9th Workshop on Fats and Oils as Renewable Feedstock for the Chemical Industry
Karlsruhe, Germany, March 19 – 21, 2017

Sunday, March 19, 2017

Registration

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

15.45 Welcome and Opening
Jürgen O. Metzger, abiosus e.V.
Michael A. R. Meier, KIT

16.00 – 17.30 First Session
Chair: Michael A. R. Meier

16.00 – 16.30 Dendrorefining: sustainable chemistry with wood based products (M)
L1 Markus Antonietti, Max Planck Institute of Colloids and Interfaces, Potsdam, Germany

16.30 – 17.00 Next-generation block polymers from renewable feedstocks (M)
L2 Marc Hillmyer, University of Minnesota, Department of Chemistry, Minneapolis, MN, USA

17.00 – 17.30 Biosynthesis and accumulation of lipids in novel bacterial isolates from the desert in Saudi Arabia (M)
L3 Alexander Steinbüchel,1,2 Annika Röttig,1 Philippa Hauschild,1 Mohamad H. Madkour,2,1 Institut für Molekulare Mikrobiologie und Biotechnologie, Universität Münster, Germany, 2 Department of Environmental Science, King Abdulaziz University, Jeddah, Saudi Arabia

17.30 – 20.30 Poster Session and Opening Mixer
Posters will be displayed until the end of the workshop

(M) Main Lecture 30 min. including discussion
(D) Discussion Lecture 20 min including discussion
Monday, March 20, 2017

9.00 – 10.30  First morning session

Chair: Ivan V. Kozhevnikov

9.00 – 9.30  Catalysis for introducing, removing and swapping functional groups (M)
L4  Bill Morandi, Max-Planck-Institut für Kohlenforschung, Mülheim an der Ruhr, Germany

9.30 – 9.50  Intensifying homogeneous catalysed reactions with fatty compounds (D)
L5  Andreas J. Vorholt, Thomas Seidensticker, Arno Behr, Tom Gaide, Jens Dreimann, Institute Technische Chemie, Faculty for bio- & chemical engineering, TU Dortmund, Germany

9.50 – 10.10 One pot synthesis of hydroxylated or amino-hydroxylated triglycerides (D)
L6  Frédéric Hapiot, Théodore Vanbésien, Eric Monflier, Univ. Artois, CNRS, Centrale Lille, ENSCL, Univ. Lille, UMR 8181, Unité de Catalyse et de Chimie du Solide (UCCS), Lens, France

10.10 – 10.30  A modified Wacker Oxidation process: efficient oxo-functionalization of fatty acid derivatives for the synthesis of renewable basic chemicals and polymers (D)
L7  Marc v. Czapiewski, Michael A. R. Meier, Karlsruhe Institute of Technology (KIT), Institute of Organic Chemistry (IOC), Materialwissenschaftliches Zentrum MZE, Karlsruhe, Germany

10.30 – 11.00  Coffee break

11.00 – 12.30  Second morning session

Chair: Kurt Faber

11.00 – 11.30  In situ combination of enzymatic decarboxylation and olefin metathesis for the synthesis of bio-based diols (M)
L8  Robert Kourist, Samiro Bojarra, Álvaro Gomez-Baraibar, Ruhr-Universität Bochum, Bochum, Germany

11.30 – 11.50  First direct co-polymerization of internal unsaturated fatty acid esters with α-olefins (D)
L9  Andre Fleckhaus, Mark Rüsch gen. Klaas, University of Applied Sciences Emden-Leer, Emden, Germany
11.50 – 12.10  Linear selective isomerization / hydroformylation for \(\omega\)-functionalization of fatty acid methyl esters (D)

L10  Tom Gaide, Jonas Bianga, Arno Behr, Andreas J. Vorholt, Lehrstuhl Technische Chemie, Technische Universität Dortmund, Dortmund, Germany

12.10 – 12.30  Properties of plant oil derived polyesters and thereof catalytically obtained polyethers (D)

L11  Patrick-Kurt Dannecker\textsuperscript{1}, Ursula Biermann\textsuperscript{2}, Jürgen O. Metzger\textsuperscript{2}, Michael A. R. Meier\textsuperscript{1}, \textsuperscript{1}Karlsruhe Institute of Technology (KIT), Karlsruhe, Germany, \textsuperscript{2}abiosus e.V. and University of Oldenburg, Oldenburg, Germany

12.30 – 14.00  Lunch break

14.00 – 15.30  First afternoon session

Chair: Henri Cramail

14.00 – 14.30  Synthesis of chemicals from renewable feedstocks catalysed by heteropoly acids (M)

L12  Ivan V. Kozhevnikov, Department of Chemistry, University of Liverpool, UK

14.30 – 14.50  A new core of dendrimers from glycerol by nucleophilic addition of glycerol to acrylic compounds (D)

L13  Frédéric Nadeau, Michèle Sindt, Nicolas Oget, Laboratoire de Chimie et Physique-Approche multiéchelle des Milieux Complexes (LCP-A2MC), Université de Lorraine, Metz, France

14.50 – 15.10  Oligomerization of glycerol carbonate esters (D)

L14  Romain Valentin, Marine Bonhomme, Christopher Wallis, Zéphirin Mouloungui, Unité de Chimie Agro-Industrielle, UMR1010 INRA/INP-ENSIACET, Toulouse, France

15.10 – 15.30  Next generation sugar-based vegetable oil structuring agents: synthesis, assembly, morphological evaluation and applications (D)

L15  Malick Samateh\textsuperscript{1,2}, Sai Sateesh Sagiri\textsuperscript{1}, Daisy Pulido\textsuperscript{1}, Nannette Hernandez\textsuperscript{1}, Riliwan Sanni\textsuperscript{1}, George John\textsuperscript{*1,2}, \textsuperscript{1}Department of Chemistry & Center for Discovery and Innovation (CDI), the City College of New York, New York, \textsuperscript{2}Ph.D. Program in Chemistry, the Graduate Center of the City University of New York, New York

15.30 – 16.00  Coffee break
16.00 – 17.30  Second afternoon session

Chair: Bill Morandi

16.00 – 16.30  Oleochemical carbonates from CO$_2$ and renewables (M)
L16  Thomas Werner, Hendrik Büttner, Johannes Steinbauer, Christoph Wulf
Leibniz-Institut für Katalyse e.V., Rostock, Germany

16.30 – 16.50  Catalytic transesterification of organic carbonates with bio-based
building blocks (D)
L17  Laurent Plasseraud, Gilles Boni, Sylvie Pouchet, Institut de Chimie
Moléculaire (ICMUB), Université de Bourgogne Franche-Comté, Dijon,
France

16.50 – 17.10  Synthesis and properties of new cross-linked bio-based aliphatic
polycarbonates (D)
L18  Pierre-Luc Durand$^{1,2}$, Guillaume Chollet$^3$, Etienne Grau$^{1,2}$, Henri
Cramail$^{1,2}$, 1 Univ. Bordeaux, LCPO, Pessac, France; 2 CNRS, LCPO,
Pessac, France; 3 ITERG, Pessac, France

17.10 – 17.30  Life cycle assessment of bio-based, waterborne PU Adhesives for
fast industrial bonding processes (D)
L19  Daniel Maga$^1$, Martin Melchior$^2$, Hartmut Henneken$^3$, Andreas Taden$^4$
$^1$Fraunhofer UMSICHT, Oberhausen, Germany; $^2$Covestro Deutschland
AG, Leverkusen, Germany; $^3$Jowat SE, Detmold, Germany; $^4$Henkel AG
& Co. KGaA, Düsseldorf, Germany

19.30  Conference Dinner

Achat Plaza Karlsruhe
Tuesday, March 21, 2017

9.00 – 10.30  First morning session

Chair: Alessandro Gandini

9.00 – 9.30  Non-Isocyanate route to fatty acid-based polyurethanes: bulk and water-borne processes (M)
L20  Henri Cramail,1,2 Océane Lamarzelle1,2, Estelle Rix1,2, Etienne Grau1,2, Guillaume Chollet3, 1 Université de Bordeaux, Laboratoire de Chimie des Polymères Organiques, Pessac, France; 2 CNRS, Laboratoire de Chimie des Polymères Organiques, Pessac, France; 3 ITERG, Pessac, France

9.30 – 9.50  Latex-based pressure sensitive adhesives using conjugated linoleic acid (D)
L21  Marc A. Dubé, Stéphane Roberge, University of Ottawa, Ottawa, Canada

9.50 – 10.10  Optimization studies on viscosity and thermomechanical properties of highly methacrylated bio-based resins (D)
L22  Arvin Z. Yu, Dean C. Webster, North Dakota State University, Coatings and Polymeric Materials Department, Fargo, North Dakota, USA

10.10 – 10.30  New type biobased difunctional monomers: epoxidized acrylated derivatives of castor oil (D)
L23  Gökhan Çaylı,1 Adem Çinarlı,2 Demet Gürbüz,2; 1 Istanbul University Department of Engineering Sciences, Istanbul, Turkey; 2 Istanbul University Department of Chemistry Sciences, Istanbul, Turkey

10.30 – 11.00  Coffee Break

11.00 – 12.30 Second morning session

Chair: Christophe Detrembleur

11.00 – 11.30  Diels-Alder and cationic polymerization of monomers derived from plant oils and furans (M)
L24  Alessandro Gandini, University of Sao Paulo, Sao Paulo, Brasil

11.30 – 11.50  Unfold innovation with original lipidic hyperbranched polyesters (D)
L25  Caroline Hillairet,1 Jérôme Le Nôtre,1 Blandine Testud,2 Etienne Grau,2 Daniel Taton,2 Henri Cramail,2 Didier Pintori3; 1 SAS PIVERT, Compiegne, France; 2 Bordeaux University – CNRS, Bordeaux, France; 3 ITERG, Bordeaux, France
11.50 – 12.10  Structure property relationship of lignin inspired phenolic polyethers synthesized via ADMET (D)
L26 Andrea Hufendiek, Laetitia Vlaminck, Sophie Lingier, Filip E. Du Prez, Department of Organic and Macromolecular Chemistry, Polymer Chemistry Research Group, Ghent University, Ghent, Belgium

12.10 – 12.30  Unconventional renewable raw materials as sources for lubricants (D)
L27 Gunther Kraft, Rolf Luther, FUCHS SCHMIERSTOFFE GMBH, Mannheim, Germany

12.30 – 14.00  Lunch break

14.00 – 16.00  Afternoon session
Chair: Robert Kourist

14.00 – 14.30  Biocatalytic cascades for the synthesis of alkenes, dienes and amino acids from fatty acids (M)
L28 A. Dennig, A. Dordic, S. Gandomkar, T. Haas, M. Hall, M. Kuhn, S. Kurakin, M. Plank, E. Tassano, A. Thiessenhusen, S. Velikogne, C. Winkler, Kurt Faber, Austrian Centre of Industrial Biotechnology c/o Department of Chemistry, University of Graz, Graz, Austria; Evonik Creavis, Marl, Germany

14.30 – 15.00  Oils and CO₂, a promising combination for designing insulating foams and high performance coatings (M)
L29 Christophe Detrembleur, M. Alves, B. Grignard, S. Gennen, S. Panchireddy, R. Méreau, T. Tassaing, C. Jérôme, Center for Education and Research on Macromolecules (CERM), CESAM Research Unit, Université de Liège, Chemistry Department, Liège, Belgique; Institut des Sciences Moléculaires, UMR 5255 CNRS, Université Bordeaux, Talence, France

15.00 – 15.30  New high-value chemicals, polymers and materials from renewable resources: a contribution to the development of the biorefinery concept (M)
L30 Armando Silvestre, CICÉCO-Aveiro Institute of Materials and Department of Chemistry, University of Aveiro, Aveiro, Portugal

15.30  Poster Award and Closing Remarks

Best Poster Award
Award committee (Markus Dierker, Armando Silvestre, Alexander Steinbüchel, Thomas Werner)

15.45  End of Workshop
Posters

P1 Transesterification of wild chestnut oil
Călin Jianu, Ionel Jianu
Department of Food Technology, Faculty of Food Processing Technology, Banat’s University of Agricultural Sciences and Veterinary Medicine, Timișoara, Romania

P2 Vegetable waxes with directed hydrophilicity/hydrophobicity
Călin Jianu, Ionel Jianu
Department of Food Technology, Faculty of Food Processing Technology, Banat’s University of Agricultural Sciences and Veterinary Medicine, Timișoara, Romania

P3 Graphene Based Heterogeneous Acid Catalysts for the Production of Biodiesel from Waste Cooking Oil
Reena D Souza,1, 2 Tripti Vats,2 Amit Chattree,1 Prem Felix Siril2
1 SHIATS, Allahabad, Uttar Pradesh, India, 2 IIT Mandi, Mandi, Himachal Pradesh, India

P4 Synthesis of Furyl-Containing Bisphenol Based on Chemicals Derived from Lignocellulose and its Utilization for Preparation of Clickable (Co) Poly(arylene ether sulfone)s
Samadhan S. Nagane, Sachin S. Kuhire, Prakash P. Wadgaonkar
CSIR-National Chemical Laboratory, Pune, India

P5 SYNTHESIS OF EPOXIDIZED SOYBEAN OIL BASED POLYOLS AND EXAMINATION OF THEIR FLAME RETARDANCY
Deniz YERLEŞTİ, Tarık EREN
Yıldız Technical University, Istanbul, Turkey

P6 Synthesis of new bio-sourced polymers starting from glycerol-based divinylglycol
Léa Bonnot,1,2,3 Etienne Grau,1,2,3 Henri Cramail1,2,3
1 Univ. Bordeaux, LCPO, UMR 5629, Pessac, France, 2 CNRS, LCPO, UMR 5629, Pessac, France, 3 ENSCBP, France

P7 Fatty acid-based Vinylogous Urethane Vitrimers: Controlling the Viscoelastic Properties via Catalysis
Department of Organic and Macromolecular Chemistry, Polymer Chemistry Research Group and Laboratory, Ghent University, Ghent, Belgium

P8 Tandem hydroformylation/hydrogenation of natural oil derived substrate and catalysts recycling through crystallisation
Marc RL Furst, Thomas Seidensticker, Tom Gaide, Vedat Korkmaz, Andreas J Vorholt, TU Dortmund, Lehrstuhl für Technische Chemie, Dortmund, Germany
Photopolymerization of acrylated methyl ricinoleate
Pinar Cakir¹, Gokhan Cayli²
¹Faculty of Engineering and Architecture, Department of Biomedical Engineering, Istanbul Arel University, Istanbul, Turkey, ²Faculty of Engineering Department of Engineering Sciences, Istanbul University, Istanbul, Turkey

Facile Synthesis Of Pristine Graphene-Palladium Nanocomposites With Extraordinary Catalytic Activities Using Swollen Liquid Crystals.
Tripti Vats, Sunil Dutt, Raj Kumar, Prem Felix Siril
Indian Institute of Technology Mandi (IIT Mandi), Mandi, INDIA

New Bio-Based Polyurethane Organogelators: Synthesis and Characterization
Sachin S. Kuhire, Prakash P. Wadgaonkar
CSIR-National Chemical Laboratory, Pune, India

Synthesis of Simple Chemical Building Blocks from Algae Oil
Dennis Pingen, Nele Klinkenberg, Julia Zimmerer, Stefan Mecking,
University of Konstanz, Konstanz, Germany

Combination of different methods of liquid chromatography for the analysis of glycerol products oxidation
AMOUROUX Mathilde, a,b,c MOULOUNGUI Zéphirin, a,b,c*
a Université de Toulouse, INPT-ENSIACET, LCA (Laboratoire de Chimie Agro-Industrielle), ENSIACET, Toulouse, France, b INRA, UMR 1010CAI, Toulouse, France, c LabCom C2R-BioNut (Laboratoire Commun Chimie du Carbone Renouvelable pour la Biofertilisation et la Nutrition des Plantes), LCA & Agronutrition, Toulouse, France

Synthesis and properties of new functionalized bio-based estolides
Hélène Méheust, ¹,2 Guillaume Chollet, ³ Etienne Grau, ¹,2 Henri Cramail ¹,2*
¹Univ. Bordeaux, LCPO, UMR 5629, Pessac, France, ² CNRS, LCPO, UMR 5629, Pessac, France, ³ ITERG, Pessac, France

First Row Transition Metal Catalyzed One-Pot Oxidative Cleavage of Unsaturated Fatty Acids
Jianming Chen, Joren Dorresteijn, Marc de Liedekerke, Matthias Otte, Robertus J. M. Klein Gebbink
Organic Chemistry and Catalysis, Debye Institute for Nanomaterials Science, Utrecht University, Utrecht, the Netherlands

Polymerization of Epoxidized Soybean Oil with Carboxyl Functionalized Boron Esters
Gökhan Çaylı¹, Pınar Çakır Hatır²
¹Istanbul University Department of Engineering Sciences, Istanbul, Turkey, ²Istanbul Arel University Department of Biomedical Engineering, Istanbul, Turkey
P17 CALB as an efficient catalyst for a greener production of biosurfactants: screening of the main influent parameters and optimization
Dounia Arcens, Henri Cramail, Frédéric Peruch, Étienne Grau, Stéphane Grelier
Laboratoire de Chimie des Polymères Organiques (LCPO, UMR 5629), Pessac, France

P18 Modification of Cellulose via Ugi 5CR in CO2 switchable solvent
K.N. Onwukamike, S. Grelier, E. Grau, H. Cramail, M.A.R. Meier
a Materialwissenschaftliches Zentrum MZE, Institute of Organic Chemistry (IOC), Karlsruhe Institute of Technology (KIT) Karlsruhe, Germany; b Laboratoire Chimie Polymères Organiques, Université de Bordeaux/ Ecole Nationale supérieure de Chimie, de Biologie & de Physique, Pessac, France

P19 Chain Multiplication of Fatty Acids
Manuel Häußler, Timo Witt, Stefan Mecking
Chair of Chemical Materials Science, Department of Chemistry, University of Konstanz, Konstanz, Germany

P20 Organocatalyzed non-isocyanate polyurethane (NIPU) coatings from bio-based cyclic carbonates
Arvin Z. Yu, Raul Setien, James Docken, Dean C. Webster
North Dakota State University, Coatings and Polymeric Materials Department, Fargo, North Dakota, USA

P21 Tunable polymer films obtained from allylated lignin and plant oils via cross-metathesis
Lena Charlotte Over, Michael A. R. Meier
Laboratory of Applied Chemistry, Institute of Organic Chemistry (IOC), Karlsruhe Institute of Technology (KIT), Karlsruhe, Germany.

P22 Multi-enzyme cascades for the derivatization of bio-based molecules
Samiro Bojarra, Marius Grote, Alvaro Gomez Baraibar, Robert Kourist
Department of Biology and Biotechnology, Ruhr-University Bochum, Germany

P23 From Plant to Plastic: Synthesis of renewable polyamide-15 building block from erucic acid
D. Franciolus, F. van der Klis, R. Blaauw
Wageningen Food & Biobased Research, Wageningen, the Netherlands

P24 From unsaturated fatty acids to linear dicarboxylic acids: A direct access by isomerizing hydroxycarbonylation
Verena Goldbach, Laura Falivene, Lucia Caporaso, Luigi Cavallo, Stefan Mecking
1 University of Konstanz, Konstanz, Germany, 2 King Abdullah University of Science and Technology, Thuwal, Kingdom of Saudi Arabia, 3 University of Salerno, Fisciano, Italy
P25 Fatty acid-modified cyclodextrins as mass transfer promotors for aqueous rhodium catalyzed hydroformylation
Aurélien Cocq, Hervé Bricout, Cyril Rousseau, Sébastien Tilloy, Eric Monflier
Univ. Artois, CNRS, Centrale Lille, ENSCL, Univ. Lille, UMR 8181, Unité de Catalyse et de Chimie du Solide (UCCS), Lens, France

P26 SLE diagram for a high oleic palm oil based fatty acid mixture at low saturated content
S. Dasgupta, C. Glaser, P. Ay,
Chair of Mineral Processing, Brandenburg University of Technology, Cottbus-Senftenberg, Germany

P27 Controlled Radical Polymerization of Polymeric Linoleic Acid with Styrene and Pentadfluorostyrene
Abdulkadir Alli,1 Sema Alli,2
1 Düzce University, Department of Chemistry, Düzce, Turkey; 2 Düzce University, Department of Polymer Engineering, Düzce, Turkey

P28 Synthesis and Characterization of Graft Copolymer Based Polymeric Fatty Acid Using Free Radical Polymerization and the Ring Opening Polymerization
Abdulkadir Alli,1 Sema Alli,2
1 Düzce University, Department of Chemistry, Düzce, Turkey, 2 Düzce University, Department of Polymer Engineering, Düzce, Turkey

P29 One Pot Synthesis of Oil-Based Graft Copolymers by Using ATRP and ROP
Abdulkadir Alli,1 Sema Alli2
1 Düzce University, Department of Chemistry, Düzce, Turkey, 2 Düzce University, Department of Polymer Engineering, Düzce, Turkey

P30 One-Step Synthesis of Poly(linoleic acid)-g-Poly(N-isopropylacrylamide)-g-Poly(D,L-lactide) Graft Copolymers
Abdulkadir Alli,1 Sema Alli,2
1 Düzce University, Department of Chemistry, Düzce, Turkey, 2 Düzce University, Department of Polymer Engineering, Düzce, Turkey

P31 New Partially Bio-based Epoxy Thermosets Starting from Cashew Nut Shell Liquid: Synthesis and Thermomechanical Properties
Amol B. Ichake,1,2 Etienne Grau,1 Prakash P. Wadgaonkar,1 Henri Cramail1
1 Laboratoire de Chimie des Polymères Organiques (LCPO), ENSCBP-Bat A 16, Pessac, France; 2 Polymer Science and Engineering Division, CSIR-National Chemical Laboratory, Pune, India

P32 Eco-friendly aerobic oxidation of α-pinene catalyzed by homogeneous and heterogeneous Mn catalysts
Y. S. Raupp,1 C. Yildiz,2 W. Kleist,2 M. A. R. Meier,1,∗
1 Institute of Organic Chemistry, Karlsruhe Institute of Technology (KIT), Karlsruhe, Germany, 2 Institute for Chemical Technology and Polymer Chemistry, Karlsruhe Institute of Technology (KIT), Karlsruhe, Germany
A dual catalysis approach: Selective conversion of multiunsaturated fatty acids via hydrogenation and isomerizing alkoxy carbonylation
Sandra K. Hess, Verena Goldbach, Natalie S. Schunck, Stefan Mecking
University of Konstanz, Konstanz, Germany

Highly efficient Tsuji-Trost allylation of biobased phenols catalyzed by Pd-nanoparticles in water
Baptiste Monney,1 Audrey Llevot,1 Ansgar Sehlinger,1 Silke Behrens,2 Michael A. R. Meier1
1 Karlsruhe Institute of Technology (KIT), Institute of Organic Chemistry (IOC), Karlsruhe, Germany; 2 Institute of catalysis Research and Technology, Karlsruhe Institute of Technology (KIT), Karlsruhe, Germany

Novel bio-based copolyesters derived from ricinoleic acid
A. Celli,1 M.B. Banella,1 C. Gioia,2 P. Marchese,1 M. Vannini,1 M. Colonna,1
1 Alma Mater Studiorum, University of Bologna, Department of Civil, Chemistry, Environmental and Materials Engineering, Bologna, Italy; 2 KTH Royal Institute of Technology, School of Chemical Science and Engineering, Fibre and Polymer Technology/WWSC - Division of Biocomposites, Stockholm, Sweden

Application of specialty lipases in chemo-enzymatic processes
Henrike Brundiek, Philipp Süss, Rainer Wardenga
Enzymicals AG, Greifswald, Germany

Catalytic functionalisation of starch and amylose using plant oils: towards polymeric materials and composites
Philip B.V. Scholten,1, 2 Zafer Söyler,1 Christophe Detrembleur,2 Michael A. R. Meier1
1 Institute of Organic Chemistry, Karlsruhe Institute of Technology, Karlsruhe, Germany; 2 Center for Education and Research on Macromolecules, Université de Liège, Liège, Belgium

Sustainable functionalization of bacterial cellulose for the design of innovative bio-based nanomaterials
G.Chantereau1,2 1Department of Chemistry, University of Aveiro, Aveiro, Portugal; 2Laboratoire de Chimie des Polymères Organiques, Pessac, France

Life Integrated Process for the Enzymatic Splitting of triglycerides
Detlef Klatt,3 Matthias Kraume,4 Sandrine Lacourt,1 Rob Meier,5 Yann Raoul,1 Aelig Robin2
1 Oleon NV, Belgium; 2Biocatalysts, United Kingdom; 3STC-Engineering GmbH, Germany; 4Technical University Berlin, Germany; 5DSM, Netherlands