 - Human joints - *Chair: A. Neville***	**6.4 Bearings: rolling and plain - *Chair: M. Fillon***
15:50 16:10	Nanotribological investigation of wear mechanisms on transition metal dichalcogenide thin coatings, ***Rapuc Ales*** */ National Centre for Advanced Tribology, Faculty of Engineering and Physical Sciences, University of Southampton (UK)*	Influence of contact load on tribological behavior of poly(vinyl alcohol) hydrogels as artificial cartilage material, ***Yarimitsu Seido*** */ Faculty of System Design, Tokyo Metropolitan University (Japan)*	Comparison between numerical and experimental results of the skew angle in tapered rolling bearings, ***Majdoub Fida*** */ NTN-SNR ROULEMENTS (France)*
16:10 16:30	Lab scale optimization of DC magnetron sputtered C-doped $MoSe_2$ solid lubricant coatings, ***Bin Yaqub Talha*** */ IPN - LED & MAT - Instituto Pedro Nunes, Laboratory of Tests, Wear and Materials, (Portugal)*	Interface design of aDLC coatings for application in total hip replacement bearings, ***Beadling Andrew Robert*** */ University of Leeds (UK)*	Investigation of subsurface microstructural alterations in steel bearings due to rolling contact fatigue, ***El Laithy Mostafa*** */ University of Southampton (UK)*
16:30 16:50	Superlubricity and super wear: tribochemical interaction of hydrogen-free tetrahedral amorphous carbon coatings (ta-C) with oleic acid, ***Makowski Stefan*** */ Fraunhofer Institute for Material and Beam Technology (Germany)*	Structural and lubrication properties of the hydration layer of articular cartilage, ***Miura Shingo*** */ Tokyo Metropolitan University (Japan)*	Optimization performance of plain journal bearings with partial wall slip zone, ***Cui Shuhui*** */ Institut Pprime (France)*
16:50 17:10	Tribology of amorphous metallic alloys: tribochemically or mechanically driven? ***Colas Guillaume*** */ Franche-Comte Electronique Mecanique, Thermique et Optique - Sciences et Technologies (UMR 6174) (France)*	Influence of collagen structure on the mechanical property of articular cartilage, ***Takahashi Tatsuya*** */ Tokyo Metropolitan University (Japan)*	Lubricant formulation: a driver for early bearing damage associated to white etching cracks? ***Ruellan Arnaud*** */ SKF Research & Technology Development (Netherlands)*
17:10 17:30	Tribological behavior of crn coatings deposited by raams under lubricated reciprocating ring on plane condition, ***Fukumasu Newton*** */ University of Sao Paulo (Brazil)*	Orientation based frictional performance of micro-groove cross hatched textures for metal-on-ceramic hip implant, ***Kashyap Vivek*** */ Department of Mechanical Engineering, Indian Institute of Technology Madras (India)*	Experimental investigations on REB thermal behaviour, ***Brossier Pierre*** */ LabECAM (France)*
17:30 17:50	Tribological behaviour in diverse testing environments of a self-lubricant W-S-C coating deposited by cfubms, ***Vuchkov Todor*** */ SEG-CEMMPRE, Department of Mechanical Engineering, University of Coimbra (Portugal)*		Tribological optimization of single and double slope marine stern tube bearings: a case study, ***Rossopoulos Georgios Nikitas*** */ National Technical University of Athens (Greece)*
18:15 - 23:00	**BANQUET**		

Wednesday 4th September 2019

MORNING

	ROOM 1	ROOM 2	ROOM 3
8:30 - 9:00	***Invited speaker 4*** ***S. Mischler - (Chair: A. Saulot)*** Tribocorrosion of biomedical implants - *Tribology and Interfacial Chemistry, School of Engineering, EPFL Lausanne*	***Invited speaker 5*** ***H. Washizu - (Chair: N. Fillot)*** Molecular simulations for additives and coatings - *Graduate School of Simulation Studies, University of Hyogo*	***Invited speaker 6*** ***S. de Beer - (Chair: P. Vergne)*** Lubricious Coatings for Precision Positioning of Medical Needles - *Materials Science and Technology of Polymers, Twente University*
9:00 - 9:10			
9:10 - 10:10	**7.1 Physico-chemistry** ***Chair: S. Mischler***	**8.1 Phosphate based additives** ***Chair: A. Morina***	**9.1 Fluid and grease lubrication** ***Chair: G. Poll***
09:10 09:30	Velocity-dependence of tribologically-induced oxidation of high-purity copper, ***Lehmann Julia*** */ Karlsruhe Institute of Technology, MicroTribology Center µTC (Germany)*	Effect of aged oils on ring-liner wear, ***Tomanik Eduardo*** */ Surface Phenomena Laboratory of Polytechnic School of the University of São Paulo (Brazil)*	Tribological investigation on a greased contact subjected to contact dynamic instability, ***Ghezzi Ilaria*** */Laboratoire de Mecanique des Contacts et des Structures (France)*
09:30 09:50	The role of tribo-chemical processes in the friction and wear behavior of contacts in nanolithographic systems, ***Elam Fiona*** */ ARCNL (Netherlands)*	High resolution characterization of ZDDP tribofilm on cylindrical roller bearing by x-ray photoelectron spectroscopy and atom probe tomography, ***Hsu Chia-Jui*** */ Vienna University of Technology (Austria)*	Tribological behavior of fiber reinforced PA66 under high contact pressure and grease lubricated conditions, ***Kunishima Takeshi*** */ Laboratoire de Tribologie et Dynamique des Systemes (France)*
09:50 10:10	Quantification of the synergy effects between wear and corrosion of 316l stainless steel in deep-sea environment, ***Ren Pengwei*** */ Institute for Advanced Materials and Technology, University of Science and Technology Beijing (China)*	Tribological properties of maleic dithiophosphate derivatives, ***Koyata Saki*** */JXTG Nippon Oil & Energy Corporation (Japan)*	Automotive transmission efficiencies v/s NVH characteristics- an experimental study, ***Harinarain Ajay*** / *Indian Oil Corporation Ltd. R&D Centre (India)*
10:10 - 10:30	**COFFEE BREAK**		
10:30 - 12:10	**7.2 Molybdenum based lubrication** ***Chair: G. Colas***	**8.2 Organic friction modifiers** ***Chair: J. Harrison***	**9.2 Ionic liquid** ***Chair: A. Vernes***
10:30 10:50	The role of MoDTC tribochemistry in engine tribology. a raman microscopy investigation, ***Espejo Cayetano*** */ Institute of Functional Surfaces. School of Mechanical Engineering. University of Leeds (UK)*	New insights in adsorption processes of lubricant additives, ***Honselmann Jennifer*** */ Fraunhofer IWM, Mikrotribology Centrum µTC (Germany)*	Investigate the behavior of zwitterionic polymer brushes under different environmental conditions., ***Fatima Sufia*** */ University of Leeds (UK)*
10:50 11:10	The effect of additive chemical structure on the tribofilms derived from varying molybdenum-sulfur chemistries, ***Barnes Aaron*** */ Institute of Functional Surfaces, School of Mechanical Engineering, University of Leeds (UK)*	Inhibition of confinement-induced solidification of mineral oil-based lubricants, ***Tamura Kazushi*** */ Lubricants Research Laboratory, Idemitsu Kosan Co., Ltd. (Japan)*	Ionic liquids as lubricants for steel-steel contacts in space devices, ***Doerr Nicole*** */ AC2T research GmbH*
11:10 11:30	Tribofilm formation during dry sliding of graphite- and MoS_2-based composites fabricated by spark plasma sintering, ***Cano Michell Felipe*** */ Surface Phenomena Laboratory, Polytechnic School of the University of Sao Paulo (Brazil)*	Effect of organic friction modifiers on the tribological performance of engine oils, ***Cyriac Febin*** */Agency for science, technology and research (Singapore)*	FM-AFM observation on effect of water on adsorption layer of hydrophobic and hydrophilic ionic liquids, ***Kawada Shouhei*** */ Tokyo University of Science [Tokyo] (Japan)*
11:30 11:50	MoS_2 nano sheets formation kinetics from low viscosity lubricants, ***Vaitkunaite Gerda*** */ University of Leeds (UK)*	FM-AFM observation of the adsorption film structure on steel surface in oiliness additive solution, ***Sato Yuko*** */ Graduate School of Tokyo University of Science (Japan)*	Effect of ILs' chemistry on their lubrication mechanism under various sliding distances, ***Al-Sallami Waleed*** */ University of Leeds (UK)*
11:50 12:10	Formation of MoS_2 flakes from molybdenum dithiocarbamate-based molecules in a severe lubricated contact: toward a better understanding, ***Al Kharboutly Mayssa*** */ LTDS (France)*	Contribution of hydrogen bonding to lubrication performance of polyphenylene ether, ***Li Haoyu*** */ State Key Laboratory of Tribology, Tsinghua University (China)*	Glycerol/ionic liquids mixture as potential candidate for superlubricity on w-dlc surface under boundary lubrication conditions, ***Arshad Muhammad Shahid*** */ Laboratory for Tribology and Interface Nanotechnology, University of Ljubljana (Slovenia)*
12:10 - 13:40	**LUNCH**		

Wednesday 4th
September
2019

AFTERNOON

	ROOM 1	ROOM 2	ROOM 3
13:40 - 15:20	**7.3 Modelling - Dry contact** ***Chair: J. Tichy***	**8.3 Fretting and oscillatory conditions** ***Chair: A. Ramalho***	**9.3 Friction and wear** ***Chair: A. Fabre***
13:40 14:00	Modeling noise originating at a sliding contact, ***Soom Andres*** / *Department of Mechanical and Aerospace Engineering (United States)*	Modeling temperature rise in multi-track reciprocating frictional sliding, ***Blanchet Thierry*** / *Rensselaer Polytechnic Institute (United States)*	Modeling solid contact between smooth and rough surfaces with non-gaussian distributions, ***Tomota Tatsunori*** / *Toyota Central R&D Labs., Inc. (Japan)*
14:00 14:20	Road polishing: studying the effects of traffic load, operating velocity and aggregate types, ***Kane Malal*** /*IFSTTAR (France)*	Geometrical considerations for debris entrapment in closed contacts, ***Aleksejev Jure*** /*Department of Engineering Science (UK)*	Influence of the temperature on the wear of automotive transmission belts, ***Montalban Laura*** /*Centre de Mise en Forme des Matériaux (France)*
14:20 14:40	Numerical modeling of the micromechanical anisotropy effect on friction when dry cutting of green composites, ***Chebbi Amen-Allah*** / *Mechanics surfaces and materials processing (France)*	Micromechanical experiments to extract mechanical properties of a tribofilm formed in a Ti6Al4V/DLC contact by fretting, ***Guillonneau Gaylord*** / *Laboratoire de Tribologie et Dynamique des Systemes (France)*	Effect of rubber tread height and shape on friction, ***Hale John*** /*University of Sheffield [Sheffield] (UK)*
14:40 15:00	Modeling of adhesion and adhesive wear: a comparison between atomistic and continuum methods, ***Roberto Martins de Souza*** / *Instituto Tecnologico Vale (Brazil)*	Effects of fretting wear on the evolution of hysteresis loops and contact interfaces, ***Fantetti Alfredo*** / *Imperial College London (UK)*	Friction and wear of additive manufactured polymer in dry contact applications, ***Dangnan Frank*** / *University of Leeds (UK)*
15:00 15:20		Understanding of the glaze layer formation: application to a hs25/alumina contact subjected to fretting wear at high temperature, ***Dreano Alixe*** /*Laboratoire de Tribologie et Dynamique des Systemes, UMR5513 (France)*	Particularities of tram wheels wear in four seasons climate: focus on mechanism identification & surface topography, ***Wojciechowski Lukasz*** /*Poznan University of Technology (Poland)*
15:20 - 15:50	**AWARDS AND CLOSURE (ROOM 1)**		

• Posters

DRY FRICTION, FUNDAMENTALS AND APPLICATIONS

1_01	*Rummel Florian*	Anton Paar GmbH (Austria)	Tribological model system testing in life science applications and medical engineering
1_02	*Harvey Jennifer*	MAHLE Engine Systems UK (United Kingdom)	Melamine cyanurate additive for low friction polymer coating
1_03	*Sunami Yuta*	Dept. of Mechanical Engineering, Micro/Nano Technology Center, Tokai University (Japan)	Tacticle sliding behavior of plla nanosheets produced by R2R system
1_04	*Taufiqur-rakhman Mohamad*	School of Mechanical Engineering, University of Leeds (United Kingdom)	Tribo-corrosion on CoCrMo alloys: understand the role of applied potential and tribo-film formation
1_05	*Tourlonias Michel*	Laboratoire de Physique et Mécanique Textiles (France)	Experimental analysis of the friction angle between carbon single fibres and tows and analytical model.
1_06	*Prasolov Nikita*	ITMO University (Russia)	Viscoelastic adhesion of polydimethylsiloxane during cross-linking reaction
1_07	*Hsia Feng-Chun*	ARCNL (Netherlands)	Tunable friction through isopropanol vapor-phase lubrication: how does it work?
1_08	*Zeng Qunfeng*	Xian Jiaotong University (China)	Low friction behaviors of Ag-doped γ -Fe_2O_3@SiO_2 nanocomposite coatings under high temperature
1_09	*Tong Zhe*	Key Laboratory of Education Ministry for Modern Design and Rotor-Bearing System, Xi'an Jiaotong University, Xi'an, People's Republic of China (China)	Mechanical and tribological properties of carbon fabrics/epoxy composites containing aligned CNTS@ Fe_3O_4 in through-thickness direction
1_10	*Ramalho Amilcar*	CEMUC, Mechanical Engineering Department, University of Coimbra (Portugal)	Characterisation in vitro of the frictional behavior of different contact lenses by innovative method
1_11	*Armitage Joshua*	University of Leeds (United Kingdom)	Electrical material characterisation for applications in triboelectric nanogenerators
1_12	*Casas Nathalie*	Laboratoire de Mécanique des Contacts et des Structures [Villeurbanne] (France)	Slip in granular fault gouges
1_13	*Nakae Rio*	Graduate School of Simulation Studies, University of Hyogo (Japan)	Molecular dynamics simulation of organic molecular polymerization in solid lubrication using reactive force field
1_14	*Muramoto Yuta*	Laboratoire de Tribologie et Dynamique des Systèmes (LTDS) (France)	The effects of additive amount of acrylic composite materials on drilling properties towards development of bone biomodels
1_15	*Gregoire Camille*	Laboratoire de Tribologie et Dynamique des Systèmes (France)	A slider including an array of piezoelectric sensors to measure local micro-impact forces
1_16	*Taghizadeh Saeid*	University of Sheffield (United Kingdom)	Sandwich tribology

FLUID LUBRICATION, LUBRICANTS

2_01	*Katayama Yusaku*	Tokyo University of Science [Tokyo] (Japan)	Non-contact handling equipment utilizing ultrasonic squeeze film levitation
2_02	*Noda Takashi*	NSK Ltd. (Japan)	Numerical simulation of grease penetration test
2_03	*Pham Sang*	Faculty of Engineering and Information Science, University of Wollongong (Australia)	Hot lubrication of in situ formed sodium borosilicate toward the generation of multifunctional tribolayer at the steel interfaces
2_04	*Chegdani Faissal*	Mechanics surfaces and materials processing (France)	Friction behavior of natural fiber composites in finishing process under different lubrication conditions
2_05	*Porras-Vazquez Alberto*	Laboratoire de Mécanique des Contacts et des Structures [Villeurbanne] (France)	A modified ball-on-disc tribometer for assessing the film thickness of starved point contacts
2_06	*Nijssen Joep*	Delft University of Technology (Netherlands)	1D design model of an open form pressure balanced hydrostatic bearing
2_07	*Wolf Marius*	Robert Bosch Corporate Research (Germany)	Simulation of slip in roller element bearing with lubricant rheological models
2_08	*Bader Norbert*	Institute of Machine Design and Tribology (Germany)	Film thickness measurements in EHL-contacts using capacitance measurements
2_09	*Simonovic Kosta*	Czech Technical University in Prague, Faculty of Electrical Engineering (Czech Republic)	Tribological behaviour of the W-S-C coatings in the boundary lubrication conditions
2_10	*Kliafas Leonidas*	National Technical University of Athens [Athens] (Greece)	Quantified order of ionic liquids: impact of confinement and molecule shape
2_11	*Nakagome Kiichi*	Tokyo University of Science [Tokyo] (Japan)	Tribological properties of hard coatings under lubrication with low viscosity fully formulated oil
2_12	*Komoto Takuya*	Kyushu Institute of Technology (Japan)	Investigation of formula on entrapped ehl film thickness under vertical motion - expansion to high speed range -

2_13	*Nishikawa Hiroshi*	Kyushu Institute of Technology (Japan)	Behaviour of grease film under impact and sliding motion
2_14	*Marjolaine Gonon-Caux*	Laboratoire de Mécanique des Contacts et des Structures (France)	Characterization of physical properties of lubricant in Elastohydrodynamic contact by spectroscopy technique
2_15	*Zhang Yuanyuan*	Université de Lyon, INSA-Lyon, LaMCoS (France)	Transition from full-film to mixed lubrication of anisotropic rough surfaces under ehl operating conditions
2_16	*Tadokoro Chiharu*	Saitama University (Japan)	Study on lubrication mechanism of concentrated polymer brush using ultra-thin film interferometry
2_17	*Zhang Chao*	Shanghai University (China)	Modelling behaviour of boundary lubricating additives with structure oriented lumping method
2_18	*Al Sheikh Omar Alaaeddin*	University of Leeds, School of Mechanical Engineering, Institute of Functional Surfaces, Leeds, UK (United Kingdom)	Water contamination and its influence on additive efficiency in engine oils
2_19	*Teramae Yuko*	Graduate School of Simulation Studies, University of Hyogo (Japan)	Structure comparison using coarse-grained model for viscosity index improver
2_20	*Wos Slawomir*	Rzeszow University of Technology (Poland)	Changes of the coefficient of friction in lubricated sliding conditions due to surface texturing
2_21	*Leister Tim*	Contact and Structure Mechanics Laboratory (France)	A thermo-gas-dynamic model for the bifurcation analysis of refrigerant-lubricated gas foil bearing rotor systems
2_22	*Brunskill Henry*	Department of Mechanical Engineering (United Kingdom)	A holistic approach to the characterisation of environmentally acceptable lubricants over a range of shear rates & pressures
2_23	*Leister Robin*	Karlsruhe Insitute of Technology (KIT) (Germany)	Modelling concepts of open clutch flows, - a theoretical approach
2_24	*Cihak-Bayr Ulrike*	AC2T research GmbH (Austria)	Influence of velocity and lubricant viscosity on microstructural changes during sliding of fcc alloy systems

SURFACE SCIENCE, TEXTURING

3_01	*Nakanishi Yoshitaka*	Kumamoto University (Japan)	Bio-inspired surface fabricated using micro slurry jet method affects everyday tribology
3_02	*Kümmel Daniel*	Institute for Applied Materials (IAM) - Karlsruhe Institute of Technology (KIT) (Germany)	Surface engineering of a titanium alloy by nanosecond-pulsed laser
3_03	*Mello Valdicleide*	Federal University of Espirito Santo (Brazil)	Green synthesis of nanolubricant with copper oxide nanoparticles by ablation laser
3_04	*Divin-Mariotti Synthia*	(France)	Texturations and surface treatments influence on aluminum glued joints adherence
3_05	*Legrand Quentin*	Laboratoire de Tribologie et Dynamique des Systèmes (France)	Elaboration of model super-hygrophobic surfaces by replication of natural surfaces
3_06	*Tan Xinfeng*	State Key Laboratory of Tribology, Tsinghua University, Beijing 100084, People's Republic of China (China)	Different directional energy dissipation of heterogeneous polymers in bimodal atomic force microscopy
3_07	*Sugiyama Naoki*	Graduate School of Engineering, Tokai University (Japan)	Influence of surface texturing on heated wall on collision behavior of droplet
3_08	*Gupta Niharika*	Industrial Tribology, Machine Dynamics and Maintenance Engineering Centre (ITMMEC), IIT Delhi, New Delhi-110016, India (India)	Performance studies of fully flooded and starved lubricated textured spur gearsets
3_09	*Kishida Terunao*	Kanto Gakuin University (Japan)	Load carrying capacity and frictional torque in dimpled parallel thrust bearings
3_10	*Hansen Erik*	Institute of Fluid Mechanics, Karlsruhe Institute of Technology (KIT) (Germany)	Sensitivity of the stribeck curve to the macroscopic geometry of the pin-on-disc tribometer in the mixed lubrication regime
3_11	*Atwal J C*	Department of Mechanical Engineering, IIT Delhi (India)	Combined effects of pocket and bionic texture on the performance behaviours of thrust pad bearing
3_12	*Like Yuki*	Graduate School of Simulation Studies, University of Hyogo (Japan)	Molecular dynamics simulation of initial adsorbing process of organophosphate on metal surface
3_13	*Wos Slawomir*	Rzeszow University of Technology (Poland)	The effect of graphite surface texturing on the friction reduction in a dry contact
3_14	*Bruyère Vincent*	SIMTEC Solution (France)	Laser texture prediction method selection when related to a lubrication model

WEAR, DAMAGE, FATIGUE

4_01	*Alkelae Fathia*	Department of Mechanical Engineering Tokyo University of Science (Japan)	Tribological characterization of aluminium-bronze alloy slm manufactured
4_02	*Oshio Tadashi*	Ecole Centrale de Lyon (France)	Tribochemical properties of dialkyl phosphonoacetic acid in environmentally adapted base fluid
4_03	*Zhang Yinyin*	LaMCoS, INSA de Lyon (France)	Significance of third body rheology on friction during dry sliding wear: multibody meshfree modelling
4_04	*Wei Dongbo*	Nanjing University of Aeronautics and Astronautics (China)	Microstructure, nano-mechanical characterization and fretting wear behavior of plasma surface cr-nb alloying on γ -tial
4_05	*Fouvry Siegfried*	Laboratoire de Tribologie et Dynamique des Systèmes (France)	Influence of humidity and sulfurous gases (H_2S, SO2) on fretting wear behavior of silver plated electrical contacts
4_06	*Tsybenko Hanna*	Max-Planck-Institut für Eisenforschung GmbH (Germany)	Deformation of pearlitic steels during nanotribology
4_07	*Baydoun Soha*	Ecole Centrale de Lyon (France)	Fretting wear rate evolution of a flat-on-flat low alloyed steel contact: a weighted friction energy formulation
4_08	*Toida Shogo*	Dept. of Mech. Eng. of Tokyo Institute of Technology (Japan)	Evaluation of history of stress change in gear subsurface during running-in by mixed lubrication analysis
4_09	*Sato Ryosuke*	Dept. of Mech. Eng. of Tokyo Institute of Technology (Japan)	Development of on-machine inspection system for twin disc test
4_10	*Xu Nan*	Institute of Functional Surfaces (IFS), School of mechanical engineering, University of Leeds (United Kingdom)	Design of the optical sensing coating for in-situ wear measurement
4_11	*Graton Olivier*	Laboratoire de Tribologie et Dynamique des Systèmes (France)	Effect of lubrication on electrical performance of Au plated contacts subjected to fretting wear
4_12	*Quacquarelli Adriana*	Laboratoire de Mécanique des Contacts et des Structures [Villeurbanne] (France)	Experimental and numerical investigation on the wear of microstructure of diamond impregnated tools for cutting concrete
4_13	*Frache Lucas*	Laboratoire de Mécanique des Contacts et des Structures [Villeurbanne] (France)	Grease lubrication in aeronautical heavily charged oscillating bearings
4_14	*Gong Yajing*	Institute of Functional Surfaces, School of Mechanical Engineering, University of Leeds (United Kingdom)	The study of the quantitative relationships between tribochemistry and wear of the fully formulated oil
4_15	*Bouillanne Olivier*	Laboratoire de Mécanique des Contacts et des Structures [Villeurbanne] (France)	Multibody meshfree model with thermal model and adaptive mass scaling for simulation of fretting contact
4_16	*Marshall Matthew*	University of Leeds (United Kingdom)	Understanding the coated abrasive/work piece interactions & developing strategies to control metal capping
4_17	*Alves Salete*	Universidade Federal do Rio Grande do Norte [Natal] (Brazil)	A morphological study of restoration of damaged hair fiber with chemical treatments using microscopy techniques
4_18	*Alves Salete*	Universidade Federal do Rio Grande do Norte [Natal] (Brazil)	An experimental approach to evaluation wind blade degradation in marine environment
4_19	*Sharma Sandan Kumar*	TriboCeramics Laboratory, Department of Metallurgical and Materials Engineering, IIT Roorkee, Roorkee (India)	Influence of tantalum carbide content, angle of impingement and temperature on erosive wear behaviour of silicon carbide composites
4_20	*Kumar Rahul*	Tallinn University of Technology (Estonia)	Tribological performance of polyimide and ptfe composites under dry sliding, dry & slurry erosion and high-stress abrasive conditions
4-21	*Kang Nan*	Northwestern Polytechnical University (China)	Gradient tribo-metallurgical behavior of in-situ laser solid formed ($\alpha+\beta$) Ti-Mo alloy
4-22	*Rustamov Ibrohim*	State Key Laboratory of Tribology, Tsinghua University (China)	Triple heat treatment effects on the microstructure and fretting wear behavior of inconel X-750 alloy

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