

7<sup>th</sup> International Conference  
“Fuel Science -  
From Production to Propulsion”

# Program



Eurogress / Monheimsallee 48, 52062 Aachen  
May 13<sup>th</sup> to 15<sup>th</sup>, 2019

 08:00 Registration

## Brüsselsaal: **Keynote Session I**

08:30 Welcome and Introduction Prof. Stefan Pischinger | RWTH Aachen University

08:45 Options for the Defossilization of the Road Transport Sector in Germany. Comparison of 100 % Scenarios Based on Results of the FW Fuels Study 2018. Dr.-Ing. Ulrich Kramer | FORD-Werke GmbH

 09:30 Coffee Break

## Brüsselsaal: **System Perspective & Sustainable Cross-sectorial Value Chains I**

10:00 The Role of Electrofuels for Transport in a Future Carbon-constrained World: Results from a Global Cost-minimizing Energy Systems Model Maria Grahn | Chalmers University of Technology

10:30 The Impact of Electricity-based Fuel Production on the European Power System Maximilian Borning | RWTH Aachen University

11:00 Improving the Environmental Impact of Bio-based Products from a Life-cycle Perspective Yvonne van der Meer | Maastricht University

11:30 Techno-economic Assessment of Methanol-based Electrofuels Ralf Peters | Forschungszentrum Jülich GmbH

 12:00 Lunch Break

## Brüsselsaal: **System Perspective & Sustainable Cross-sectorial Value Chains II**

13:00 The Future Biofuel Market in Germany Under RED II – Using a Deterministic, Bottom-up Foresight Optimization Model Kathleen Meisel | Deutsches Biomasseforschungszentrum (DBFZ)

13:30 The Cost of Carbon in Bio- and E-fuels Caroline Marks | RWTH Aachen University

14:00 Integrated Design of Processes and Products for Biofuels with Minimal Cost and GWI Andrea König | RWTH Aachen University

14:30 Advanced Biofuels for Diesel Engines – Production Pathway Assessment and Process Integration Opportunities Stefan Heyne | CIT Industriell Energi AB

 15:00 Coffee Break

## Brüsselsaal: **Social Sciences for a Sustainable Mobility**

15:15 Promising Option or Non-Seller? Simulating the Consumer Acceptance of Alternative Fuels Anika Linzenich & Dominik Bongartz | RWTH Aachen University

15:45 The Challenge of Integrating Social Acceptance in Alternative Fuel Development: A Research Framework and Agenda for a Sustainable Mobility Katrin Arning | RWTH Aachen University

## Brüsselsaal: **Keynote Session II**

16:15 Decarbonisation and Its Discontents: A Critical Justice Perspective on Four Low-carbon Transitions Prof. Dr. Benjamin K. Sovacool | Aarhus University, University of Sussex

 17:00 Coffee Break

## Brüsselsaal / Foyer: **Poster Session**

17:10 Poster Teaser

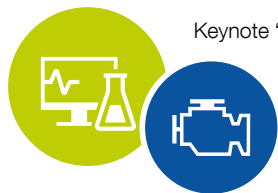
 18:00   Poster Party - Snacks and Drinks at the Eurogress

Registration

08:00



Brüsselsaal: **Co-Optima Session**



Keynote "Fuel/engine Interactions | Insights from the U.S. DOE Co-Optima Initiative Dr. Robert Wagner | Oak Ridge National Laboratory 08:30

What Do Engines Want Jim Szybist | Oak Ridge National Laboratory 09:15

What Fuel Options Work Best Bob McCormick | The National Renewable Energy Laboratory 09:45

What Will Work in the Real World - Compatibility Jennifer Dunn | Argonne National Laboratory 10:15

Coffee Break

10:45



Brüsselsaal: **Fuel Synthesis I**

K2: **Fuel Combustion I**

Electrochemical Real-time Mass Spectrometry (EC-RTMS) – Monitoring Electrochemical Reaction Products in Real Time Karl Mayrhofer | Forschungszentrum Jülich GmbH

Microbial Production of Methyl Ketones as Diesel Blends Salome C. Nies | RWTH Aachen University

Aromatisation of Bio-derivable Isobutyraldehyde over Zeolite Catalysts Jeff Deischer | RWTH Aachen University

Electrochemical pH-shift in Reactive Extraction: Separation of Dicarboxylic Acids in Biorefineries Moritz Doeker & Alexander Echtermeyer | RWTH Aachen University

Direct Measurement of High-Temperature Rate Constants of the Thermal Decomposition of Selected Ethers Sebastian Peukert | University of Duisburg-Essen 11:00

Experimental and Theoretical Investigations on Ethyl Valerate – A Bio-hybrid Fuel Philipp Morsch | RWTH Aachen University 11:30

High-pressure Shock-tube Study of the Ignition and Product Formation of Fuel-rich Dimethoxymethane and Methane/Dimethoxymethane/Air Mixtures Jürgen Herzler | University of Duisburg-Essen 12:00

Investigation of the Ignition and Flame Speed Properties of Ammonia/Hydrogen Mixtures Bo Shu | Physikalisch-Technische Bundesanstalt Braunschweig 12:30

Lunch Break

13:00



Brüsselsaal: **Fuel Synthesis II**

K2: **Fuel Combustion II**

Performance and Durability Study of Cathode Supported LSCF Cells During High Temperature Co-electrolysis Trutz Theuer | Forschungszentrum Jülich GmbH, RWTH Aachen University

The Electrolyte Matters: Stable Systems for High Rate Electrochemical CO<sub>2</sub> Reduction Robert Sengpiel | RWTH Aachen University

Development of an *in operando* NMR Setup for CO<sub>2</sub> Electrolysis at Silver Electrodes Sven Jovanovic | Forschungszentrum Jülich GmbH, RWTH Aachen University

Metal Nanoparticles in Supported Ionic Liquid Phases as Catalysts for Selective Hydro(deoxy)genation Reactions Alexis Bordet | Max Planck Institute for Chemical Energy Conversion

Performance and Emissions of Fuel Blends of Long-chain Alcohols, HVO and RME in a Light Duty CI Engine Josefine Preuss | Chalmers University of Technology 14:00

High-speed Tomographic PIV Analysis of the In-Cylinder Flow in a DISI Engine Marco Braun | RWTH Aachen University 14:30

Sorption and Reaction of Biomass Derived Blends and Its Constituents on Commercial Pt-Pd/Al<sub>2</sub>O<sub>3</sub> Oxidation Catalyst Bernd Wolkenar | RWTH Aachen University 15:00

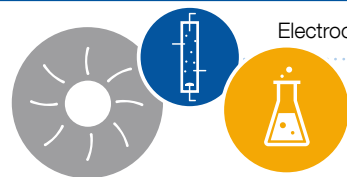
LIF Temperature Imaging of n-dodecane Micro-droplets Leif Schumacher | RWTH Aachen University 15:30

Coffee Break

16:00



Brüsselsaal: **Keynote Session III**



Electrocatalytic Conversion of Carbon Dioxide: Catalysts and Mechanisms Prof. Dr. Marc Koper | Leiden University 16:15

Conference Dinner at INNSIDE by Meliá Aachen

18:30



# WEDNESDAY, 15.05.2019 POSTER



08:00

Registration

## Brüsselsaal: **Keynote Session IV**

08:30 Towards a More Sustainable Industry Using Process Systems Engineering Dr. Gonzalo Guillén Gosálbez | Imperial College London

## Brüsselsaal: **TMFB Final Report**

09:15 10 Years of Excellence: Tailor-Made Fuels from Biomass Prof. Stefan Pischinger | RWTH Aachen University



10:00

Coffee Break

## Brüsselsaal: **FSC Report**

10:15 FSC Introduction Prof. Walter Leitner | RWTH Aachen University

10:30 CA 1: Molecular Transformations and Interactions Prof. Regina Palkovits & Prof. Heinz Pitsch | RWTH Aachen University

11:00 CA 2: Interfacial Phenomena and Devices Prof. Heinz Pitsch & Prof. Matthias Wessling | RWTH Aachen University

11:30 CA 3: Fuel Design and Sustainable Cross-sectorial Value Chains Prof. André Bardow & Prof. Martina Ziefle | RWTH Aachen University

12:00 Closing Remarks & Poster Prize Prof. Stefan Pischinger & Dipl.-Ing. Bastian Lehrheuer | RWTH Aachen University



12:15

Lunch Break

13:15 **K2: Meeting of the FSC International Advisory Board**

## Fuel Combustion

ElectroFuels and ElectroChemicals: Sustainable Conversion of Glycerol and Combustion of 2-Propanol M. Guschakowski

High-Pressure Capillary Viscometer with Variable Shear-Rate F. Fischer

Fuel-adapted Manipulation of Nozzle-internal and External Breakup Mechanisms for Molecularly-controlled Mixture Formation V. Kirsch

From Thin Films and Small Droplets to Sprays and Mixture Formation: An Experimental Approach for Engine Relevant Conditions L. Schumacher

Revision and detailed kinetic modeling of ketene oxidation H. Minwegen

Modeling the impact of alternative fuel properties on light-duty engine performance Y. Kroyan

## Social Sciences for a Sustainable Mobility

The Role of Land Use for the Social Acceptance of Alternative Fuels: Comparative Evaluation of Synthetic and Biobased Alternative Fuels B. Zaunbrecher

Ecotoxicology for Sustainable Biofuels - The Integration of Toxicity Tests in the Fuel-design Process S. Heger

Know Your Way Around. Finding Approaches to Help Navigate (Meta-) Information in Large-scale Research Organizations L. Platte

## Fuel Synthesis

Conceptual Process Design: Production of Hydrotreated Vegetable Oil as an Additive for Diesel J. Lütthje

Computer-Aided Design of Solvents and Processes using COSMO-RS for Integrated Carbon Capture and Utilization L. Fleitmann

Oxymethylene Dimethyl Ethers as E-Fuels - Analysis of Production Pathways J. Burre

Model-based Design of Biofuel/Gasoline Blends by Simultaneous Product- and Reaction Pathway Optimization A. König

Microbial Synthesis of Precursor Molecules for Fuel Production T. Tiso

Inline Monitoring of Acid Dissociation by Indirect Hard Modeling A. Echtermeyer

Enhance Itaconic Acid Production in *Ustilago Maydis* with Metabolic Engineering I. Bator

## System Perspective & Sustainable Cross-sectorial Value Chains

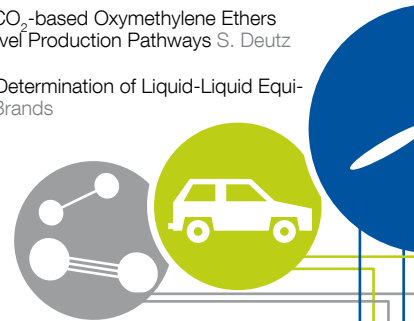
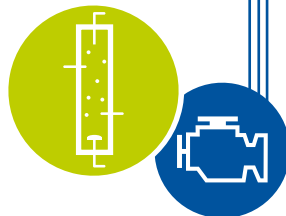
Advances in the Field of Optimal Experimental Design for Guaranteed Parameter Estimation D. Jungen

Optimal Design of Value Chains for Bio-hybrid Fuels L. Doré

Recovery of Precious Process Chemicals: At All Costs? A. Weber

Wind-to-Wheel Life Cycle Assessment of CO<sub>2</sub>-based Oxymethylene Ethers (OMEX) as Diesel Fuel: The Potential of Novel Production Pathways S. Deutz

A Microfluidic Platform for the Automated Determination of Liquid-Liquid Equilibria Using Raman Microspectroscopy T. Brands





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## Contact

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