Session 7B • Bronze 2

Lubrication Fundamentals VII – Lubricant Properties

Session Chair: J. Guevremont, Afton Chemical Corp., Richmond, VA
Session Vice Chair: B. Sharma, University of Illinois at Urbana-Champaign, Champaign, IL

8 – 8:30 am
Influence of Lubricants on the Fatigue Life of Thrust Needle Bearing under Debris Contaminated Lubrication

M. Yokomizo, Idemitsu Kosan Co., Ltd., Ichihara-Shi, Japan

8:30 – 9 am
Pour Point Depressant Considerations When Blending with Re-refined Base Stock

R.P. Gomes, B. Zweitzig, Evonik Oil Additives USA, Inc., Horsham, PA

9 – 9:30 am
Inductive Micro-Flash Desorption for a Molecular-Level Understanding of Fuel Lubricity

K. Urness, T. Bruno, National Institute of Standards and Technology, Boulder, CO

9:30 – 10 am
New Approach to Quantitatively Measure the Polymeric Oil Additive Associations in Solution

S. Pirouz, S. Jiang, Afton Chemical Corp, Richmond, VA, J. Duhamel, University of Waterloo, Waterloo, ON, Canada

10 – 10:30 am – Break

10:30 – 11 am
Low Viscosity Fuel Efficient Lubricants: Key Technical Issues

F. Zhao, S. Hsu, The George Washington University, Ashburn, VA
11 – 11:30 am
Applications of Esters in Modern Low Viscosity Engine Oils
M. Curran, R&D, Croda, Cowick Hall, Snaith, Goole, United Kingdom

11:30 – Noon
Surface Energy, Viscosity, and Friction of Selected Ester Lubricants
X. Zhang, Chongqing University, Chongqing, China, Y. Zhao, K. Ma, Chongqing Branch, Lubricant Co. Ltd. SINOPEC, Chongqing, China, Q. Wang, Northwestern University, Evanston, IL

Session 7C • Bronze 3

Engine & Drivetrain VII
Session Chair: J. Qu, Materials Science and Technology Division, Oak Ridge National Laboratory, Oak Ridge, TN
Session Vice Chair: W. Anderson, Afton Chemical Corp., Richmond, VA

8 – 8:30 am
Tribology Behavior of a Copper-Based Composite for Heavily-Loaded Wet Clutch
T. Gong, P. Yao, Central South University, Changsha, China

8:30 – 9 am
Impact of Industrial Gear Oil Additives on Bearing Life
J. Vinci, S. Gotheridge, The Lubrizol Corp., Wickliffe, OH

9 – 9:30 am
Abrasion Resistant Improvement of the Valve Seat for Automobile Engines by the Oxidation and the Turn
K. Matsumoto, Honda R&D, Haga-gun, Japan, A. Sasaki, Maintek Consultant, Yoshihama-cho, Naka-ku, Japan

9:30 – 10 am
Time-Dependent Elastohydrodynamic Analysis of Cam-Roller Contacts
M. Shirzadegan, A. Almqvist, R. Larsson, Luleå University of Technology, Luleå, Sweden

10 – 10:30 am – Break
10:30 – 11 am
Minimising Wear and Friction of Diamond-Like Carbon Surfaces with Polymeric Organic Friction Modifiers
A. Viadas, M. Fazakerley, J. Eastwood, Croda, Yorkshire, United Kingdom

Session 7D • Gold
Rolling Element Bearings V
Session Chair: E. Terrell, Naval Surface Warfare Center, Carderock Division, Pittsburgh, PA

8 – 8:30 am
Effect of Deposition Method on the Tribological and Functional Performance of CrxN Ball Coatings
K. Mutyala, H. Singh, University of Akron, Akron, OH, R. Evans, Timken Technology Center, Canton, OH, G. Doll, University of Akron, Akron, OH

8:30 – 9 am
Influence of Internal Geometry, Metallurgy, and Component Surface Finish on Expected Life of Nominally-equivalent Roller Bearings
E. Terrell, Naval Surface Warfare Center, Carderock Division, Pittsburgh, PA

9 – 9:30 am
Prediction of Rolling Bearing Friction – A Valid Method Even for Large Size Bearings?
O. Koch, C. Bohnert, Schaeffler Technology AG & Co. KG, Herzogenaurach, Germany, T. Lösche, Schaeffler Technology AG & Co. KG, Schweinfurt, Germany

9:30 – 10 am
Performance of Thrust Needle Roller Bearings Considering Surface Roughness and Elasto-Plastic Deformation
X. Shen, Z. Wang, X. Chen, Shanghai University, Shanghai, China
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10 – 10:30 am – Break

10:30 – 11 am
Modeling the Effect of Elastohydrodynamic Lubrication on Rolling Contact Fatigue
N. Paulson, F. Sadeghi, Purdue University, West Lafayette, IN

11 – 11:30 am
Monitoring Hydrogen Contamination in Lubricated Contacts of Bearing Steels
A. Ruellan, A. Kadiric, Imperial College London, London, United Kingdom

11:30 am – Noon
Visualization of Debris Entrapment in EHL Contacts Using μ-PIV Technique
V. Strubel, Institut National des Sciences Appliquées Lyon (INSA Lyon), Villeurbanne, France, S. Simoens, Laboratoire de Mécanique des Fluides et d’Acoustique, Villeurbanne, France, N. Fillot, F. Ville, P. Vergne, Institut National des Sciences Appliquées Lyon (INSA Lyon), Villeurbanne, France, A. Mondelin, Y. Maheo, SKF Aerospace, Châteauneuf-sur-Isère, France

Session 7E  •  Silver

Molecular Chemistry and Lubricant Rheology – Special Session I
Session Chair: M. Jungk, Dow Corning GmbH, Wiesbaden, Germany
Session Vice Chair: TBD

8 – 8:30 am
Volumetric and Rheological Properties of Base Oils at High Pressures
M. Devlin, Afton Chemical Corp., Richmond, VA, J. Dickman, J. Hassler, E. Kiran, Virginia Polytechnic Institute and State University, Blacksburg, VA
8:30 – 9 am
Characterization of Lubricant Shear Thinning Behavior Based on Radius of Gyration Calculation through Molecular Dynamics Simulation
P. Liu, J. Lu, Center for Surface Engineering and Tribology, Northwestern University, Evanston, IL, N. Ren, F. Lockwood, Valvoline, Lexington, KY, Q. Wang, Center for Surface Engineering and Tribology, Northwestern University, Evanston, IL

9 – 9:30 am
X-ray CT Imaging of Grease Behavior in Ball Bearing and Multi-Scale Grease Flows Simulation
T. Noda, K. Shibasaki, NSK Ltd., Fujisawa, Kanagawa, Japan; Q. Wang, Northwestern University, Evanston, IL

10 – 10:30 am – Break

10:30 – 11 am
Impact of Synthesis Parameters on Overbased Calcium Alkylsalicylate Detergent Structure
A. Piacentini, F. Dassenoy, B. Vacher, Ecole Centrale de Lyon, Lyon, France, P. Lecante, CEMES, Toulouse, France, A. Chazeau, P. Tequi, Chevron Oronite, Gonfreville-l’Orcher, France

11 – 11:30 am
Perfecting the Lubricant Wheel through Macromolecular Design
J. Robinson, Pacific Northwest National Laboratory, Benton City, WA

11:30 am – Noon
Entanglement and Self-Alignment of Heterocyclic Friction Modifier Molecules During Surface Adsorption: From MD Simulation to Experiment
J. Lu, X. He, M. Desanker, P. Liu, M. Delferro, T. Marks, Y. Chung, Q. Wang, Northwestern University, Evanston, IL
Session 7H • Las Vegas I

Fluid Film Bearings VII
Session Chair: A. Cristea, Tecnitas, Levallois-Perret, France
Session Vice Chair: M. Fillon, Institut Pprime CNRS – Universite De Poitiers, Futuroscope Chasseneuil, Cedex, France

8 – 8:30 am
Effect of Geometrically Imperfect Journal and Recess Geometry on the Performance of Two Lobe/Circular 4 Pocket Hybrid Journal Bearing System
S. Sharma, D. Jain, Indian Institute of Technology – Roorkee, Roorkee, India

8:30 – 9 am
Effect of Speed on Performance Analysis of Hole-Entry Hybrid Conical Journal Bearing for Different Semi Cone Angles
P. Khakse, V. Phalle, S. Mantha, VJTI, Mumbai, India

9 – 9:30 am
Computation of Misaligned Bearing Dynamic Coefficients with Application to Plain Bearings
A. El-Shafei, Cairo University, Giza, Egypt, T. Saqr, RITEC, Cairo, Egypt, H. Bayoumi, Cairo University, Giza, Egypt

9:30 – 10 am
Axially Skewed Pressure Dam Bearing
A. El-Shafei, Cairo University, Giza, Egypt, T. Saqr, RITEC, Cairo, Egypt, H. Bayoumi, Cairo University, Giza, Egypt

10 – 10:30 am – Break
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Session 7K  • Las Vegas 4

Wear IV

Session Chair: G. Ramirez, Energy Systems Division, Argonne National Laboratory, Argonne, IL
Session Vice Chair: A. Rostami, Department of Mechanical Engineering, Georgia Institute of Technology, Atlanta, GA

8 – 8:30 am
Exploration of Used Passenger Car Timing Chains
R. Rieth, Infineum, Linden, NJ

8:30 – 9 am
Tribological Analysis of the Swiss Lever Escapement
J. Rolland, A. Saulot, Y. Berthier, Université de Lyon, LaMCoS, INSA-Lyon, Villeurbanne, France

9 – 9:30 am
Investigation of the Effects of Soot on the Wear of Automotive Engine Components
L. Abdulqadir, R. Lewis, T. Slatter, The University of Sheffield, Sheffield, United Kingdom

9:30 – 10 am
Relationship Between Electrostatic Charge and Wear of Polymeric Materials in Translational Tribocharging Process
M. Neagoe, T. Zeghloul, Y. Prawatya, D. Souchet, L. Dascalescu, Institut Pprime, UPR 3346 CNRS - Université de Poitiers - ENSMA, Angoulême, France

10 – 10:30 am – Break
10:30 – 11 am
Towards a Unified Classification of Wear
M. Varenberg, Georgia Institute of Technology, Atlanta, GA

11 – 11:30 am
Relating Wear Uncertainties to Material Characteristics through Interrupted Topography Measurements
N. Garabedian, University of Delaware, Newark, DE, H. Khare, University of Pennsylvania, Philadelphia, PA, D. Burris, University of Delaware, Newark, DE

11:30 am – Noon
OPEN

Session 7L • Las Vegas 5

Tribotesting III
Session Chair: J. Xiao, Rtec Instruments, San Jose, CA
Session Vice Chair: G. Krauss, Harvey Mudd College, Claremont, CA

8 – 8:30 am
The Current Applicability of Traditional Tribology Tests to Industrial Lubricants
G. Fish, The Lubrizol Corp., Wickliffe, OH

8:30 – 9 am
Galling Testing and the Mechanism of Galling
K. Budinski, S. Budinski, Bud Labs, Rochester, NY

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9 – 9:30 am
A Weibull-Johnson Probabilistic Approach to Stress Life Diagrams and Engineering Safety Factors
B. Vlcek, Georgia Southern University, Statesboro, GA, E. Zaretsky, NASA Glenn Research Center, Cleveland, OH, S. Shimizu, Meji University, Tokyo, Japan, R. Hendricks, NASA Glenn Research Center, Cleveland, OH, N. Murray, Georgia Southern University, Statesboro, GA

9:30 – 10 am
Investigation of Boron Carbide, DLC, and Amorphous Carbon Coating Abrasiveness After Sliding Against 52100 Steel
G. Krauss, Harvey Mudd College, Claremont, CA, M. Siniawski, Loyola Marymount University, Los Angeles, CA, G. Doll, University of Akron, Akron, OH, C. Melendez, Loyola Marymount University, Los Angeles, CA

10 – 10:30 am – Break

10:30 – 11 am
Investigating Stick-Slip Behavior in Tribometers and Interpreting the Results
M. Moneer, P. Lee, Southwest Research Institute, San Antonio, TX

11 – 11:30 am
Bench-Top Screening of Clutch Materials
S. Shaffer, Bruker Nano Surfaces, Campbell, CA, S. Papanicolaou, Bruker Nanosurfaces, San Jose, CA

11:30 am – Noon
Raman Spectroscopy Analysis of Thermal Oxidation Characteristic of Ester Oil
J. Li, B. Cheng, D. Jia, X. Qian, Wuhan Research Institute of Materials Protection, Wuhan, China
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Session 7M • Las Vegas 6/7

Condition Monitoring III

Session Chair: Karl Rogers, Pilot Thomas Logistics, Las Vegas, NV
Session Vice Chair: TBD

8 – 8:30 am
Save Your Equipment: Determining Which Maintenance Actions Drive Results
B. Debshaw, POLARIS Laboratories, Indianapolis, IN

8:30 – 9 am
Real-Time Cage Temperature Measured in a High Speed Grease Lubricated Bearing
D. Lang, F. de Wit, J. Wang, L. de Vries, SKF, Nieuwegein, Netherlands, F. Greco, SKF Industrie S.P.A, Villar Perosa, Italy, L. Stacke, SKF, Nieuwegein, Netherlands, L. Cao, Purdue University, West Lafayette, IN

9 – 9:30 am
Development of Hydraulic Filter Elements for Highly Demanding Applications
J. Duchowski, T. Lang, E. Koch, C. Brocker, HYDAC FluidCareCenter, Sulzbach, Germany

9:30 – 10 am
In-line Visual Analysis of Turbine and Lube Oils for Solids and Water Detection on a Condinual Basis
T. Canty, P. O’Brien, JM Canty Inc., Lockport, NY

10 – 10:30 am – Break

10:30 – 11 am
The Dynamic Characterisation of Machine Element Contacts Using Ultrasonic Reflectometry
H. Brunskill, P. Harper, Tribosoncis Ltd., Sheffield, United Kingdom
11 – 11:30 am
The Effect of Volcanic Ash in the Demulsification Properties of Turbines, Hydraulics and EP Industrial Lubricants
M. Sorrosa, Swissoil Del Ecuador, Samborondon, Ecuador

11:30 am – Noon
Lubricant Maintenance Based on Condition Monitoring
K. Berglund, S. Emadi, I. Minami, Luleå University of Technology, Luleå, Sweden

Session 7N • Pacific I

Surface Engineering VII
Session Chair: Z. Khan, Bournemouth University, Bournemouth, United Kingdom
Session Vice Chair: F. Motamen Salehi, University of Leeds, Leeds, United Kingdom

8 – 8:30 am
The Influence of Surface Texturing on Friction in Lubricated Parallel Sliding Surfaces
D. Bijani, D. Schipper, University of Twente, Enschede, Netherlands, E. Deladi, Bosch Transmission Technology, Tilburg, Netherlands

8:30 – 9 am
Enhanced Tribological Performance of Metallic Materials Through Laser Surface Processing
P. Menezes, Y. Liao, University of Nevada-Reno, Reno, NV

9 – 9:30 am
Extraordinary Wear Performance of Nanocomposite Coatings in Fully Formulated Oils
G. Ramirez, O. Eryilmaz, A. Erdemir, Argonne National Laboratory, Argonne, IL

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9:30 – 10 am

Investigation of the Contact Performance of Machined Surface Morphology

P. Li, H. Chen, Q. Wang, Y. Li, W. Fu, Xi’an University of Technology, Xi’an, China

10 – 10:30 am – Break

10:30 – 11 am

Stress Field Variations in RCF of a Steel Subjected to Graded Surface Hardening

M. Zhang, Q. Wang, L. Keer, Northwestern University, Evanston, IL, Q. Zhou, Sichuan University, Chengdu, China, Z. Wang, X. Jin, Chongqing University, Chongqing, China, N. Arakere, University of Florida, Gainesville, FL, N. Zhao, Northwestern Polytechnical University, Xi’an, China

11 – 11:30 am

Confining of Liquids Under Induced Motion

J. Leong, SIM University, Singapore, Singapore, J. Zhang, Imperial College London, London, United Kingdom, S. Sinha, Indian Institute of Technology Delhi, New Delhi, India, A. Holmes, H. Spikes, T. Reddyhoff, Imperial College London, London, United Kingdom

11:30 am – Noon

Air Jet Erosive Wear Behavior of Inconel 718 Silicon Carbide Composite Coatings

R. Chinnakurli Suryanarayana, P. Nataraj, P. T, N. B, PES Institute of Technology, Bangalore, India
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Session 7O • Pacific 2

Materials Tribology VII

Session Chair: S. Marshall, University of Florida, Gainesville, FL
Session Vice Chair: S. Joynson, Lehigh University, Lehigh, PA

8 – 8:30 am
Influence of Surface Topography on the Tribological Behavior of Self-Lubricating Iron-Based Composites
J. de Mello, Universidade Federal de Uberlandia, Uberlandia, Brazil, K. Campos, Instituto Senai de Inovação em Engenharia de Superfícies, Belo Horizonte, Brazil, P. Kapsa, Ecole Centrale de Lyon, Ecully, France, C. Binder, A. Klein, Universidade Federal de Santa Catarina, Florianopolis, Brazil

8:30 – 9 am
Surface Texturing for Friction Control Under Dry Sliding Contact
O. Rashwan, Penn State University, Middletown, PA, V. Stoilov, University of Windsor, Windsor, ON, Canada

9 – 9:30 am
Studies of Impact and Rolling Wear Properties for Hot Rolled Medium Manganese Steel
Q. Yinghuai, School of Material Science and Engineering, China University of Mining and Technology, Xuzhou, China

9:30 – 10 am
Tribological Properties of Zr-2.5Nb Alloy After Thermal Oxidation Under Bovine Serum Lubrication
Y. Luo, School of Materials Science and Engineering, Xuzhou, China

10 – 10:30 am – Break
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10:30 – 11 am
Raman Microspectrometry Study of Pure Sliding Sphere Plane Interfaces Lubricated by Graphite Nanoparticles in Dispersion in Lubricant Bases
A. Molza, Y. Bercion, J. Mansot, Université des Antilles, Pointe à Pitre, Guadeloupe

11 – 11:30 am
Introducing Wet Friction Material’s Friction Coefficient Mapping in Automotive Applications
R. Farahati, Schaeffler Group USA, Inc., Wooster, OH

11:30 am – Noon
Practical Implications of Tribological Rehydration in the Joint
D. Burris, Mechanical Engineering, University of Delaware, Newark, DE, A.C. Moore, Biomedical Engineering, University of Delaware, Millsboro, DE

Session 7P • Pacific 3

Materials Tribology/Nanotribology: Joint Session II
Session Chair: Z. Ye, University of California-Merced, Merced, CA
Session Vice Chair: TBD

8 – 8:30 am
Friction Mechanism of Diamond-Like Carbon
P. Antonov, J. Frenken, Advanced Research Center for Nanolithography (ARCNL), Amsterdam, Netherlands

8:30 – 9 am
Interfacial Shear Strength of Graphene Oxide Films
T. Filleter, M. Daly, C. Cao, H. Sun, Y. Sun, C. Veer Singh, University of Toronto, Toronto, ON, Canada
9 – 9:30 am
Studies of the Dynamic Tribological Properties of Graphene on Rough Surfaces
J. Batteas, Texas A&M University, College Station, TX

9:30 – 10 am
Enhanced Thermo-Oxidative Stability in Hydrogenated Amorphous Carbon Solid Lubricant Coatings by Doping with Silicon and Oxygen

10 – 10:30 am – Break

10:30 – 11 am
Tribochemistry of Carbon Films in Oxygen and Humid Environments
S. Kim, A. Al-Azizi, Pennsylvania State University, University Park, PA, G. Ramirez, A. Erdemir, Argonne National Laboratory, Argonne, IL

11 – 11:30 am
Atomic-Scale Structural Probing of Tribochemistry – Induced Superlubric Interfaces in Amorphous Carbon Films
X. Chen, C. Zhang, Tsinghua University, Beijing, China, T. Kato, M. Nosaka, The University of Tokyo, Tokyo, Japan, J. Luo, Tsinghua University, Beijing, China

11:30 am – Noon
Correcting for Finite-Size Effects in MD Simulations of Asperity Contact
J. Harrison, U.S. Naval Academy, Annapolis, MD, J. Schall, Oakland University, Rochester, MI, K. Ryan, U.S. Naval Academy, Annapolis, MD, K. Turner, R. Carpick, Y. Jiang, University of Pennsylvania, Philadelphia, PA
Session 8B  • Bronze 2

Lubrication Fundamentals VIII – Modelling

1:30 – 2 pm
Simulating Realistic Organic Friction Modifier Films in Boundary Lubrication – The Importance of All-Atom Potentials
J. Ewen, D. Dini, Imperial College London, London, United Kingdom, N. Morgan, Shell, London, United Kingdom, H. Spikes, Imperial College London, London, United Kingdom

2 – 2:30 pm
Cavitation Algorithms for Tangential Slip/No-Slip Boundary Conditions
G. Bayada, INSA-Lyon, Villeurbanne, France

2:30 – 3 pm
Theoretical Calculations of Local Physico-Chemical-Mechanical Properties Based on Ultra-Accelerated Quantum Chemical Molecular Dynamics for Multiscale, Multiphysics Tribological Simulation
A. Miyamoto, P. Bonnaud, R. Miura, A. Suzuki, N. Miyamoto, N. Hatakeyama, S. Kozawa, M. Williams, Tohoku University, Sendai, Japan

3 – 3:30 pm – Break
3:30 – 4 pm
Thermohydrodynamic Lubrication Analysis By Using High-Efficiency Computing Technology
C. Chan, Advanced Institute of Manufacturing with High-Tech Innovations, Chiayi, Taiwan,
S. Chang, Nan Ya Printed Circuit Board Corp., Taoyuan, Taiwan, Y. Jeng, Advanced Institute of Manufacturing with High-Tech Innovations, Chia-Yi, Taiwan

4 – 4:30 pm
Experimental Investigation of Stribeck Curves for Lubricated Counterformal Contacts
T. He, D. Zhu, J. Wang, Sichuan University, Chengdu, China

Session 8D • Gold

Rolling Element Bearings VI
Session Chair: H. Grillenberger, Schaeffler Technologies AG & Co., KG, Herzogenaurach, Germany
Session Vice Chair: TBD

1:30 – 2 pm
Influence of Rubbing Materials on the Effectiveness of Lubricating Boundary Films
K. Pagkalis, Imperial College London, London, United Kingdom, M. Ingram, Afton Chemical Ltd., Bracknell, United Kingdom, A. Kadiric, Imperial College London, London, United Kingdom

2 – 2:30 pm
Tribological Performance of PEEK for Bearing Applications
B. Allison, SKF Aeroengine, Falconer, NY
2:30 – 3 pm
Double Transfer in Self-Lubrication Ball Bearings: A Link Between Third-Body Rheology and Local Adhesion
A. Saulot, Université de Lyon, LaMCoS, INSA-Lyon, Villeurbanne, France
G. Colas, S. Pajovic, University of Toronto, Toronto, ON, Canada,
M. Villavicencio, Université de Lyon, LaMCoS, INSA-Lyon, Villeurbanne, France,
M. Renouf, Université de Montpellier 2, Montpellier, France, T. Filleter,
University of Toronto, Toronto, ON, Canada, Y. Berthier, Université de Lyon,
LaMCoS, INSA-Lyon, Villeurbanne, France

3 – 3:30 pm – Break

3:30 – 4 pm
Design Criteria for Oil Ring Lubricators to Improve Maintainability of Rolling Bearings
M. Müller, S. Tremmel, Friedrich-Alexander-Universität Erlangen-Nürnberg, Erlangen, Germany

4 – 4:30 pm
Open

4:30 – 5 pm
Investigation of Elastohydrodynamic Film Thickness Behavior at High Speeds Based on Ball-on-Glass Ring Test Rig
W. Wang, Y. Zhang, S. Zhang, Z. Zhao, Beijing Institute of Technology, Beijing, China
Lubricants Formulated with Additives from Vanderbilt Chemicals have “SUPERHERO” Performance.

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Session 8E • Silver

Molecular Chemistry and Lubricant Rheology: Special Session II
Session Chair: Q. Wang, Northwestern University, Evanston, IL
Session Vice Chair: TBD

1:30 – 2 pm
Pressure Dependence of Wind Turbine Gearbox Oil Viscosity
P. Shiller, M. Smith, G. Doll, University of Akron, Akron, OH, A. Greco, Argonne National Laboratory, Argonne, IL

2 – 2:30 pm
Viscosity and Structure of Model Viscosity Index Improvers
A. Martini, U. Ramasamy, University of California Merced, Merced, CA

2:30 – 3 pm
Investigations on Separating Contaminants from Lubricants via Electro-Rheology
G. Hansen, P. Lee, M. Moneer, Southwest Research Institute, San Antonio, TX

3 – 3:30 pm – Break

3:30 – 4 pm
The Effect of Additives Resulting in the Lubricant Oil Consumption Concerning Blow-by in Marine Diesel Engines
C. Zhang, X. Lu, Harbin Engineering University, Harbin, China, D. Zou, Washington University, St. Louis, MO, W. Li, Harbin Engineering University, Harbin, China

4 – 4:30 pm
Molecular Chemistry Discussion
Session 8K • Las Vegas 4

Wear V: Wear Mitigation

Session Chair: T. Chaise, INSA de Lyon – LaMCoS, Villeurbanne, France
Session Vice Chair: H. Singh, University of Akron, Akron, OH

1:30 – 2 pm

Friction and Wear Characteristics of Martensitic Aluminum Bronze Coating Against Different Stainless Steels

P. Kucita, S. Wang, University of Southampton, Southampton, United Kingdom, W. Li, Lanzhou University of Technology, Lanzhou, China, M. Starink, University of Southampton, Southampton, United Kingdom

2 – 2:30 pm

Planarization of GaN using a Fe III-Based Catalyst in Hydrogen Peroxide Solution to Improve its MRR

L. Xu, G. Pan, Tsinghua University, Beijing, China

2:30 – 3 pm

Investigation of Cavitation Erosion-Corrosion of Duplex Stainless Steel and Nickel Aluminium Bronze in 3.5% NaCl Solution

J. Basumatary, R. Wood, University of Southampton, Southampton, United Kingdom

3 – 3:30 pm – Break

3:30 – 4 pm

Scuffing Performance of Mixed Synthetic Base Fluids

M. Lorenzo Martin, O. Ajayi, A. Erdemir, G. Fenske, Argonne National Laboratory, Argonne, IL

4 – 4:30 pm

Influence of Magnesium Stearate as Lubricant Additive on Fretting Wear under Oil Lubrication

T. Maruyama, M. Hokao, NSK Ltd., Fujisawa, Japan
4:30 – 5 pm
The Intricacies of Wear of Elastomeric Rolling-Sliding Contacts
A. Bennett, K. Harris, University of Florida, Gainesville, FL

Session 8L • Las Vegas 5
Tribotesting IV
Session Chair: J. Xiao, Rtec Instruments, San Jose, CA
Session Vice Chair: G. Krauss, Harvey Mudd College, Claremont, CA

1:30 – 2 pm
A Novel Solid-Fluid Composite Coating of MoS$_2$ Graphene Oil with Superior Lubricity
J. Wang, K. Hou, S. Yang, Chinese Academy of Sciences, Lanzhou, China

2 – 2:30 pm
Investigation of Impact Abrasive Wear Behavior of Medium Manganese Steel
Q. Yinghuai, D. Zhang, J. Liu, School of Material Science and Engineering, China University of Mining and Technology, Xuzhou, China

2:30 – 3 pm
Friction Characterisation of Engine Oils for Predicting Fuel Economy
K. Topolovec Miklozic, Powertrib Limited, Oxford, United Kingdom

3 – 3:30 pm – Break

3:30 – 4 pm
Approaching the Stress-Dielectric Relationship in Grease
Y. Peng, Q. Wang, Northwestern University, Evanston, IL, N. Wang, J. McNulty, University of Wisconsin-Madison, Madison, WI, H. Li, Zhengzhou University, Zhengzhou, China
4 – 4:30 pm
Experimental Study of the Onset of Scuffing in Concentrated Rolling-Sliding Contacts Using a New Contra-Rotation Test Method
B. Peng, A. Kadiric, Imperial College London, London, United Kingdom

4:30 – 5 pm
Influence of Crystal Size and Crystal Orientation on the Friction Behavior of ZnO Films
X. Lu, Z. Chai, The State Key Laboratory of Tribology, Tsinghua University, Beijing, China

5 – 5:30 pm
Experimental Study of Loosening Process of Threaded Fasteners Under Transverse Vibration
H. Li, State Key Laboratory of Tribology, Tsinghua University, Beijing, China

5:30 – 6 pm
Tribological Approaches to Developing Smart Materials for Tidal Turbines Using Erosion Maps
R. Rafee Ahamed, M.M. Stack, C. Johnstone, Mechanical & Aerospace Engineering, University of Strathclyde, Glasgow, Scotland, United Kingdom

Session 8M • Las Vegas 6/7

Condition Monitoring IV
Session Chair: Karl Rogers, Pilot Thomas Logistics, Las Vegas, NV

1:30 – 2 pm
Return on Fluid Analysis Investment
R. Clark, POLARIS Laboratories, Indianapolis, IN

2 – 2:30 pm
Understanding and Measurements the Nitration Products by Trend Analyss Using Fourier Transform Infrared
Y. Gomez, J. Ciria, IK4 – Tekniker, San Sebastian, Spain
2:30 – 3 pm
Chlorine Contamination of Air Compressor Lubricants
J. Kantar, R. Heatherington, Isel, Inc., Jacksonville, FL

3 – 3:30 pm – Break

3:30 – 4:30 pm – Condition Monitoring Business Meeting

Session 8N • Pacific 1

Surface Engineering VIII

Session Chair: H. Zhao, School of Mechanical Engineering, University of Leeds, Leeds, West Yorkshire, United Kingdom
Session Vice Chair: S. Kosarieh, School of Mechanical Engineering, University of Leeds, Leeds, United Kingdom

1:30 – 2 pm
Plasticity Evolution in a Coated Sphere Compressed by a Rigid Flat
Z. Chen, R. Goltsberg, I. Etsion, Technion, Haifa, Israel

2 – 2:30 pm
Corrosive Wear Behavior of Plasma Sprayed Inconel 718 and Titania Coatings on Low Carbon Steel in Marine Environment
R. Chinnakurli Suryanarayana, PES Institute of Technology, Bangalore, India,
S. Rupanagudi, H. Ramesh Gudi, V. V Udupa, BMS College of Engineering, Bangalore, India

2:30 – 3 pm
Studies on Transfer Layer Formation Using Finite Element Modeling
A. Siddaiah, P. Menezes, University of Nevada-Reno, Reno, NV

3 – 3:30 pm – Break

3:30 pm – 4:30 pm – Surface Engineering Business Meeting
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1:30 – 2 pm
Molecular Dynamics Simulation of Wear Process on Nanocrystalline Materials
Z. Ren, C. Ye, Y. Dong, G. Doll, H. Qin, University of Akron, Akron, OH

2 – 2:30 pm
Predicting Friction Regimes in Metallic Contacts
M. Chandross, Sandia National Laboratories, Albuquerque, NM, S. Cheng, Virginia Polytechnic Institute & State University, Blacksburg, VA, N. Argibay, Sandia National Laboratories, Albuquerque, NM

2:30 – 3 pm
Friction and Wear of Austenite Steel: Plasticity and Crack Formation
S. Brinckmann, C. Fink, G. Dehm, Max-Planck Institut für Eisenforschung, Düsseldorf, Germany

3 – 3:30 pm – Break
3:30 – 4 pm
Measurement of the Friction and Elastic Modulus of Single Nanoparticles Using Atomic Force Microscopy
D. Guo, G. Xie, J. Luo, State Key Laboratory of Tribology, Department of Mechanical Engineering, Tsinghua University, Beijing, China

4 – 4:30 pm
Friction Without Dissipation
R. Hu, J. Frenken, Advanced Research Center for Nanolithography (ARCNL), Amsterdam, Netherlands

4:30 – 5 pm
Experimental and Theoretical Approach of Friction Properties of Lamellar Compounds
J. Mansot, Université des Antilles, Pointe à Pitre, Guadeloupe

5 – 5:30 pm
Effects of Structure of Zinc Dialkyldithiophosphates on Tribological Properties of Tetrahedral Amorphous Carbon Film Under Boundary Lubrication
H. Okubo, S. Sasaki, C. Tadokoro, Tokyo University of Science, Tokyo, Japan

5:30 – 6 pm
Evolution of the Nano-Scale Mechanical Properties of Tribofilms Formed from Low- and High-SAPS Oils and ZDDP on DLC Coatings and Steel
M. Kalin, University of Ljubljana, Ljubljana, Slovenia

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