



**IASH 2017**  
15th International Conference on  
Stability, Handling and Use of Liquid Fuels  
Rome, Italy • 10-14 September 2017



## **Preliminary Program**

### **FUEL SPECIFICATIONS AND THE IMPACT OF DISTRIBUTION AND NEW PRODUCTION TECHNOLOGIES**

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#### **IASH Supporting Members**

BASF SE – Chevron - ECHA Microbiology Ltd. – Federal Aviation Administration - Flint Hills Resources LP  
Fuel Quality Services – Innospec – Intertek – The Clouds Network

**Sheraton Parco de' Medici – Building 1**  
**Technical Sessions located in Sala Medici**  
**Technical Posters & Exhibits located in Sala Visconti**  
**Speaker Ready Room located in Sala Scaligeri**  
**Registration from 07.30 – 17.00 Daily**

**SUNDAY, 10 SEPTEMBER 2017**

10.00 – 12.00 Board of Directors Meeting in Sala Pepoli (Members & Invited Guests)  
14.00 - 17.00 Registration in Lobby of Building 1 – Continues throughout the week in Sala Medici Foyer  
12.00 - 17.00 Set up Posters and Exhibits in Sala Visconti

**19:00–21:30**      **OPENING RECEPTION POOLSIDE AT THE SHERATON PARCO de' MEDICI, BUILDING 1**  
**Sponsored by Southwest Research Institute**

**MONDAY, 11 SEPTEMBER 2017**

**07.00 – 08.30** Breakfast in Savoia Restaurant included in hotel group rate  
**08.30 – 08.45** Welcome and Introduction by Pam Serino, Conference Chairperson

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| 08:45 – 09:15       | <b>KEYNOTE ADDRESS: How European Standards Guarantee Fuel Quality, Vehicle Functioning and Emissions - <i>Ortwin Costenoble, CEN Fuels Standardization</i></b>   |
| 09:15 – 09:40       | <b>Chevron Award of Excellence in Honor of John Bacha paper: Phenols and Aromatic Methyl Ethers from Biomass Pyrolysis Oil: Implications for Jet Fuel Stability – <i>Mariam Ajam, Carl L. Viljoen, Chris Woolard, and Eric van Steen</i></b> |
| <b>09.40</b>        | <b>SESSION 1: FUEL PRODUCTION AND QUALITY CONTROL</b><br>Joanna Bauldreay, Session Chair   |
| 09:45 - 10:10       | <b>Application Progress of Residue Hydroprocessing in China</b><br>- <i>Jiankun Liu</i>  |
| 10:10 –10:35        | <b>Stability Characterization of Residual Hydroracking Effluents by the S-value Method (ASTM D7157) Effect of the Analytical Parameters</b><br>– <i>J  r  mie Barbier, Andre Diot, Matthieu Dreillard, and Joao Marques</i>                  |
| <b>10:35 –10:55</b> | <b>BREAK</b>   |
| 10:55 –11:20        | <b>Factors Affecting Filterability of Middle Distillate Fuels</b><br>- <i>David A Daniels, Andrew McKnight, Arthur Fogiel, Alex Belly, and Christopher LeMieux</i>   |
| 11:20 –11:45        | <b>A Theroretical and Full Scale Investigation into the Use of Tank Settling to Remove Water and Solid Contaminants From Aviation Fuel</b><br>- <i>Alisdair Clark, Steve D. Anderson, Andrew Glendinning, and Gary Norris</i>                |

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| <b>11:45</b>         | <b>SESSION 2: MARINE DIESEL FUELS</b><br>Zhenning Gu, Session Chair  |
| 11:50 – 12:15        | <b>Effects of Aromatic Type and Concentration on Properties and Stability of Alternative Marine Diesel</b> - <i>Jinxia Fu and Scott Q. Turn</i>  |
| 12:15 – 12:40        | <b>The Impact of Changing Regulation on Marine Fuel Quality and the Role and Effectiveness of Fuel Additives</b> - <i>Simon Mulqueen and Michael Banning</i>   |
| 12:40 – 14:00        | <b>LUNCH IN SAVOIA RESTAURANT – Sponsored By Falex</b>   |
| <b>14:00</b>         | <b>SESSION 3: FUEL CONTAMINATION</b><br>Rick Kamin, Session Chair  |
| 14:00 – 14:25        | <b>Impact of Water Bottoms on Aviation Turbine Fuel Chloride Content</b><br>– <i>Paul P. Wells</i>   |
| 14:25 – 14:50        | <b>Application of Matrix-Assisted Laser Desorption/Ionization Mass Spectrometry to the Characterization of High Molecular Weight Fuel Contaminants</b><br>– <i>Thomas N. Loegel, Jeffery D. Cramer, and Iwona A. Leska</i> |
| <b>14:50 – 15:00</b> | <b>BREAK</b>   |
| 15:00 – 15:25        | <b>Quantification of Phosphate Ester-Based Hydraulic Fluid in Jet Fuel</b><br>– <i>Diana Gertopski Stamker, Moshe Rabaev, and Konstantin Tartakovsky</i>   |
| 15:25 – 15:50        | <b>Cold Filter Blocking Tendency as a Predictor for Low Temperature Operability of Diesel Fuels</b> – <i>Ian P. Mylrea, Jerry Burton, and David Swan</i>   |
| 15:50 – 16:15        | <b>A Users Perspective and Experience with Particle Counting in Liquid Fuels</b><br>– <i>Joel A. Schmitgal</i>   |
| <b>18:00 – 19:30</b> | <b>POSTER SESSION &amp; EXHIBITOR RECEPTION IN SALA VISCONTI – Sponsored by UDRI</b>   |

**TUESDAY, 12 SEPTEMBER 2017**

**07.00 – 08.00** Breakfast in Savoia Restaurant include in hotel group rate

**08.00 – 08.15** Announcements

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| <b>08:15</b>  | <b>SESSION 4: BIODIESEL AND DIESEL</b><br>Melanie Thom, Session Chair  |
| 08:20 – 8:45  | <b>Storage Stability Studies and Shelf Life Determinations of Commercial Brazilian Biodiesels Stocked in Sub-tropical Conditions in Carbon Steel Containers</b><br>– <i>Eduardo H. de S. Cavalcanti, Adriane Zimmer, Marcos Ferrao, and Fatima Menezes Bento</i> |
| 08:45 – 09:10 | <b>Thermal and Oxidative Instability in Biodiesel Blends During Vehicle Use and Onboard Fuel Storage</b> – <i>Steven R. Westbrook</i>  |
| 09:10 – 09:35 | <b>Demystifying the Role of Diesel Fuel Composition in Internal Injector Deposits with Vase</b><br>– <i>David Abdallah, Scott K. Berkous, Krystal B. Wrigley, Matt I. Watkins, and Paul Lacey</i>  |

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| 09:35– 10:00        | <b>Degradation of Diesel in a Modern FIE System</b><br>– <i>Christopher Smith, Kesavan Gopalan, Christopher J. Chuck, and Christopher D. Bannister</i>  |
| <b>10:00–10:20</b>  | <b>BREAK</b>  |
| 10:20 –10:45        | <b>Adventures in Diesel Stability: Standardizing the Quartz Crystal Microbalance Method</b><br>– <i>David Evans, Renee I. Webster, Paul M. Rawson, Nathan Matheson, and Christy-Anne Stansfield</i>                     |
| 10:45 –11:10        | <b>Carbonaceous Internal Diesel Injector Deposits: Mechanisms, Characterization, and Remediation</b> – <i>Andrew McKnight, Jim Barker, and Jacqueline Reid</i>  |
| <b>11:10</b>        | <b>SESSION 5: AVGAS and GASOLINE</b><br><b>Anne Gandubert, Session Chair</b>  |
| 11:15 –11:40        | <b>A Novel Approach for the Evaluation of the Deposit Forming Tendencies of Spark-Ignition Fuels</b> – <i>Steven R. Westbrook and George R. Wilson III</i>  |
| 11:40 –12:05        | <b>Oxidation Stability of Unleaded Aviation Gasoline for General Aviation</b><br>– <i>Cunping Huang, Sneha Gollamudi, Jonathan Doyle and Dave Atwood</i>  |
| <b>12:05 –13:30</b> | <b>LUNCH IN SAVOIA RESTAURANT - Sponsored by AD Systems</b>   |
| <b>13:30</b>        | <b>SESSION 6: ALTERNATIVE AVIATION FUEL</b><br><b>Edwin Corporan, Session Chair</b>   |
| 13:35 – 14:00       | <b>Impact of Aromatic Types and Quantities on O-Ring Polymers</b><br><i>Mikeal Sicard, Jacques Ancelle, Bruno Raepsaet, and Frédéric Ser</i>  |
| 14:00 – 14:25       | <b>Impact of Aromatic Content in Different Alternative Aeronautic Fuel Emissions</b><br>– <i>D. Delhaye, J Ancelle, M. Sicard, L. Jing, and I. K. Ortega</i>  |
| 14:25 – 14:50       | <b>Evaporation Ignition of Alternative Fuels</b><br>– <i>O. Rouzaud, J Garraud, R. Lecourt, C. Lempereur, M. Orain, G. illac, and M. Sicard</i>   |
| 14:50 – 15:15       | <b>BREAK</b>  |
| <b>15:15</b>        | <b>SESSION 7: MICROBIOLOGY</b><br><b>Dietmar Posselt, Session Chair</b>   |
| 15:20 –15:45        | <b>Use of Illumina 16S rRNA Next Generation Sequencing to Investigate Anaerobic Bacterial Community Composition in Environmental and Fuel Associated Waters</b><br>– <i>Giovanni Cafa, Lisa Offord, and Joan Kelley</i> |
| 15:45 –16:10        | <b>Advanced Molecular Tools for the Detection and Mitigation of Fuel Biodeterioration</b><br>– <i>Oscar N. Ruiz, and Thusitha S. Gunasekera</i>   |
| 16:10 –16:35        | <b>Factors Effecting the Precision of Fuel Microbiology Test Methods</b><br>– <i>Frederick J. Passman, Joan Kelley, and Pat Whalen</i>  |
| 16:35 –17:00        | <b>The Relationship Between Microbiological Contamination in Water Phase and Fuel Phase in Jet Fuel Systems and its Detection by Industry Standard Methods</b><br>– <i>Gareth J. Williams, and Graham C. Hill</i>       |
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**WEDNESDAY, 13 SEPTEMBER 2017**

**07.00 – 08.00** Breakfast in Savoia Restaurant include in hotel group rate

**08.00 – 08.15** Announcements

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| <b>08.15</b>         | <b>Session 8: FUEL TESTING AND TEST METHODS – Section 1</b><br>Steve Westbrook, Session Chair  |
| 08:20 – 08:45        | <b>Comparison of Particulate Contamination Measurement Techniques in Distillate Fuels</b><br>– <i>Thomas G. Smagala, Camden Cook, Andy Ye Yuan Chen, and Krege M. Christison</i>   |
| 08:45 – 09:10        | <b>Evaluation of Particle Counting as a Valid Tool to Determine the Filtration Efficiency</b><br>– <i>Robert Pawlik, Tom Muzik, and Lewis Wolfe</i>  |
| 09:10 – 09:35        | <b>What New Methods for Evaluating D3241 Heater Tubes Deposit Thickness May Mean to the Development of New D3241 Methods</b> – <i>Michael Croudace</i>   |
| 09:35 – 10:00        | <b>Novel Automated Systems for Onsite Fuel Stability and Compatibility Testing According to ASTM D4740</b> – <i>Didier Pigeon</i>  |
| <b>10:00 – 10:20</b> | <b>BREAK</b>   |
| <b>10:20</b>         | <b>SESSION 8: FUEL TESTING AND TEST METHODS – Section 2</b><br>Amy Carico , Session Chair  |
| 10:25 – 10:50        | <b>FAME in Jet Fuel: A Novel Analytical Test Method Based on Laser Mid-Infrared Spectroscopy</b><br>– <i>Bernhard Siebenhofer, Michael Martl, and Wolfgang Ritter</i>  |
| 10:50 – 11:15        | <b>Understanding Precision Issues with Single Temperature Testing by ASTM D3241</b><br>– <i>George R. Wilson III</i>   |
| 11:15 – 11:40        | <b>Application of Chemometric Methods to Devolve Co-Eluting Peaks in GC-MS Data</b><br>– <i>Jeffery A. Cramer, Mark H. Hammond, and Thomas N. Loegel</i>   |
| 11:40 – 12:05        | <b>Selective Isolation of Cyclic Sulfides from Jet Fuel and Their Contribution of Fuel Oxidation Rates</b><br>– <i>Paul Rawson, and Sylvester Abanteriba</i>   |
| <b>12:05– 13:20</b>  | <b>LUNCH IN SAVOIA RESTAURANT - Sponsored By Shell Aviation</b>  |
| <b>13:20</b>         | <b>SESSION 8: FUEL TESTING AND TEST METHODS – Section 3</b><br>Anthony Kitson-Smith, Session Chair   |
| 13:25 – 13:50        | <b>Development of a New Automotive Fuel Filter Test Method Incorporation Vibration and Cyclic Flow Test Parameters</b> - <i>Gary Bessee and Larry Hollingsworth</i>  |
| 13:50 – 14:15        | <b>Comparison Between SAE J1488 and ISO 16332 Diesel Fuel Water Separation Test Methods</b><br>– <i>Gary Bessee and Kristi Rutta</i>   |
| 14:15 – 14:40        | <b>Fuel Contamination Specifications by ASTM D5452 Gravimetric , MIL-DTL-2261D Light Obscurance (JF-WA1-NP), and Laser Particle Counter ASTM D7619, Comparisons and Performance Review, Future Potentials</b> – <i>Alan J. Fougere</i> |
| <b>18:30</b>         | <b>Meet in Hotel Lobby for Transportation to Awards Dinner at 6:15</b>   |
| <b>19:00-22:00</b>   | <b>IASH AWARDS DINNER AT VILLA MIANI</b><br><b>Sponsored by Parker Hannifin and Pratt &amp; Whitney</b>  |

**THURSDAY, 14 SEPTEMBER 2017**

**07.00 – 08.00** Breakfast in Savoia Restaurant included in hotel group rate

**08.00 – 08.15** Announcements

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| <b>08.15</b>         | <b>SESSION 9: FUEL PROPERTIES AND EFFECTS – Section 1</b><br>David Abdallah, Session Chair   |
| 08:20 – 08:45        | <b>New Sulphur Reduction Technology as Solution to Increasingly Stringent Sulphur Regulations</b><br><i>-Zhenning Gu, Ksenija Babic, Paul Biggerstaff, Don Wolfe, Jerry Weers, and Waynn Morgan</i>  |
| 08:45 – 09:15        | <b>Evaluation of Aviation Fuel Property Influences on Diesel Engine Performance</b><br><i>- Andy McDaniel</i>  |
| 09:15 – 09:40        | <b>Pentamethyl Heptane as a Primary Reference Standard for Cetane Number</b><br><i>- Indresh Mathur and Mical Renz</i>   |
| 09:40 – 10:05        | <b>Design of an Onboard Aviation Fuel Deoxygenator Unit for Improvement of Fuel Thermal Stability</b> – <i>Ehsan Alborzi, Matthew Dwyer, Simon G. Blakey, and A H J M Meijer</i>   |
| <b>10:05– 10:25</b>  | <b>BREAK</b>   |
| <b>10:25</b>         | <b>SESSION 9: FUEL PROPERTIES AND EFFECTS – Section 2</b><br>David Abdallah, Session Chair   |
| 10:30 – 10:55        | <b>The Content of the ISO-Paraffins in Jet Fuel and its Influences on Properties</b><br><i>- Zhiping Tao</i>   |
| 10:55 – 11:20        | <b>Endothermic Reactivity of Hydrocarbons Under Conditions Relevant to High Speed Flight Systems</b> – <i>Matthew DeWitt, Donald K. Phelps, Theodore Williams, Tyler Hendershott, Quinn Casselberry, Rich Striebich, Linda Shafer, Steven Zabarnick, Zachary West, and Tim Edwards</i> |
| <b>11:20</b>         | <b>SESSION 10: FUEL CHEMISTRY, RESEARCH AND DEVELOPMENT – Section 1</b><br>Matthew DeWitt, Session Chair   |
| 11:25 – 11:50        | <b>The Role of Hydrocarbon Composition on the Thermal Stability of Aviation Fuel</b><br><i>- Matthew R. Dwyer, Simon G. Blakey, Ehsan Alborzi, and Anthony J.H.M Meijer</i>  |
| 11:50 – 12:15        | <b>The Impact of Organonitrogen Compounds on the Storage Stability of Middle Distillate Fuels</b><br><i>Robert E. Morris, Thomas N. Loegel, Kristina M. Meyers, Iwona W. Leska, Christopher J. Katlile, Alison E. Metz.</i>  |
| <b>12:15 – 13:25</b> | <b>LUNCH IN SAVOIA RESTAURANT</b>  |
| <b>13:25</b>         | <b>SESSION 10: FUEL CHEMISTRY, RESEARCH AND DEVELOPMENT – Section 2</b><br>Matthew DeWitt, Session Chair   |
| 13:30 – 13:55        | <b>Investigation of Thermally Unstable Aviation Turbine Fuels</b><br><i>- Zachary West, Linda Shafer, Richard Striebich, Steve Zabarnick and Timothy Edwards</i>   |

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| 13:55 – 14:20        | <b>The Detailed Measurement of Fuel Heteroatoms by Element Specific Detectors and GCxGC-MS</b><br>- <i>Richard C. Striebich, Linda M. Shafer, Susan S. Mueller, Zachary j. West, and Steven Zabarnick</i>                    |
| 14:20 – 14:45        | <b>Studies of the Role of Heteroatomic Species in Jet Fuel Thermal Stability: Model Fuel Mixtures and Real Fuels</b> - <i>Steven Zabarnick, Zachary J. West, Linda M. Shafer, Susan S. Mueller, and Richard C. Striebich</i> |
| <b>14:45 – 15:05</b> | <b>BREAK</b>   |
| <b>15:05</b>         | <b>SESSION 11: FUEL CHEMISTRY, RESEARCH AND DEVELOPMENT – Section 3</b><br><b>Robert Morris, Session Chair</b>   |
| 15:10 – 15:35        | <b>Unraveling the Detailed Composition of Oxidized Jet Fuels: An Original Detailed Mechanism of Toluene Autoxidation</b><br>- <i>Arij Ben Amara, Detlev Conrad Mielczarek, Mikael Matrat, and Laurie Starck</i>              |
| 15:35 – 16:00        | <b>Wall Roughness Effects on Deposition of Thermally Stressed Aviation Fuel</b><br>- <i>Phil Gadsby and Simon G. Blakey</i>  |
| 16:00 – 16:25        | <b>Gaining a Fundamental Understanding of Fuel Performance Through Advanced Chemical Composition Measurements</b><br>- <i>Robert E. Synovec, Chris E. Freye, and Matthew C. Billingsley</i>                                  |
| <b>16:25 – 16:55</b> | <b>PLENARY SESSION: Matt Fielder</b><br><b>IASH Chairman</b>   |
| <b>19:00–21:00</b>   | <b>CLOSING RECEPTION ON RESTAURANT TERRACE</b><br><b>Sponsored by Air BP</b>   |

**SALA VISCONTI**  
**TECHNICAL POSTER SESSION & EXHIBITOR RECEPTION**  
**MONDAY EVENING, 11 SEPTEMBER 2017**  
**18.30 – 20.00**

**Steven Zabarnick, Session Chair**

- 1. AC2T Research GmbH (GERMANY) – Marcella Frauscher**  
Identification and Quantification of Oxidation Products of Fuel Components Analyzed by Mass Spectrometry
- 2. Air Force Institute of Technology (POLAND) – Jaroslaw Sarnecki**  
Laboratory Test Rig with Miniature Turbojet Engine as a Tool for Tests of Alternative Aviation Fuels
- 3. BASF (GERMANY) - Mark Parsons**  
Thermal Stability Additive (BASF - Rewriting)
- 4. Chimec S.p.A. (ITALY) – Milena Mantarro**  
Scale Down of Dewaxing Process
- 5. Chimec S.p.A. (ITALY) – Milena Mantarro**  
Investigation of the Compatibility Between HFO and LSFO in Maritime Industry and the Effect of Stabilizing Additives Using Fuel Stability Analyzer (ASTM D7157)
- 6. Chimec S.p.A. (ITALY) - Silvia Bozzi**  
Microbiological Contamination of Fuel -Treatment Management from Storage Tanks to Waste Water System and on Filling Station
- 7. Chimec S.p.A. (ITALY) – Silvia Bozzi**  
Issues with New Raw Materials as Feedstocks in Biofuel
- 8. Conidia Bioscience Ltd. (UK) – Joan Kelley**  
Microbial Contamination in Road Vehicle Diesel – A Survey of Gas Station Underground Tanks in Two U.S. States.
- 9. D-2 Inc. (USA) - Alan Fougere**  
Comparison of ASTM Method D8073-16 (Small Scale Water Separation Method) With Real Filter Coalescing Performance by Single Element Test Stand Water Mapping
- 10. Defence Science and Technology Group (AUSTRALIA) – Paul Rawson**  
Identification of Oxidized Compounds in Aviation Fuels Using Nafion Fibre Solid Phase Microextraction



- 11. Defence Science and Technology Group (AUSTRALIA) – David Evans**  
Determination of Ignition Delay and Lean Blowout Limits of Narrow Distillation Profile Alternative Fuels Using a Small Glass Turbine
- 12. ExxonMobil Research & Engineering (USA) – David Abdallah**  
Single JFTOT Tests for Understanding the Breakpoint of a Fuel
- 13. IFP Energies Nouvelles (FRANCE) - Laurie Starck**  
Modeling Tools to Predict Properties of Jet Fuels (Conventional and Alternative)
- 14. Israel Air Force (ISRAEL) – Moshe Rabaev**  
Preparation, Stability and Properties of Water-Emulsified Jet Fuel at Low Surfactant Content
- 15. National Technical University of Athens (GREECE) – Chrysovalanti Tsesmeli**  
A Study on the Stability of Marine Distillate Fuel in the Presence of FAME and HVO
- 16. Southwest Research Institute (USA) – Gary Bessee**  
Update on EI 1535 Water Mapping Test Method
- 17. Stanhope-Seta (UK) - Paul Spitteler**  
Phenol in Aviation Fuel Monitoring on IP 583/ASTM D7797 Equipment
- 18. University of Dayton Research Institute (USA) - Marlin Vangsness**  
Microbial Contamination Test Methods in Bulk Fuel Storage
- 19. US Air Force Research Laboratory (USA) – Edwin Corporan**  
Fuel Composition-to-Performance Studies at the United States Air Force Research Laboratory's Fuels and Energy Branch
- 20. U.S. Air Force Research Laboratory (USA) – Matt Billingsley**  
Combustion Testing of Candidate Rocket Fuels: Overcoming Specification Challenges Through Subscale Evaluation
- 21. U.S. Naval Research Laboratory (USA) - Kristina Myers**  
Assessment of the Role of Copper Contamination on Diesel Fuel Storage Stability
- 22. VUV Analytics (USA) – Dan Wispinski**  
Introducing ASTM Method D8071 for PIONA Compound Analysis by GC-VUV

## EXHIBITORS

### **AD Systems**

- Presented by Didier Pigeon

### **Air BP**

- Presented by Steve Anderson and Alisdair Clark

### **CHIMEC S.p.A.**

- Presented by Silvia Bozzi, Matteo Bascelli, and Stefano Cacciatori

### **ECHA Microbiology Ltd.**

- Presented by Graham Hill, Mike Haywood and Gareth Williams

### **FALEX Corporation**

- Presented by Michael Croudace

### **Parker Hannifin**

- Presented by Matt Fielder and Shaun Skilton

### **Southwest Research Institute**

- Presented by Gary Bessee, Steve Westbrook & George Wilson

### **Stanhope-Seta**

- Presented by Martin Verity and Paul Spitteler

### **University of Dayton Research Institute**

- Presented by Steve Zabarnick & Matt DeWitt