

OFFICIAL PROGRAM

Tribocorrosion 2014

9-11th April 2014

University of Strathclyde, Glasgow, Scotland, UK

Theme - Tribo-Corrosion: Fundamentals to Technology Transfer and Impact.

Organizing committee

Chair: Prof Margaret Stack, University of Strathclyde

Co-Chairs: Dr Mathew Mathew, Rush Medical University, Chicago, US.

Dr Jean Geringer, École des Mines de Saint-Etienne, France



Introduction

Tribo-corrosion is a major material issue in many environments, which can lead to significant loss of energy efficiency. It is of increasing interest in not only oil, gas and the nuclear industries, but in the bio-medical, dental, tidal, wind and wave energy domains.

This 4th International conference will focus on Tribo-Corrosion: Fundamentals to Technology Transfer and Impact. Papers on fundamental aspects are solicited together with contributions on how materials degradation prediction can be addressed through tools such as mapping, modelling and design. Scientific topics include the tribocorrosion of coatings and thin films, sliding-corrosion, fretting-corrosion, microabrasion-corrosion, tribocorrosion-models, bio-tribo-corrosion (dentistry and orthopaedics), nano-corrosion, surface modifications (nanotube and texturing) to improve tribocorrosion resistance for the biomedical and industrial applications. The 1st, 2nd and 3rd Conferences were held in Hyderabad, India (2006), Wiener-Neusdat, Austria (2009) and Atlanta, USA (2012).

Journal of Bio and Tribo-Corrosion, our first journal for the subject, will be launched at the meeting by Springer (New York) marking a new chapter for our community since the 1st International Conference in Hyderabad in 2006. The inaugural board meeting for this new journal will be held on April 11th.

A poster session will be organized with a specific session dedicated to this presentation forum, with prizes to be awarded for best presentation and paper. Papers from the conference will be published as a journal special issue. The Millenium Hotel Glasgow below, which is a short walk from Strathclyde University, is offering a special delegate rate for attendees (£89 B&B).



**Wednesday -9th April, 2014,
City Chambers, Glasgow, 7.00-8.00 pm.
Civic Reception and Welcome**



Thursday -10th April, 2014- Morning session

Room: McCance Building, Room 301, Richmond St, University of Strathclyde.

Chairs: Prof Margaret Stack and Prof Luis Rocha

TECHNICAL SESSION1: Tribo-Corrosion in Bio-Implants -1

8:30 am	Registration: McCance Building, Conservatory, Level 3
	Keynote-1 The body and the metal implant: mechanically assisted corrosion and biological Interactions in Ti and CoCrMo alloys. Prof. Jeremy Gilbert, University of Syracuse, New York, USA


<p>9:40 am</p> 	<p>Keynote-2 A tribocorrosion assessment of biomedical implants degradation Dr. Stefano Mischler, École Polytechnique Fédérale de Lausanne, Switzerland</p>
<p>10:20 am</p>	<p>Coffee break</p>
<p>10:40 am</p>	<p>Keynote-3 New insights into tribocorrosion modelling and testing Prof. Anna Igual-Munoz, Universidad Politécnica de Valencia, Spain</p>
<p>11:20 am</p>	<p>Tribocorrosion methodologies to access the biological outcome in hip implant materials Maria Runa, University de Minho, Portugal / TO5</p>
<p>11:35 am</p>	<p>The role of proteins under fretting corrosion tests of metals dedicated to hip prosthesis. Aleksandra Towarek, École des Mines, St Etienne, France / TO22</p>
<p>11:50 am</p>	<p>Corrosion and tribocorrosion behaviour of hot-pressed CoCrMo/Al₂O₃ composites for acetabular cup applications Fatih Toptan, University de Minho, Portugal/ TO10</p>
<p>12:05 am</p>	<p>Corrosion and tribocorrosion behaviour of hot-pressed CoCrMo-HAP biocomposites Fatih Toptan, University de Minho, Portugal / TO9</p>
<p>12.20</p>	<p>Cobalt-chromium matrix coatings for the corrosion-wear protection of biomedical stainless steel Sarah Farrugia, University of Malta/ TO2</p>
<p>12.35pm</p>	<p>Lunch Break</p>
<p>1.05 pm</p>	<p>Lab visits (optional)</p>



Thursday -10th April, 2014 - Afternoon session

Room: McCance Building, Room 301, Richmond St, University of Strathclyde.

Chairs:Dr Mathew Mathew and Dr Jean Geringer

TECHNICAL SESSION: Tribo-Corrosion in Bio-Implants-2

<p>1.30pm</p> 	<p>Key note-4 Tribocorrosion and it's interactions with the biological system Prof. Luis Rocha, São Paulo State University, Brazil</p>
<p>2.10 pm</p>	<p>Importance of tribocorrosion in temporomandibular joint (TMJ) devices Louis Mercuri, Loyola University Medical Center, Illinois, USA / TO30</p>
<p>2.25 pm</p>	<p>Effect of pH on corrosion and tribocorrosion behaviour of Ti13Nb13Zr alloy for dental implant applications Iona Golvano, Universidad de Mondragon, Spain / TO17</p>
<p>2.40 pm</p>	<p>Fretting-corrosion behavior of mixed-metal contacts in modular junctions of hip implants Dmitry Royhman, Rush Medical Center, Chicago, USA / TO27</p>
<p>2.55 pm</p>	<p>Study of the galvanic coupling effects of Ti6Al4V in artificial saliva during tribocorrosion at OCP using a new experimental technique Anna Igual-Munoz, Universidad Politécnic de Valencia, Spain/ TO18</p>
<p>3.10 pm</p>	<p>Influence of nicotine on the tribocorrosion behavior of Ti-6Al-4V alloy in artificial saliva Dmitry Royhman, Rush Medical Center, Chicago / TO29</p>

3.25 pm	Coffee break
 <p data-bbox="375 617 496 655">3.40 pm</p>	<p data-bbox="716 231 873 268">Keynote-5</p> <p data-bbox="716 268 1305 373">Surface mechanical properties and the performance of materials in total joint replacements</p> <p data-bbox="716 373 1321 411">Professor Steve Bull, Newcastle University</p>
4.20 pm	<p data-bbox="716 688 1406 793">Tribocorrosion behaviour of duplex S/CrN and S/CrC Coatings on CoCr Alloy in 0.89% NaCl solution</p> <p data-bbox="716 793 1393 865">Y Sun and P.A. Dearnley, De Monfort University, Leicester / TO26</p>
4.35 pm	<p data-bbox="716 865 1399 940">Nanotribological properties of biocompatible polyzwitterionic brushes</p> <p data-bbox="716 940 1393 978">Zhenyu Zhang, University of Strathclyde/ TO28</p>
4.50- 5.40 pm	<p data-bbox="716 978 1479 1054">Poster session/reception: McCance Conservatory Best poster competition</p>
5.40 pm-6.00 pm	<p data-bbox="716 1054 1471 1129">Editorial board meeting, <i>Journal of Bio- and Tribo-Corrosion</i></p> 

Conference Dinner: Corinthian, Glasgow, Ingram St, 7 for 7.30 pm.




Friday -11th April, 2014 -Morning Session

Room: McCance Building, Room 301, Richmond St, University of Strathclyde.

Chairs: Professor Robert Wood and Dr Irina Hussainova

TECHNICAL SESSION: Tribo-Films and Tribo-Corrosion in Marine and Mining Environments

<p>9.00 am</p> 	<p>Key note- 6 In situ chemistry and mechanics of barnacle adhesive formation and curing Dr Kathy Wahl, Naval Research Laboratory, Washington, USA</p>
<p>9.40 am</p>	<p>Tribocorrosion of WC-12Co and WC-12Co(60NiCr) composite coatings on stainless steel in synthetic mine water Peter Olubambi, Tshwane University of Technology Pretoria, South Africa / TO20</p>
<p>9.55 am</p>	<p>Influence of microstructure and chemical composition of C-steels on their tribo-corrosive performance Ewald Badisch, ac2t,Wiener Neusdat, Austria / TO7</p>
<p>10.10 am</p>	<p>High temperature oxidation-sulphidation behaviour and abrasive wear resistance of NiCrAlY Coating deposited by Oxyfuel thermal spray Kudamaa Habib, Universitat Jaume de Castelló, Spain / TO14</p>
<p>10.25 am</p>	<p>On the sulphuric acid corrosion in large 2-stroke marine diesel engines Svend Eskildsen, MAN Diesel& Turbo, Copenhagen, Denmark / TO19</p>

10.40 am	Comparison of the tribo-corrosion performance of ZrN and TiAlN thin coatings Manel Rodriguez-Ripoll, ac2t, Wiener-Neusdat, Austria / TO6
10.55 am	Coffee break
11.10 am	Comparison of two-body and three-body tribocorrosion of passivating alloys: effects of contact area and time Mobin Salasi, Curtin University, Perth, Australia / TO11
11.25 am	High Temperature wear mechanisms Manish Roy, DMRL, Hyderabad, India.
11.40 am	Cavitation erosion-corrosion of ship propeller materials Jahnabi Basumatary, University of Southampton / TO8
11.55 am	Predicting abrasion-corrosion behaviour of multiphase WC/Ni claddings Grazyna Stachowiak, Curtin University, Perth, Australia / TO12
12.10 pm	Particle erosion modelling using Lagrangian approaches Shehab Abdelrahman, Univerity of Zagazig and MTC Cairo, Egypt / TO29
12.25 pm	Nanoindentation response of deformed polymeric surfaces Tanveer Iqbal, University of Engineering and Technology, Lahore, Pakistan / TO3
12.40 pm	Lunch break

Friday -11th April, 2014 -Afternoon Session

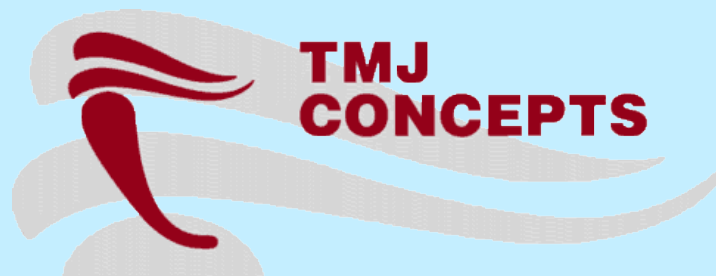
Room: McCance Building, Room 301, Richmond St, University of Strathclyde

Chairs: Dr Stefano Mischler and Dr Kathy Wahl

TECHNICAL SESSION: Marine Renewables, Energy Conversion and Tribo-Corrosion

<p>1.20 pm</p> 	<p>Key note- 7 Repassivation effects in marine tribocorrosion Prof. Robert.J.K. Wood, University of Southampton, UK</p>
<p>2.00 pm</p>	<p>Effect of normal load on multi-degradation mechanisms of super duplex stainless steel exposed to tribocorrosive-fatigue environment, Amin Zavieh, Norwegian University of Science and Technology (NTNU), Trondheim, Norway / TO15</p>
<p>2.15 pm</p>	<p>Sliding tribocorrosion behavior of bulk metallic glass against steel in 3.5% NaCl solution Xiulin Ji, Hohai University, Changzhou, China / TO16</p>
<p>2.30 pm</p> 	<p>Keynote -8 Tribology issues in Tidal Turbines Cameron Johnstone, University of Strathclyde</p>
<p>3.10 pm</p>	<p>A case of tribocorrosion failure in Fe-Cu-C brake pads exposed to humid atmospheric conditions Alexandre Mège-Revil, Laboratoire de Mécanique de Lille, Villeneuve d'Ascq, Université de Lille, France / TO4</p>
<p>3.25 pm</p>	<p>Final session / Award for best poster. Synthesis + Discussion with the audience: Towards 2016 and beyond? Prof. Stack Dr. Mathew Dr. Geringer</p>
<p>3.45 pm</p>	<p>Coffee break and Networking- End of Tribocorrosion 2014.</p>

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Acknowledgements

We gratefully acknowledge the following for their assistance.

- 1. Millenium Hotel**
- 2. Glasgow Marketing Bureau and City Council**
- 3. University of Strathclyde Conference Dept**