TABLE OF CONTENTS

1  Keynote Address: No Carbon Left Behind: Alcohol to Jet
   Manfred Aigner

12 Chevron Award of Excellence in Honor of John D. Bacha
Comparison of Probabilistic Jet Fuel Property Models for the Fuel Screening and Design
   Clemens Hall

SESSION 1: SUSTAINABLE AVIATION FUELS IMPLEMENTATION
   Joanna Bauldreay, Session Chair

70 100% Drop in SAF from Various D7566 Pathways: A Fit for Purpose Properties
   Evaluation
   Dave Evans

71 The Role of Synthetic Fuels in a Sustainable Energy System
   Achim Schaadt

SESSION 2: PROCESSING TECHNOLOGY DEVELOPMENT FOR
   SUSTAINABLE AVIATION FUELS
   Dan Baniszewski, Session Chair

72 A New Manufacturing Process for the Production of Sustainable Aviation Fuel From
   Renewable Feedstocks
   Dan Kadlec

73 Co-Hydroprocessing – A Route to Sustainable Aviation Fuel
   Alisdair Clark

94 Co-Processing of Hydroprocessed Fatty Acids/Esters
   Daniel Kadlec
SESSION 3: IMPROVED FUEL QUALITY CONTROL
Mickael Clarinard, Session Chair

95 New Methods for Analysis of Qualities of Fuels and Novel Fuel Components
*Marcella Frauscher*

101 Additive Trail-Back Effects in Multi-Product Pipelines Handling Large Volumes
*Hajar Essa*

112 Recent Developments and Validation of a More Accurate Tool for Fuel Clarity by D8148 Spectroscopic Method for Haze in Fuels
*Ranzy Morgan*

113 Graphene Oxide-Based Microbial Fuel Filter: From Laboratory Breakthrough to Field Demonstration
*Oscar Ruiz*

114 Organic Solvent Nanofiltration – A Sustainable Separation Method to Enhance Fuel Quality and Performance
*Marie-Sophie Haverkamp*

123 Development of a Monitoring System for Direct Analysis of Microbial Contaminants in Fuel
*Jiri Snaidr*

SESSION 4: GROUND FUELS - GASOLINE, DIESEL, BIODIESEL AND GAS OIL
Gareth Williams, Session Chair

124 FAME – Quality, Application and Challenges
*Katharina Friedrich*

130 Monitoring Biodiesel Blends in Heating Applications - Effect of Exposure Conditions
*Thomas Butcher*
<table>
<thead>
<tr>
<th>Page</th>
<th>Title</th>
<th>Author(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>146</td>
<td>An Optioneering Exercise Into the Potential for Using Alternative, More Environmentally Favourable Fuels Than Class A2 or Class D Gas Oil</td>
<td>Carl Atkinson</td>
</tr>
<tr>
<td>147</td>
<td>Evaluation of Cold Flow Response of Ultra Low Sulfur Diesel (ULSD) in Combination with Renewable Diesel and Biodiesel</td>
<td>Suzanne Golisz</td>
</tr>
<tr>
<td>148</td>
<td>The Impact of Changes to UK Legislation Affecting the Eligibility of Commercial Consumer’s Use of Duty Exempt Diesel for Essential or Emergency Plant Systems</td>
<td>Carl Atkinson</td>
</tr>
<tr>
<td>149</td>
<td>The Versatility of the GC-VUV Analyzer</td>
<td>Dan Wispinski</td>
</tr>
</tbody>
</table>

**SESSION 5: FUEL TESTING AND TEST METHODS**  
Marcella Frauscher and Mark Romanczyk, Session Co-Chairs

<table>
<thead>
<tr>
<th>Page</th>
<th>Title</th>
<th>Author(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>150</td>
<td>Application of GCxGC-VUV for the Analysis of Synthetic Fuels</td>
<td>Max Jennerwein</td>
</tr>
<tr>
<td>151</td>
<td>Synthetic Aviation Jet Fuels, Relative Permittivity &amp; Aircraft Gauging Systems</td>
<td>Ian Mylrea</td>
</tr>
<tr>
<td>152</td>
<td>Using a Field Portable LC for Detecting CI/LI and MDA in Fuel</td>
<td>Thomas Loegel</td>
</tr>
<tr>
<td>153</td>
<td>Determination of Hydroperoxides in Liquid Fuels: A Systematic Comparison of Titrations and Absorption Methods and Their Innovative Coupling to HPLC</td>
<td>Ryma Benrabah</td>
</tr>
<tr>
<td>168</td>
<td>Using High Magnification Optics and Shape Recognition Capabilities of Dynamic Imaging to Achieve a More Accurate Analysis of Fuels</td>
<td>Colin Dalton</td>
</tr>
</tbody>
</table>
169  The Fast Peroxide Analyzer  
  Larissa Ram

170  GCXGC for Hydrocarbon Type Analysis of Aviation Fuels and Comparison of Different Modes of Operation  
  Richard Striebich

171  Chemical Characterization of Heteroatom-containing Compounds in Transportation Fuels by using Electrospray Ionization Coupled to a High Resolution Orbitrap Mass Spectrometer  
  Mark Romanczyk

200  The Impact of Non-Ferrous Corrosion Inhibitors on Reactive Sulfur Species and the Doctor Test  
  Matthew Barnes

SESSION 6: MICROBIAL AND CONTAMINATION / MONITORING  
Oscar Ruiz, Session Chair

215  Genomic Profiles of Microbial Populations in Diesel Fuel Microcosms  
  Frederick Passman

230  Investigating the Effect of the Concentration of Seawater on the Activity of Sulphate Reducing Bacteria in Water Compensated Fuel Tanks  
  Graham Hill

231  Establishing an Electrochemical Biosensor for Rapid Detection of Filamentous Fungi and Yeasts in Fuel-Containing Environments  
  Osman Radwan

232  Investigation of Hydrogen Sulphide Generation in an Underground Salt Cavern Used for Butane Storage  
  Gareth Williams
SESSION 7: IMPACT OF IMO 2020 ON MARINE FUELS
Dave Evans, Session Chair

233  A Holistic Approach to Managing Bunker Fuel Quality
     Joseph Stark

244  Catalyst Fines Removal from Slurry Oil-A Novel Approach
     Matthew Barnes

245  Investigation of Water Distribution and Microbiological Growth in Marine Fuel Oil
     blended with Fatty Acid Methyl Ester
     Leon O’Malley

SESSION 8: FUEL CHEMISTRY RESEARCH
PART I: FUEL PROPERTY PREDICTION AND MEASUREMENT
Krege Christison, Session Chair

246  Reinforcement Learning for the Identification of Isomers with a Strong Sooting Tendency
     Florian Pütz

263  Analysis of Trace Compounds in Middle Distallate Fuels via Solid Phase Extraction and
     Two-Dimensional Gas Chromatography
     Paul Wrzesinski

264  Impact of Isomer Specific Identification on Fuel Property Predictions
     David Bell

265  Probabilistic Sequential Neural Networks for the Modelling of Jet Fuel Compound
     Properties
     Clemens Hall

299  Anomaly Detection via Chromatography and One-Class Support Vector Machines
     Jeffrey Cramer
PANEL DISCUSSION: RELEVANT ISSUES RELATED TO AVIATION FUEL QUALITY ASSURANCE THROUGHOUT THE SUPPLY CHAIN AND END-USE

Moderator: Alisdair Clark
Panelists: Joanna Bauldrey, Moshe Rabaev, Patrick Bosmans

SESSION 9: FUEL CHEMISTRY RESEARCH
PART II: THERMAL-OXIDATIVE STABILITY R&D
Steve Zabarnick and Simon Blakey, Session Co-Chairs

Density Functional Study of the Deposition and Adsorption of Fuel Species on Stainless Steel
Charlie Adams

Comparison of Selectivity/Reactivity of Zeolite Coated Monoliths on Improvement of Aviation Fuel Thermal Stability
Ehsan Alborzi

Highlighting the "Structure-Reactivity" Relationship for the Autoxidation Reaction of Hydrocarbons
Soraya Aminane

Why Deposits Look Abnormal
David Abdallah

Fundamental Study of Jet Fuel Oxidative Deposit Formation
Krege Christison

An Interactive, Interdisciplinary and Collaborative Digital Platform for the Assessment and Optimization of Jet Fuels
Bastian Rauch and Uwe Bauder

New Tools for Understanding Fuel Autoxidation and Deposition
Steven Zabarnick
SESSION 10: AVIATION FUEL AND AVGAS APPLICATIONS
JP Belieres, Session Chair

Aviation Fuels: Problems and Solution - Aircraft Failure Analysis Induced by the Fuel or Fuel System
Moshe Rabaev

SESSION 11: POSTER SESSION
Mickaël Sicard, Session Chair

An interactive, interdisciplinary and collaborative digital platform for the assessment and optimization of jet fuels
Uwe Bauder

The Use of ULSD And Renewable Diesel Blends as An Emergency Fuel for Aviation
David Evans

AFRL Research Activities on Fuel Effects On Combustion Performance and Emissions
Ed Corporan

Fuel Quality Impact on Vintage Aircraft
David Evans

Prediction of Water Solubility in Petroleum and Synthetic Jet Fuels with COSMO-RS
Jinxia Fu

Static Dissipative Additive Performance and Storage stability in Biodiesel Blended Diesel
Matthew Barnes

Development of a Shipboard Test Kit for Dissolved Copper in Jet Fuel Prototype Field Test Kit
Kristina Myers
Handling, Maintenance and Safety use of aviation fuel-Informative Bulletins
Moshe Rabaev

Investigations into automatic generation of a mechanism for autoxidation of n-decane using
Reaction Mechanism Generator (RMG)
Ehsan Alborzi

Fossil and alternative fuel deposit formations under representative operating conditions
Mickael Sicard

Experimental study of the impact of bioalcohols structure on the oxidation stability of a
surrogate jet-fuel
Ryma Benrabah

Hydrocarbon Multidimensional Gas Chromatograph Template Optimization Study
John Feldhausen

Predicting the insoluble formation tendencies of fuel heteroatoms and aromatics with
computational techniques
Charlie Adams

The effect of spacing fuel bleeding regimes on aircraft tanks microbial contamination
levels.
Moshe Rabaev

Aviation Fuels Problems and Solution - Chapter 14 - Research Test Methods for
Contaminants in Aviation Fuels
Moshe Rabaev

Gaining a Deeper Understanding of Fuel Chemical Composition in the Context of Polar
Compound Extraction Processes.
Grant Ochoa

Investigation of Susceptibility of Synthetic Aviation Fuels to Microbiological Growth
Graham Hill