

Workshop Programme Tribology Exchange Schedule

DAY 1

Tribology Fundamentals

Fundamentals on EHL Film Thickness Formation and Prediction Formation

Philippe Vergne (INSA Lyon)

The Physics of Friction

Ian Taylor (Shell)

Fundamentals of Bearing Tribology

Guillermo Morales (SKF)

Mechanical Engineering

Rotary Lip Seals: A Misaligned Approach

F Xavier Borrás (University of Twente)

Bearing Design for Dynamic Operating Conditions

Hannes Grillenberger (Schaeffler)

Grease Life in Rolling Bearings

Piet Lugt (SKF)

Material Science

Material Science Aspects of the Wear of Metallic Materials

Alfons Fischer (MPI Eisenforschung)

Cage Dynamics in Rolling Bearings by Test and Simulation

Sebastian Schwarz (Uni Erlangen)

Surface Texturing

Vasilios Bakolas (Schaeffler)

Roundtable Discussion

DAY 2

Tribology Testing

Roller-on-Disk Geometry for Extreme Pressure Gear Oils

Mathias Woydt
(Matrilub)

Food Tribology: Concepts and Experimental Approaches

Florian Rummel (Anton Paar)

Digital Transformation in Tribology

Deepak H. Veeregowda (Ducom Instruments
Europe B.V)

Lubricant Chemistry

The Mechanisms of Surface Damage in Rolling-Sliding Contacts

Amir Kadiric
(Imperial College)

Fretting Wear Tests - Basics, Industrial Relevance and Test Realisation

Henrik Buse (Hochschule Mannheim)

Application

Blink of an Eye - A Biotribology Quest towards Patient Comfort

Christian Mathis-Ullrich (SuSoS AG)

Grease Applications

Aleksandra Nevskaya (DDP Specialty Products)

Lubricant Challenges in Wind Turbine Applications

Olav Hoeger (Shell)

Roundtable Discussion

Monday 19th April 2021

09:00-09:30 Opening session

Workshop chairmen will set the stage

09:30-11:00 Tribology Fundamentals

Alfons Fischer (MPI für Eisenforschung)	Material Science Aspects of Wear of Metals
Mathias Woydt (Matrilub)	Importance of tribology for climate and sustainability
Fabrice Ville (LaMCoS Insa Lyon)	Power Losses in Gear Transmissions

11:00-11:30 Refresher Break

11:30-13:00 Applications

Ann Fenech-Andersen (Danfoss)	Case studies on Lubricant selection
Dirk Drees (Falex)	Wear testing in lubricated conditions
Deepak Veeregowda (Ducom) Tester	On the Fictitious Grease Lubrication Performance in a Four-ball

13:00-14:00 Lunch Break

14:00-16:00 Round Table Discussions in 5 virtual rooms

Participants can post their suggestions for table topics upfront and/or are invited to host one of the tables. Topics should be around themes from today's live presentations or today's shown Tribology Frontier 2020 Conference recordings

16:00-16:30 virtual reception

Paul Hetherington (Petro Canada) – STLE President

Tuesday 20th April 2021

09:00-11:00 Modelling and Simulation

Jun Wang (SKF)	CFD simulations in bearings
Stefan Eder (AC2T)	Developing Nanoscale Simulations of Tribological Phenomena into Engineering Tools
Zulfiqar Khan (Bournemouth University)	Wear analysis and modelling applied to nanocoatings
Hannes Grillenberger (Schaeffler)	Noise simulation in Rolling Element Bearings

11:00-11:30 Refresher Break

11:30-13:00 Applications

Joanna Procelewska (Schaeffler)	Exploring of new coatings and materials for the applications under extreme tribocorrosive running conditions
Lieuwe De Fries (SKF)	Friction in rolling bearings
Farshid Sadeghi (Purdue University)	A Novel Test Rig for Friction and Flow Visualization in Oil Lubricated Ball Bearing Cages

13:00-14:00 Lunch Break

14:00-16:00 Round Table Discussions in 5 virtual rooms

Participants can post their suggestions for table topics upfront and/or are invited to host one of the tables. Topics should be around themes from today's live presentations or today's shown Tribology Frontier 2020 Conference recordings

16:00-16:30 wrap up

Discussion with workshop chairmen on outcome, format, suggestions etc.

Tribology Frontier 2020 Conference recordings

Includes 4 of the Keynote presentations, 4 of the Cutting Edge presentations and 8 Spotlight topics.

08:30-09:00	Opening session	Introduction by Workshop Chairmen	
Friction related Sustainability			
09:00-09:35	Vasilios Bakolas	Schaeffler	A First Approximation of the Global Energy Consumption of Ball Bearings
09:35-10:10	Deepak Veeregowda	Ducom	ELT Test Rigs for e-Grease and e-Fluids
10:10-10:30 Refresher Break			
10:30-11:05	Fabrice Ville	LaMCoS Insa Lyon	Gear Tooth Friction Analyses
11:05-11:40	Arnaud Ruellan	SKF	Reconditioning Lubricating Oils: The Tribological Performance Perspective
11:40-12:15	Marc Ingram	Ingram Tribology	A Simple Efficiency Test for Lubricants using a Tribometer
12:15-13:30 Lunch Break			
13:30-14:05	Florian Rummel	Netzsch	How to attract and connect young tribologists in Europe
14:05-14:40	Joe Kaperick	Afton Chemical	Possibilities of Base Oils and Additives to reduce Friction
14:40-15:00 Refresher Break			
15:00-16:30 Round Table Discussions: Participants can post their suggestions for table topics upfront and/or are invited to host one of the tables. Topics should be around themes from today's presentations.			
19:00 Team Dinner Event: Restaurant Barraca			

Materials related Sustainability			
08:30-09:05	Mathias Woydt	Matrilub	Material Efficiency through Wear Protection – The Contribution of Tribology for Reducing CO ₂ Emissions
09:05-09:40	Dirk Drees	Falex	New Metrological Challenges Arising from Sustainability on Tribometry
09:40-10:15	Ian Taylor	University of Central Lancashire	Review of Fuel-Lubricant Interactions

10:15-10:30 Refresher Break			
10:30-11:05	Stefanie Hanke	University Duisburg- Essen	Effect of Microstructure and Surface State on Sliding Wear and Cavitation Erosion Resistance of Metals
11:05-11:40	Mathias Woydt	Matrilub	Importance of Electrical Properties in Tribometry
11:40-12:15	Ravindrakumar Bactavatchalou	Freundenberg	Sealing and Tribology
12:15-13:30 Lunch Break			
13:30-13:50 Refresher Break			
<p>13:50-15:00 Round Table Discussions: Participants can post their suggestions for table topics upfront and/or are invited to host one of the tables. Topics should be around themes from today's presentations.</p>			
<p>15:00-15:30 wrap up: Discussion with workshop chairmen on outcome; suggestions etc.</p>			

First Tribology Exchange Workshop conducted in Amsterdam



Manfred Jungk
ELGI Director / STLE Europe Representative



The ELGI & STLE combined their strengths to set up a first European Tribology Exchange Workshop in November in Amsterdam. After conducting a Tribology Training Course the year before, in 2018, the objective was to run a two-day interactive workshop. The Workshop Chair Committee, consisting of Dr. Hannes Grillenberger of Schaeffler, Dr. Manfred Jungk of MJ Tribology and Dr. Markus Matzke of Robert Bosch, put together a programme

featuring young and well renowned speakers, covering key tribology related disciplines; tribology fundamentals, material science, mechanical engineering, tribo-testing, lubricant chemistry and applications.

A total of 18 presentations with individual topics ranging from simulations on rolling element bearings and marine propeller seals to practical aspects of

testing roller-on-disc geometry and generating fretting corrosion. Fundamentals presented covered the physics of friction and EHL film thickness formation. Lubricating grease life, key applications and challenges in wind turbines were also on the programme chaired by Manfred as well as tribological aspects of contact lenses and chocolate.

The attendees enjoyed the informal and casual atmosphere of the event allowing early career individuals in the field to meet experts who listened to their challenges and also allowed the experts to meet peers they had not previously encountered. This was possible through Hannes' moderation in which he collected all the delegates "main expectations" and "technical questions to be answered" at the beginning and then checked their fulfillment at the end.

In between presentations he prompted participants on demographics, initiated "speed dating" sessions for those who had not talked to each other and at the end of each day, he conducted discussion round tables on the technical questions asked. These included tribo-films and run-in, e-mobility and tribology, challenges of tribology and lubrication in the context of digitalisation (which was also the topic of a presentation), grease life prediction and education. Using a flexible format without a fixed presentation, the schedule also allowed for extensive discussions and interchange.

Due to the positive feedback all throughout the event, we are now planning to conduct an equivalent event but with a unique format in 2020.

So, make sure to reserve the last week in October next year in your calendars.

Such events can only be made possible through the tremendous logistical efforts of Carol Koopman from ELGI Amsterdam and Stefan Carrera from STLE HQ Park Ridge. Thus, a very special thanks goes to them and also to Hannes for his energetic style of moderation at this year's event!

