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Tribology  
and interface  
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2<sup>nd</sup> International Conference on  
**POLYMER TRIBOLOGY**

**PolyTrib**  
**2016**



| CONTACT |



SLOVENIAN SOCIETY FOR TRIBOLOGY

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| FINAL PROGRAMME |

15<sup>th</sup>–16<sup>th</sup> September 2016  
Grand Hotel Union, Ljubljana, Slovenia

**Tint**  
Tribology  
and interface  
nanotechnology



## DAY 1, 15<sup>th</sup> September 2016

### 8:30–13:30 REGISTRATION

#### SESSION I

*Session chair: M. Kalin*

#### 09:40–09:50 OPENING SPEECH

09:50–10:40 K. Friedrich; Technical University of Kaiserslautern, Germany – keynote lecture

*Multifunctionality of polymer composites in tribology*

10:40–11:00 Å. Kassman Rudolphi<sup>1</sup>, E. Edling<sup>2</sup>, S. Zhao<sup>3</sup>, Å. Öberg<sup>3</sup>; <sup>1</sup>Uppsala University, <sup>2</sup>Outokumpu Stainless AB, <sup>3</sup>ABB Corporate Research, Sweden

*A test method for mapping the contact force limit of polymer materials in sliding contact*

11:00–11:20 A. Hausberger<sup>1</sup>, T. Stiller<sup>1</sup>, G. Pinter<sup>2</sup>, C. Schmied<sup>3</sup>; <sup>1</sup>Polymer Competence Center Leoben GmbH, <sup>2</sup>Montanuniversitaet Leoben, <sup>3</sup>Tribotec GmbH, Austria

*Tribological properties of polyphthalamide (PPA) compounds containing at least one type of metal sulfide*

11:20–11:40 E. Ferramola; Varvel SpA, Italy

*Cohesive and interfacial wear of reinforced polymers*

11:40–12:00 A. P. Harsha<sup>1</sup>, R. Wäsche<sup>2</sup>; <sup>1</sup>Banaras Hindu University, India, <sup>2</sup>Federal Institute for Materials Research and Testing (BAM), Germany

*Tribological studies on polyetherimide composites sliding against steel under reciprocating conditions*

### 12:00–13:30 CONFERENCE LUNCH

### SESSION II: GEAR TRIBOLOGY

*Session chair: P. De Baets*

13:30–14:10 A. Pogačnik, U. Kissling; KISSsoft AG, Switzerland – invited lecture  
*Non-circular gears*

14:10–14:30 M. Khador<sup>1</sup>, P. Langlois<sup>2</sup>; <sup>1</sup>University of Warwick, <sup>2</sup>Smart Manufacturing Technology Ltd., United Kingdom  
*Implementation of the VDI 2736-2:2014 standard and comparison with experimental data for polymer gears*

14:30–14:50 A. Bormuth, J. Zuleeg, J. Groß, M. Meijer, C. Schmitz, R. Spallek; Klüber Lubrication München SE & Co. KG, Germany  
*Impact of grease rheology on the performance of polymer gears*

14:50–15:10 M. Kalin, A. Kupec, G. Potrč Pajk; University of Ljubljana, Slovenia  
*Temperature dependent tribological behaviour of polymer (POM) gears*

### 15:10–15:50 COFFEE BREAK



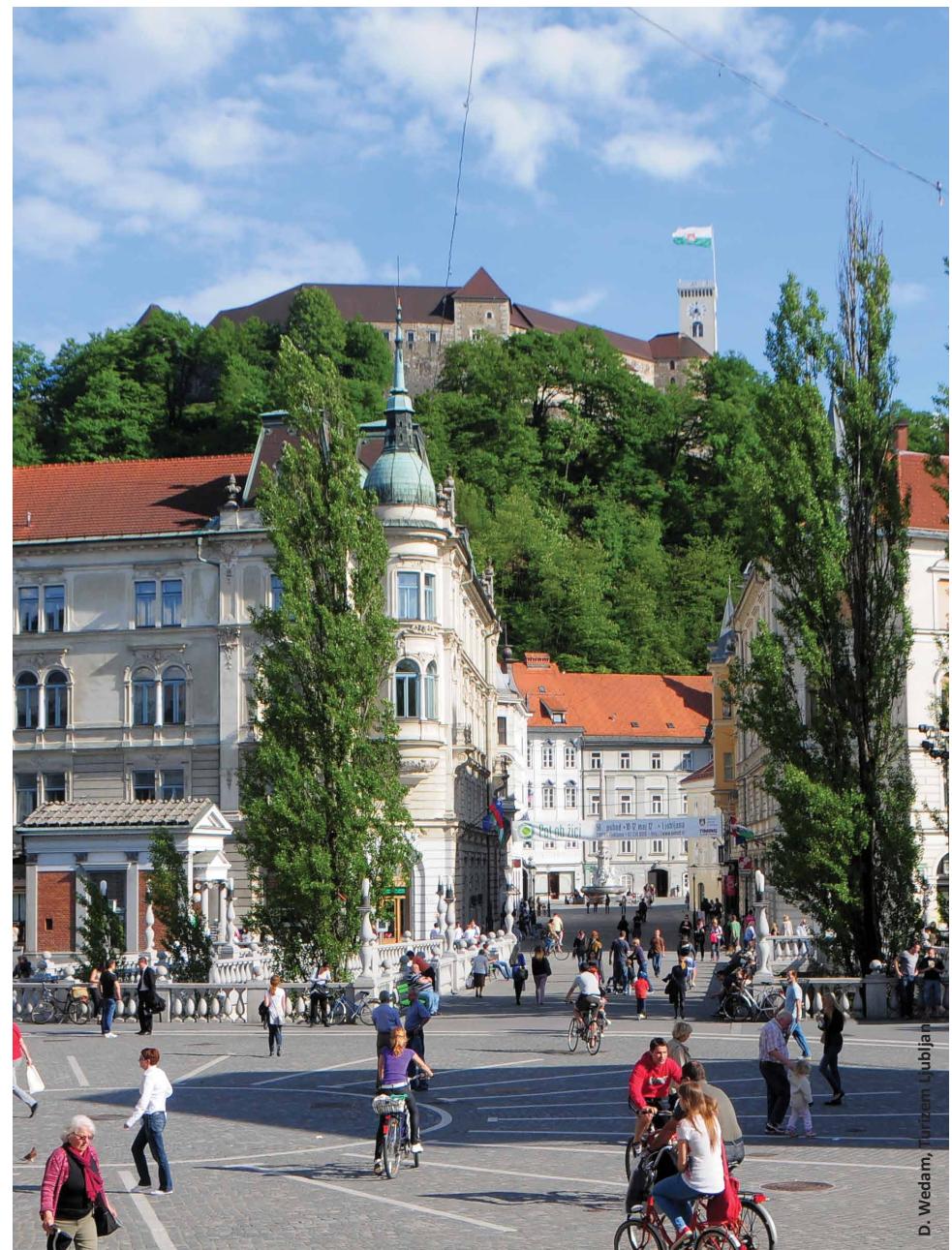
## DAY 1, 15<sup>th</sup> September 2016

### SESSION III

*Session chair: K. Friedrich*

- 15:50–16:30 **N. Emami; Luleå University of Technology, Sweden – *invited lecture***  
*UHMWPE composites for bearing applications; manufacturing and tribological characterisation*
- 16:30–16:50 **S. Carley<sup>1</sup>, T. Liskiewicz<sup>1</sup>, H. Zhao<sup>2</sup>, A. Neville<sup>1</sup>; <sup>1</sup>University of Leeds, <sup>2</sup>LGC, United Kingdom**  
*Diamond like carbon coatings for improved tribological performance of polymers*
- 16:50–17:10 **N. Kampf, I. Rosenhek-Goldian, J. Klein; Weizmann Institute of Science, Israel**  
*Revealing the lubrication mechanism between hydrophobic and hydrophilic surfaces across aqueous solutions*
- 17:10–17:30 **L. F. Tóth<sup>1,2</sup>, J. Sukumaran<sup>1</sup>, G. Szabényi<sup>2</sup>, R. Nagarajan<sup>3</sup>, W. J. Thanggiah<sup>3</sup>, P. De Baets<sup>1</sup>; <sup>1</sup>Ghent University, Belgium, <sup>2</sup>Budapest University of Technology and Economics, Hungary, <sup>3</sup>Kalasalingam University, India**  
*Friction and wear properties of jute/polyester composite systems at high load*

20:00–23:00 CONFERENCE DINNER



D. Wedam, Turism Ljubljana

## DAY 2, 16<sup>th</sup> September 2016

### PARALLEL SESSION IV – A

- 08:30–08:50 **B. Jakab<sup>1</sup>, N. Gamsjäger<sup>2</sup>, H. Steiner<sup>2</sup>; <sup>1</sup>AC<sup>2</sup>T Research GmbH, <sup>2</sup>Aerospace & Advanced Composites GmbH, Austria**  
*Wear resistant coatings with anti-stick properties*
- 08:50–09:10 **A. Oseli, M. Bek, I. Emri; University of Ljubljana, Slovenia**  
*Experimental and analytical methodology for determination of stress-strain limits of linear theory of viscoelasticity*
- 09:10–09:30 **S. Klien, F. Ausserer, A. Diem; V-Research GmbH, Austria**  
*Tribophysical interactions in an air pressure and polymer friction based deceleration and damping system*
- 09:30–09:50 **J. Lind, Å. Kassman Rudolphi; Uppsala University, Sweden**  
*Cross sections studies of polymer composites*
- 09:50–10:10 **B. Pinedo<sup>1</sup>, M. Conte<sup>2</sup>, J. Aguirrebeitia<sup>3</sup>, A. Igartua<sup>1</sup>; <sup>1</sup>Irk4- Tekniker, Spain, <sup>2</sup>Anton Paar TriTec SA, Switzerland, <sup>3</sup>University of Basque Country, Spain**  
*Tribological modelling of elastomeric seals*
- 10:10–10:30 **S. Drobnič, M. Tomšič; Hennlich d.o.o., Slovenia**  
*Friction and wear*
- 10:30–11:00 COFFEE BREAK**

*Session chair:* N. Emami

### PARALLEL SESSION IV – B: GEAR TRIBOLOGY

- 08:30–09:10 **J. Navodnik; Navodnik d.o.o., Slovenia – *invited lecture***  
*Plastic and composite gears*
- 09:10–09:30 **G. Hlebanja<sup>1</sup>, S. Kulovec<sup>2</sup>, J. Hlebanja<sup>3</sup>, J. Duhovnik<sup>3</sup>; <sup>1</sup>Faculty of Technologies and Systems, <sup>2</sup>Podkrižnik d.o.o., <sup>3</sup>University of Ljubljana, Slovenia**  
*Experimental determination of S-gear characteristics made of plastics*
- 09:30–09:50 **M. Kodeeswaran<sup>1,2</sup>, A. Verma<sup>2</sup>, R. Suresh<sup>1</sup> and S. Senthilvelan<sup>2</sup>; <sup>1</sup>Vikram Sarabhai Space Centre, <sup>2</sup>Indian Institute of Technology Guwahati, India**  
*Hysteresis heating of polymer gear*
- 09:50–10:10 **E. Ferramola; Varvel Spa, Italy**  
*Reinforced PA46 designed for planetary gearbox application*
- 10:10–10:30 **J. Tavčar, G. Grkman, J. Škofic, J. Jerina; Iskra Mehanizmi, Slovenia**  
*Testing of polyamide (PA) plastic gears with added PTFE*
- 10:30–11:00 COFFEE BREAK**

### SESSION V

*Session chair:* Å. Kassman Rudolphi

- 11:00–11:40 **P. Pauchard, J. Vail; DuPont – *invited lecture***  
*Meeting automotive tribological needs with polymeric solutions*
- 11:40–12:00 **C. Descamp, M. Hrebičík; Dow Corning Corporation**  
*CoF and wear reduction in plastics for tribological applications in PA and POM*
- 12:00–12:20 **W. Molnar<sup>1</sup>, A. Nevosad<sup>1</sup>, K. Adam<sup>2</sup>, E. Badisch<sup>1</sup>; <sup>1</sup>AC<sup>2</sup>T Research GmbH, <sup>2</sup>voestalpine Stahl, Austria**  
*Innovative wear-related tribotesting for rubber conveyor belts*
- 12:20–12:40 **B. Wetzel, B. C. Jim; Institute for Composite Materials GmbH, Germany**  
*Hybrid nanocomposites for bearing applications*

**12:40–14:00 CONFERENCE LUNCH**

## DAY 2, 16<sup>th</sup> September 2016

SESSION VI		Session chair: B. Wetzel	DAY I. DAY II.	17:30–18:30 13:30–14:00	POSTER SESSION *
14:00–14:20	<b>S. Toumi, M. Salvia, S. Fouvy; École Centrale de Lyon, France</b> <i>Wear and friction behaviour of polyethylene terephthalate (PET) and polytetrafluoroethylene (PTFE) thermoplastic semi-crystalline polymers</i>		I.		H. Ronkainen et al. – <i>Abrasive wear resistance of polymers</i>
14:20–14:40	<b>Z. M. Shukur<sup>1,3</sup>, K. D. Dearn<sup>1</sup>, G. Raza<sup>2</sup>, L. Sadiq Al-Ansari<sup>3,1</sup>; <sup>1</sup>University of Birmingham, <sup>2</sup>University of Leeds, United Kingdom, <sup>3</sup>University of Kufa, Iraq</b> <i>The tribological behaviours of PEEK and PEEK based PMCS under marginal lubrication</i>		II.		J. Li et al. – <i>AFM studies on the liquid superlubricity between silica surfaces achieved with surfactant micelles</i>
14:40–15:00	<b>E. Feyzullahoglu; University of Kocaeli, Turkey</b> <i>Tribologic and viscoelastic properties of CR, NBR and FKM rubbers exposed to varied circumstances</i>		III.		W. Lin et al. – <i>Normal and shear forces between surfaces bearing stabilized liposomes</i>
15:00–15:10	<b>CLOSING SPEECH</b>		IV.		B. Trobentar et al. – <i>The influence of gear flank shape on the service life of polymer gears</i>
			V.		B. Žugelj et al. – <i>Real contact area investigation of polymers</i>
			VI.		A. Kupec et al. – <i>Humidity and temperature dependent changes in dimensional stability and mass of POM and PA66 gears</i>
			VII.		M. Zalaznik et al. – <i>Effect of the type, size and concentration of solid lubricants on the tribological properties of the polymer PEEK</i>

\* Poster authors should be present by the posters during the official poster session hours. The posters will be displayed from 11:00 on, on the 15<sup>th</sup> of September 2016.

