



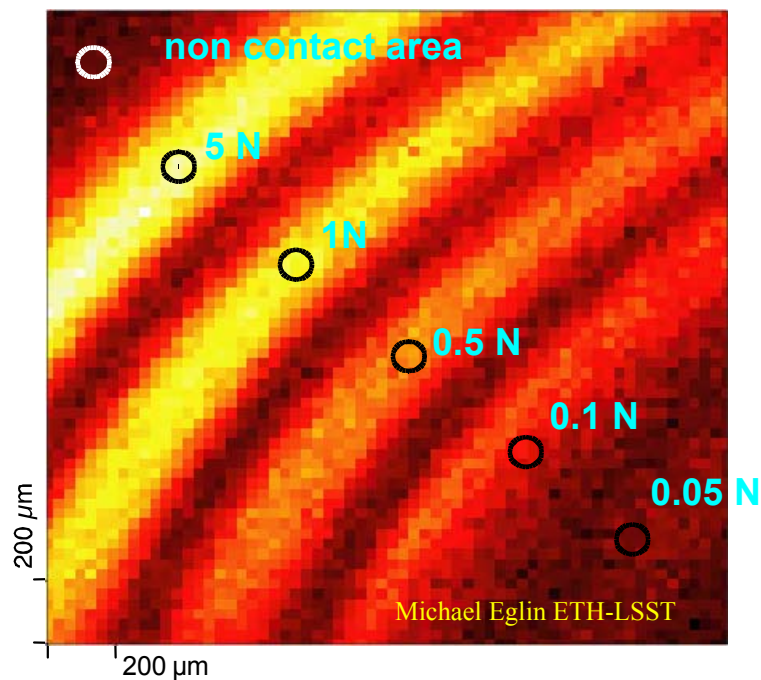
TRIBOLOGY LETTERS



Smart Surfaces in Tribology: Advanced Additives and Structured Coatings

Zurich, Switzerland, 10-12 September 2003

A European conference on recent developments in additive technology and surface coatings for the reduction of wear and friction on moving surfaces



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Belgium

Smart Surfaces in Tribology: Advanced Additives and Structured Coatings

Introduction

This meeting is organised jointly between the Brussels section of the Society of Tribologists and Lubrication Engineers (STLE, Brussels Section), the Swiss Federal Laboratories for Materials Testing and Research (EMPA) and Tribology Letters (Kluwer Publishing). It is aimed at people from industry and academic institutions, who have a shared interest in recent developments in elucidating the mechanisms of additives in forming protective coatings, as well as the increasing use, by coating manufacturers, of highly structured approaches to improving wear resistance.

Organising Committee

Dr. Rowena Crockett (EMPA, Switzerland)
Prof. Nicholas Spencer (ETHZ, Switzerland and Tribology Letters)
Ir. Michel Roegiers (STLE, Belgium)
Dr. Lukas Rohr (EMPA, Switzerland)
Mr. Sigi Roos (EMPA, Switzerland)
Prof. Hugh Spikes (Imperial College, England)
Dr. Paul Hug (EMPA, Switzerland)

Guidelines for Poster Abstracts

- Abstracts should be written in English and no longer than one A4 page
- The presenter should be marked with an asterisk (*)
- The full postal address as well as the email address of the corresponding author should be given
- Abstracts should be sent to rowena.crockett@empa.ch as an email attachment

Deadlines

Poster Presentation: Closing date for submission of abstract 31 July 2003

Registration: Closing date for early registration 30 June 2003

Publication of papers

Papers submitted for oral or poster presentations may be submitted for publication in a special edition of Tribology Letters, subject to normal reviewing procedures.

Other STLE conferences (www.stle.org)

STLE 2003 Annual Meeting and Exhibition, April 27-May 1 2003, New York, NY
STLE-ASME Joint Tribology Conference, October 26-29 2003, Jacksonville, FL

Smart Surfaces in Tribology: Advanced Additives and Structured Coatings

Wednesday 10 September

8:00-10:00 Registration

Chairman: Prof. Nicholas D. Spencer

10:00-10:30 Introduction U. Meier, EMPA and M. Roegiers, STLE

10:30-11:30 The antiwear film-forming properties of zinc dialkydithiophosphates Hugh Spikes, Mechanical Engineering Department, Imperial College of Science Technology and Medicine, UK

11:30-11:50 Tribology results and surface chemistry results for different base oils and different ZDP/base oil combinations Douglas T. Jayne, Farrukh S. Qureshi, Nicholas M. Stadnyk, Jody A. Kocsis, and William D. Abraham, The Lubrizol Corporation, USA

11:50-13:30 Lunch

Chairman: Dr. Stephen Hsu

13:30-14:30 Nanorheological properties of antiwear tribofilms Sandrine Bec, Ecole Centrale de Lyon, France

14:30-14:50 The power of imaging for the investigation of additive-surface reactions Antonella Rossi¹, Michael Eglin², Irene Klingenfuss², Keishi Matsumoto³, F.M. Piras¹, and Nicholas D. Spencer², 1. Dipartimento di Chimica Inorganica ed Analitica dell'Universita' degli Studi di Cagliari, 2. Department of Materials Science ETH-Zurich, Switzerland 3. Sumitomo Metal Industries LTD. Metalworking Process Research Department, Japan

14:50-15:10 The behaviour of sliding contacts between non-conformal rough surfaces protected by 'smart' films J. A. Williams, Department of Engineering, Cambridge University, UK

15:10-15:30 Interfacial force and friction measurements of SAM-coated surfaces N.K. Myshkin¹, N.D. Spencer², A.Ya. Grigoriev¹, S. Tosatti², A.V. Kovalev¹, O.Yu. Komkov¹, 1. MPRI NASB, 32A Kirova st., 246050 Gomel, Belarus, 2. Department of Materials, ETH-Zurich, Switzerland

15:30-16:00 Coffee

16:00-16:20 Tribology results and surface chemistry of primary, secondary, and aryl zinc dithiophosphates in combination with phenate or sulfonate detergents Douglas T. Jayne, John Durham, and Gordon Lamb, The Lubrizol Corporation, USA

16:20-16:40 Tribochemistry of overbased calcium detergents studied by ToF-SIMS and other surface analyses L. Cizaire, J.M. Martin, Th. Le-Mogne, Ecole Centrale de Lyon, France

16:40-17:00 New mixed esters with a complex alkyl-aryl structure considered as tribological fluids Liviu E. Mirci¹, Sorina Boran¹, Paula Luca², Victor Boianuiu², 1. University Politehnica Timisoara, Faculty of Chemical Engineering, Romania, 2. ICERP SA Ploiesti, Romania

17:00-20:00 Poster session with apéro sponsored by E-ION s. a., Belgium

Thursday 11 September

8:00-9:00 Registration

Chairwoman: Prof. Antonella Rossi

9:00-10:00 Novel high-performance PVD coatings by nano- and micro-scale structuring
Marcus Morstein, Platit AG, Switzerland

10:00-10:20 Improving tribological performance of mechanical seals by laser surface texturing Izhak Etsion, Dept. of Mechanical Engineering Technion, Israel

10:20-10:40 An integrated surface texture design with surface modification techniques and thin lubricating films Stephen Hsu, Materials Science and Engineering, NIST, USA

10:40-11:00 Coffee

11:00-11:20 Physically and chemically modified surfaces with designed sliding and wetting properties Stephan Siegmann¹, Oliver Brandt², 1. EMPA Thun, Switzerland, 2. Becon Technologies GmbH, Switzerland

11:20-11:40 Improving tribological behaviour of coated surfaces by laser microstructuring Gabriel Dumitru¹, Valerio Romano¹, Heinz P. Weber¹, Henry Haefke², Yvonne Gerbig², 1. Institute of applied physics, University of Bern, Switzerland, 2. CSEM, Switzerland

11:40-12:00 The study of the thermo regime in the condition of selective transfer Ilie Filip, University of Bucharest, Romania

12:00-14:00 Lunch

Chairwoman: Dr. Sandrine Bec

14:00-14:20 Friction and wear of epoxy composites M. I. Khashaba, F. H. Ezzat, W. Y. Ali, Faculty of Engineering, El-Minia University, Egypt

14:20-14:40 The pH effects on wear of water-lubricated alumina and zirconia ceramics S. Novak, M. Kalin, University of Ljubljana, Slovenia

14:40-15:00 Investigation of the physical and chemical parameters determining the boundary lubrication properties of aqueous poly(L-lysine)-G-poly(ethylene glycol) (PLL-G-PEG) solution Markus Müller¹, Xiaoping Yan², Seunghwan Lee¹, Scott S. Perry², Nicholas D. Spencer¹, 1. Department of Materials ETH-Zurich, Switzerland, 2. Department of Chemistry, University of Houston, USA

15:00-15:30 Coffee

15:30-15:50 Characterization of nanocomposite TiAlSiN thin films by sliding nanoindentation O. Nakonechna, A. Karimi, EPFL, Switzerland

15:50-16:10 Industrially relevant characterisation of adhesion or wear resistance by adapted ASTM methods. The Pin & Vee block test revisited Dirk Drees, Falex Tribology NV, Belgium

16:10-16:30 New advanced analysis methods for thin coatings Gregory Favaro, CSM-Instruments, Switzerland

16:30-16:50 Microtribological studies of nanocomposite TiC/a-C:H coatings using a modified nanoindenter setup P. Schwaller, J. Patscheider, L. Kollo, J. Michler, EMPA, Switzerland

16:50 Poster session and apéro sponsored by Ciba Speciality Chemicals

19:00 Conference dinner

Friday 12 September

8:00-9:00 Registration

Chairman: Dr. Walter Muster

9:00-10:00 Wear protection by nanostructured hard coatings Jörg Patscheider, EMPA, Switzerland

10:00-10:20 Enhanced mechanical performance of multilayer TiN/AlN coatings D. Sarangi, A. E. Santana, A. Karimi, Institute of Physics of Complex Material, EPFL, Switzerland

10:20-10:40 Improvement of the mechanical properties of coatings by ion assisted EB PVD K. Maile¹, A. Lyutovich¹, K. Berreth¹, A. Udoh¹, E. Pflueger², 1. University of Stuttgart, Germany, 2. CSM Instruments, Switzerland

10:40-11:10 Coffee

11:10-11:30 An overview on tailored tribological behaviour of diamond-like carbon R. Hauert, U. Müller, EMPA, Switzerland

11:30-11:50 Low friction layer for the wood and wood-based materials machining tools W. Tillman, E. Vogli, Department of Materials Engineering, University of Dortmund, Germany

11:50-12:10 Correlation between surface energy and tribological properties of boundary lubricated surfaces B. Podgornik¹, J. Vižintin¹, S. Strnad², K. Stana-Kleinschek² 1. University of Ljubljana, Centre for Tribology and Technical Diagnostics, Slovenia, 2. University of Maribor, Laboratory for Characterization and Processing of Polymers, Slovenia

12:10-14:00 Lunch

Chairwoman: Dr. Rowena Crockett

14:00-14:20 The tribological performance of DLC coatings under oil-lubricated conditions with and without additives M. Kalin¹, J. Vizintin¹, J. Barriga², K. Verammen³, K. Van Acker³, A. Arnsek⁴, 1. University of Ljubljana, Center for tribology and technical diagnostics, Ljubljana, Slovenia, 2. Tekniker, Eibar, Spain, 3. Vito, Mol, Belgium, 4. Petrol, Ljubljana, Slovenia

14:20-14:40 Heat conduction in PVD nanocoatings Dariusz Siniarski, Piotr Kula, Technical University of Lodz, Poland

14:40-15:00 Material-removal mechanisms of Ni-base weld hardfacing deposits M. El Mansori, Mechanical Engineering and Manufacturing Group, ENSAM, France

15:00-15:20 A new low friction concept for high temperatures: lubricious oxide formation on nitride coatings G. Gassner¹, P. H. Mayrhofer², K. Kutschej¹, C. Mitterer², M. Kathrein³, 1. Materials Center Leoben, Austria, 2. Department of Physical Metallurgy and Materials Testing, Austria, 3. CERATIZIT AG, Austria

15:20-15:30 Conference Close Walter Muster, Department of Modern Materials, EMPA, Switzerland

Accommodation

Accommodation is not included in the registration fee and must be booked separately. The following are at or near the conference centre:

Renaissance Zürich Hotel Glattbrugg
Novotel Hotel Zürich Airport
Astron Hotel Zürich Airport

These, as well as other hotels in the area can be booked through:

<http://www.webtourist.net/switzerland/glattbrugg/>

Registration

post: the registration form can be filled out and sent to:

EMPA
Dr. R. Crockett
Ueberlandstrasse 129
8600 Duebendorf
Switzerland

email: an email containing participants name, address and the address for the invoice can be sent to: rowena.crockett@empa.ch

internet: online registration will be available at www.empa.ch/sst from the middle of April 2003

Internet address: www.empa.ch/sst

Dates

10-12 September 2003

Location

Hotel Renaissance, Zurich-Glattbrugg, Switzerland

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Advanced Additives and Structured Coatings

Registration form

STLE members 750 SFr late registration 795 SFr
non-members 855 SFr late registration 900 SFr

Closing date for early registration 30 June 2003

Registration includes

- **session attendance and conference proceedings**
- **morning/afternoon teas**
- **lunches**
- **conference dinner**
- **welcome reception**

Name

Address

Country

Please state whether you intend to attend the conference dinner

- **yes**
- **no**

Extra tickets for conference dinner

- **number of tickets** **(50 SFr per ticket)**

Payment

- **Payment by invoice**
- **Payment by credit card**

Type of card

Card no.

Expiry date

General information

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Dates

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