

49th

LEEDS LYON

SYMPOSIUM ON TRIBOLOGY

SEPTEMBER
2-4, 2024

LYON - FRANCE

Organized by
LaMCoS with LTDS



Tribology for the future of mankind:

feet on the ground,
reaching for the stars

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



. PROGRAM AT A GLANCE

	Sunday 1 st September		Monday 2 nd September	
8:00			Welcome / Registration	
9:00			Opening and Welcome address	
			Keynote 1- Tribological Challenges for European Space Exploration: A Journey Summary from Past to Actual and Future Solutions Lionel Gaillard	
10:00			Keynote 2- How an Earthquake is Born? A Laboratory Perspective on the Stability of Frictional Sliding Marco Scuderi	
			Coffee break	
11:00			Space Lubrication - 1 3rd Bodies - 1 Machine Learning - 1	
12:00			Group Picture	
13:00			Lunch	
14:00			Friction & Wear - 1 Lubricant Additives - 1 Green Tribology - 1 Modelling - 1	
15:00			Coffee break	
16:00			Space Lubrication - 2 Surface Topography - 1 Biotribology - 1 Modelling - 2	
			Sessions' switch	
17:00			Friction & Wear - 2 Surface Topography - 2 Nanotribology Modelling - 3	
18:00	Buffet			
19:00			Special talk - Nicholas Spencer	
20:00		Young tribologists event	Poster Session with buffet	
21:00				
22:00				

Tuesday 3 rd September	Wednesday 4 th September
Invited talk 1: Stefanie Hanke Invited talk 2: Anna Igual Muñoz Invited talk 3: Guillermo Morales-Espejel	
Sessions' switch	Gears - 1 Lubricant Additives - 4 Hydrodynamic Lubrication - 1 Coatings - 4
Machine Learning - 2 3rd Bodies - 2 EHL - 1 Rolling Contact Fatigue - 1	
Coffee break	Coffee break
Mixed Lubrication - 1 Green Tribology - 2 EHL - 2 Fretting	Gears - 2 Surface Topography - 3 Physics of Friction Biotribology - 3
Lunch	Lunch
Mixed Lubrication - 2 Lubricant Additives - 2 Friction & Wear - 3 Coatings - 1	Mixed Lubrication - 5 Hydrodynamic Lubrication - 2 Rolling Contact Fatigue - 2
Coffee break	Friction & Wear - 4 Friction & Wear - 5 Thermal Effects
Mixed Lubrication - 3 Lubricant Additives - 3 EHL - 3 Coatings - 2	Sessions' switch
Sessions' switch	Awards and Closure
Mixed Lubrication - 4 Biotribology - 2 Coatings - 3 Space Lubrication - 3	
Banquet	

49th LEEDS LYON

SYMPOSIUM ON TRIBOLOGY

Welcome

Welcome to Valpré, venue for the

49th LEEDS LYON SYMPOSIUM ON TRIBOLOGY

'TRIBOLOGY FOR THE FUTURE OF MANKIND: FEET ON THE GROUND, REACHING FOR THE STARS'.



This year we are celebrating the **50th anniversary of the Leeds Lyon Symposium on Tribology** which was first organized in **1974** in Leeds.

Humanity is facing unprecedented challenges.

On one hand, we have our eyes on the stars with plans for bases on the moon or even Mars. On the other hand, the environmental impact of human activities warns us to keep our feet firmly on the ground. If mechanics is the science of motion, tribology is the science that makes it possible. It is therefore clear that whatever the challenges, tribology will have its role to play. To cite two examples: the correct selection of space lubricants and bearing materials will make possible the deployment of solar panels for the International Space Station and the imperative for e-mobility to reduce greenhouse gas emissions requires new developments in fatigue and efficiency for high-speed powertrains.

The title of this symposium is also a reference to the two pillars of research: intuition and deduction, *i.e.* the audacity to propose innovative blue-sky ideas and the need to ground them in the reality of sound experiments.

This 49th edition of Leeds-Lyon Symposium on Tribology 2024 will be dedicated to all the fields of tribology that can contribute to meeting these new challenges: space tribology, bio-tribology, fatigue and wear, lubrication modelling, extreme conditions...

During conference, close to 260 presentations (oral and poster) among the unprecedented number submitted will be given.

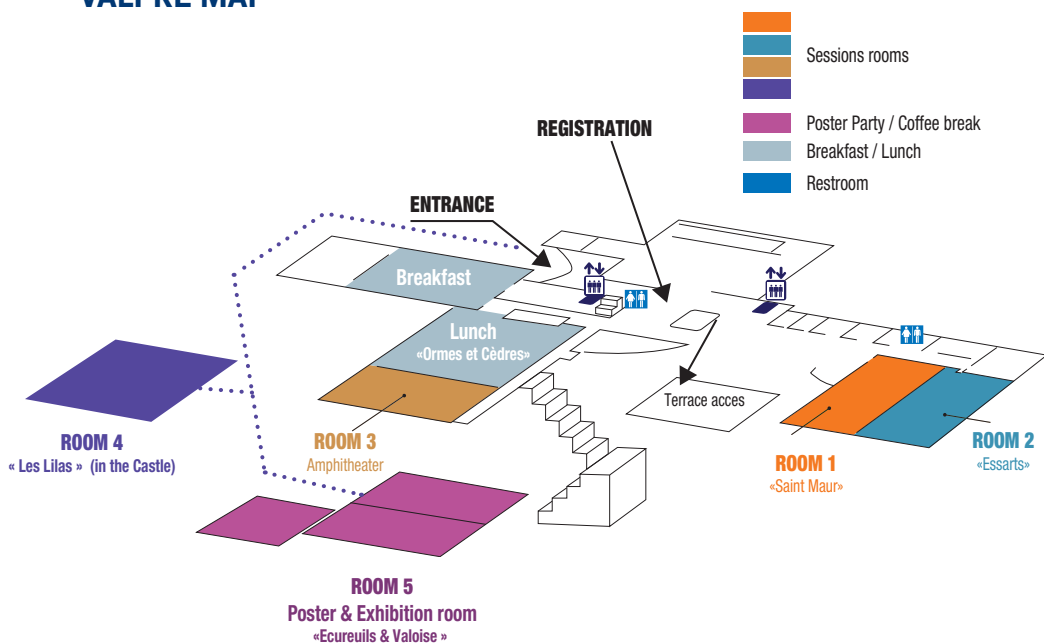
Follow us on Social Media and use the following hashtags for your own posts:

#LeedsLyon

#Tribology



VALPRE MAP



Presentations will be held in the **Room 1 (Amphitheater)**, **Room 2 (“Saint Maur”)**, **Room 3 (“Essarts”)**, **Room 4 (“Les Lilas”, in the Castle)** sign-posted from reception. Poster session and coffee break will be held in **Room 5 (“Ecoreuils & Valoise”)**. Please see the full programme for the appropriate room.

■ ACCESS MAP

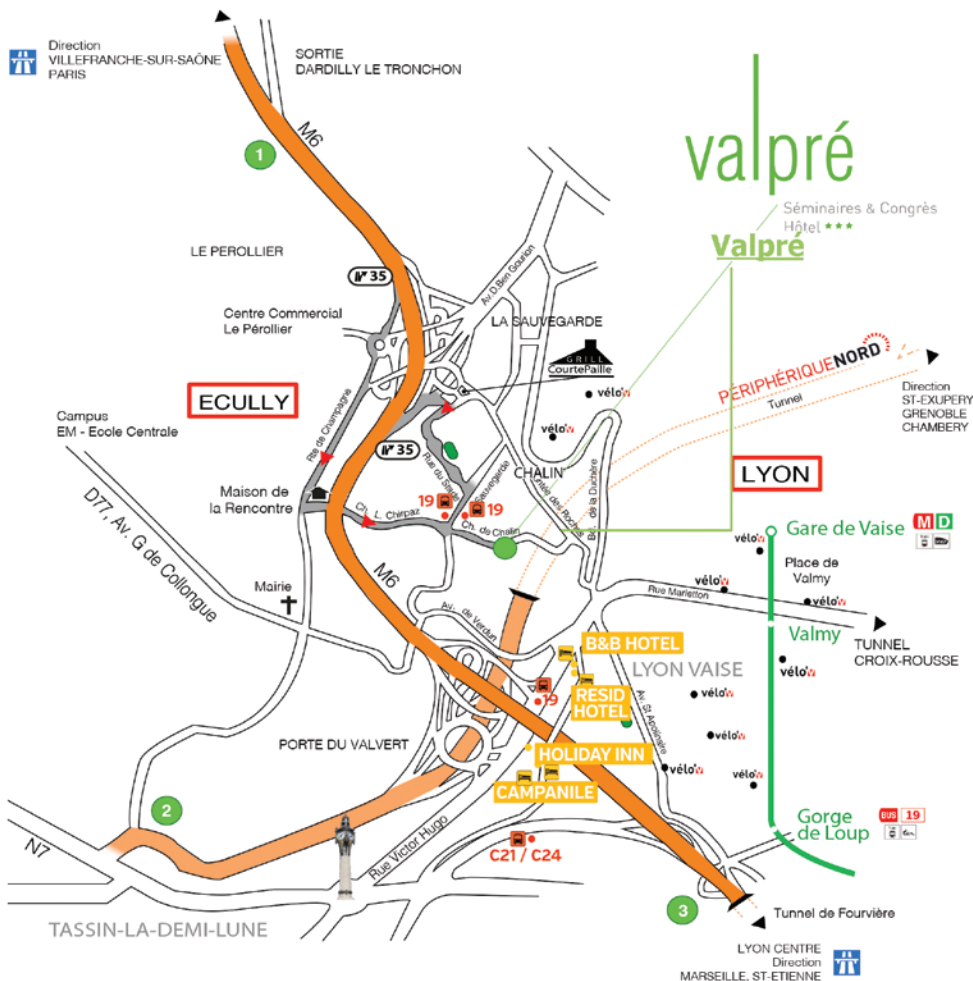


Valpré Lyon

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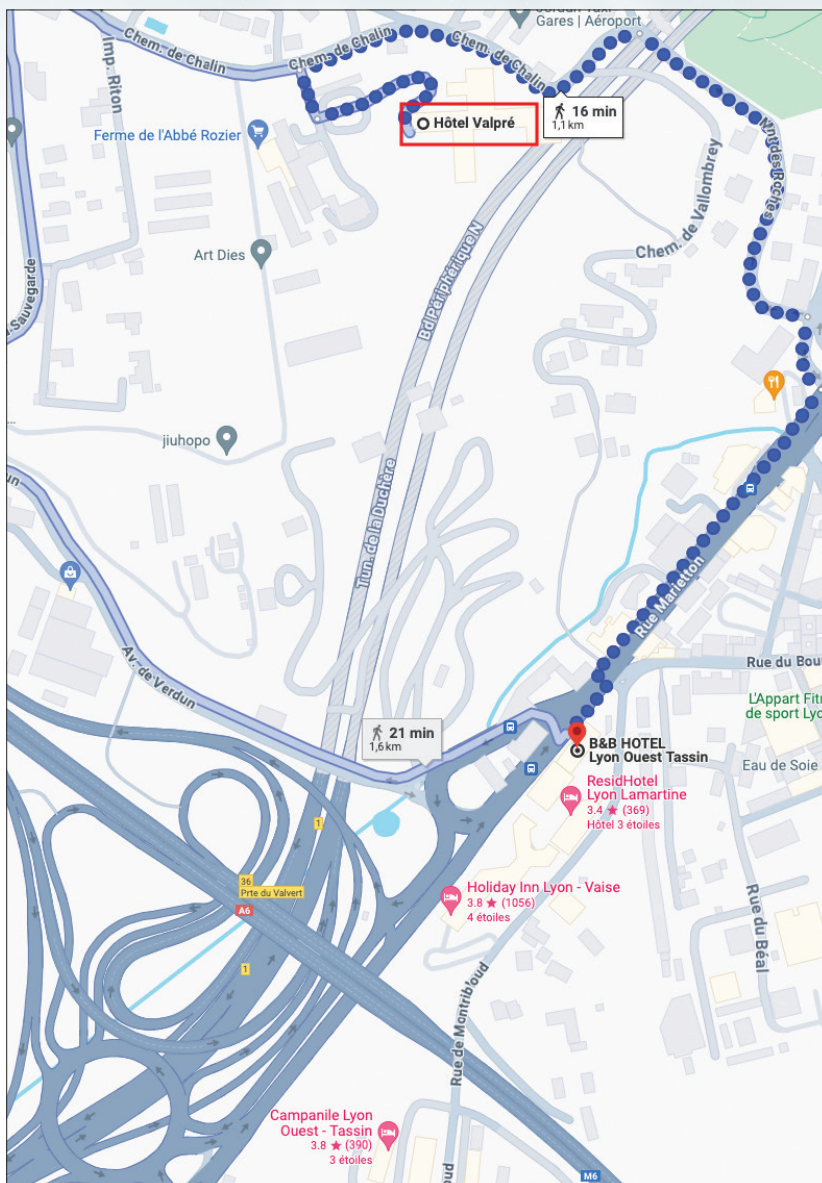
Hôtel Campanile Lyon Ouest - Tassin
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Téléphone : 04 78 36 69 69
Bus C21/C24 - Arrêt Montribloud

B&B Hôtel Lyon Ouest - Tassin
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Téléphone : 08 92 68 23 04
Bus 19 - Arrêt Pont d'Ecully

Holiday Inn Lyon Vaise
13 D Avenue Victor Hugo
69160 Tassin-la-Demi-Lune
Téléphone : 04 78 64 68 69
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 (17:45)**

- from Valpré to Part-Dieu railway station
- from Valpré to Saint Exupéry 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 Exupéry Airport:** This should take about 40 minutes and cost approximately 70 euros (95 euros after 19:00).

- **Taxi to Part Dieu Train Station:** This should take about 30 minutes and cost approximately 30-40 euros.

- **Bus/Metro/Rhôneexpress**

> **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 *Charpenne*, 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 *"Vaux-en-Velin – La Soie"*, stop *"Charpenne"*.
- Then take Metro B direction *"Saint Genis Laval"*, stop *"Part Dieu"*.

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

TECHNICAL PROGRAMME

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

SYMPOSIUM BANQUET

The Symposium banquet will take place on Tuesday, September 3rd, evening, at the famous Paul Bocuse's restaurant, L'Abbaye de Collonges.

A shuttle bus will be provided from Valpré to the restaurant and back. Coaches will leave Valpré at 18:30 to the dinner place. For those going on their own, please be at the restaurant by 19:00.

For security reason, Symposium Banquet can be accessed only upon presentation of the entry ticket (provided with delegate bags).

GROUP PICTURE

The group picture will be taken on Monday at 12:20 prompt on the lawn.

SYMPOSIUM MEAL TIMES

Sunday 1 September

18:00 – 21:00 Buffet

Monday 2 September

07:30 – 8:30 Breakfast

12:30 – 13:50 Lunch

18:30 – 23:00 Wine tasting and Poster Party

Tuesday 3 September

07:30 – 08:30 Breakfast

12:20 – 13:50 Lunch

18:30 – 23:00 Symposium Dinner at the Paul Bocuse's restaurant "L'Abbaye de Collonges"

Wednesday 4 September

07:30 – 08:30 Breakfast

12:20 – 13:50 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.

PHOTOGRAPHY AND RECORDING POLICY DURING SESSIONS

Please turn off your mobile devices during the sessions, and all photography and video recording is also strictly prohibited.

POSTER SESSION AND AWARDS

Posters may be fixed from Monday 12:00 (in Room 5), and should be removed before 14:00 on Wednesday.

A poster party including a poster session will take place on Monday starting at 19:30. Authors who are willing to present their poster work are encouraged to stand close to it during the main poster session.

Approximately 60 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.

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 scientist. To be eligible the following criteria are applied:

- the first author (the applicant) must be a registered PhD student or must have defended his/her PhD in 2024,
- the applicant's one-page abstract has been accepted for oral presentation in the regular process,
- the majority of the work presented has been performed by the applicant,
- the applicant must present the work at the symposium.

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

YOUNG TRIBOLOGISTS EVENT

The Young tribologists event will take place on Sunday starting at 20:00. The target of this event is to create friendships and to provide the opportunity to discover the broad world of tribology for the young researchers. The idea is thus to come together in a sociable and festive environment and play several tribology related games in addition to the discussion & drinks time. It is planned to play Taboo-tribology, mini-golf and «pétanque» to enjoy the moment all-together before the beginning of the conference. It will be also a warm welcome to the newly joining researchers in tribology community. The young scientists would take the profit of having fun by interacting with each other, introducing themselves and with the fair-play competition in games. The purposes are both to have new friends who are working in the same field all around the world and to build international bridges, which may help young researchers to collaborate in the future. So, they will contribute to the tribology science effectively and develop remarkable projects.

▪ SPEAKERS GUIDELINES

The schedule for the sessions is important and so please respect your allotted presentation time:

- **Keynotes speakers: 40 minutes presentation plus 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 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.

▪ POSTER PARTY – WINE TASTING PARTY

The poster party will take place on the evening of Monday from 18:30 to 23:00

• 18:30 - 19:30 – Nicholas D. Spencer– Tribology and Wine: what's the connection? (Room 3)

Our bodies encounter friction and lubrication phenomena continuously, and we are used to the fact that we fall over if our feet have insufficient friction against the floor. Many of us who are contact-lens wearers are all-too familiar with the discomfort associated with insufficient lubrication/excessive friction between our eyes and eyelids. The key element that links tribology and wine is...saliva! Saliva is the lubricant in our mouths, and if we think of our mouths as tribometers, the mechanoreceptors embedded in the oral tissue are the force sensors. Mouthfeel is an important part of the enjoyment of wine, and can largely be attributed to changes in the friction sensed in the mouth, as various foods or drinks pass through it.

One of the most important components of mouthfeel in wine is astringency, often perceived as a drying, rough, or puckering sensation in the mouth. The main components of wine responsible for this sensation are tannins and, to a lesser extent, the acidity. Recent work from groups in Australia has described an elegant series of experiments, in which the friction between saliva-coated model surfaces was measured, before and after adding model wines containing varying amounts of tannins and acidity. Not only was the effect of these components very noticeable in the friction measurements, but the tribological results correlated impressively with specific descriptors provided by a taste panel, presented with the same set of model wines.

Current research, in which I am involved, is aiming to extend this work by fabricating more realistic saliva-covered model surfaces, using the tools of surface chemistry, and to explore the mouthfeel deficiencies that currently make many low- or no-alcohol wines less than pleasant to consume.

• 19:30 - Poster session + *Nunc Est Bibendum*: Wine & cheese tasting (Room 5)

Approximately 60 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. Authors who are willing to present their poster work are encouraged to stand close to it during the main poster session.

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.



▪ SYMPOSIUM DINNER

The conference banquet will take place on the evening of Tuesday, September 3rd, 2024, at the famous Paul Bocuse's restaurant, L'Abbaye de Collonges.



L'Abbaye has a rich history of its own, dating back to 1840. The mill on the banks of the Saône, which was at the heart of the Bocuse family's destiny, was destroyed during the construction of the train line connecting Paris, Lyon and Marseille. Further along the river, the Bocuse family also owned a former farmstead, initially inhabited by monks from the Île Barbe. This building became L'Abbaye, a venue which has always been dedicated to celebrations and festivities. L'Hôtel du Pont de Collonges, which in the meantime had become L'Auberge du Pont de Collonges, was finally allowed to feature the name of the Bocuse family, who had been running the site for close to 50 years.

The family decided to use L'Abbaye as a venue for hosting banquets and wedding receptions, with a series of rooms and areas almost fully dedicated to Paul Bocuse's passion for barrel organs. The most majestic example takes pride of place in L'Abbaye's main room. The music produced by this must-see Gaudin organ is like an orchestra of 110 musicians.

The decoration is simply spectacular. Visitors can discover an incredible fireplace where whole pigs can be roasted, alongside which stands a faithful reproduction of the kitchen on one side in homage to the Chef's grandparents, and on the other side, a replica of the early 20th century bar next to a reconstituted cloister.



Monday 2nd September 2024

8:00 - 9:00	
9:00 - 9:10	
9:10 - 10:00	Plenary Keynote 1 (Room 1+2) <i>Lionel Gaillard /ESA (Netherlands)</i>
10:00 - 10:50	Plenary Keynote 2 (Room 1+2) <i>Marco Scuderi /University La Sapienza (Italy)</i>

10:50 - 11:20	
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	ROOM 1+2
11:20 12:20	Space Lubrication - 1 <i>Chair: L. Gaillard</i>
11:20 11:40	Application of PEEK Composite to Sliding Mechanisms in Space <i>Koji Matsumoto / Japan Aerospace Exploration Agency (Japan)</i>
11:40 12:00	The Development of Passivated MoS2 Coatings for Space Applications <i>Liuquan Yang / University of Leeds (UK)</i>
12:00 12:20	Low Wear Capabilities of Ni-based Bulk Metallic Glass under Rolling/Sliding Unlubricated Conditions in Air and Vacuum <i>Guillaume Colas / Université de Franche-Comté, CNRS, Institut FEMTO-ST (France)</i>

12:20 - 12:30	
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12:30 - 13:50	
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Registration - Main hall
Opening and Welcome address (Room 1+2)
Tribological Challenges for European Space Exploration: A Journey Summary from Past to Actual and Future Solutions - Chair: A. Saulot
How an Earthquake is Born? A Laboratory Perspective on the Stability of Frictional Sliding - Chair: G. Mollon

COFFEE BREAK (ROOM 5)

	ROOM 3	ROOM 4
11:20 12:20	3rd Bodies - 1 <i>Chair: M. Scuderi</i>	Machine Learning - 1 <i>Chair: B. Bou-Said</i>
11:20 11:40	A Pin-On-Disc Study of Particles Emitted During the Tire Rubber and Road Aggregates Wear Test - <i>Stefan Bobrovnikov / Laboratoire Environnement, Aménagement, Sécurité et Eco-conception (France)</i>	Machine Learning Interaction Potentials for Tribochemistry: an Application to Alkyl Thiolate at Sliding Copper Interfaces <i>Paolo Restuccia / Department of Physics and Astronomy, Università di Bologna (Italy)</i>
11:40 12:00	Effect of Microstructural Changes on Tribological Mechanisms in Automotive Friction Braking Conditions <i>Mathis Briatte / Laboratoire de Mécanique, Multiphysique, Multiéchelle (France)</i>	Data Reduction Techniques for Optimized Machine Learning Modelling of TEHL Contacts in Journal Bearings <i>Samuel Cartwright / Mechanical and Aerospace Systems, University of Nottingham (UK)</i>
12:00 12:20	A Granular Model of Stick-Slip in Laboratory Earthquakes - <i>Guilhem Mollon / Laboratoire de Mécanique des Contacts et des Structures (France)</i>	Ab Initio Informed Machine Learning Potential for Tribochemistry and Mechanochemistry: Application for Lubricant Additives <i>Paolo Restuccia / Department of Physics and Astronomy, Università di Bologna (Italy)</i>

Group picture

LUNCH (RESTAURANT)

	ROOM 1	ROOM 2
13:50 15:30	Friction & Wear - 1 Chair: Y. Desplanques	Lubricant Additives - 1 Chair: C. Drummond
13:50 14:10	Synergistic Effects of PTFE and Nano-Al ₂ O ₃ Fillers on Self-lubricity of POM Polymer-matrix Nanocomposite - Ibrohim Rustamov / <i>Loctek Ergonomic Technology Corp., Faculty of Mechanical Engineering and Mechanics, Ningbo University (China)</i>	Insight into The Fundamental Behaviour of Organic Friction Modifiers Through Synchrotron X-Ray Experiments Inga Kicior / <i>European Synchrotron Radiation Facility (France), University of Leeds (UK)</i>
14:10 14:30	Solid Lubrication of Nanocomposite Ceramic Si ₃ N ₄ -Si ₃ N ₄ and Hybrid Si ₃ N ₄ -steel Contacts Kostyantyn Grinkevych / <i>I.M. Frantsevich Institute for Problems of Materials Science (Ukraine), Eduardo Torroja Institute of Construction Sciences, CSIC (Spain)</i>	Tribological Performance Evaluation of Ti ₃ C ₂ Tx Mxene as Lubricant Additive in Presence of Organic Friction Modifier Afrina Khan Piya / <i>University of Leeds (UK)</i>
14:30 14:50	Tribological Behavior of Polymer/Metal Friction Pairs in the Simulated Deep Sea Hao Liu / <i>State Key Laboratory of Solid Lubrication, Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences (China)</i>	Tribofilm Printing of ZDDP and APTES Using Sliding Contacts Alaaeddin Al Sheikh Omar / <i>University of Leeds (UK)</i>
14:50 15:10	Surface Modification and Solid Lubricant Compounding of High-Strength Brass Alloy by Friction Stir Processing - Masaya Hirukawa / <i>Tokyo University of Science (Japan)</i>	Structure of Organic Friction Modifiers Tribofilm in Reciprocating Conditions Marjan Homayoonfard / <i>School of Mechanical Engineering, University of Leeds (UK)</i>
15:10 15:30	Evolution of Surface Roughness in some Tribological Contacts - Krzysztof Kubiak / <i>University of Leeds, School of Mechanical Engineering (UK)</i>	Tribological Evaluation of Micro-Algae Oils as Green and Sustainable Additives for Low-Viscosity Lubricants - Carlos C. Rubio-Hernández / <i>Tecnológico de Monterrey (Mexico)</i>

15:30-16:00

	ROOM 1	ROOM 2
16:00 17:00	Space Lubrication - 2 Chair: G. Colas	Surface Topography - 1 Chair: J. Scheibert
16:00 16:20	Novel MoS _x and a-C/MoS _x Hybrid Coatings by Vacuum Arc Deposition for Use in Dry Air And High Vacuum - Volker Weinhacht / <i>Fraunhofer Institute for Material and Beam Technology (Germany)</i>	On Wear Behavior of Mn-modified Al-Cu-Mg-Si-Ti Alloy Fabricated by Laser Powder-bed Fusion Nan Kang / <i>Arts et Metiers Institute of Technology, MSMP, HESAM Université (France)</i>
16:20 16:40	MoS ₂ Lubricating Film Meets Supramolecular Gel: A Novel Composite Lubricating System for Space Applications - Meirong Cai / <i>State Key Laboratory of Solid Lubrication, Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences (China)</i>	The Reciprocating Sliding Friction Behavior and Wear State Transition Mechanism of Cylinder Liner and Piston Ring Xuan Ma / <i>Harbin Engineering University (China)</i>
16:40 17:00	Tribological Behavior of Environmentally-Friendly MoS ₂ -based Solid Lubricants at Cold Temperature Parastoo Fallah / <i>Concordia University (Canada)</i>	Analysis of Multimodal Experimental Data for Physical Understanding of Emissions Mechanisms during Braking Events Philippe Dufrenoy / <i>Univ. Lille, CNRS, Centrale Lille, UMR 9013 - LaMcube - Laboratoire de Mécanique Multiphysique Multiéchelle (France)</i>

17:00-17:10

	ROOM 3	ROOM 4
13:50 15:30	Green Tribology - 1 Chair: A. Saulot	Modelling - 1 Chair: N. Casas
13:50 14:10	Water-based Lubricants with Graphene Oxide Additives for Enhanced Friction and Wear Performance Mohammad Reza Ghaffari / Wolfson School of Mechanical, Electrical and Manufacturing Engineering, Loughborough University (UK) CANCELLED	Atomic-Scale Modelling of Lubricants at High Pressure: on the Competition of Shear Thinning, Thermal Thinning and Wall Slip Michael Moseler / Fraunhofer IWM, MikroTribologie Centrum (Germany)
14:10 14:30	Tribology of Emerging Water Based Lubricants and Low Viscosity Oils E-Fluids Technologies in Rolling/Sliding Contacts Christine Matta / SKF B.V., Research and Technology Development Center (The Netherlands)	Prevention of Cage Wear in Cylindrical Roller Bearings by Reducing Roller Mass Daisuke Suzuki / Railway Technical Research Institute (Japan)
14:30 14:50	Effects of Tannic Acid Induced Complex Films on Tribological Properties between Rail and Wheel in Railways Kazuki Ikoma / Railway Technical Research Institute (Japan)	Comparison of a Viscoelastic and a Couple Stress Model in a Simple Slider Bearing John Tichy / Rensselaer Polytechnic Institute (United States)
14:50 15:10	Triboemission of Nanoparticle Aerosols Roman Nevshupa / Institute of Construction Science "Eduardo Torroja"- CSIC (Spain)	Lubricant Transport in Piston Cylinder Assemblies Polychronis Dellis / National Technical University of Athens, School of Mechanical Engineering (Greece)
15:10 15:30	Nanostructured Biogrease Performance to Wheel/Rail Contact Application Salete Alves / Universidade Federal do Rio Grande do Norte (Brazil)	Empirical Compensation of Parasitic Bearing Friction in Chain Drive Dynamometers Georges C. Barnaby / University of Bristol (UK)

COFFEE BREAK (ROOM 5)

	ROOM 3	ROOM 4
16:00 17:00	Biotribology - 1 Chair: F. Massi	Modelling - 2 Chair: M. Moseler
16:00 16:20	Frequency Modulation Effect of Fingerprints Mediates the Sensitive Perception Linfeng Wang / Nanjing University of Aeronautics and Astronautics (China)	The Tire-Road Contact: A Mechanical Mixing Seen as A Shear-Induced Diffusive Process Kévin Daigne / Laboratoire de Mécanique des Contacts et des Structures (France)
16:20 16:40	Misleading Tactile Perception by Vibrotactile Rendering Livia Felicetti / Sapienza - University of Rome (Italy), Laboratoire de Mécanique des Contacts et des Structures (France)	Friction and Wear Mechanisms of PTFE by Atomistic Simulations: Transfer Film Formation and the Synergy Between PTFE and PEEK Stefan Peeters / Fraunhofer Institute for Mechanics of Materials (Germany)
16:40 17:00	Multimodal Tactile Sensor Aiming at Smart Space Extravehicular Multi-Finger Operations Based on Finger Tribology - Kaixuan Kong / Jiangsu Provincial Key Laboratory of Bionic Functional Materials, College of Mechanical and Electrical Engineering, Nanjing University of Aeronautics and Astronautics (China)	The Role of Grain Fragmentation in Understanding Shear Localization via DEM Simulation Nathalie Casas / Dipartimento di Scienze della Terra, La Sapienza Università di Roma (Italy)

SHORT BREAK (SESSIONS' SWITCH)

Monday 2nd September 2024

	ROOM 1	ROOM 2
17:10 18:10	Friction & Wear - 2 <i>Chair: R. Nevshupa</i>	Surface Topography - 2 <i>Chair: R. Da Souza</i>
17:10 17:30	A State-of-the-Art Tribometer for Real Condition with Superheated Water (Real Conditions In Nuclear Environment) Bogdan Munteanu / <i>Institut de Recherches en Ingénierie des Surfaces (France)</i>	Influence of Jets at Subzero Temperatures on The Behavior of Erosive Wear and Ductility on AISI 310 Stainless Steel César Sedano / <i>Universidad de Guadalajara (Mexico)</i>
17:30 17:50	The Effect of Lubricant Contamination with Water on Friction Modifiers Tribofilm Properties Ajay Pratap Singh Lodhi / <i>University of Leeds (UK)</i>	Influence of Interstitial Oxygen and Nitrogen on The Tribological Behaviour of Titanium and Ti6Al4V Amod Kashyap / <i>Institute for Applied Materials (Germany)</i>
17:50 18:10	Investigation of Environmentally Acceptable Base Oil/Additive Combinations with Regard To Their Functional Requirements Marius Bürger / <i>Institute for Machine Elements and Systems Engineering, RWTH Aachen University (Germany)</i>	Interfacial Thermal Conductance across Solid/Liquid Interface Andrea Zovko / <i>Department of Mechanical Engineering, Imperial College London (UK)</i>

18:30-19:30 SPECIAL TALK - TRIBOLOGY AND WINE: WHAT'S THE CONNECTION? NICHOLAS D. SPENCER

19:30-23:30 WINE & CHEESE TASTING + POSTER PARTY WITH BUFFET (ROOM 5)

	ROOM 3	ROOM 4
17:10 18:10	Nanotribology <i>Chair: D. Dalmaz</i>	Modelling - 3 <i>Chair: J. Tichy</i>
17:10 17:30	Insights into the Nanoscale Tribological Properties of Graphite in Water <i>Jitendra Soni / Indian Institute of Technology Delhi</i>	A BEM-Based Model for Wear in the Contact of Textile Fibres <i>Josh Montgomery / University of Leeds (UK)</i>
17:30 17:50	Effect of Graphene Reinforcement on the Tribological and Fracture Behaviours of Silicon-Based Nanocomposites <i>Hussein Abo El-Einein / Laboratoire de Tribologie et Dynamique des Systèmes (France)</i>	Mechanism of Frictional Contact Induced Vibration of TBM Cutterhead-Cutter System <i>Mengqi Zhang / Soutuwest Jiaotong University (China)</i>
17:50 18:10	Role of Crystallographic Orientation and Temperature on Tribological Characteristics of CoCrNi Medium Entropy Alloy <i>Vamsi Majeti / Indian Institute of Technology Delhi (India)</i>	Instabilities in Sliding Systems Induced by Solid Viscoelasticity <i>Toshiki Watanabe / Yokohama National University (Japan)</i>

(ROOM 3)

Detailed list of posters at the end of the program



Tuesday 3rd September 2024

	ROOM 1	ROOM 2
8:30 9:00	Invited speaker 1 - Stefanie Hanke Chair: N. Fillot Potentials and challenges in using AI for understanding and predicting sliding wear mechanisms University of Duisburg-Essen (Germany)	Invited speaker 2 - Anna Igual Muñoz Chair: J. Fontaine Tribocorrosion approach to wear of implants Tribology and Interfacial Chemistry Group, EPFL (Switzerland)

9:00 - 9:10

	ROOM 1	ROOM 2
9:10 10:30	Machine Learning - 2 Chair: S. Hanke	3rd Bodies - 2 Chair: A. Igual Muñoz
09:10 09:30	Machine-Learning-Based Investigation of the Physical Source Mechanisms of Friction Brake Emissions Quentin Caradec / Univ. Lille, CNRS, Centrale Lille, UMR 9013 - LaMcube - Laboratoire de Mécanique Multiphysique Multiéchelle (France)	PolyTetraFluoroEthylene Lubrication in Highly Loaded Rolling Contacts – Influence of Operational Conditions - Georgios Vokolos / Institute for Machine Elements and Systems Engineering, RWTH Aachen University (Germany)
09:30 09:50	Prediction of Chatter in Twin Disc Tribometers with Mode Decomposition Techniques Surya Kannan Peesapati / AC2T Research GmbH (Austria)	Surface Modification of Polytetrafluoroethylene (PTFE) Fibers through Methyl Methacrylate (MMA) Polymerization for Self-Lubricating Composites Xuhui Sun / State Key Laboratory of Tribology in Advanced Equipment, Department of Mechanical Engineering, Tsinghua University (China)
09:50 10:10	A Machine Learning Strategy to Predict Dry Friction from Third Body Morphology - Alizée Bouchot / Laboratoire de Mécanique des Contacts et des Structures (France)	Nanol Additive as Antiwear and Friction Modifier Isabella Gair / FEPS, University of Southampton (UK)
10:10 10:30		Study of Tribofilm Formation in a Sliding Electrical Contact: Correlation with Wear and Electrical Performance Timothée Doutriaux / Laboratoire de Tribologie et Dynamique des Systèmes, Everaxis Industries (France)

10:30-11:00

	ROOM 3	ROOM 4
8:30 9:00	Invited speaker 3 - Guillermo Morales-Espejel Chair: L. Martinie Rolling bearing lubrication with oil/refrigerant mixtures: a review with contributions SKF Research & Technology Development, SKF B.V. (The Netherlands)	

SHORT BREAK (SESSIONS' SWITCH)

	ROOM 3	ROOM 4
9:10 10:30	EHL - 1 Chair: G. Morales-Espejel	Rolling Contact Fatigue - 1 Chair: J. Sugimura
09:10 09:30	A Fast Calculation Approach for Finite-Line Thermal EHL Contacts: Motivating Bearing Simulation Techniques Di Yang / Beijing Jiaotong University (China)	Modelling of surface crack propagation under lubricated rolling sliding contact Liang Guo / SKF Research & Technology Development (Netherlands)
09:30 09:50	Applicability of Winkler and FEM Models For ElastoHydroDynamic Analysis of Deformable Oil and Water-Lubricated Journal Bearings Ioannis Pervelis / National Technical University of Athens (Greece)	The Effect of Hydrogen Concentration on Surface-Initiated Damage in Rolling Contacts Lisa-Marie Weniger / Luleå University of Technology, Division of Machine Elements (Sweden)
09:50 10:10	Loss of Lubrication in an EHL Contact: a Numerical Approach Maxence Decote / Laboratoire de Mécanique des Contacts et des Structures (France)	Lubrication Effect on Laboratory Scale Wheel-Rail Contact Thibault Lesage / IRT Railenium (France)
10:10 10:30	Novel Engineering Approach to determine the Electrical Capacitance of Machine Elements with Line Contacts Volker Schneider / Institute of Machine Design and Tribology (IMKT), Leibniz University Hannover (Germany)	Stress Intensity Factors Analysis for a C-Crack in a Ceramic Roller Subjected to Representative Bearing Service Loads David Degbe / DMAS, ONERA, Université Paris Saclay, Centre des Matériaux (France)

COFFEE BREAK (ROOM 5)

Tuesday 3rd September 2024

	ROOM 1	ROOM 2
11:00 12:20	Mixed Lubrication - 1 Chair: C. Matta	Green Tribology - 2 Chair: C. Minfray
11:00 11:20	Self-Lubricating Composites: Effects of Sizing and Mixed Lubrication on Tribological Performance - Jose Daniel de Mello / Universidade Federal de Uberlândia - UFU, Universidade Federal de Santa Catarina (Brazil)	Investigation of Using Microbubbles to Reduce Friction in Journal Bearing Yuki Yoshimura / Tokai University, Dept of Mechanical Engineering (Japan)
11:20 11:40	Tribofilm Formation Characteristics of ZDDP and DDP Additives and their Effect on Interfacial Friction Haichao Liu / Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences (China) CANCELLED	Tribological Performance of DLC Under Minimised Lubrication Liuquan Yang / University of Leeds (UK)
11:40 12:00	Tribological Behavior of CuO@RGO Nanoparticles under Different Slide-Roll Ratio Salete Alves / Universidade Federal do Rio Grande do Norte (Brazil)	Experiments and Analysis of Loosening of Cone and Thread Fittings for High Pressure Hydrogen Systems - Joichi Sugimura / Kyushu University (Japan)
12:00 12:20	Influence of Small Electric Potentials on the Performance of Rolling-Sliding Lubricated Contacts Ammad Yousuf / Imperial College London (UK)	Experimental Characterization of the Tribological and Acoustic Performance of Different Stern Tube Bearing Materials - Georgios N. Rossopoulos / National Technical University of Athens (Greece)

12:20-13:50

	ROOM 1	ROOM 2
13:50 15:30	Mixed Lubrication - 2 Chair: C. Minfray	Lubricant Additives - 2 Chair: F. Dassenoy
13:50 14:10	On the Relation Between Friction and Multiscale Surface Roughness in Mixed Lubrication Charlotte Spies / Robert Bosch GmbH, University of Freiburg (Germany)	Carbon Dot-Based Ionic Liquids: a Novel Additive for Lubrication and Corrosion Inhibition Application Songwei Zhang / Laboratory of Solid Lubrication, Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences (China) CANCELLED
14:10 14:30	Influence of a Transmission Oil Degradation on System-level Behaviour Busra Duran / SKF France, Laboratoire de Mécanique des Contacts et des Structures (France)	The Formation and Wear Resistance of Tribofilms Derived from Anti-Wear Additives using In-Situ AFM Observation - Yumi Hayashi / Sumitomo Heavy Industries, Ltd, Tokyo University of Science (Japan)
14:30 14:50	On the Electric Behavior of Conductive Grease inside the Contact Zone Liu Jinjie / Qingdao University of Technology (China) CANCELLED	The Effects of DC and AC Electrification on the Tribology of Gear Materials Lubricated by ICE and EV Targetted Additive Packages - Joshua Armitage / SUUniversity of Leeds (UK)
14:50 15:10	Alteration of Stribeck and Traction Curves of Lubricants due to Electrification - Leonardo Farfan Cabrera / Tecnológico de Monterrey (Mexico)	Evaluation of Ionic Liquids and Nanoparticles for Nanoscale Film Fabrication Harnessing Tribochemistry Yuyang Yuan / University of Leeds (UK)
15:10 15:30	Self-Lubricating Fabric Composites Enhanced by the Microcapsules to Improve the Tribological Properties - Zhaozhu Zhang / State Key Laboratory of Solid Lubrication, Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences (China)	Harnessing the Synergistic Potential of SiO ₂ and Cu Nanoparticles as Lubricant Additives for Enhanced Tribological Efficiency Syed Junaid / Indian Institute of Technology Delhi (India)

15:30-16:00

	ROOM 3	ROOM 4
11:00 12:20	EHL - 2 <i>Chair: N. Bader</i>	Fretting <i>Chair: V. Fridrici</i>
11:00 11:20	The Infuence of Multiple Oil Tracks on Starved Elastohydrodynamic Lubrication Yasuo Matsuzaki / NSK Ltd. (Japan)	The Study of Debris Formation in Fretting Wear of a High Strength Steel using Crossed-Cylinder Experiments Allan Gichuki / MAS, Faculty of Engineering, University of Nottingham (UK)
11:20 11:40	Lubrication of a Truncated Circular EHL Contact - Tristan Patrigeon / Laboratoire de Mécanique des Contacts et des Structures (France)	Towards Robust Calculations Axial Blade/Disk Attachments Ben Kabondo Kashala / Laboratoire de Mécanique des Contacts et des Structures, Safran Aircraft Engines (France)
11:40 12:00	Heat Transfer during Hydrodynamic Lubrication in a Half-journal Bearing Katrina Farbrother / Mechanical and Aerospace Systems, University of Nottingham (UK)	Damping Behaviour of Different Metals under Fretting Conditions - Marion Kugler / Fraunhofer Institute for Mechanics of Materials, Institute for Applied Materials (Germany)
12:00 12:20	A Novel Method for the Simultaneous Measurement of Grease Film Thickness and Cage Rotational Speed in Rolling Element Bearing Fabio Tatzgern / AC2T Research GmbH (Austria)	Tribological Behaviour of Fe-10Cr-4Al at Elevated Temperatures under Different Environmental Conditions Daria Kolbas / Luleå University of Technology (Sweden)

LUNCH (RESTAURANT)

	ROOM 3	ROOM 4
13:50 15:30	Friction & Wear - 3 <i>Chair: D. Linsler</i>	Coatings - 1 <i>Chair: M. Tagawa</i>
13:50 14:10	Wear of Directed Energy Deposited H13 Steel as a Function of its Graded Microstructure Mohamed El Mansori / Arts et Metiers Institute of Technology, MSMP, HESAM Université (France)	Bridging Experiments and Computations to Advance Friction Reduction in Lubricant and Coating Synergy Takeru Omiya / University of Coimbra (Portugal)
14:10 14:30	Wear Properties of Multi-Principal Element Alloys Thon Thongklom / Department of Materials Science and Engineering, Sheffield (UK)	Influence of Hydrogen-Containing Atmospheres on Friction and Wear of Diamond-like Carbon under Reciprocating Sliding - David Zeradjanin / Robert Bosch GmbH, Universität Siegen (Germany)
14:30 14:50	Understanding the Corrosion and Wear at Nanoscale Interface Zhijiang (Justin) Ye / Miami University (United States)	Atomic-Scale Mechanisms of Superlubricity with Diamond-Like Carbon Coatings and Silicon-Based Ceramics - Gianpietro Moras / Fraunhofer IWM, MikroTribologie Centrum (Germany)
14:50 15:10	Analysis of Seizure Interface between Steel Crank Journal and Aluminum Alloy Plain Bearing Takumi Iwata / Tokyo City University (Japan)	Analysis of Tribologically Induced Changes in ta-C Coatings - Dominic Linsler / Fraunhofer Institute for Mechanics of Materials (Germany)
15:10 15:30	Effect of Porosity on Surface Deformation and Subsurface Layer Produced by Scratch Tests of Sintered Low-Alloy Steel Roberto Souza / University of São Paulo (Brazil)	Friction Reduction by the Combination of Xylitol Solution and DLC Coating Masaya Fukuda / Tokyo City University (Japan)

COFFEE BREAK (ROOM 5)

Tuesday 3rd September 2024

	ROOM 1	ROOM 2
16:00 17:00	Mixed Lubrication - 3 Chair: T. Lubrecht	Lubricant Additives - 3 Chair: S. Alves
16:00 16:20	Friction of Hybrid Ball Bearings Operating in Mixed Lubrication - Jeroen Wensing / <i>SKF Research and Technology Development (Netherlands)</i>	Triacetin as Lubricant Additives: Friction Measurement between Metal Pairs - Fida Majdoub / <i>LabECAM, ECAM La Salle, Université de Lyon (France)</i>
16:20 16:40	Interactions between Surface-Active Additives and Effects on the Wear Protection of Rolling Bearings Merle Reimers / <i>Institute for Machine Elements and Systems Engineering, RWTH Aachen University (Germany)</i>	The Effect of Esters on Wear and Tribofilm Formation in Electric Vehicle (EV) Lubricants Johann Watson / <i>University of Leeds (UK)</i>
16:40 17:00	Predicting Friction in Total Hip Replacement Bearings: a Multiscale Approach Robin Furze / <i>University of Leeds, EPSRC CDT in Fluid Dynamics (UK)</i>	Ammonia Fuel Engines: the Change of Tribological Behavior for the Cylinder Liner-Piston Ring Zetong Wang / <i>Harbin Engineering University (China)</i>

17:00-17:10

	ROOM 1	ROOM 2
17:10 18:10	Mixed Lubrication - 4 Chair: K. Kubiak	Biotribology - 2 Chair: N. Spencer
17:10 17:30	High Friction of Rubber Caused by Negative Fluid Pressure under Glycerol Lubrication and its Underlying Mechanism Arata Ishizako / <i>Tohoku University (Japan)</i>	Friction Modulation of Catheters using Ultrasonic Waves - Mostafa A. Atalla / <i>Department of BioMechanical Engineering, Department of Cognitive Robotics, TU Delft (Netherlands)</i>
17:30 17:50	Development of a Repeatable, Accurate Chain Drives Dynamometer Robert Wragge-Morley / <i>University of Bristol (UK)</i>	MXene-Reinforced CoCrMo Composites for Biotribological Applications Fabricated by Additive Manufacturing - Sangharatna Ramteke / <i>Department of Mechanical and Metallurgical Engineering, School of Engineering, Pontificia Universidad Católica de Chile (Chile)</i>
17:50 18:10	Lubrication Dynamics Coupled Modeling of a Three-Dimensional PRCL System with Consideration of Piston Influence Lining Gao / <i>Shanghai Jiao Tong University (China)</i>	Antibacterial Effect of Soft-Metal DLC Nanocomposite Coatings for Highly Durable Antibacterial Adhesive Tape - Minoru Goto / <i>National Institute of Technology, Ube College (Japan)</i>

18:30-23:55

BANQUET AT PAUL BOCUSE

	ROOM 3	ROOM 4
16:00 17:00	EHL - 3 Chair: D. Philippon	Coatings - 2 Chair: M. Goto
16:00 16:20	Lubrication of Rolling Bearing in the Starved Regime by Droplet on Demand Norbert Bader / University of Twente (Netherlands)	Investigation into the Asperity Persistence of the Rough Surface with a Hard Coating Layer Keita Inose / Department of Mechanical Engineering, Imperial College London (UK)
16:20 16:40	Polymer Congestion and Shear Thinning in EHD Contact - Bastien Bolle / Department of Mechanical Engineering, Imperial College London (UK)	Tribofilm Formation Process from ZDDP on Manganese Phosphate Coatings with Different Surface Roughness of Underlying Steel Saiko Aoki / Tokyo Institute of Technology (Japan)
16:40 17:00	Changes of Aqueous Solution of Polyethylene Glycol Film Thickness in EHD Contacts Tomáš Poláček / Brno University of Technology (Czech Republic)	Tribological Aspects of Bolted Assemblies in Light Constructions Wiesław Grabon / Rzeszow University of Technology (Poland)

SHORT BREAK (SESSIONS' SWITCH)

	ROOM 3	ROOM 4
17:10 18:10	Space Lubrication - 3 Chair: K. Matsumoto	Coatings - 3 Chair: V. Weihnacht
17:10 17:30	Performance of the Antiwear Additives under Lubricant Immersion Condition in Vacuum - Takashi Yokoyama / Japan Aerospace Exploration Agency (Japan)	Role of Probe Vertical Lift in Polymer Brush Friction and Wear - Hikaru Okubo / Yokohama National University (Japan)
17:30 17:50	Optimizing Labyrinth Seal Geometry to Minimize Liquid Lubricant Evaporation in Space Systems - Josef Pouzar / Brno University of Technology (Czech Republic)	Effect of Traces of Ethanol Airborne Contamination on the Tribological Behaviour of SnO ₂ Coating - Guillaume Colas / Université de Franche-Comté, CNRS, Institut FEMTO-ST (France)
17:50 18:10	Frictional Torque Characteristics of PFPE Lubricated Ball Bearings under Oscillatory Motion in Vacuum Kazuaki Maniwa / Japan Aerospace Exploration Agency (Japan)	Multimodal Measurement of Polymer Brush Superlubric Interface Daiki Kagiwata / Yokohama National University (Japan)

(L'ABBAYE DE COLLONGES)



Wednesday 4th September 2024

	ROOM 1	ROOM 2
8:30 10:10	Gears - 1 Chair: O. Koch	Lubricant Additives - 4 Chair: S. Aoki
08:30 08:50	Impact of the Surface Finish on Gear Tooth Friction Matthieu Cordier / <i>Laboratoire de Mécanique des Contacts et des Structures (France)</i>	Zinc DialkylDithioPhosphates Adsorption and Dissociation on Ferrous Substrates: an Ab Initio Study Francesca Benini / <i>Department of Physics and Astronomy, Alma Mater Studiorum—University of Bologna (Italy)</i>
08:50 09:10	Experimental and Simulation Analysis of oil-air Two-Phase Flow Characteristics in High-Speed Bearings Chunhui Wei / <i>LaMCoS, INSA Lyon (France), Beijing Institute of Technology (China)</i>	Effects of Tribofilm derived from Sulfur/Phosphorus-based Additives on Pitting/Wear Resistance of Bearing Steel during Rolling Friction Yunah Jeung / <i>Tokyo University of Science (Japan)</i>
09:10 09:30	How Hybrid Thermal Model can Take up the Challenges of using Temperature for Fault Detection in Geared Systems Thomas Touret / <i>ECAM LaSalle, LabECAM (France)</i>	Tribological Performance of SEC-C6 CuDTP and Characterization of its Tribofilm Noriko Ayame / <i>Lubricants R&D Dept, ENEOS Corporation (Japan)</i>
09:30 09:50	Evaluating Lubrication Regimes of Spur Gear Meshing using Electrical Impedance Method - Asuka Watanabe / <i>Yokohama National University (Japan)</i>	Functionalized Graphene Quantum Dots from Residual Oil Fractions as Additives for Electric Vehicle Conductive Lubricants Youssef Alashkar / <i>King Abdullah University of Science and Technology (Saudi Arabia)</i>
09:50 10:10	A New Formulation for Convective Heat Transfer in Oil Jet Lubricated Spur Gears Thibaut Torres / <i>ECAM LaSalle, LabECAM, INSA Lyon, LaMCoS (France)</i>	Investigation of Tribochemical Reactivity of DLC Coatings by Combining Electronic Spectroscopies (XPS/AES/REELS) and Microscopy (FIB/TEM/EELS) Aslihan Sayilan / <i>Laboratoire de Tribologie et Dynamique des Systèmes (France)</i>

10:10-10:40

	ROOM 3	ROOM 4
8:30 10:10	Hydrodynamic Lubrication - 1 <i>Chair: B. Munteanu</i>	Coatings - 4 <i>Chair: J. Fontaine</i>
08:30 08:50	Investigation of the Affect of Oil Pocket Geometry on the Performance of Journal Bearings using a CFD-TEHL Model Layton James / <i>Mechanical and Aerospace Systems, University of Nottingham (UK)</i>	Frictional Anisotropy under Scratching Test for Molybdenum Thin Films Deposited by Glancing Angle Deposition (GLAD) Guilherme Rodrigues / <i>Université de Franche-Comté (France)</i>
08:50 09:10	Effect of Surface Tension in Two-Phase Lubricated Contacts Noël Brunetiere / <i>Département Génie Mécanique et Systèmes Complexes, Institut Pprime (France)</i>	Tribological Behavior of a Graphite-Phenolic Resin Solid Lubricant at High Loads Omar Zouina / <i>Karlsruhe Institute of Technology (KIT), Institute for Applied Materials (IAM), MicroTribology Center µTC (Germany)</i>
09:10 09:30	Design and 3D CFD Analysis of Bio-Inspired Grooves and Pillars Micro-Structures for Enhanced Drag Reduction of Thin Films - Nikolaos Rogkas / <i>Laboratory of Machine Design and Dynamics, National Technical University of Athens (Greece)</i>	Intelligent Lubricating Coatings Based on the Oblique Angle Deposition Technology Shusheng Xu / <i>State Key Laboratory of Solid Lubrication, Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences (China)</i>
09:30 09:50	On the Shape of Surface Texture Xiaolei Wang / <i>Nanjing University of Aeronautics and Astronautics (China)</i>	Impact of Structural Defects on Nanotribological Behavior of Chemical Vapor Deposited WS2 Monolayers - Himanshu Rai / <i>Czech Technical University in Prague (Czech Republic)</i>
09:50 10:10	CFD Analysis of the Unsteady Compressible Flow in an Orifice Restrictor of a Gas Bearing Mihai Arghir / <i>Institut Pprime (France)</i>	Superlubricity – Role of Surface Texture and Graphene-Based Coatings under Colloidal Lubrication: Focus on Hypericin Paul-Marie Zubieta-Laborde / <i>Laboratoire de Tribologie et Dynamique des Systèmes (France)</i>

COFFEE BREAK (ROOM 5)

Wednesday 4th September 2024

	ROOM 1	ROOM 2
10:40 12:20	Gears - 2 Chair: A. Morina	Surface Topography - 3 Chair: S. Descartes
10:40 11:00	Modeling and Analysis of Relative Fatigue Life under 3D Mixed Lubrication in Marine Helical Gears - Renze Li / College of Power and Energy Engineering, Harbin Engineering University (China)	Experimental Investigation on The Effect of Roughness and Wettability on Tribological Properties of Metallic Surfaces Prepared by EDM - Dimitrios Skondras-Giousios / Laboratory of Manufacturing Technology, School of Mechanical Engineering, National Technical University of Athens (Greece)
11:00 11:20	Method for Testing Surface Fatigue using Non-Circular Specimens with Instationary Sliding Conditions Jacob Vorgerd / Ruhr University Bochum (Germany)	Patterned Surface Contact for Macro Scale Engineering Superlubricity Aaron Sinnott / Trinity College Dublin (Ireland)
11:20 11:40	Effects of the Heat Treatment on Fatigue Wear of Gear Steel under Rolling/Sliding Contacts Hayato Monzen / Tokyo University of Science (Japan)	Metainterfaces: How to Design Rough Contacts with Specified Friction Laws? Julien Scheibert / Laboratoire de Tribologie et Dynamique des Systèmes (France)
11:40 12:00	Investigation of Micropitting Occurence Following Crack Propagation under E-Axle Lubricant Kaito Yoshioka / Tokyo University of Science (Japan)	Factors that Influence the Triboelectric Charging of Textured Plastic Slabs in Conformal Contact Cosmina Chiujde / Institut Pprime (France), University Politehnica of Bucharest (Romania)
12:00 12:20	Effect of Roughness on Micropitting: a New Geometric Analysis - Abdellah Marzoug / Safran Transmission Systems, Institut National des Sciences Appliquées de Lyon (France)	Exploring Tire/Rail Friction: Contaminated Cases Bilel Jebali / Laboratoire Environnement, Aménagement, Sécurité et Eco-conception (France)

12:20-13:50

	ROOM 3	ROOM 4
10:40 12:20	Physics of Friction Chair: P. Dufrenoy	Biotribology - 3 Chair: J.D. De Mello
10:40 11:00	Macroscopic Low-Friction via Twinning Assisted Lattice Reconstruction in Magnesium Xiang Chen / Nanjing University of Science and Technology (China)	Hydrogels Prepared from Ovomucins: an Easy-to-Access Model for Mucus Tribology Seunghwan Lee / Danmarks Tekniske Universitet (Denmark)
11:00 11:20	Experimental Measurement of Strain Distribution in Silicone Rubber Bulk during Friction against a Stainless-Steel Sphere Toshiaki Nishi / Tohoku University (Japan)	Polymer Brushes for Biolubrication Bin Li / Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences (China)
11:20 11:40	A New Mechanism of the Interfacial Water Film Dominating Low Ice Friction Weimin Liu / State Key Laboratory of Solid Lubrication, Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences (China)	Wear Characteristics of Ultra-High Molecular Weight Polyethylene on Production of Inflammatory Cytokine Yoshitaka Nakanishi / Kumamoto University (Japan)
11:40 12:00	Stiffness and Damping of Rubber in Sliding Contact Determined by Resonance Curves Shintaro Hatanaka / Yokohama National University (Japan)	Tribology in the Soft World: Compliant Boundaries and Complex Environment Carlos Drummond / Centre de Recherche Paul Pascal (France)
12:00 12:20	Modeling and Designing the Electrical Contact of Sliding Interfaces Song Aisheng / State Key Laboratory of Tribology in Advancend Equipment, Tsinghua University (China)	Surface Modification of NanoMOFs with Microgels for Aqueous Lubrication and Drug Release Jianxi Liu / North Western Polytechnical University, Xi'an (China)

LUNCH (RESTAURANT)

Wednesday 4th September 2024

	ROOM 1	ROOM 2
13:50 15:10	Mixed Lubrication - 5 Chair: C. Espejo	Hydrodynamic Lubrication - 2 Chair: N. Brunetiere
13:50 14:10	Tribological Investigation of Friction Behavior of Piston Ring-Cylinder Liner Under the Effect of Ammonia-dispersed Engine Oil Emir Yilmaz / <i>Sophia University, Tokyo (Japan)</i>	Study of Cavitation Pressure on Textured Surface in Mechanical Seals Masatoshi Itadani / <i>Eagle Industry Co., Ltd. (Japan)</i>
14:10 14:30	Revealing the Role of Structure and Boundary Conditions in Friction Reduction with Tribocolloid Lubricants - Abhishek Kumar Gupta / <i>IoP, University of Amsterdam (Netherlands)</i>	Influences of Local Temperatures on the Performance of Surface Structures Norbert Bader / <i>Delft University of Technology (Netherlands)</i>
14:30 14:50	Measurement of Adsorption and Friction Properties of Additives by Vertical-Objective Type Ellipsometric Microscopy Kenji Fukuzawa / <i>Nagoya University (Japan)</i>	Study on Cavitation Occurrence in High-Speed Hybrid Water-Lubricated Thrust Bearings Yuki Minagawa / <i>Tokyo University of Science (Japan)</i>
14:50 15:10	Friction Response of Laser Generated Stochastically Distributed and Ordered Textures for Rigid and Compliant Counterpart Contact Paul Butler-Smith / <i>Manufacturing Technology Centre (UK)</i>	Improvement in Measurement Accuracy of Oil Film Distributions on Piston Skirt using Sapphire Glass Cylinder - Yasuhiro Ishikawa / <i>Tokyo City University, Graduate School of Integrative Science and Engineering (Japan)</i>

	ROOM 1	ROOM 2
15:10 16:10	Friction & Wear - 4 Chair: A. Saulot	Friction & Wear - 5 Chair: T. Chaise
15:10 15:30	Vat Photopolymerization 3D Printing of Self-Lubricating Polymer Composites - Xiaolong Wang / <i>Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences, Shandong Laboratory of Advanced Materials and Green Manufacturing at Yantai (China)</i>	Solid Particle Erosion of Aluminium Alloy of Aircraft Fuselage Skin Ezequiel Gallardo-Hernández / <i>Instituto Politecnico Nacional (Mexico)</i>
15:30 15:50	Wear Study of Tire Tread Materials under Low-Severity Wear Conditions - Cloé Chanal / <i>Ingénierie des Matériaux Polymères, Laboratoire de Tribologie et Dynamique des Systèmes (France)</i>	Investigating the Influence of Flake-Shaped Particles on the Frictional Behavior of Materials Parissa Alavi / <i>LSMS, EPFL (Switzerland)</i>
15:50 16:10	Contact and Friction Behavior on Soft-Hard Contact Interface under Mechanical Stress Conditions - Shuyan Yang / <i>Qingdao Tribology Group, State Key Laboratory of Solid Lubrication (China)</i>	Evolution of the Seismic Fault – Asperity System through the Lens of Pin-On-Disk Experiments - Adriane Clerc - <i>Laboratoire de Mécanique des Contacts et des Structures (France)</i>

16:10-16:20	SHORT BREAK (SESSIONS' SWITCH)
16:20-17:00	AWARD AND CLOSURE SESSION

	ROOM 3
13:50 15:10	Rolling Contact Fatigue - 2 Chair: A. Ruellan
13:50 14:10	Surface-Initiated Rolling Contact Fatigue on a Dent: Microstructural Evolution and Effects on the Failure Mechanism - Aurore Goigoux / NTN Europe, LaM-CoS, MATEIS (France)
14:10 14:30	Using Ultrasound to Measure the Inlet Meniscus Position and Starvation Ratio of a Rolling Element Bearing Contact Will Gray / University of Sheffield (UK)
14:30 14:50	Tribological Properties and Performance of a Novel Aeroengine Bearing Steel Arctic15 Jean-Baptiste Coudert / SKF Aerospace (France)
14:50 15:10	The Effect of Electrical Current on Tribological Contact Grigore Cernalevschi / Faculty of Engineering and Physical Sciences, University of Southampton (UK)

	ROOM 3
15:10 16:10	Thermal Effects Chair: G. Guilloneau
15:10 15:30	Effect of Tribotesting Scale on the Understanding of High Temperature Tribology of Tool Materials - Gabriel Macêdo / Luleå University of Technology (Sweden)
15:30 15:50	Enhanced Lubrication Performance of PFPE with TMFS-Modified MoS2 under High-Temperature Conditions Yunze Li / Tsinghua University (China)
15:50 16:10	Friction and Wear of AAR Class D Wheel Steel Sliding against High-Strength Rail Steel at Temperatures up to 700 °C - Nathan Strey / Universidade Federal do Espírito Santo (Brazil)

Notes



■ Posters

A. LUBRICATED CONTACTS

A01	<i>Litian Hu</i>	State Key Laboratory of Solid Lubrication, Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences (China)	Protic Oil-Soluble Ionic Liquids: The Structure Design and Lubrication Mechanism Study
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CANCELLED

A02	<i>Taisuke Maruyama</i>	1 - NSK Ltd. (Japan)	Lubrication Condition Monitoring in EHD Line Contacts Using the Electrical Impedance Method
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A03	<i>Zhangpeng Li</i>	State Key Laboratory of Solid Lubrication, Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences (China)	Effect of Chain Length on Tribological Performances of Mxene Solvent-Free Nanofluids as Additives for Water-Based Lubricants
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A04	<i>Xuzhi Hu</i>	Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences (China)	Neutron Reflection Characterisation of Ionic Liquid Additive Adsorption at Steel/Water Interface for Water-Based Lubrication
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A05	<i>Weimin Li</i>	Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences (China)	Preparation and Tribological Study of Novel Amide-Modified Organic Friction Modifiers
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CANCELLED

A06	<i>Dimitrios Skaltsas</i>	National Technical University of Athens (Greece)	A Reynolds-type Equation for Bearings with Stochastic Roughness under Elastohydrodynamic Lubrication
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A07	<i>Marie Winger</i>	LabECAM, Laboratoire de Mécanique des Contacts et des Structures, Safran Transmission Systems (France)	Experimental Investigations on Spin Power Losses Generated in a Planetary Gear Set
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A08	<i>Natsuki Tomita</i>	Kyushu Institute of Technology (Japan)	Effect of Shear Heating on Film Thickness under Elastohydrodynamic Lubrication
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A09	<i>Daisuke Hiyama</i>	Tokyo City University (Japan)	A Study on Hydrogen Concentration in the Crank Case of a Hydrogen Internal Combustion Engine
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A10	<i>Paul Staudinger</i>	Anton Paar GmbH (Austria)	Advanced Electro-Tribological and Electro-Rheological Testing of Grease Lubricated Ball Bearings ,from Impedance to Break Down Voltage
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A11	<i>Gladys Peretti</i>	The Leonardo Centre for Tribology, The University of Sheffield, (UK), INSA Lyon, CNRS, LaMCoS (France), AC2T research GmbH (Austria)	Viscosity Measurement In-Situ at High Pressure Using Ultrasound
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A12	<i>Shunsuke Iwase</i>	NSK Ltd. (Japan)	Application of Dielectric Spectroscopy for EHD Contact
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A13	<i>Rayan Ajeeb</i>	Faculty of Mechanical Engineering, Ljubljana (Slovenia)	Evaluating Slip Effects in Elastohydrodynamic Lubrication: Insights from Navier-Stokes Equations
A14	<i>Lukasz Wojciechowski</i>	Poznan University of Technology (Poland)	Hybrids of Ionic Liquids and Cu-Decorated Carbon Nanotubes as Potential Superlubricants for Steel-Polymers Friction Pairs
A15	<i>Marek Kalbarczyk</i>	Łukasiewicz Research Network - Institute for Sustainable Technologies (Poland)	The Effect of Contaminants in Used Mining Gear Oils on The Wear of Machine Elements with Thin Antiwear Coatings
A16	<i>Mathilde Verduno</i>	LTDS (France)	Effect of Kinetics of MoS ₂ Sheets Formation and Organization on Tribological Behavior of Lubricated Contacts Using Modtc Additive

B. WEAR AND DAMAGE

B01	<i>Raaid Yassin</i>	Institute of Functional Surfaces (IFS), School of Mechanical Engineering, University of Leeds (UK)	Influence of Water, Relative Humidity and Nitrogen Environment on Friction and Wear Performance of CuO/MoS ₂ Hybrid Nanoparticles in Reciprocating Sliding Contacts
B02	<i>Takuto Kunii</i>	Tokyo University of Science, Rtec-Instruments KK (Japan)	Influence of Slide-Roll Ratio on Micropitting / Macropitting under High Load and High Speed Rolling Friction Test
B03	<i>Daniel Williams</i>	University of Sheffield (UK)	Ultrasonic Monitoring of Long Term Cycling and Degradation of Lithium-Ion Batteries
B04	<i>Hugo Bergère</i>	INSA Lyon, CNRS, LaMCoS, ECAM LaSalle, LabECAM, Safran Landing Systems (France)	Investigations around Thermal and Tribological Contributions on Carbon/Carbon Composite's Wear
B05	<i>Patrick Beau</i>	Beau Engineering Services, Optimol Instruments Pruftechnik GmbH (Germany)	Friction and Wear Behavior of Co-based Alloys under Harsh Conditions
B06	<i>Antoine Mille</i>	Laboratoire de Tribologie et Dynamique des Systèmes (France)	Evolution of Stress/Strain State and Contact Area of Worn Elastomers during Shearing
B07	<i>Manuel Vite-Torres</i>	Instituto Politécnico Nacional ESIME U Zacatenco (Mexico)	Reciprocating Sliding Wear Behavior on Aluminum and Bronze Alloys under Dry and Lubricated Conditions
B08	<i>Sara Topete</i>	Universidad de Guadalajara (Mexico)	Evaluation of Friction and Wear of Enamel During the Loss and Recovery of Minerals Exposed to Demineralizing Liquids

B09	<i>Roderick Jacques</i>	Technical Center of Mechanical Industries, Cetim (France)	Analysis of Wear Mechanisms, Microstructure Modifications of Thrust Ball Bearing under Fretting Contact and Grease Lubrication
B10	<i>Elizabeth Sedano</i>	Universidad de Guadalajara (Mexico)	Effect of Temperature and Load on the Behavior of Adhesive Wear on the Tire-Concrete Pavement Interaction
B11	<i>J. V. R. Silva e Silva</i>	Federal University of Espirito Santo (Brazil)	Sliding Wear Prediction in Wheel-Rail System under Aqueous Condition
B12	<i>Fernando Galvez</i>	Universidad de Guadalajara (Mexico)	Interaction Between Adhesive Wear and Noise on Tire-Concrete Pavement Contact at Different Speeds
B13	<i>Javier Frias-Flores</i>	Instituto politecnico national (Mexico)	Study of Erosion Wear by Solid Particle on a Carbon Steel Pipeline Section (Api 5L-X52)
B14	<i>Joseph Frangieh</i>	Laboratoire de Mécanique, Multiphysique, Multiéchelle - UMR 9013 (France)	The Effect of Usage and Pad Material on the Tribological Circuit and Wear Dynamics in Friction Braking
B15	<i>Kesavan Dhanasekaran</i>	Indian Institute of Technology Palakkad (India)	Rolling Contact Fatigue Behaviour of Nitroalloy Steel (Cronidur 30) under Varied Slip Conditions
B16	<i>Hongfei Shang</i>	Tsinghua University (China)	Research On the Friction and Wear Testing Machine for Simulated Ocean Environment
B17	<i>Nathan Strey</i>	Federal University of Espirito Santo (Brazil)	Effects of Temperature and Load on Sliding Wear between Wheel and Rail Steels
B18	<i>Nicolas Araya</i>	Universidad de Concepcion (Chile)	Influence of the Sintering Process on the Slurry Erosion Behavior of New Fe-SiC Cermets.

C. SURFACE AND FRICTION SCIENCE

C01	<i>Yuxiong Guo</i>	Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences (China)	Additive Manufacturing of Intelligent and Self-Lubricating Polyimide Surfaces
C02	<i>Ibrahim Ghanem</i>	Department of Microsystems Engineering (Germany)	Excitation and Attenuation of Surface Waves in Disordered Materials
C03	<i>Mohammad Zarshenas</i>	Fraunhofer Institute for Mechanics of Materials, Institute of Physics, University of Freiburg (Germany)	Dry Friction of Amorphous Carbon on Epitaxial Graphene: Insights and Observations
C04	<i>Katarzyna Peta</i>	Poznan University of Technology (Poland)	Wettability of Complex Fractal Surfaces - Multiscale Correlation
C05	<i>Roman Nevshupa</i>	Institute of Construction Science, Eduardo Torroja- Spanish National Research Council (Spain)	Nonconventional Tribochemical Activation: Facing the Challenges in Non-Tribological Applications

C06	<i>Shoma Kobayashi</i>	Shoma Kobayashi (Japan)	Frictional Behavior of Paper Wiper in Partially Wet Conditions: Significance of Three Dimensional Wetting
C07	<i>Sumanta Prasad Dewri</i>	Indian Institute of Technology Madras (India)	Effect of Water Absorption on the Friction Characteristics of Coir Fibers
C08	<i>Chao Zhang</i>	Shanghai University (China)	Multi-Phase and Multi-Scale Wear Model Using Phonon, Quantum Chemical Molecular Dynamics and Machine Learning
C09	<i>Wufang Yang</i>	State Key Laboratory of Solid Lubrication, Chinese Academy of Sciences (China)	Construction of Solid-Liquid Coupling Interfaces for Ultralow Friction and Stable Drag Reduction
C10	<i>Takumi Matsuura</i>	Tokyo University of Science (Japan)	Research on Friction Control by Pillar-Shaped Texturation under Lubricated Conditions

D. DRY CONTACTS AND COATINGS

D01	<i>Jinqing Wang</i>	State Key Laboratory of Solid Lubrication, Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences (China)	Tribological and Anticorrosive Performances of Graphene Coatings on Stainless Steel Substrates Constructed by Metal Ion-Induced Self-Assembly
D02	<i>Nicolas Durand</i>	INSA Lyon, CNRS, LaMCoS, UMR5259 (France)	Boundary Element Method for Periodic Phenomena, Application to the Modelling of Tire-Pavement Contact
D03	<i>Keizo Hashimoto</i>	Teikyo University (Japan)	Friction Behaviors of Tungsten Disulfide at Elevated Temperatures
D04	<i>Yi Zheng</i>	Delft University of Technology (Netherlands)	Investigation on Asymmetric Hysteresis Friction Behavior between Wood and a Spherical Steel Pin
D05	<i>Kai Le</i>	State Key Laboratory of Solid Lubrication, Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences (China)	Enhancing the Tribological Properties of Ti6Al4V Alloy through Duplex Plasma Nitriding and MoS2 Coating
D06	<i>Lukas Odehnal</i>	Department of Tribology, Faculty of Mechanical Engineering, Brno University of Technology (Czech Republic)	Additive Manufacturing as a Potential Method to Produce Friction Surfaces of Joint Implants: the Tribological Behaviour of Ti6Al4V
D07	<i>Ezequiel Gallardo</i>	Instituto politecnico nacional (Mexico)	Friction Coefficient of Cardboard Packing Samples
D08	<i>Guillaume Colas</i>	Université Franche-Comté, CNRS, institut FEMTO-ST (France)	Sprayed Alkylphosphonic Acid as Lubricant an Air and Vacuum

D9	<i>Yonggang Meng</i>	Tsinghua University (China)	Prediction of Numerical Running-In Profile Modification of Tapered Rollers Based on Neural Network
D10	<i>Günkan Fırat Mehmet</i>	Dept. of Mechanical Engineering, Istanbul Technical University (Turkey)	Design and Shape Optimization of Valve Stem for Sealing Performance of Proportional Valve Used in a Cold Gas Propulsion System
D11	<i>Beikang Liu</i>	Department of Mechanical Engineering, Imperial College London (UK)	Acoustic Emission and Frictional Analysis of Granular Material Systems
D12	<i>Masahito Tagawa</i>	Kobe University (Japan)	Degradation of Fluorinated Polymers/Lubricants Due to Hyperthermal Nitrogen Collision in Very Low Earth Orbit
D13	<i>Sercan Gökçeli</i>	Dept. of Nanotechnology and Nanomedicine, Hacettepe University (Turkey)	The Tribological Investigation of The Thin Film Electrode Arrays



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