



12th Workshop on Fats and Oils as Renewable Feedstock for the Chemical Industry

Dortmund, Germany, June 03 – 05, 2024
Hotel Dorint An den Westfalenhallen, Room Picasso 1-3

Monday, June 03, 2024

Registration

Registration will be open from 15:00 - 19:00

- 15.45 **Welcome and Opening**
- Thomas Seidensticker, *abiosus* e.V. and TU Dortmund
Markus Dierker, President of German Society of Fat Research (DGF)
- 16.00 – 17.30 *First Session*
- Chair: Thomas Seidensticker*
- 16.00 – 16.30 **Conversion of Fatty Acids Using Alpha-Dioxygenases and Engineered Lipoxygenases to Valuable Compounds (M)**
L1 Uwe Bornscheuer, University of Greifswald, Greifswald, Germany
- 16.30 – 17.00 **Provision of Medium-Chain Fatty Acids (C12 - C18) from Local Circular Economy with Insect Biotechnology (M)**
L2 Heinrich Katz, Hermetia Baruth GmbH, Baruth, Germany
- 17.00 – 17.30 **Polyfunctional Renewable Monomers and (their Multicomponent Reaction Derived) Thermosets (M)**
L3 Michael A. R. Meier, KIT, Karlsruhe, Germany
- 17.30 – 17.45 **Introduction to Poster Session**
Thomas Seidensticker, TU Dortmund University, Dortmund, Germany
- 18.30 – 21.00 **Opening Mixer and Poster Session**

Posters will be displayed until the end of the workshop

(M) Main Lecture 30 min. including discussion
(D) Discussion Lecture 20 min including discussion



Tuesday, June 04, 2024

9.00 – 10.30

First morning session

Chair: Sébastien Tilloy

9.00 – 9.30

VerBioChem – Ethenolysis as a New Tool for the Chemical Industry (D)

L4

Andreas Kohl, Verbio, Leipzig, Germany

9.30 – 10.00

Biobased Chemically Recyclable Aliphatic Polyesters Prepared by Metathesis Polymerization (M)

L5

Kotohiro Nomura, Tokyo Metropolitan University, Hachioji, Tokyo, Japan

10.00– 10.20

Towards Practical Applications: Ethenolysis of Technical Methyl Oleate and FAME with Ruthenium Catalysts at Part-Per-Million Level (D)

L6

Karol Grela, University of Warsaw, Warsaw, Poland

10.20 – 10.40

For a World That's Bright, Use the Biodiesel Right, Don't Ignite – A Renewable Platform Chemical Enabled by Partial Hydrogenation (M)

L7

Thomas Roth, Alexander Kühl, M. L. Spiekermann, H. W. Wegener, Dieter Vogt, Thomas Seidensticker, TU Dortmund University, Dortmund, Germany

10.40 – 11.10

Coffee break

11.10 – 12.50

Second morning session

Chair: Uwe Bornscheuer

11.10– 11.40

Quo vadis Photodecarboxylase? (M)

L8

Frank Hollmann, Delft University of Technology, Delft, The Netherlands

11.40 – 12.10

Nylon-12 from Safflower Oil? A Biocatalytic Concept Study (M)

L9

Anna Coenen, Valentin Gala Marti, Ulrich Schörken, TH Köln, Leverkusen, Germany

12.10 – 12.30

Feedstock- and Product Diversification Technologies for Yeast Oil Production en-route to Commercialization (D)

L10

Jan Lorenzen, Thomas Brück, Technical University of Munich, Garching, Germany



- 12.30 – 12.50 **Oleic Acid-Based Biodegradable Lubricants: Synthesis via Hydroformylation and Enzymatic Oligomerization & Rheological properties (D)**
L11 Luisa Koch,¹ Alina Guntermann,¹ Katharina Hirschbichler,² Carmen Plass,¹ Tobias Betke,¹ Ling Ma,² Thomas Kiltbau,² Harald Gröger,¹
¹ Bielefeld University, Bielefeld, Germany;
² Klüber Lubrication München GmbH & Co. KG, München, Germany
- 12.50 – 14.00 *Lunch break*
Restaurant Davidis
- 14.00 – 15.30 *First afternoon session*
Chair: Andreas Kohl
- 14.00 – 14.30 **Exploring Bio-based Chemical Markets: Focus on Production and Feedstock Use in the EU (M)**
L12 Viktorya Sturm, Thünen-Institute of Market Analysis, Braunschweig, Germany
- 14.30 – 14.50 **Sustainability Without Performance Compromise: Novel surfactants solutions (D)**
L13 Poorva Ramadas, Clariant Produkte (Deutschland) GmbH, Burgkirchen, Germany
- 14.50 – 15.10 **Synthesis, Characterization, and Evaluation of Antibacterial Properties and Anion Removal Properties of Cationic Derivatives of Waste Cooking Oils (WCOs) (D)**
L14 Gökhan Çayli, Istanbul University-Cerrahpasa, Istanbul, Turkey
- 15.10 – 15.30 **Influence of Branching on the Physicochemical Properties of Saturated Fatty Acid Esters Synthesized from Linear and Branched Diols (D)**
L15 Michele Emanuele Fortunato, Rosa Vitiello, Vincenzo Russo, Francesco Taddeo, Martino Di Serio, University of Naples Federico II, Napoli, Italy
- 15.30 – 16.00 *Coffee break*



16.00 – 17.40 *Second afternoon session*

Chair: Mike Meier

16.00 – 16.30 **Biobased Polycarbonates – Candidates for a Novel Class of Sustainable Engineering Plastics? (M)**

L16 Andreas Greiner, University of Bayreuth, Bayreuth, Germany

16.30 – 17.00 **Fatty Acid and Terpene Oxides as Versatile Precursors for Biobased Engineering Macromolecules (M)**

L17 Francesco Della Monica,¹ Arianna Brandolese,¹ Ilaria Grimaldi,¹ Lorenz Dittrich,¹ Carles Bo,¹ Alba Villar-Yanez,¹ Fernando Bravo,¹ Arjan W. Kleij,^{1,2}

¹ Institute of Chemical Research of Catalonia (ICIQ-Cerca),

²Barcelona Institute of Science & Technology (BIST), Tarragona, Spain

17.00 – 17.20 **Terpene-Based Hybrid Polycarbonates via Co/Terpolymerization of Biobased Epoxides and CO: Access to Cross-Linked Polycarbonates with Enhanced Thermal Stability and Functionality (D)**

L18 Thirusangumurugan Senthamarai,¹ Arjan W. Kleij,^{1,2}

¹ Institute of Chemical Research of Catalonia (ICIQ), Tarragona, Spain;

² Catalan Institute of Research and Advanced Studies (ICREA), Barcelona, Spain

17.20 – 17.40 **Vegetable Oil-Based Hyperbranched Materials – Synthesis and Derivatization Towards New Properties (D)**

L19 Guillaume Chollet,¹ Marie Reulier,¹ Etienne Grau,² Henri Cramail,² Boris Bizet,¹

¹ ITERG, CANEJAN, France ;²LCPO, Université de Bordeaux – CNRS – PESSAC, France

19.00 *Conference Dinner*
Restaurant Davidis



Wednesday, June 05, 2024

- 9.00 – 10.30 *First morning session*
- Chair: Arjan W. Kleij*
- 9.00 – 9.30 **New (Sustainable) Pathways to Integrate Sulfur Functional Groups into Renewable Based Polymers (M)**
L20 Cuong-Minh-Quoc Le, Adam Woodhouse, Yagmur Deniz Karatas, Bercis Pektas, Rayane Toutaoui, Gautier Schrodj, Hatice Mutlu, CNRS/Université de Haute Alsace, Mulhouse, France
- 9.30 – 9.50 **Optimisation of the RAFT Polymerisation of Pendant Fatty Acid Acrylamide Monomers Synthesised via the Base Catalysed Transesterification of Plant Oils (D)**
L21 Oliver Harris, Ryan Larder, Helen Willcock, Fiona Hatton, Loughborough University, Loughborough, United Kingdom
- 9.50 – 10.10 **Non-Isocyanate Polyurethanes from Terpene and Erythritol Feedstock using Organocatalysis and Thiol-Ene Reaction (D)**
L22 Clara Scheelje, Michael A. R. Meier, KIT, Karlsruhe, Germany
- 10.10 – 10.30 **Fatty Acid Valorization via Isomerizing Metathesis and Decarboxylative Ketonizations (D)**
L23 Lukas Gooßen, University of Bochum, Bochum, Germany
- 10.30 – 11.00 *Coffee Break*
- 11.00 – 12.30 *Second morning session*
- Chair: Andreas Greiner*
- 11.00 – 11.30 **Homogeneous Catalysis for the Functionalization of Oleochemicals and Their Derivatives into Value-Added Products (M)**
L24 Sébastien Tilloy, Université d'Artois, CNRS, Lens, France
- 11.30 – 12.00 **Photoexcited Nitroarenes as Ozone Surrogates (M)**
L25 Daniele Leonori, RWTH Aachen University, Aachen, Germany
- 12.00 – 12.30 **Fats and Oils - An Important Part of Transforming Chemistry to a Circular Economy (M)**
L26 Manuel Häußler, Max-Planck-Institute of Colloids and Interfaces (MPI-CI), Potsdam, Germany and Center for the Transformation of Chemistry (CTC)
- 12.30 – 12.45 **Best Poster Award and Closing Remarks**
Award committee: Asra Kocaarslan, Frank Hollmann, Ulrich Schörken
- 12.45 **End of Workshop**, followed by *Closing Lunch*





Poster

- P1 Continuous Selective FAME Hydrogenation Utilizing a Microcapillary Reactor**
Florian Lehmann, Niclas von Vietinghoff, Takenobu Nakai, Lennard Nebel, Peter Pey, Karl Steffen Wulle, Dieter Vogt, Thomas Seidensticker, Laboratory of Industrial Chemistry, Department of Biochemical and Chemical Engineering, TU Dortmund University, Dortmund, Germany
- P2 Biobased Linear/Network Aliphatic Polyesters Exhibiting Promising Tensile Properties**
Kotohiro Nomura,^{a,*} Kosaku Tao,^b Mika Kojima,^a Xiuxiu Wang,^a Lance O.P. Go,^a Daisuke Shimoyama,^a Mohamed M. Abdellatif,^a Seiji Higashi,^b and Hiroshi Hirano^{b*}, ^aTokyo Metropolitan University, Hachioji, Tokyo, Japan; ^bOsaka Research Institute of Industrial Science and Technology (ORIST), Osaka, Japan
- P3 New Cyclic(alkyl)(amino)carbene-Based Olefin Metathesis Catalysts for Green Chemical Conversion of Fatty Acids Derivatives**
Filip Struzik, Biological and Chemical Research Centre, Faculty of Chemistry, University of Warsaw, Warsaw, Poland
- P4 Conversion of Plant Oil Feedstocks via Continuous Flow Ethenolysis and Double Bond Isomerization**
Lara N. Holderied, Inigo Göttker-Schnetmann and Stefan Mecking, Department of Chemistry, Chair of Chemical Material Science, University of Konstanz, Konstanz, Germany
- P5 Synthesis of Biobased Poly(ester amide)s from Long-chain Fatty Acids and Oligopeptides**
Gaku Miyamoto, Mohamed Mehawed Abdellatif, and Kotohiro Nomura*
Department of Chemistry, Tokyo Metropolitan University, Hachioji, Tokyo, Japan
- P6 Biocatalytic Synthesis of *cis*(+)-12-Oxophytodienoic Acid and Derivatization Using Metathesis**
Maike Bittmann, Tim Lukas Guntelmann, Madita Knieper, Jana Löwe, Andrea Viehhauser, Harald Gröger, Karl-Josef Dietz, Bielefeld University, Bielefeld, Germany
- P7 Production of Polyols from Linseed Oil by Reductive Hydroformylation**
Walid Abdallah, Michel Ferreira, Hervé Bricout, Eric Monflier, Sébastien Tilloy, Univ. Artois, CNRS, Centrale Lille, Univ. Lille, Unité de Catalyse et Chimie du Solide (UCCS), Lens, France
- P8 Poly(Menthene Carbonate): Synthesis and Depolymerization Studies**
Enrico Lanaro^a and Arjan W. Kleij^{a,b}, ^a Institute of Chemical Research of Catalonia (ICIQ), the Barcelona Institute of Science & Technology (BIST), Tarragona, Spain; ^b Catalan Institute of Research and Advanced Studies (ICREA), Barcelona, Spain



- P9 **Catalyst-Free Synthesis of Bio-Derived Vitrimers Decorated with Dynamic Thioacetal Linkages**
Yagmur Deniz Karatas, Cuong-Minh-Quoc Le, Gautier Schrodj and Hatice Mutlu, Institut de Science des Matériaux de Mulhouse, CNRS/Université de Haute Alsace, Mulhouse, France
- P10 **Project SymbioLoop: How to Convert Waste Fats and Oils into Fully Circular Plastics**
Nico Friese,¹ Melissa De Rossi,¹ Patrick Rathenow,¹ Manuel Häußler^{1,2}
¹ Max-Planck-Institute of colloids and interfaces, Potsdam, Germany
² Center for the Transformation of Chemistry (CTC), Delitzsch, Germany
- P11 **Sunflower Oil-Based Thermosets *via* the Passerini Three Component Reaction**
Luis Santos Correa, Michael A. R. Meier, Institute of Biological and Chemical Systems – Functional Molecular Systems (IBCS-FMS), Karlsruhe Institute of Technology (KIT), Karlsruhe, Germany
- P12 **Diesel Fuel from Methyl Oleate by Sequential Double Bond Isomerization and Metathesis**
Mykhailo Kondratiuk, Lukas Gooßen, Ruhr-Universität Bochum, Fakultät für Chemie und Biochemie, Bochum, Germany.
- P13 **Novel Highly Efficient Catalysts for Ethenolysis**
Rafał Gawin¹, Andrzej Tracz¹, Patryk Krajczyk¹, Anna Kozakiewicz-Piekarz², Juan Pablo Martínez³, Bartosz Trzaskowski³, ¹ Apeiron Synthesis SA, Wrocław, Poland
² Faculty of Chemistry, Nicolaus Copernicus University in Toruń, Toruń, Poland,
³ Centre of New Technologies, University of Warsaw, Warszawa, Poland
- P14 **On the Degree of Unsaturation in the Pd-Catalyzed Alkoxy carbonylation of Oleochemicals – New Approaches and Insights**
Hannes Wegener, Florian Lehmann, Thomas Seidensticker, Laboratory of Industrial Chemistry, Department of Biochemical and Chemical Engineering, TU Dortmund University, Dortmund, Germany
- P15 **C12-Polymer Precursors From Local Plant Oils Through Cross Metathesis and Isomerizing Hydroformylation**
J. Hommes, D. Vogt, T. Seidensticker, Laboratory of Industrial Chemistry, Department of Biochemical and Chemical Engineering, TU Dortmund University, Dortmund, Germany
- P16 **From Fundamental Research to Start-up Founding**
Maximilian Spiekermann, Max Krause, Jens Ehlhardt, Marén Schwandt, Thilo Wattrodt, Thomas Seidensticker, Simplyfined, Laboratory of Industrial Chemistry, Department of Biochemical and Chemical Engineering, TU Dortmund University, Dortmund, Germany
- P17 **Bio-Polyols for High-Performance Composites From Local Vegetable Oils**
Johannes Stiehm, Anika Hegemann, Harald Gröger, Bielefeld University, Bielefeld, Germany



- P18 **Interreg VI A-Project 'Biotech Talent Unlocked' (31042)**
Mark Rüschen gen. Klaas, Bernd Schmietenknop, University of Applied Sciences
Emden/Leer, Emden, Germany
- P19 **Design and Development of Biodegradable Macromolecule Self-Assembly
for Agriculture Formulations**
Vinay Chauhan*, Pankaj Sharma and Isha Soni, School of Advanced Chemical
Sciences, Shoolini University, Solan, India