8:30 – 10 am
Tuesday Keynote Session

Keynote Speaker:
• Dr. Melissa Orme, Vice President, Boeing Additive Manufacturing

10 – 10:30 am
Networking Break & Special Programming

Tuesday Technical Sessions:
• 3A – Condition Monitoring I
• 3B – Lab to Field: Bridging the Gap Between Bench and Engine: Engine & Drivetrain & Lubrication Fundamentals Joint Session I
• 3C – Nonferrous Metals I
• 3D – Materials Tribology II
• 3E – Metalworking Fluids III
• 3F – Nanotribology III
• 3G – Rolling Element Bearings I
• 3H – Lubrication Fundamentals I: Non-Tribological Oil Properties
• 3I – Commercial Marketing Forum III

1 – 2 pm
STLE Virtual Business Meeting

2 – 6 pm
Tuesday Technical Sessions:
• 4A – Condition Monitoring II
• 4B – Additive Manufacturing I: Special Symposium
• 4C – Nonferrous Metals II: Tribology and Biobased Session in Memory of Dr. Girma Biresaw
• 4D – Materials Tribology III
• 4E – Metalworking Fluids IV
• 4F – Nanotribology IV
• 4G – Rolling Element Bearings II
• 4H – 2D Materials/Superlubricity: Material Tribology & Nanotribology Joint Session I
• 4I – Commercial Marketing Forum IV

3 – 3:30 pm
Networking Break & Exhibitor Appreciation

Trade Show Hours:
• Monday, May 17: 10 am – 4 pm
• Tuesday, May 18: 10 am – 3:30 pm
• Wednesday, May 19: 10 am – 3:30 pm
• Thursday, May 20: 10 am – 3:30 pm
(All times listed are Eastern Daylight Time)
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<tr>
<th>TIME</th>
<th>SESSION 3A — Condition Monitoring I</th>
<th>SESSION 3B — Engine/Drivetrain/Lubrication Fundamentals</th>
<th>SESSION 3C — Nonferrous Metals I</th>
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<tr>
<td>10:30 – 11 am</td>
<td>Monitoring of EGR Diesel Engines Lubricant: Should the Nitration be Considered?, J. Fotue, p. 36</td>
<td>Correlation of Engine Oil Degradation in Large Scale Alteration Device and Engine Test Rig, N. Doerr, p. 36</td>
<td>A Non-Ferrous Study Investigating the Lubricity and Film Thickness Behavior of Rolling Oils Containing Mixed Ester Packages on Varying Grades of Aluminum, E. Pates, p. 36</td>
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<td>11 – 11:30 am</td>
<td>Laboratory Aging of Ester Oils and Its Effect on Friction and Wear, D. Patro, p. 36</td>
<td>Piston Ring Coating Development — From Bench to Vehicle, P. Lee, p. 36</td>
<td>Metal Corrosion: Looking Farther Than the Eye Can See, C. Cooper, p. 36</td>
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<td>12:30 – 1 pm</td>
<td></td>
<td>Cooperativity Between Zirconium Dioxide Nanoparticles and Extreme Pressure Additives in Forming Protective Tribofilms: Toward Enabling Low Viscosity Lubricants, R. Carpick, p. 36</td>
<td>Tramp Oils — What Are They and How Do They Effect a Hot Rolling Emulsion?, A. Knopp, p. 36</td>
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<td>2 – 2:30 pm</td>
<td>Fluid Analysis in Condition-Based Monitoring and Reliability, J. Acosta, p. 42</td>
<td>Wear and Friction of Additively Manufactured Stainless Steel Materials, R. Jackson, p. 42</td>
<td>Correlation Between Microscopic Surface Damage and Frictional Behavior of Lubricants for Stamping Automotive Aluminum Sheet Products, M. Shafiei, p. 42</td>
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<tr>
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<td>Fast and Reliable Quality Control of Fresh and In-Service Lubricants by FT-MidIR Spectrometry, A. Mendez, p. 42</td>
<td>Tribological and Mechanical Properties of High Entropy Alloys, M. Jones, p. 42</td>
<td>Filtration of Rolling Fluids, C. Thomas, p. 42</td>
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<td>Network Break</td>
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<td>3:30 – 4 pm</td>
<td>Analysis of Metal Additives and Wear Metals in Lubricants by High-Resolution ICP-OES, O. Buettel, p. 42</td>
<td>Surface Texture Characterization of Metal Selective Laser Melted Part with Varying Surface Inclinations, S. Lou, p. 42</td>
<td>Biobased Disulfide Additive Based on Soybean Oil, G. Bantchev, p. 42</td>
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<td>Fabrication and Testing of Bioinspired Surface Designs for Friction Reduction at the Piston Ring and Liner Interface, S. Maddox, p. 42</td>
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<td>5 – 5:30 pm</td>
<td>Designing a Bioinspired Surface for Improved Wear Resistance and Friction Reduction, J. Hoskins, p. 42</td>
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<td><strong>Metalworking Fluids III</strong></td>
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<tr>
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<td>Virtual Meeting Room 5</td>
<td>Virtual Meeting Room 6</td>
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<tr>
<td>Reduced Cost NiTi-Alloy Bearings Made via Near Net Shape Powder Metallurgy Processes, C. DellaCorte, p.38</td>
<td>A New Method to Simulate Strip Drawing Tests on the Lab-Scale, D. Drees, p.38</td>
<td>Tribological Performance in the Age of Big Data, K. Bashandeh, p.38</td>
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**STLE Virtual Business Meeting**

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<tr>
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<td><strong>Metalworking Fluids IV</strong></td>
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<tr>
<td>Method for Tribological Experiment to Study Scuffing Instigation on AISI 52100 Steel and Hard Ceramic Coatings, K. Jacques, p.44</td>
<td>The Future of Metalworking Fluids: It’s Biobased!, J. Mackey, p.44</td>
<td>MD Study of Adhesion Between a Si Tip and Si Substrate During Indentation and Sliding, J. Harrison, p.44</td>
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<td>Tribological Behavior of Textured Polymer Surfaces, M. Hossain, p.44</td>
<td>New Solution for Aluminum Machining with Synthetic Fluids, M. Ponsardin, p.44</td>
<td>Interfacial Interactions and Tribological Behavior of Metal-Oxide/2D-Material Contacts, T. Filleter, p.44</td>
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<tr>
<td>Materials Tribology Business Meeting</td>
<td>Preview of the Metalworking Fluids (MWF) 105 Education Course, P. Kuenzi, p.44</td>
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**TUESDAY**

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**TUESDAY>>**
### Technical Sessions Time Grids – Tuesday, May 18, 2021

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<tr>
<th>TIME</th>
<th>SECTION 3G Rolling Element Bearings I</th>
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<td>12:30 – 1 pm</td>
<td>Transient Finite Element Simulation of Bearing Surface Damage Due to Oscillating Motion with Consideration of Mixed Lubrication Conditions, J. Hwang, p. 40</td>
<td>Mechanistic Insights into Lubricant Foaming and Foam Control Utilizing Single Bubble Techniques, V. Chandran Suja, p. 40</td>
<td>Evonik Oil Additives: High VI 0W-16 and 0W-20 Engine Oils using Evonik's VISCOPLEX® Viscosity Index Improvers – The Optimal Choice for Hybrid Electric Vehicles, P. Moore, p. 40</td>
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<td>3 – 3:30 pm</td>
<td>Networking Break</td>
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<td>3:30 – 4 pm</td>
<td>An Investigation of the Effects of Surface Roughness on Rolling Contact Fatigue, S. Lorenz, p. 46</td>
<td>Probing the Influence of Water and Oxygen on the Friction and Wear of MoS₂, T. Babuska, p. 46</td>
<td>The Lubrizol Corporation: Reduce, Renew, Regenerate: Sustainability of Industrial Lubricants, S. Basu, p. 46</td>
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<tr>
<td>4 – 4:30 pm</td>
<td>Tribological and Tribocohemical Evaluation of Various Lubricants on Steel as well as WC-DLC Coating under Extreme-Pressure Boundary Lubrication Conditions: Rig Test, K. Mistry, p. 46</td>
<td>Robust Solid Lubricant Operable in Multifarious Environments, A. Ayyagari, p. 46</td>
<td>TestOil: Visual Cues of Lubrication &amp; Reliability Programs with TestOil PRO, H. Vercillo, p. 46</td>
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<tr>
<td>4:30 – 5 pm</td>
<td>Achieving Direct Macroscale Liquid Superlubricity Under Boundary and Mixed Lubrication, Q. Ma, p. 46</td>
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<tr>
<td>5 – 5:30 pm</td>
<td>Super Lubricity of Solids from Quantum Mechanics, B. Zhang, p. 46</td>
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### 3A • Virtual Meeting Room 1

**CONDITION MONITORING I**

**Session Chair:** Michael Plumley, U.S. Coast Guard Academy, New London, CT

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<thead>
<tr>
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<td>Joseph Fotue, TOTAL Cameroon, Douala, Cameroon</td>
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<td>Laboratory Aging of Ester Oils and Its Effect on Friction and Wear</td>
<td>Debudd Patro, Fabio Alemanno, Deepak Veeregowda, Ducom Instruments, Groningen, Netherlands</td>
</tr>
<tr>
<td>Noon – 12:30 pm</td>
<td>Diagnosing the Root Cause of an Overheated Gearbox</td>
<td>Evan Zabawski, TestOil, Strongsville, OH</td>
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### 3B • Virtual Meeting Room 2

**LAB TO FIELD: BRIDGING THE GAP BETWEEN BENCH AND ENGINE**

**Session Chair:** Babak Lotfi, ExxonMobil, Houston, TX

<table>
<thead>
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<td>10:30 – 11 am</td>
<td>Correlation of Engine Oil Degradation in Large Scale Alteration Device and Engine Test Rig</td>
<td>Nicole Doerr, Adam Agocs, Serhiy Budnyk, Andjelka Ristic, Marcella Frauscher, AC2T research GmbH, Wiener Neustadt, Austria</td>
</tr>
<tr>
<td>11 – 11:30 am</td>
<td>Piston Ring Coating Development – From Bench to Vehicle</td>
<td>Peter Lee, Southwest Research Institute, San Antonio, TX</td>
</tr>
<tr>
<td>Noon – 12:30 pm</td>
<td>Cavitation Initiation and Patterns in Engine Lubricants as a Result of Different Operating Conditions and Lubricant Properties</td>
<td>Polychronis Dellis, ASPETE, Athens, Attiki, Greece</td>
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### 3C • Virtual Meeting Room 3

**NONFERROUS METALS I**

**Session Chair:** Ariane Viat, Constellium Technology Center, Saint Egreve, France

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<td>A Non-Ferrous Study Investigating the Lubricity and Film Thickness Behavior of Rolling Oils Containing Mixed Ester Packages on Varying Grades of Aluminum</td>
<td>Emma Pates, Stephen Chestnut, Total UK Ltd., Manchester, United Kingdom; Annie King, Total Specialties USA, Inc., Houston, TX</td>
</tr>
<tr>
<td>11 – 11:30 am</td>
<td>Metal Corrosion: Looking Farther Than the Eye Can See</td>
<td>Clayton Cooper, ANGUS Chemical Co., Buffalo Grove, IL</td>
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<tr>
<td>Noon – 12:30 pm</td>
<td>Nuclear Magnetic Resonance Spectroscopy as a Useful Tool for Routinely Analyzing the Composition of Aluminum Hot Rolling Emulsions</td>
<td>Josef Leimhofer, AMAG Rolling GmbH, Ranshofen, Austria</td>
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*2021 STLE Virtual Annual Meeting & Exhibition*  
*TECHNICAL SESSIONS | Tuesday, May 18, 2021*
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### MATERIALS TRIBOLOGY II

**Session Chair:** Morgan Jones, Sandia National Laboratories Albuquerque, NM  
**Session Vice Chair:** Kylie Van Meter, Florida State University, Tallahassee, FL

**10:30 – 11 am**  
3499636: Data Science Techniques Applied to In Situ XRD Measurements of Copper Under Tribological Load  
Nikolay Garabedian, Patric Gruber, Christian Greiner, Karlsruhe Institute of Technology, Karlsruhe, Germany

#### 11 – 11:30 am

**3484803: Extreme Environment Tribological Study of Advanced Bearing Polymers for Space Applications**  
Kian Bashandeh, Vasiliis Tsigkis, Texas A&M University, College Station, TX; Pixiang Lan, ATSP Innovations, Champaign, IL; Andreas Polycarpou, Texas A&M University, College Station, TX

**11:30 am – Noon**  
3492540: Novel Self Emulsifiable Esters for High Lubricity and Low Foam MWFs  
Ronald Hoogendoorn, Patech, Moordrecht, Nederland, Netherlands

#### Noon – 12:30 pm

**3483431: Reduced Cost NiTi-Alloy Bearings Made via Near Net Shape Powder Metallurgy Processes**  
Christopher DellaCorte, NASA, Cleveland, OH

**3499841: Tribological Study of Materials for Effective Cutting Tool Life**  
Carlos Sanchez, Peter Lee, Michael Moneer, Southwest Research Institute, San Antonio, TX

### METALWORKING FLUIDS III

**Session Chair:** Jeffrey Mackey, Biosynthetic Technologies, Indianapolis, IN  
**Session Vice Chair:** Chad Crocker, S&S Chemical, Northport, NY

**10:30 – 11:00 am**  
3485651: Model MWFs Based on Naphthenic Base Oils – Straight Cut or Blend?  
Thomas Norrby, Linda Visuri, Jinxia Li, Nynas AB, Nynashamn, Sweden

**11 – 11:30 am**  
3492540: Novel Self Emulsifiable Esters for High Lubricity and Low Foam MWFs  
Ronald Hoogendoorn, Patech, Moordrecht, Nederland, Netherlands

**11:30 am – Noon**  
3484684: A New Method to Simulate Strip Drawing Tests on the Lab-Scale  
Dirk Drees, Emmanuel Georgiou, Falex Tribology NV, Rotselaar, Belgium; Mark Veldhuis, Philips, Drachten, Netherlands; Javad Hazrati, Universiteit Twente, Enschede, Overijssel, Netherlands

**Noon – 12:30 pm**  
3483709: Isopropanol Vapor Phase Lubrication of Multi-Asperity Interfaces: The Role of Capillarity and Boundary Lubrication  
Bart Weber, Feng-Chun Hsia, Advanced Research Center for Nanolithography, Amsterdam, Netherlands

**12:30 – 1 pm**  
3476540: Tribological Performance of Piston Compression Ring in Artificial Intelligence-Based Design Green Lubricant During Cold Start-up  
Shahid Imran, HITEC University, Taxila, Pakistan

### NANOTRIBOLOGY III

**Session Chair:** Suvrat Bhargava, TE Connectivity, Middletown, PA  
**Session Vice Chair:** Arnab Bhattacharjee, University of Delaware, Newark, DE

**10:30 – 11:30 am**  
INVITED TALK: 3565571: Mechanical Dissipation of Energy: From Breaking of Bonds to the Release of Adhesive Contacts  
Lars Pastewka, Antoine Santer, Albert-Ludwigs-Universitat Freiburg, Freiburg im Breisgau, Germany; Richard Jana, Aalto-yliopisto, Aalto, Finland

**11:30 am – Noon**  
3499664: Tribological Experiments in the Age of Big Data  
Nikolay Garabedian, Paul Schreiber, Christian Greiner, Karlsruhe Institute of Technology, Karlsruhe, Germany

**Noon – 12:30 pm**  
3485050: Surface Behavior and Lubricative Properties of Hydroxyproline Rich, Natural Proteins in Metalworking Fluids  
Eric Yezdimer, Gelita USA, Sergeant Bluff, IA; Matthias Reihmann, Gelita AG, Eberbach, Germany

**12:30 – 1 pm**  
3499841: Tribological Study of Materials for Effective Cutting Tool Life  
Carlos Sanchez, Peter Lee, Michael Moneer, Southwest Research Institute, San Antonio, TX
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2021 STLE Virtual Annual Meeting & Exhibition
TECHNICAL SESSIONS | Tuesday, May 18, 2021

3G • Virtual Meeting Room 7
ROLLING ELEMENT BEARINGS I

Session Chair: Trevor Slack, American Roller Bearing, Morganton, NC
Session Vice Chair: Hannes Grillenberger, Schaeffler Technologies AG and Co. KG, Herzogenaurach, Germany

10:30 – 11 am
3485603: Contact Protection by Grease in Aeronautical Heavily Charged Oscillating Bearings
Lucas Frache, David Philippon, LaMCoS Laboratory, Villeurbanne, Rhône Alpes, France; Francesco Massi, DIMA – University of Rome “La Sapienza”, Rome, Italy

11 – 11:30 am
3483102: Film Thickness and Starvation in Grease Lubricated Bearings
Piet Lugt, SKF Research and Technology Development, Houten, Utrecht, Netherlands; Hui Cen, Xuchang University, Xuchang, Henan, China

11:30 am – Noon
3499278: Friction-Based Calibration of Raceway and Flange Lubrication Models for Railway Bearing Performance Prediction
Arnaud Ruellan, Pietro Tesini, Lieuwe de Vries, Armin Schlereth, Giuseppe Guala, SKF Group, Vilar Perosa, Italy

Noon – 12:30 pm
3484440: Wear Development Due to Oscillating Movement Operating Conditions as Employed in Rotor Blade Bearings in Wind Turbines
Sebastian Wandel, Gerhard Poll, Leibniz Universität Hannover, Hannover, Niedersachsen, Germany; Arne Bartschat, Fraunhofer-Institut für Windenergiesysteme IWES, Bremerhaven, Bremen, Germany

12:30 – 1 pm
3482687: Transient Finite Element Simulation of Bearing Surface Damage Due to Oscillating Motion with Consideration of Mixed Lubrication Conditions
Jae-II Hwang, Josephine Kelley, Qiongdan Hu, Gerhard Poll, Institute of Machine Design and Tribology, Garbsen, Germany

3H • Virtual Meeting Room 8
LUBRICATION FUNDAMENTALS I: NON-TRIBOLOGICAL OIL PROPERTIES

Session Chair: Jodie Nelson, American Refining Group, Bradford, PA
Session Vice Chair: Q. Jane Wang, Northwestern University, Evanston, IL

10:30 – 11 am
3496577: Analytical Approaches to Chemical Structure and Physical Property Measurements of Lubricant Oils
Eleanor Riches, Caitlyn Da Costa, Jeff Goshawk, Michael Jones, Gordon Jones, Waters Corporation, Wilmslow, Cheshire, United Kingdom; James Browne, TA Instruments, New Castle, DE

11 – 11:30 am
3481748: Practical Considerations for the Development of Amine and Phenol Synergies
Jun Dong, SONGWON Industrial Group, Glen Allen, VA

11:30 am – Noon
3480826: Oxidative Stability of Estolides
Travis Thompson, Biosynthetic Technologies, Indianapolis, IN

Noon – 12:30 pm
3497278: Mechanistic Insights into Lubricant Foaming and Foam Control Utilizing Single Bubble Techniques
Vineeth Chandran Suja, Gerald Fuller, Stanford University, Stanford, CA

3I • Virtual Meeting Room 9
COMMERCIAL MARKETING FORUM III

10:30 – 11 am – BASF Corporation
3578660: IRGAPAC® T 1668 M: New Premium Turbine Package Meeting MP Specifications
Alex Mannion

11 – 11:30 am – Evonik Oil Additives
3576684: Life Cycle Analysis of an Efficient Hydraulic Fluid
Thilo Krapfl

11:30 am – Noon – Münzing
3568227: Effects of Filtration on Münzing Defoamer Performance in Aqueous Metal Removal Fluids
James Sullivan

Noon – 12:30 pm – Colonial Chemical
3578734: High-performance Corrosion Inhibitors for Aluminum and Its Alloys
Steven Tang

12:30 – 1 pm – Evonik Oil Additives
3573199: High VI 0W-16 and 0W-20 Engine Oils using Evonik’s VISCOPLEX® Viscosity Index Improvers – The Optimal Choice for Hybrid Electric Vehicles
Peter Moore
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Industrial Lubricant Additive Packages | Lubricity Additives
Polyalphaolefins | Polybutenes | Silicone Fluids
Solid Lubricants | Surfactants | Viscosity Modifiers

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## 4A • Virtual Meeting Room 1
### CONDITION MONITORING II

**Session Chair:** Jatin Mehta, Fluitec International, Bayonne, NJ  

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<td>2 – 2:30 pm</td>
<td>3498173: Fluid Analysis in Condition-Based Monitoring and Reliability</td>
<td>Julio Acosta, POLARIS Laboratories, Richmond, TX</td>
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<tr>
<td>2:30 – 3 pm</td>
<td>3531472: Fast and Reliable Quality Control of Fresh and In-Service Lubricants by FT-MidIR Spectrometry</td>
<td>Aaron Mendez, Analytical Instruments Inc., Houston, TX</td>
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<tr>
<td>3 – 3:30 pm</td>
<td>Break</td>
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</tr>
<tr>
<td>3:30 – 4 pm</td>
<td>3559470: Analysis of Metal Additives and Wear Metals in Lubricants by High-Resolution ICP-OES</td>
<td>Oliver Buettel, Analytik Jena US LLC, Beverly, MA</td>
</tr>
<tr>
<td>4 – 4:30 pm</td>
<td>3500173: Diagnosing Improper Bearing Lubrication Using Oil Analysis</td>
<td>Evan Zabawski, TestOil, Strongsville, OH</td>
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<tr>
<td>4:30 – 5 pm</td>
<td>Condition Monitoring Business Meeting</td>
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</tbody>
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## 4B • Virtual Meeting Room 2
### ADDITIVE MANUFACTURING I: SPECIAL SYMPOSIUM

**Session Chair:** Michael Khonsari, Louisiana State University, Baton Rouge, LA  

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Presenter(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 – 2:30 pm</td>
<td>3551361: Wear and Friction of Additively Manufactured Stainless Steel Materials</td>
<td>Robert Jackson, Sanjeev KC, Pooriya Nezhadfar, Collin Phillips, Nima Shamsaei, Auburn University, Auburn, AL; Marian Kennedy, Clemson University College of Engineering Computing and Applied Sciences, Clemson, SC</td>
</tr>
</tbody>
</table>

## 4C • Virtual Meeting Room 3
### NONFERROUS METALS II
**Tribology and Biobased Session in Memory of Dr. Girma Birresaw**

**Session Chair:** Annie King, Houston, TX  

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Presenter(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 – 2:30 pm</td>
<td>3476874: Correlation Between Microscopic Surface Damage and Frictional Behavior of Lubricants for Stamping Automotive Aluminum Sheet Products</td>
<td>Mehti Shafiei, Shania Polson, Novelli, Novi, MI</td>
</tr>
<tr>
<td>3 – 3:30 pm</td>
<td>Break</td>
<td></td>
</tr>
<tr>
<td>3:30 – 4 pm</td>
<td>3482772: Biobased Disulfide Additive Based on Soybean Oil</td>
<td>Craig Thomas, JR Schneider Co., Inc., Benicia, CA</td>
</tr>
<tr>
<td>4 – 4:30 pm</td>
<td>3484628: Vegetable Oils for Metalworking Lubricants: Physico-Chemical and Stability Aspects of Different Options</td>
<td>Joseph Pattathilchira Varghese, Formerly Indian Oil R&amp;D Center, Faridabad, Haryana, India</td>
</tr>
<tr>
<td>4:30 – 5 pm</td>
<td>Nonferrous Metals Business Meeting</td>
<td></td>
</tr>
</tbody>
</table>
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TECHNICAL SESSIONS | Tuesday, May 18, 2021

4D • Virtual Meeting Room 4
MATERIALS TRIBOLOGY III

Session Chair: Nikhil Murthy, U.S. Army Research Lab, Aberdeen Proving Ground, MD

2 – 2:30 pm
3485503: Method for Tribological Experiment to Study Scuffing Instigation on AISI 52100 Steel and Hard Ceramic Coatings
Kelly Jacques, Diana Berman, University of North Texas, Burleson, TX; Stephen Berkebile, Nikhil Murthy, Army Research Laboratory, Aberdeen Proving Ground, MD

5 – 5:30 pm • Materials Tribology Business Meeting

4E • Virtual Meeting Room 5
METALWORKING FLUIDS IV

Session Chair: Eric Yezdimer, Gelita, Sergeant Bluff, IA
Session Vice Chair: Robert Golden, Pilot Chemical, Cincinnati, OH

2 – 2:30 pm
3484869: The Future of Metalworking Fluids: It’s Biobased!
Jeffrey Mackey, Biosynthetic Technologies, Indianapolis, IN

3 – 3:30 pm – Break

3:30 – 4 pm
3478594: New Solution for Aluminum Machining with Synthetic Fluids
Mickael Ponsardin, TOTAL Lubricants, Pindamonhangaba, SP , Brazil

4 – 4:30 pm
3479656: Polyglykol as Performance Wear Lubricant and Synergism with Extreme Pressure Additives on Net Oil Metalworking Fluid
Eduardo Lima, Dow Chemical Brazil, Jundiai, Sao Paulo, Brazil

5 – 5:30 pm
3500883: Multiple Light Scattering for Physical Stability Analysis of Concentrated Dispersions
Gordon Irvine, Charles Nider, Pascal Bru, Formulation, Inc, Worthington, OH; Christelle Tisserand, Yoann Lefeuve, Gerard Meunier, Formulation, Dallas, TX

4F • Virtual Meeting Room 6
NANOTRIBOLOGY IV

Session Chair: Filippo Mangolini, The University of Texas at Austin, Austin, TX

2 – 2:30 pm
3529206: MD Study of Adhesion Between a Si Tip and Si Substrate During Indentation and Sliding
Judith Harrison, US Naval Academy, Annapolis, MD; Zachary Milne, Sandia National Laboratories, Albuquerque, NM; Robert Carpick, University of Pennsylvania, Philadelphia, PA; J. David Schall, North Carolina AT&T University, Greensboro, NC

3 – 3:30 pm – Break

3:30 – 4 pm
3499774: Structure, Solvation and Friction of Cyclic-Hydrocarbons Confined at Graphitic Interface
Behnoosh Sattari Baboukani, Prathima Nalam, SUNY University at Buffalo, Buffalo, NY; Zhijiang Ye, Miami University, Oxford, OH

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2021 STLE Virtual Annual Meeting & Exhibition
TECHNICAL SESSIONS | Tuesday, May 18, 2021

4F | Nanotribology IV (con’t)

4 – 4:30 pm
3500077: Nanoparticle Sintered Tribofilm Removal Study: An Experimental Approach
Steven Thrush, US Army CCDC GVSC, Warren, MI

4:30 – 5 pm
3516653: In Situ SEM Nano-mechanical Characterization of Tribofilms Derived from Inorganic Nanoparticles
Kora Farokhzadeh, Praveena Manimunda, Bruker Nano Surfaces, San Jose, CA; Steve Shaffer, Shaffer Tribology Consulting, San Jose, CA

5 – 5:30 pm – Nanotribology Business Meeting

4G • Virtual Meeting Room 7
ROLLING ELEMENT BEARINGS II

Session Chair: Daulton Isaac, Air Force Research Laboratory, Wright Patterson AFB, OH

2 – 2:30 pm
3482402: The Next Generation Aircraft Engine High Speed Bearing
Peter Glückner, Schaeffler Aerospace Germany GmbH & Co.KG, Schweinfurt, Bavaria, Germany

2:30 – 3 pm
3477365: Innovative Bearing Solutions for E-Mobility Applications
Jitesh Modi, Schaeffler Group USA, Troy, MI

3 – 3:30 pm – Break

3:30 – 4 pm
3499371: An Investigation of the Effects of Surface Roughness on Rolling Contact Fatigue
Steven Lorenz, Farshid Sadeghi, Purdue University, West Lafayette, IN

4 – 4:30 pm
3493327: Tribological and Tribochemical Evaluation of Various Lubricants on Steel as well as WC-DLC Coating under Extreme-Pressure Boundary Lubrication Conditions: Rig Test
Kuldeep Mistry, The Timken Company, North Canton, OH

4H • Virtual Meeting Room 8
2D MATERIALS/ SUPERLUBRICITY
Materials Tribology & Nanotribology Joint Session I

Session Chair: Arzu Çolak, Clarkson University, Potsdam, NY

2 – 2:30 pm
3504641: Mechanical and Tribological Properties of MXene Nano-Sheets
Bo Zhang, Saga Daigaku Riko Gakubu Daigakuin Kogakukei Kenkyuka, Saga, Japan

2:30 – 3 pm
3492372: Wear Life of Ni-doped MoS2 Dry Film Lubricants for Space Applications
Azhar Velore, Sergio Romero Garcia, University of California, Merced; Merced, CA; Duval Johnson, NASA Jet Propulsion Laboratory, Pasadena, CA; Ashlie Martini, University of California, Merced, Merced, CA

3 – 3:30 pm – Break

3:30 – 4 pm
3504161: Probing the Influence of Water and Oxygen on the Friction and Wear of MoS2
Tomas Babuska, Tomas Grejta, Lehigh University, Bethlehem, PA; John Curry, Sandia National Laboratory, Albuquerque, NM; Brandon Krick, Florida State University, Tallahassee, FL

4 – 4:30 pm
3503112: Robust Solid Lubricant Operable in Multifarious Environments
Aditya Ayyagari, Kalyan Mutyala, Anirudha Sumant, Argonne National Laboratory, Lemont, IL

4:30 – 5 pm
3484970: Achieving Direct Macroscale Liquid Superlubricity Under Boundary and Mixed Lubrication
Qiang Ma, Arman Mohammad Khan, Q. Jane Wang, Yip-Wah Chung, Northwestern University, Evanston, IL

5 – 5:30 pm
3482121: Super Lubricity of Solids from Quantum Mechanics
Bo Zhang, Saga Daigaku Riko Gakubu Daigakuin Kogakukei Kenkyuka, Saga, Japan

4I • Virtual Meeting Room 9
COMMERCIAL MARKETING FORUM IV

2 – 3 pm – Afton Chemical
3576688: Afton Chemical’s Key Driver Seminar IIoT Technologies Leading to Engaged, Optimized and Profitable Customer Relationships
Stephen Steen

3 – 3:30 pm – Break

3:30 – 4 pm – Sea-Land Chemical Company Update
Pete Pendergast

4 – 5 pm – The Lubrizol Corporation
3578685: Reduce, Renew, Regenerate: Sustainability of Industrial Lubricants
Shubhamita Basu

5 – 5:30 pm – TestOil
3578799: Visual Cues of Lubrication & Reliability Programs with TestOil PRO
Heather Vercillo