

Final Programme

Faraday Discussion 156: Tribology 2 – 4 April 2012 University of Southampton, UK

Monday 2 April

11:30	Registration	Garden Court
12.30	Lunch	
13.15	Welcome and Introductions Robert Wood, <i>Director of nCATS, University of Southampton, UK</i>	Theatre 67/1027, Nightingale Building
13.30 Paper 1	Introductory Lecture: Duncan Dowson, <i>FRS, University of Leeds, UK</i>	
Session 1	Biotribology Session Chair: Robert Wood, <i>Director of nCATS, University of Southampton, UK</i> Ian Taylor, <i>Shell Global Solutions, UK</i>	
14:30 Paper 2	Cell friction T E Angelini, A C Dunn, J M Uruena, D J Dickrell, III, D L Burris and W G Sawyer* <i>University of Florida, USA</i>	
14:35 Paper 3	Dynamic surface microstructural changes during tribological contact that determine the wear behaviour of hip prostheses; metals and ceramics W Mark Rainforth*, Peng Zeng, Le Ma, Akemi Nogiwa Valdez and Todd Stewart <i>University of Sheffield, UK</i>	
15:30	Afternoon Tea	Garden Court
16:00 Paper 4	A stratified approach to pre-clinical tribological evaluation of joint replacements representing a wider range of clinical conditions advancing beyond the current standard John Fisher* <i>University of Leeds, UK</i>	Theatre 67/1027, Nightingale Building
16:05 Paper 5	Synovial fluid lubrication of artificial joints: protein film formation and composition Jingyun Fan, Connor Myant*, Richard Underwood and Philippa Cann <i>Imperial College London, UK</i>	
17:00	Close of Sessions	
17:00 – 18:30	Poster Session and Wine Reception	Garden Court
	Free evening	

Tuesday 3 April

09:00	Coffee	Garden Court
Session 2	Predictive Modelling Session Chairs: Kathryn Wahl, <i>US Naval Research Laboratory</i> John Williams, <i>University of Cambridge, UK</i>	
09:30 Paper 6	Predictive modelling of fatigue failure in concentrated lubricated contacts H P Evans*, R W Snidle, K J Sharif and M J Bryant <i>Cardiff University, UK</i>	
09:35 Paper 7	Physio-chemical hydrodynamic mechanism underlying the formation of thin adsorbed boundary films W W F Chong, M Teodorescu* and H Rahnejat <i>Cranfield University, UK</i>	Theatre 67/1027, Nightingale Building
09:40 Paper 8	Fate of methanol molecule sandwiched between hydrogen-terminated diamond-like carbon films by tribochemical reactions: tight-binding quantum chemical molecular dynamics study Kentaro Hayashi, Seiichiro Sato, Shandan Bai, Yuji Higuchi, Nobuki Ozawa, Tomomi Shimazaki, Koshi Adachi, Jean-Michel Martin and Momoji Kubo* <i>Tohoku University, Japan</i>	
11:00	Morning coffee	Garden Court
11:30 Paper 9	Semi-deterministic chemo-mechanical model of boundary lubrication Joel Andersson, Roland Larsson*, Andreas Almqvist, Mattias Grahn and Ichiro Minami <i>Luleå University of Technology, Sweden</i>	
11:35 Paper 10	Does ultra-mild wear play any role for dry friction applications, such as automotive braking? Werner Österle*, A I Dmitriev, H Kloß <i>BAM Federal Institute for Materials Research and Testing, Germany</i>	Theatre 67/1027, Nightingale Building
11:40 Paper 11	On the three-term kinetic friction law in nanotribological systems A Vernes*, S Eder, G Vorlauffer and G Betz <i>Austrian Centre for Tribology, Austria</i>	
13:00	Lunch and Posters	Garden Court

Session 3	Smart Tribological Surfaces Session Chair: Phil Bartlett <i>University of Southampton, UK</i>	
14:00 Paper 12	Hydration lubrication: exploring a new paradigm Anastasya Gaisinskaya, Liran Ma, Gilad Silbert, Raya Sorkin, Odeya Tairy, Ronit Goldberg, Nir Kampf and Jacob Klein* <i>Weizmann Institute of Science, Israel</i> (Winner of the 2011 RSC Soft Matter & Biophysical Chemistry Award)	Theatre 67/1027, Nightingale Building
14:05 Paper 13	Fabrication and characterization of multi-level hierarchical surfaces Bharat Bhushan* and Hyungoo Lee <i>Ohio State University, USA</i>	
14:10 Paper 14	Friction on ice: stick and slip Jane R Blackford*, Gerasimos Skouvaklis, Marc Purser and Vasileios Koutsos <i>University of Edinburgh, UK</i>	
15:30	Afternoon Tea	Garden Court
16:00 Paper 15	Sliding friction at soft micropatterned elastomer interfaces Elise Degrandi-Contraires, Christophe Poulard, Frédéric Restagno and Liliane Léger* <i>CNRS & Université Paris-Sud 11, France</i>	Theatre 67/1027, Nightingale Building
16:05 Paper 16	Why can TiAlCrSiYN-based adaptive coatings deliver exceptional performance under extreme frictional conditions? Ben D Beake*, German S Fox-Rabinovich, Yannick Losset, Kenji Yamamoto, Myriam H Agguire, Stephen C Veldhuis, Jose L Endrino and Anatoliy I Kovalev <i>Micro Materials Ltd, UK</i>	
16:10 Paper 17	Mechanism of ultra low friction of multilayer graphene studied by coarse-grained molecular simulation Hitoshi Washizu*, Seiji Kajita, Mamoru Tohyama, Toshihide Ohmori, Noriaki Nishino, Hiroshi Teranishi and Atsushi Suzuki <i>Tokyo Central R & D Labs Inc, Japan</i>	
17:30	Close of sessions	
19:00	Pre-Dinner Drink	Arlott Bar / Terrace Restaurant, Staff Social Centre
19:30	Conference Dinner	

Wednesday 4 April

09:00	Coffee	Garden Court
Session 4	Future Lubricated Systems Session Chairs: Colin Bain, <i>Durham University, UK</i> Stefano Mischler, <i>EPFL, Switzerland</i>	Theatre 67/1027, Nightingale Building
09:30 Paper 18	The origin of anti-wear chemistry of ZDDP Jean-Michel Martin*, Tasuku Onodera, Clotilde Minfray, Fabrice Dassenoy and Akira Miyamoto <i>Ecole Centrale De Lyon, France</i>	
09:35 Paper 19	The mechanics of nanometre-scale molecular contacts Katerina Busuttil, Nikolaos Nikogeorgos, Zhenyu Zhang, Mark Geoghegan, Christopher A Hunter and Graham J Leggett* <i>University of Sheffield, UK</i>	
09:40 Paper 20	Anticorrosion imidazolium ionic liquids as the additive in poly(ethylene glycol) for steel/ Cu–Sn alloy contacts Meirong Cai, Yongmin Liang, Feng Zhou and Weimin Liu* <i>Lanzhou Institute of Chemical Physics, China</i>	
11:00	Morning Coffee	Garden Court
11:30 Paper 21	Tribology and energy efficiency: from molecules to lubricated contacts to complete machines Robert Ian Taylor* <i>Shell Global Solutions, UK</i>	Theatre 67/1027, Nightingale Building
11:35 Paper 22	Complex frictional analysis of self-lubricant W-S-C/Cr coating Tomas Polcar*, Fredrik Gustavsson, Thomas Thersleff, Staffan Jacobson and A Cavaleiro <i>Czech Technical University in Prague, Czech Republic</i>	
11:40 Paper 23	Polyelectrolyte brushes: a novel stable lubrication system in aqueous conditions Motoyasu Kobayashi*, Masami Terada and Atsushi Takahara <i>Kyushu University, Japan</i>	
13:00	Concluding Remarks Nicholas Spencer <i>ETH Zürich, Switzerland</i>	
13:30	Acknowledgements	
13:45	Close of Meeting	