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, Saudia 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 ω-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[1], Ursula Biermann[2], Jürgen O. Metzger[2], Michael A. R. Meier[1], [1] Karlsruhe Institute of Technology (KIT), Karlsruhe, Germany, [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,[1,2] Sai Sateesh Sagiri,[1] Daisy Pulido,[1] Nannette Hernadez,[1] Riliwan Sanni,[1] George John*[1,2], [1]Department of Chemistry & Center for Discovery and Innovation (CDI), the City College of New York, New York, [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 Pourchet, 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 Melchiors[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 Lamarzelle[1,2], Estelle Rix[1,2], Etienne Grau[1,2], Guillaume Chollet[3], [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 Çınarlı,[2] Demet Gürbüz,[2] ; [1] Istanbul University Department of Enginering 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 Pintori[3]; [1] SAS PIVERT, Compiègne, 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,b] A. Dordic,[a,b] S. Gandomkar,[b] T. Haas,[c] M. Hall,[b] M. Kuhn,[b] S. Kurakin,[a,b] M. Plank,[b] E. Tassano,[b] A. Thiessenhusen,[c] S. Velikogne,[b] C. Winkler,[b] Kurt Faber [b], [a] Austrian Centre of Industrial Biotechnology c/o [b] Department of Chemistry, University of Graz, Graz, Austria; [c] Evonik Creavis, Marl, Germany

14.30 – 15.00 **Oils and CO_2, a promising combination for designing insulating foams and high performance coatings** (M)

L29 Christophe Detrembleur[1], M. Alves[1,2], B. Grignard[1], S. Gennen[1], S. Panchireddy, R. Méreau[2], T. Tassaing[2], C. Jérôme[1], [1] Center for Education and Research on Macromolecules (CERM), CESAM Research Unit, Université de Liège, Chemistry Department, Liège, Belgique; [2] 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 concep**t (M)

L30 Armando Silvestre**,** CICECO-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 Siril[2]
[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 OİL 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 Cramail[1,2,3]
[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**
M. A. Droesbeke, W. Denissen, J. M. Winne, F. E. Du Prez
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

P9 **Photopolymerization of acrylated methyl ricinoleate**

Pinar Cakir[1], Gokhan Cayli[2]
[1]Faculty of Engineering and Architecture, Department of Biomedical Engineering, Istanbul Arel University, Istanbul, Turkey, [2] Faculty of Engineering Department of Engineering Sciences, Istanbul University, Istanbul, Turke

P10 **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

P11 **New Bio-Based Polyurethane Organogelators: Synthesis and Characterization**

Sachin S. Kuhire, Prakash P. Wadgaonkar
CSIR-National Chemical Laboratory, Pune, India

P12 **Synthesis of Simple Chemical Building Blocks from Algae Oil**

Dennis Pingen, Nele Klinkenberg, Julia Zimmerer, Stefan Mecking,
University of Konstanz, Konstanz, Germany

P13 **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

P14 **Synthesis and properties of new functionalized bio-based estolides**

Hélène Méheust,[1,2] Guillaume Chollet,[3] Etienne Grau,[1,2] Henri Cramail[1,2*]
[1] Univ. Bordeaux, LCPO, UMR 5629, Pessac, France, [2] CNRS, LCPO, UMR 5629, Pessac, France, [3] ITERG, Pessac, France

P15 **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

P16 **Polymerization of Epoxidized Soybean Oil with Carboxyl Functionalized Boron Esters**

Gökhan Çaylı,[1] Pınar Çakır Hatır,[2]
[1] Istanbul University Department of Enginering Sciences, Istanbul, Turkey, [2] Istanbul 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, Etienne Grau, Stéphane Grelier
Laboratoire de Chimie des Polymères Organiques (LCPO, UMR 5629), Pessac, France

P18 **Modification of Cellulose via Ugi 5CR in CO_2 switchable solvent**

K.N. Onwukamike,[a,b] S. Grelier,[b] E. Grau,[b] H. Cramail,[b,*] M.A.R. Meier[a,*]
[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,[1] Laura Falivene,[2] Lucia Caporaso,[3] Luigi Cavallo,[2] Stefan Mecking[1]
[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 Pentafluorostyrene**

Abdulkadir Allı,[1*] Sema Allı,[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 Allı,[1] Sema Allı,[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 Allı,[1] Sema Allı[2]
[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 Allı,[1] Sema Allı,[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,[2] Henri Cramail[1]
[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

P33 **A dual catalysis approach: Selective conversion of multiunsaturated fatty acids via hydrogenation and isomerizing alkoxycarbonylation**

Sandra K. Hess, Verena Goldbach, Natalie S. Schunck, Stefan Mecking
University of Konstanz, Konstanz, Germany

P34 **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. Meier[1]
[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

P35 **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

P36 **Application of specialty lipases in chemo-enzymatic processes**

Henrike Brundiek, Philipp Süss, Rainer Wardenga
Enzymicals AG, Greifswald, Germany

P37 **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. Meier[1]
[1] Institute of Organic Chemistry, Karlsruhe Institute of Technology, Karlsruhe, Germany; [2] Center for Education and Research on Macromolecules, Université de Liège, Liège, Belgium

P38 **Sustainable functionalization of bacterial cellulose for the design of innovative bio-based nanomaterials**

G.Chantereau[1,2], [1]Department of Chemistry, University of Aveiro, Aveiro, Portugal; [2]Laboratoire de Chimie des Polymères Organiques, Pessac, France

P39 **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 Robin[2]
[1]Oleon NV, Belgium; [2]Biocatalysts, United Kingdom; [3]STC-Engineering GmbH, Germany; [4]Technical University Berlin, Germany; [5]DSM, Netherlands