

# ÖTG-SYMPOSIUM 2022

## Tribology in industry and research – Trendsetting tribometry and analytics

15. September 2022

FHWN Innovation Lab, Johannes-Gutenberg-Straße 5  
2700 Wiener Neustadt, Wiener Neustadt, Austria

Time	Plenary Talks
09:00	<b>Opening and greetings</b>   Andreas PAUSCHITZ, ÖTG-President
09:15	Hannes HICK, TU Graz, Institute of Machine Components and Methods of Development, Austria <b>Systems engineering for model-based tribological development of electric vehicle drives</b> From viewing and modeling of the system “vehicle” to the “powertrain” subsystem, up to the integrated implementation of the electric motor and transmission.
09:45	Markus VARGA, AC2T research GmbH, Austria <b>Exploring dynamic effects of tribosystems with high sophisticated measurement equipment</b> New generation of measurement equipment, including high-speed imaging, thermography, and frequency analysis via a 3D vibrometer was used to analyse high-speed tribological effects.
10:15	Josef BRENNER, AC2T research GmbH, Austria <b>Synchrotron-supported tribology: In-situ experiments on large-scale research facility</b> With a specially designed in-situ tribometer, investigations have been performed in an X-ray diffraction Synchrotron station. Selected results are highlighted within this talk.
10:45	Carsten GACHOT, TU Wien, Institute of Engineering Design and Product Development, Austria <b>The fascinating world of 2D Materials – How novel MXenes push the limits in Tribology</b> MXenes and in-situ formed transition metal dichalcogenide films are discussed regarding friction and wear performance and aspects of sustainability and resource-efficiency.
11:15	Nicole DÖRR, AC2T research GmbH, Austria <b>Added value of mass spectrometry for research in tribology</b> It is shown how mass spectrometry (MS) provides the knowledge of lubricant chemistry, in particular lubricant condition, to understand lubricant performance.
11:45	<b>Break</b>
13:00	Christoph J. ROHBOGNER, OELCHECK GmbH, Brannenburg, Germany <b>Improvement of the CO<sub>2</sub> balance of FAME (B100) operated trucks</b> Systematically performed oil analysis of trucks are presented which aimed to extend the oil change intervals and therefore achieve maximum lubricant life.
13:20	Krisztian DUBEK, AC2T research GmbH, Austria <b>Development environment of sensor systems for lubricant condition monitoring</b> A sensor system for water detection in lubricated wagon components is presented. Focus is put on the monitoring of water in grease-lubricated axle bearings using a humidity sensor.
13:40	Stephen R. BEWSHER, AVL List GmbH, Graz, Austria <b>Simulating the tribological performance of new water-based and mineral-oil-based lubricants for a journal bearing within an electrified powertrain</b> Simulation results of the tribological performance of a journal bearing with a water-based lubricant operating in the hydrodynamic and mixed lubrication regimes up to 10,000 rpm are presented.
14:00	Pia PFEIFFER, TU Wien, Institute of Statistics and Mathematical Methods in Economics, Austria <b>Prediction of engine oil degradation based on FTIR spectroscopic data</b> By means of weighted LASSO regression, a statistical approach and domain experts’ knowledge are combined to derive a quantitative relation between different degradation pathways in engine oils.

<b>14:20</b>	<b>Break</b>
<b>14:40</b>	<p>Florian SOBIECZKY, Software Competence Center Hagenberg GmbH, Hagenberg, Austria</p> <p><b>Comparing maintenance strategies for small and medium sized enterprises</b></p> <p>Artificial intelligence shows promising results for the use in predictive maintenance. In this work new methods are compared, especially to aid SMEs in their maintenance of tribological components.</p>
<b>15:00</b>	<p>Andreas BLUTMAGER, Voith Austria GmbH, Wimpassing, Austria</p> <p><b>High-end cemented carbide coatings for the toughest demands in the paper industry</b></p> <p>Different WC-based HVOF coatings were characterized with focus on paper industry, and the results are discussed regarding WC particle size, metal matrix, degree of sintering and density.</p>
<b>15:20</b>	<p>Franz RAUFER, AC2T research GmbH, Wiener Neustadt, Austria</p> <p><b>Model test bench for switching contacts in e-mobility</b></p> <p>A novel model test bench for electrical switching contacts is presented, enabling the characterization of performance parameters like arc wear.</p>
<b>15:40</b>	<p>Alexander PÖLLINGER, Leobersdorfer Maschinenfabrik GmbH, Leobersdorf, Austria</p> <p><b>High-strength polymers for dry-running hydrogen compressors</b></p> <p>Novel polyimide compound materials are presented, exhibiting high strength, high stiffness, and low friction properties in dry-running hydrogen compressor applications.</p>
<b>16:00</b>	<b>Break</b>
<b>16:20</b>	<p>Matthias FREISINGER, AC2T research GmbH, Wiener Neustadt, Austria</p> <p><b>History-dependent microstructure on railway wheels – Lab imitation by combined mechanical and thermal loadings</b></p> <p>A combination of twin disc tribotests and laser treatments was performed, and the resulted microstructure is presented based on detailed microscopic analysis and a novel micro-mechanical testing approach.</p>
<b>16:40</b>	<p>Igor VELKAVRH, V-Research GmbH, Dornbirn, Austria</p> <p><b>Tribological behavior of industrial sliding materials in dry contact against Cr-based coatings</b></p> <p>SRV tribotests were performed at enhanced temperatures with different coatings, and gained results are discussed regarding wear, sticking and sliding friction, and contact temperature.</p>
<b>17:00</b>	<p>Martin JECH, AC2T research GmbH, Linz, Austria</p> <p><b>Critical wear conditions for DLC coatings</b></p> <p>A methodology is presented to differentiate mild and severe wear of Diamond-like carbon (DLC) coatings and subsequently evaluate various DLC coatings with respect to their lifetime in applications.</p>
<b>17:20</b>	<b>Outlook and closing remarks</b>   Nicole Dörr, ÖTG Vice President
<b>17:30</b>	<b>End of Symposium</b>

Website and registration  
<https://symposium.oetg.at/>

### Participation fee (excl. 10 % VAT)

Participation fee <i>per person</i>	€ 340,-
Reduced fee for ÖTG members	€ 230,-
Students <i>per person</i>	€ 100,-
ÖTG company membership (max. number of eligible participants depending on category)	€ 0,-
COMET InTribology company partner (1 person per company)	€ 0,-

### ORGANIZER

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