

## CatBior 2019

### Preliminary scientific program

*23.9. 2019, Monday*

9.00- 12.20

*Registration*

12.20- 13.20

*Lunch*

**13.20-13.40**

***Opening***

**13.40- 14.40 *PL1***

**Chemical manufacturing of renewable bioproducts from diverse feedstocks**

Dionisios G. Vlachos

*University of Delaware, USA.*

**14.40-15.20 *KL1***

**E2P2L: An open innovation lab in sustainable chemistry**

Stephane Streiff

*Solvay (China) Co., Ltd, China*

**15.20-15.40. *Coffee break***

**15.40-16.00. O-1.**

**Applications of CO<sub>2</sub>/H<sub>2</sub>O system in the bio-based platform molecules conversion,**

Fei Liu, Qiaoyun Liu, Ai Qin Wang, Tao Zhang,

State Key Laboratory of Catalysis, Dalian Institute of Chemical Physics, Chinese Academy of Sciences, Dalian, China.

**16.00-16.20. O-2.**

**Catalytic lignocellulose biorefining in butanol/water: A one-pot approach toward phenolics, polyols, and cellulose,**

E. Cooreman, T. Renders, S. Van den Bosch, S.-F. Koelewijn, T. Vangeel, B. F. Sels,

KU Leuven, Heverlee, Belgium

**16.20-16.40. O-3.**

**One-pot hydrolysis-oxidation of starch to formic acid in the presence of soluble and solid heteropolyacids**

Nikolay V. Gromov<sup>1,2</sup>, Oxana P. Taran<sup>1,3,4</sup>, Tatiana B. Medvedeva<sup>1</sup>, Yulia A. Rodikova<sup>1</sup>, Elena G. Zhizhina<sup>1</sup>, Ksenia N. Sorokina<sup>1</sup>, Valentin N. Parmon<sup>1</sup>

<sup>1</sup>Boreskov Institute of Catalysis SB RAS, Novosibirsk, Russia; <sup>2</sup> Novosibirsk State Technical University, Novosibirsk, Russia; <sup>3</sup> Institute of Chemistry and Chemical Technology SB RAS, Krasnoyarsk, Russia

**16.40-17.00. O-4.**

**Are sugar alcohols or furanics the better starting point for hydrodeoxygenation to high-value chemicals?**

Marcel Schlaf<sup>1\*</sup>, Maryanne Stones<sup>1</sup>, Gabriel Hart Slater-Eddy<sup>1</sup>, Diana Quintao Lima<sup>2</sup>, Igor Tadeu da Cunha<sup>1</sup>, Megan Magee<sup>1</sup>, Elnaz Latifi<sup>1</sup>, Elise Chung<sup>1</sup>, Aidan England<sup>1</sup>.

<sup>1</sup>Dept. of Chemistry, University of Guelph; <sup>2</sup>Dept. de Química Centro Federal de Educação Tecnológica de Minas Gerais, Belo Horizonte, Brazil

**17.00-17.20. O-5.**

**Catalytic oxidative transformation of betulin to its valuable oxo-derivatives over gold supported catalysts: effect of support nature**

Päivi Mäki-Arvela<sup>1</sup>, Ekaterina Kolobova<sup>2</sup>, Anna Buachidze<sup>2</sup>, Ekaterina Pakrieva<sup>2</sup>, Sonia Carabineiro<sup>3</sup>, Alexey Pestryakov<sup>2</sup>, Dmitry Yu. Murzin<sup>1</sup>

<sup>1</sup>Johan Gadolin Process Chemistry Centre, Åbo Akademi University, Turku/Åbo, Finland;

<sup>2</sup>Research School of Chemistry & Applied Biomedical Sciences, Tomsk Polytechnic University, Tomsk, Russia; <sup>3</sup>Laboratory of Catalysis and Materials (LCM), Associate Laboratory LSRE-LCM, Department of Chemical Engineering, Faculty of Engineering, University of Porto

**17.20-17.40. O-6.**

**Catalytic upgrading of a bio-derived hydroxy fatty acid to alkanes and alcohols**

Joel B. Mensah, Matthias Fischer, Sebastian Brosch, Jens Artz, Regina Palkovits

RWTH Aachen University, Aachen, Germany.

**17.40-18.00. O-7.**

**Dehydration of aqueous glycerol to acetol on copper catalysts**

R. J. Chimentão<sup>1</sup>, P. Hirunsit<sup>2</sup>, M. Borges<sup>3</sup>, A. Urakawa<sup>3</sup>, C. Torres<sup>1</sup>, J.L.G. Fierro<sup>4</sup>, D. Ruiz<sup>1</sup>

<sup>1</sup>Universidad de Concepción, Facultad de Ciencias Químicas, Edmundo Larenas 129, Casilla 160C, Chile; <sup>2</sup>National Nanotechnology Center (NANOTEC), Thailand Science Park, Pathum Thani, 12120 Thailand; <sup>3</sup>Institute of Chemical Research of Catalonia (ICIQ), 43007 Tarragona, Spain; <sup>4</sup>Institute of Catalysis and Petrochemistry (CSIC), Cantoblanco, 28049, Madrid, Spain

**18.00-**

**Welcome reception**

*24.9. 2019, Tuesday*

**9.00-10.00. PL2**

*TBA*

Catherine Pinel

*IRCELYON, France*

*10.00- 10.20 Coffee break*

**10.20-10.40. O8**

**Hydrodeoxygenation of lignin-derived compounds mixture over Pd catalysts**

Camila Teles<sup>1,2</sup>, Priscilla de Souza<sup>2</sup>, Raimundo Rabelo-Neto<sup>2</sup>, Gary Jacobs<sup>3</sup>, Daniel Resasco<sup>4</sup>, Fábio Noronha<sup>1,2</sup>

<sup>1</sup> Military Institute of Engineering, Chemical Engineering Department, Rio de Janeiro, 22290-270, Brazil; <sup>2</sup>National Institute of Technology, Catalysis Division, Rio de Janeiro, 20081-312, Brazil; <sup>3</sup>University of Texas at San Antonio, Chemical Engineering Program, San Antonio, TX78249, USA; <sup>4</sup>The University of Oklahoma, Center for Biomass Refining, School of Chemical, Biological, and Materials Engineering, Norman-OK, USA

#### **10.40-11.00. O-9**

##### **Breaking the limit of lignin monomer production via cleavage of interunit carbon-carbon linkages**

Lin Dong<sup>1</sup>, Longfei Lin<sup>2</sup>, Xiaohui Liu<sup>1</sup>, Yong Guo<sup>1</sup>, Sihai Yang<sup>2\*</sup> and Yanqin Wang<sup>1\*</sup>

<sup>1</sup>Research Institute of Industrial Catalysis, School of Chemistry and Molecular Engineering, East China University of Science and Technology, Shanghai, 200237, China

<sup>2</sup> School of Chemistry, the University of Manchester, Manchester, M13 9PL, UK

#### **11.00-11.20. O-10.**

##### **Solvent incorporated fast pyrolysis of lignin for facile depolymerisation of lignin to monomers and low molecular weight oligomers**

Masih Rashidi<sup>1</sup>, Swathi Mukundan<sup>2</sup> and Jorge Beltramini<sup>3,4</sup>

<sup>1</sup>AIBN, The University of Queensland, Brisbane, Australia; <sup>2</sup>Department of Applied Chemistry, Cochin University of Science and Technology, Kochi, Kerala, India; <sup>3</sup>Centre for Tropical Crops and Biocommodities, Queensland University of Technology, Brisbane, Australia; <sup>4</sup>IROAST, Department of Chemistry, Faculty of Advanced Science and Technology, Kumamoto University, Kumamoto, Japan.

#### **11.20-11.40. O-11.**

##### **From technical lignins to aromatics: a study on oxidative depolymerization in batch and continuous reactor**

Antonio Hernández-Mañás<sup>1,2</sup>, S. Mangematin<sup>1</sup>, L. Vilcocq<sup>2</sup>, P. Fongarland<sup>2</sup>, L. Djakovitch<sup>1</sup>

<sup>1</sup>IRCELYON, UMR 5256, CNRS-Université de Lyon 1, F-69626 Villeurbanne Cedex, Lyon, France ; <sup>2</sup>LGPC, UMR 5285, CNRS-CPE-Université de Lyon 1, 69616 Villeurbanne Cedex, France

#### **11.40-12.00. O-12.**

##### **Catalytic valorization of lignin to monomers**

J. Pu<sup>1,2</sup>, Laurenti D.<sup>1</sup>, C. Lorentz<sup>1</sup>, I. Pitault<sup>2</sup>, M. Tayakout<sup>2</sup>, C. Geantet<sup>1</sup>

<sup>1</sup>IRCELYON, Univ. Lyon, UMR5256 Univ. Lyon1-CNRS, 69626 Villeurbanne cedex, France ; <sup>2</sup> LAGEP UMR 5007, Univ. Lyon, Univ. C. Bernard Lyon 1, CNRS, 69100, Villeurbanne, France

#### **12.00-12.20. O-13.**

##### **Effect of the heat treatment and pH on particle size of sodium lignosulfonate solutions and hydrolized lignin extracts**

Nikolay N. Tolkachev<sup>1,2</sup>, Aleksey E. Koklin<sup>2</sup>, Victor I. Bogdan<sup>1,2</sup>

<sup>1</sup>Lomonosov State University, 119992, Moscow, Russia; <sup>2</sup>Zelinsky Institute of Organic Chemistry, 119991, Moscow Russia

Lunch

**13.20-13.40. O-14.**

**Aqueous phase reforming of birch and pine hemicellulose hydrolysates**

Atte Aho<sup>1</sup>, Juha Ahola<sup>2</sup>, Kari Eränen<sup>1</sup>, Jani Kangas<sup>2</sup>, Dmitry Murzin<sup>1</sup>, Jay-Pee Õna<sup>1</sup>, Tapio Salmi<sup>1</sup>, Irina Simakova<sup>3</sup>, Juha Tanskanen<sup>2</sup>, Henrik Grénman<sup>1</sup>

<sup>1</sup>Laboratory of Industrial Chemistry and Reaction Engineering, Johan Gadolin Process Chemistry Centre, Åbo Akademi University, Turku/Åbo, Finland; <sup>2</sup>Chemical Process Engineering, University of Oulu, Oulu, Finland; <sup>3</sup>Boreskov Institute of Catalysis, Novosibirsk, Russia

**13.40-14.00. O-15.**

**Highly stable Pt/CoAl<sub>2</sub>O<sub>4</sub> catalysts for the aqueous phase reforming of glycerol**

Alberto J. Reynoso<sup>1</sup>, Jose Luis Ayastuy<sup>1</sup>, Unai Iriarte-Velasco<sup>2</sup>, Miguel Ángel Gutiérrez-Ortiz<sup>1</sup>

<sup>1</sup>Dept. of Chemical Engineering, Faculty of Science and Technology, UPV/EHU, Leioa, Spain; <sup>2</sup>Dept. of Chemical Engineering, Faculty of Pharmacy, UPV/EHU, Vitoria, Spain

**14.00-14.20. O-16.**

**Aqueous phase reforming of sugar-based biorefinery streams: from the simplicity of model compounds to the complexity of real feeds**

Giulia Zoppi<sup>1</sup>, Giuseppe Pipitone<sup>1</sup>, Alessandra Frattini<sup>2</sup>, Raffaele Pirone<sup>1</sup>, Samir Bensaid<sup>1</sup>

<sup>1</sup>Department of Applied Science and Technology, Politecnico di Torino, , 10129, Turin, Italy; <sup>2</sup>Biochemtex SpA, Grp Mossi & Ghisolfi, I-15050 Rivalta Scrivia, AL, Italy.

**14.20-14.40. O-17.**

**Modeling Fischer-Tropsch kinetics for optimized BTL plant design**

Magne Hillestad<sup>1</sup>, Anders Runnigen<sup>1</sup>, Kumar R Rout<sup>1,2</sup>, Umesh Pandey<sup>1</sup>, Koteswara R. Putta<sup>1</sup>, Ljubisa Gavrilovic<sup>1</sup>, Erik Andreas Jørgensen<sup>1</sup>, Erling Rytter<sup>1</sup>, Edd A. Blekkan<sup>1</sup>

<sup>1</sup>Norwegian University of Science and Technology, Department of Chemical Engineering, 7491, Trondheim, Norway; <sup>2</sup>SINTEF Industry, Norway

**14.40-15.20 KL2**

**ECO Oil AB: Green gasoline for combustion engine: imagine a world without fossil dependency**

J.-P. Mikkola

Umeå University, Sweden

**15.20-15.40. Coffee break**

**15.40-16.00. O-18.**

**Gas phase glycerol valorisation over ceria nanocrystals with well-defined morphologies.**

Louise Smith<sup>a</sup>, Nicholas F. Dummer<sup>a</sup>, Mark Douthwaite<sup>a</sup>, David Willock<sup>a</sup>, Stuart H. Taylor<sup>a</sup>, Graham J. Hutchings<sup>a</sup>

<sup>a</sup>Cardiff Catalysis Institute, Cardiff University, Cardiff, CF10 3AT

**16.00-16.20. O-19.**

**Selective hydrogenolysis of glycerol to 1,3-propanediol over Pt-W based catalysts**

Aiqin Wang

*State Key Laboratory of Catalysis, Dalian Institute of Chemical Physics, Chinese Academy of Sciences, Dalian 116023, China*

**16.20-16.40. O-20.**

**Direct carboxylation of crude glycerol over La<sub>2</sub>O<sub>3</sub> and impact of impurities**

N. Razali<sup>1</sup>, M. Conte<sup>2</sup>, J. McGregor<sup>3</sup>

<sup>1</sup>*School of Ocean Engineering, University Malaysia Terengganu, 21300, Kuala Terengganu, Malaysia;* <sup>2</sup>*Department of Chemistry, University of Sheffield, Brook Hill, Sheffield S3 7HF, UK;*

<sup>3</sup>*Department of Chemical and Biological Engineering, University of Sheffield, Mappin Street, Sheffield S1 3JD, UK*

**16.40-17.00. O-21.**

**Heterogeneous hydroconversion of  $\gamma$ -valerolactone over supported Co catalysts: Effect of support acidity on the reaction pathways**

Magdolna R. Mihályi<sup>1</sup>, Gyula Novodárszki<sup>1</sup>, Jenő Hancsók<sup>2</sup>, József Valyon<sup>1</sup>

<sup>1</sup>*Research Centre for Natural Sciences, Hungarian Academy of Sciences, Budapest 1117, Hungary;* <sup>2</sup>*University of Pannonia, Institute of Chemical and Process Engineering, Veszprém H-8201, Hungary*

**17.00-17.20. O-22.**

**Dehydration of glucose to 5-hydroxymethylfurfural using zirconium doped mesoporous silica as catalyst**

Sandra Mérida-Morales, Cristina García-Sancho, María José Ginés-Molina, Juan Antonio Cecilia, Ramón Moreno-Tost, Pedro Maireles-Torres

*Departamento de Química Inorgánica, Cristalografía y Mineralogía (Unidad Asociada al ICP-CSIC), Facultad de Ciencias, Universidad de Málaga, Campus de Teatinos, 29071 Málaga, Spain*

**17.20-17.40. O-23.**

**Multifunctional catalyst induced cascade reaction of simulated bio-oil to high yield jet fuel range aromatic production**

I. Yeboah<sup>1</sup>, X. Feng<sup>1</sup>, Z. Cai<sup>1</sup>, D. Spinu<sup>1</sup>, K. R. Rout<sup>1,2</sup>, D. Chen<sup>1</sup>

<sup>1</sup>*Department of Chemical Engineering, Norwegian University of Science and Technology, Trondheim, Norway;* <sup>2</sup>*SINTEF Industry, Trondheim, Norway*

*Poster session with refreshments*

**25.9. 2019, Wednesday**

**9.00-10.00. PL3**

**Catalysis in production of Benecol, forest based cholesterol-lowering food additive,**

Ville Nieminen,

*Raisio, Finland*

10.00-10.20 Coffee break

**10.20-10.40. O24**

**Reactivity of different Re and Mo species in deoxydehydration of polyols**

Christian Landin<sup>1</sup>, Regina Palkovits

*Institut für Technische und Makromolekulare Chemie (ITMC), RWTH Aachen University, Aachen, 52074, Germany*

**10.40-11.00. O-25**

**Electrocatalytic hydrogenation of lignin dimers and Derivatives: C-O Cleavage and reduction over Raney® Nickel cathodes**

Yuting Zhou, Pengchao “Linus” Hao, James E. “Ned” Jackson

*Department of Chemistry, Michigan State University; East Lansing, Michigan 48824-1322 USA*

**11.00-11.20. O-26.**

**Role of Sn promoter in Ni catalysts for the deoxygenation of stearic acid and coke deposition**

Promporn Reangchim<sup>1,2</sup>, Tinnakorn Saelee<sup>1,3</sup>, Vorranutch Itthibenchapong<sup>1</sup>, Anchalee Junkaew<sup>1</sup>, Narong Chanlek<sup>4</sup>, Apiluck Eiad-ua<sup>2</sup>, Nawe Kungwan<sup>3,5</sup>, Kajornsak Faungnawakij<sup>1</sup>

<sup>1</sup> *National Nanotechnology Center (NANOTEC), National Science and Technology Development Agency (NSTDA), 111 Thailand Science Park, Pathum Thani 12120, Thailand;* <sup>2</sup> *College of Nanotechnology, King Mongkut’s Institute of Technology Ladkrabang, Bangkok, 10520 Thailand;* <sup>3</sup> *Department of Chemistry, Faculty of Science, Chiang Mai University, Chiang Mai, 50200, Thailand;* <sup>4</sup> *Synchrotron Light Research Institute (Public Organization), 111 University Avenue, Muang District, Nakhon Ratchasima, 30000 Thailand;* <sup>5</sup> *Center of Excellence in Materials Science and Technology, Chiang Mai University, Chiang Mai 50200, Thailand*

**11.20-11.40. O-27.**

**The role of poisons during hydrodeoxygenation of renewable oils**

Prakhar Arora<sup>1</sup>, Henrik Rådberg<sup>2</sup>, Eva Lind Grennfelt<sup>2</sup>, Derek Creaser<sup>1\*</sup>, Louise Olsson<sup>1</sup>

<sup>1</sup> *Competence Centre for Catalysis, Chemical Engineering, Chalmers University of Technology, Gothenburg, Sweden;* <sup>2</sup> *Preem AB, Gothenburg, Sweden*

**11.40-12.00. O-28.**

**From triglycerides-based feedstocks to green diesel: towards hydrolysis-reforming-hydrogenation-deoxygenation in one-pot**

Camilo A. B. Crisóstomo<sup>1</sup>, Ocineria F. Oliveira<sup>2</sup>, Keven K. M. Ribeiro<sup>2</sup>, Vinicius Rossa<sup>2</sup>, Kallyu M. de Souza<sup>2</sup>, Thais S. S. Almeida<sup>2</sup>, Marina C. F. Avila<sup>2</sup>, Ricardo R. Soares<sup>1,2</sup>

<sup>1</sup> *Institute of Chemistry – Federal University of Uberlandia, Uberlandia, 38408-144, Brasil;* <sup>2</sup> *School of Chemical Engineering - Federal University of Uberlandia, Uberlandia, 38408-144, Brasil*

**12.00-12.20. O-29.**

**SiO<sub>2</sub>-supported Ni-phosphide catalysts for methyl palmitate HDO: experimental and kinetic study**

Ivan Shamanaev, Irina Deliy, Evgeny Gerasimov, Vera Pakharukova, Evgenii Kodenev, Ilya Yakovlev, Olga Lapina, Pavel Aleksandrov, Sergey Reshetnikov, Galina Bukhtiyarova

*Boreskov Institute of Catalysis, Lavrentiev Ave. 5, Novosibirsk, 630090, Russia*

*Lunch*

**13.20-13.40. O-30.**

**Synthesis of 1,4-cyclohexanedimethanol, 1,4-cyclohexane-dicarboxylic acid and 1,2-cyclohexanedicarboxylates with formaldehyde, crotonaldehyde and unsaturated ester**

Ning Li, Yancheng Hu, Zhitong Zhao, Aiqin Wang, Feng Wang, Tao Zhang

*Dalian Institute of Chemical Physics, Chinese Academy of Sciences, Dalian 116023, China*

**13.40-14.00. O-31.**

**Levulinic acid and furfural aldol condensation catalyzed by ZSM-5**

Jennifer Cueto, Valery Korobka, Laura Faba, Eva Díaz, Salvador Ordóñez

*Department of Chemical and Environmental Engineering, University of Oviedo, Oviedo, 33006, Spain*

**14.00-14.20. O-32.**

**Bimetallic Ni-Cu/ZrO<sub>2</sub> catalysts optimization for the production of biofuels**

Nerea Viar, Jesus Requies, Ion Agirre, Aitziber Iriondo, Pedro Luis Arias

*Chemical and Environmental Engineering Department, Engineering Faculty of Bilbao, University of the Basque Country (UPV/EHU), 48013 Bilbao, Spain*

**14.20-14.40. O-33.**

**Synthesis of high-density jet-fuel-ranged hydrocarbons using biomass derivatives**

Ji-Jun Zou, Lun Pan, Genkuo Nie and Xiangwen Zhang

*Key Laboratory for Green Chemical Technology of the Ministry of Education, School of Chemical Engineering and Technology, Tianjin University; Collaborative Innovative Center of Chemical Science and Engineering (Tianjin), Tianjin 300072, China*

**14.40-15.20 KL3**

**Heteropoly acid catalysis in upgrading of biorenewables: transformations of terpenes**

Elena Gusevskaya

*Federal University of Minas Gerais, Belo Horizonte, Brazil*

15.20-15.40. *Coffee break*

**15.40-16.00. O-34.**

**Sustainable lubricant basestocks from epoxidized vegetable oils**

Rosa Turco<sup>1</sup>, Rosa Vitiello<sup>1</sup>, Vincenzo Russo<sup>1,2</sup>, Martino Di Serio<sup>1,3</sup>, Riccardo Tesser<sup>1</sup>

<sup>1</sup>Department of Chemical Sciences, University of Naples Federico II, Complesso Universitario di Monte Sant'Angelo, 80126 Naples, Italy; <sup>2</sup>Laboratory of Industrial Chemistry and Reaction Engineering, Åbo Akademi University, FI-20500 Turku. <sup>3</sup>International Research Organization for Advanced Science and Technology (IROAST), University of Kumamoto, 860-8555 Kumamoto, Japan.

**16.00-16.20. O-35.**

**Epoxidation of tall oil fatty acids for sustainable intermediates and bio-lubricants**

Adriana Freites<sup>1</sup>, Pasi Tolvanen<sup>1</sup>, Sebastien Leveneur<sup>1,2</sup>, Tapio Salmi<sup>1</sup>

<sup>1</sup>*Åbo Akademi University, Industrial Chemistry & Reaction Engineering, Biskopsgatan 8, Turku 20500, Finland.*

<sup>2</sup>*Normandie Université LSPC-Laboratoire de Sécurité des Procédés Chimiques, EA4704, INSA/Université Rouen, BP08, Avenue de l'Université, 76801 Saint-Etienne-du-Rouvray, France*

**16.20-16.40. O-36.**

**The influence of composition of reconstructed hydrotalcites on their physico-chemical properties and activity in aldol condensation**

David Kubička<sup>1</sup>, Adriana Panasewicz<sup>2</sup>, Oleg Kikhtyanin<sup>1</sup>, Lada Dubnová<sup>2</sup>

<sup>1</sup>*Technopark Kralupy, University of Chemistry and Technology Prague, 278 01 Kralupy nad Vltavou, Czech Republic;* <sup>2</sup>*Department of Physical Chemistry, Faculty of Chemical Technology, University Pardubice, 532 10 Pardubice, Czech Republic*

**16.40-17.00. O-37.**

**Melamine based mesoporous resins as cost-effective and efficient catalysts for the production of cyclic carbonates from epoxides and CO<sub>2</sub>**

Thai Q. Bui<sup>1</sup>, Lakhya J. Konwar<sup>1</sup>, Jyri-Pekka Mikkola<sup>1,2</sup>

<sup>1</sup>*Technical Chemistry, Department of Chemistry, Chemical-Biological Centre, Umeå University, SE-90187 Umeå, Sweden;*

<sup>2</sup>*Industrial Chemistry & Reaction Engineering, Department of Chemical Engineering, Johan Gadolin Process Chemistry Centre, Åbo Akademi University, FI-20500 Åbo-Turku, Finland*

**17.00-17.20. O-38.**

**Reductive amination of bio-based furanic aldehydes in aqueous solution over versatile Ni<sub>y</sub>AlO<sub>x</sub> catalysts**

Bright T. Kusema<sup>1</sup>, Zhen Yan<sup>1</sup>, Stéphane Streiff<sup>1</sup>, Marc Pera-Titus<sup>1</sup>, Hangkong Yuan<sup>2</sup>, Feng Shi<sup>2</sup>

<sup>1</sup>*Eco-Efficient Products and Processes Laboratory (E2P2L), UMI 3464 CNRS – Solvay, 3966 Jindu Road, Xin Zhuang Industrial Zone, 201108 Shanghai, China;* <sup>2</sup>*State Key Laboratory for Oxo Synthesis and Selective Oxidation, Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences, Lanzhou 730000, China*

**17.20-17.40. O-39.**

**Selective hydrogenation of amides to alcohols over CeO<sub>2</sub>-supported Ru catalyst**

Masazumi Tamura, Susumu Ishikawa, Yoshinao Nakagawa, Keiichi Tomishige

*Graduate School of Engineering, Tohoku University, Aoba 6-6-07, Aramaki, Aoba-ku, Sendai, 980-8579, Japan.*

*Poster session with refreshments*



26.9. 2019, Thursday

9.00-10.00. PL4

**Catalysis for conversion of bio-renewables to value added chemicals**

Raghunath V. Chaudhari

*Chemical & Petroleum Engineering Department, University of Kansas, Lawrence, USA*

10.00-10.20 Coffee break

10.20-10.40. O-40.

**Marine ulvan polysaccharide as a valuable pool of rare sugars**

I. Podolean<sup>1</sup>, S. M. Coman<sup>1</sup>, S. Kikionis<sup>2</sup>, E. Ioannou<sup>2</sup>, V. Roussis<sup>2</sup>, A. Primo<sup>3</sup>, H. Garcia<sup>3</sup>, V. I. Parvulescu<sup>1</sup>

<sup>1</sup>*Department of Organic Chemistry, Biochemistry and Catalysis, Faculty of Chemistry, University of Bucharest, Bucharest 030018, Romania*

<sup>2</sup>*Department of Pharmacognosy and Chemistry of Natural Products, Faculty of Pharmacy, National and Kapodistrian University of Athens, Panepistimiopolis Zografou, Athens 15771, Greece*

<sup>3</sup>*Instituto Universitario de Tecnología Química, Universitat Politècnica de Valencia-Consejo Superior de Investigaciones Científicas, Universidad Politècnica de Valencia, 46022 Valencia, Spain*

10.40-11.00. O-41.

**Protein engineering in designing tailored enzymes to improve plant biomass degradation – The case of a GH1  $\beta$ -glucosidase of *Trichoderma harzianum***

Clelton A. Santos<sup>1,2</sup>, Mariana A. B. Morais<sup>3</sup>, Oliver M. Terrett<sup>2</sup>, Jan J. Lyczakowski<sup>2</sup>, Letícia M. Zanphorlin<sup>3</sup>, Jaire A. Ferreira-Filho<sup>1</sup>, Celisa C. C. Tonoli<sup>4</sup>, Mario T. Murakami<sup>3</sup>, Paul Dupree<sup>2</sup> & Anete P. Souza<sup>1</sup>

<sup>1</sup>*Centro de Biologia Molecular e Engenharia Genética, Universidade Estadual de Campinas, Campinas, SP, Brazil;* <sup>2</sup>*University of Cambridge, Department of Biochemistry, Cambridge, UK;*

<sup>3</sup>*Laboratório Nacional de Ciência e Tecnologia do Bioetanol, Centro Nacional de Pesquisa em Energia e Materiais, Campinas, SP, Brazil;* <sup>4</sup>*Laboratório Nacional de Biociências, Centro Nacional de Pesquisa em Energia e Materiais, Campinas, SP, Brazil.*

11.00-11.20. O-42.

**Development of green biorefinery of birch wood and larch wood based on the use of solid catalysts**

Boris N. Kuznetsov<sup>1</sup>, Irina G. Sudakova<sup>1</sup>, Natalya V. Garyntseva<sup>1</sup>, Olga V. Yatsenkova<sup>1</sup>, Alexander S. Kazachenko<sup>1</sup>, Andrey M. Skripnikov<sup>1</sup>, Laurent Djakovitch<sup>2</sup>

*Institute of Chemistry and Chemical Technology SB RAS, FRC KSC SB RAS, 50/24 Akademgorodok, 660036, Krasnoyarsk, Russia;* <sup>2</sup>*IRCELYON, 69626 Villeurbanne Cedex, Lyon, France*

11.20-11.40. O-43.

**Wine shoots integrated valorization: polyphenols extraction, biochar based catalysts and catalytic sugar derivatives upgrade**

Andreia F. Peixoto<sup>1</sup>, Manuela M. Moreira<sup>2</sup>, Ruben Ramos<sup>1</sup>, Ana S. Mestre<sup>1,3</sup>, Olena Dorosh<sup>2</sup>, Cristina Delerue-Matos<sup>2</sup>, Cristina Freire<sup>1</sup>

<sup>1</sup>LAQV-REQUIMTE, Dep. de Química e Bioquímica, Faculdade de Ciências, Universidade do Porto, 4169-007 Porto

<sup>2</sup>LAQV-REQUIMTE, Instituto Superior de Engenharia do Instituto Politécnico do Porto, 4249-015 Porto, Portugal

<sup>3</sup>Centro de Química e Bioquímica and Centro de Química Estrutural, Faculdade de Ciências, Universidade de Lisboa, 1749-016 Lisboa, Portugal

#### **11.40-12.00. O-44.**

##### **Novel oxide carbon coupling catalysts for the thermochemical valorization of lignocellulosic biomass and biomass wastes**

Konstantinos Kalogiannis, Eleni Iliopoulou, Chrysa Mihailof, Angelos Lappas  
Chemical Process and Energy Resources Institute / Centre for Research and Technology Hellas (CPERI/CERTH), 6th Km Harilaou-Thermi Road, Thessaloniki, GR-57001 Greece

#### **12.00-12.20. O-45.**

##### **Conversion of inulin over Ru-Fe<sub>3</sub>O<sub>4</sub>-SiO<sub>2</sub> magnetically recoverable catalyst**

Oleg Manaenkov, Olga Kislitsa, Ekaterina Ratkevich, Valentina Matveeva, Ester Sulman, Mikhail Sulman

Tver State Technical University, Tver, Russia 170026

*Lunch*

#### **13.20-13.40. O-46.**

##### **Catalytic fast pyrolysis of biomass by synthetic clays with tailored properties**

L. Jia<sup>1</sup>, T. Chilingaryan<sup>2</sup>, Y. le Brech<sup>1</sup>, L. Delmotte<sup>2</sup>, J. Brendle<sup>2</sup>, G. Mauviel<sup>1</sup>, A. Dufour<sup>1</sup>, R. Gadiou<sup>2</sup>

<sup>1</sup>LRGP UMR CNRS 7274, F54000 Nancy France

<sup>2</sup>IS2M UMR CNRS-UHA 7361, F68057 Mulhouse France

#### **13.40-14.00. O-47.**

##### **Catalytic pyrolysis of biomass using hierarchical mesoporous ZSM-5 zeolite aggregates**

Stylianos D. Stefanidis<sup>1</sup>, Antonio Pineda<sup>2</sup>, Antonio A. Romero<sup>2</sup>, Alina M. Balu<sup>2</sup>, Anthony V. Bridgwater<sup>1</sup>

<sup>1</sup>European Bioenergy Research Institute, Aston University, Birmingham, UK; <sup>2</sup>Department of Organic Chemistry, University of Cordoba, Cordoba, Spain

#### **14.00-14.20. O-48.**

##### **Coke evolution in bio-oil aqueous fraction steam reforming using Co/SBA-15 catalyst**

P.J. Megía, A.J. Vizcaíno, M. Ruiz-Abad, J.A. Calles, A. Carrero

Chemical and Environmental Group, ESCET, Rey Juan Carlos University, Spain

**14.20-14.40. O-49.**

**Use of hierarchical H-Y zeolite for the Fluid Catalytic Cracking of bio-oil with Vacuum Gas Oil**

Y. Chapellière, A. Tuel, C. Mirodatos, D. Farrusseng, Y. Schuurman

*IRCELYON, Université UCBL Lyon 1, CNRS, UMR5256, Villeurbanne, France*

**14.40-15.20 K14**

**Selectivity control in acid-base catalysis for valorization of several biomass-derived oxygenates**

Boqing Xu

*Tsinghua University, China*

15.20-15.40. *Coffee break*

**15.40-16.00. O-50.**

**Effect of mesoporous zeolites for the selective conversion of carbohydrates into methyl lactate.**

A. Sacchetti<sup>1</sup>, I. Tosi<sup>2</sup>, T. Tabanelli<sup>1</sup>, F. Cavani<sup>1</sup>, A. Riisager<sup>2</sup>

<sup>1</sup>*Università di Bologna Alma Mater Studiorum, dipartimento di Chimica Industriale Toso Montanari, 40136, Bologna, Italy;* <sup>2</sup>*Technical University of Denmark, Department of Chemistry, Kemitorvet, 2800-Kgs. Lyngby, Denmark*

**16.00-16.20. O-51.**

**Glucose isomerization over Mg-promoted Na-exchanged zeolites in water and aqueous alcohol solutions**

I. Graça, R. Zhang, S. Sheen, D. Lui, D. Chadwick

*Department of Chemical Engineering, Imperial College London, Exhibition Road, London SW7 2AZ, UK*

**16.20-16.40. O-52.**

**Selective catalytic conversion of xylose for producing bio-based lactic acid over alumina catalysts**

Sirapassorn Kiatphuegporn, Pongtanawat Khemthong, Sutarat Thongratkaew, Kajornsak Faungnawakij

*National Nanotechnology Center (NANOTEC), National Science and Technology Development Agency (NSTDA), Klong Laung, Pathumthani 12120, Thailand*

**16.40-17.00. O-53.**

**Sol-gel Ru-based catalysts for hydrogenation reactions**

Martino Di Serio<sup>1</sup>, Vincenzo Russo<sup>1</sup>, Riccardo Tesser<sup>1</sup>, Serena Esposito<sup>2</sup>, Brigida Silvestri<sup>1</sup>, Barbara Bonelli<sup>2</sup>, Alessandro Vergara<sup>1</sup>, Claudio Imperato<sup>1</sup>, Antonio Aronne<sup>1</sup>

<sup>1</sup>*Chemical Science Department, University of Naples "Federico II", Via Cinthia, 80126-Naples, Italy;* <sup>2</sup>*Torino-Politecnico, IT-10129 Torino, Italy*

**17.00-17.20. O-54.**

**Synthesis of butyl glucoside over sulfated Zr-SBA-15 and tungstophosphoric acid incorporated SBA-15 catalysts**

Vahide Nuran Mutlu, Selahattin Yilmaz

*Izmir Institute of Technology Chemical Engineering Department, Gulbahce, Urla Izmir, Turkey*

**17.20-17.40. O-55.**

**Carbonaceous materials for the selective hydrogenation of HMF**

Stefano Cattaneo<sup>1</sup>, Andrea Jouve<sup>1</sup>, Sofia Capelli<sup>1</sup>, Marta Stucchi<sup>1</sup>, Claudio Evangelisti<sup>2</sup>, Alberto Villa<sup>1</sup>, Laura Prati<sup>1</sup>

<sup>1</sup>*Dipartimento di Chimica, Università degli Studi di Milano, 20133 Milano, Italy;*

<sup>2</sup>*National Council of the Research, CNR-ISTM, 20138 Milan, Italy*

**17.40-18.00. O-56.**

**Catalytic screening for levulinic acid esterification reaction with different alkyl alcohols**

C. Rossano<sup>1</sup>, V. Russo<sup>1,2</sup>, R. Vitiello<sup>1</sup>, R. Turco<sup>1</sup>, R. Tesser<sup>1</sup>, T. Salmi<sup>2</sup>, Martino Di Serio<sup>1</sup>

<sup>1</sup>*Chemical Science Department, University of Naples "Federico II", 80126-Naples, Italy;*

<sup>2</sup>*Laboratory of Industrial Chemistry and Reaction Engineering Department, Åbo Akademi University, 20540- Åbo/Turku, Finland*

20.00 – **Conference dinner**

*27.9. 2019, Friday*

**9.00-10.00. PL5**

**Heterogeneous deoxydehydration catalysts to produce biomass-derived chemicals using hydrogen as a reductant**

Keiichi Tomishige

*Tohoku University, Japan*

*10.00-10.20 Coffee break*

**10.20-10.40. O-57.**

**Catalytic partial oxidation of ethanol over Rh investigated by the axially revolved sampling technique.**

Roberto Batista<sup>1</sup>, Abdelrahman Mostafa<sup>1</sup>, Yağız Uysal<sup>1</sup>, G. Moroni<sup>1</sup>, Anna Ferretti<sup>2</sup>, Lidia Castoldi<sup>1</sup>, Gianpiero Groppi<sup>1</sup>, Alessandra Beretta<sup>1</sup>

<sup>1</sup>*Dipartimento di Energia, Politecnico di Milano, via La Masa 34, 20156 Milano, Italy;* <sup>2</sup>*Istituto di Scienze e Tecnologie Molecolari, CNR, via C. Golgi 19, I-20133 Milano, Italy*

**10.40-11.00. O-58.**

**Base-free selective conversion of 5-HMF to FDCA over CoO<sub>x</sub>-CeO<sub>x</sub> composite catalysts**

Mengmeng Jin<sup>1</sup>, Linhao Yu<sup>1</sup>, Xueli Ma<sup>2</sup>, Hong Chen<sup>2</sup>, Yicheng Zhao<sup>1</sup>, Yongdan Li<sup>1,3</sup>

<sup>1</sup>*Collaborative Innovation Center of Chemical Science and Engineering, Tianjin Key Laboratory of Applied Catalysis Science and Technology, State Key Laboratory of Chemical Engineering, School of Chemical Engineering, Tianjin University, Tianjin 300072, China;* <sup>2</sup>*School of*

*Environmental Science and Engineering, Tianjin University, Tianjin 300072, China; <sup>3</sup>Department of Chemical and Metallurgical Engineering, Aalto University, Aalto, FI-00076, Finland*

**11.00-11.20. O-59.**

**Understanding the role of Al/Zr ratio in Zr-Al-Beta zeolite: towards the one-pot production of GVL from glucose**

Marta Paniagua, Clara López-Aguado, Jose Iglesias, Gabriel Morales, Juan A. Melero  
*Chemical & Environmental Engineering Group. Universidad Rey Juan Carlos, E28933, Móstoles, Madrid.*

**11.20-11.40. O-60.**

**Enhanced acidity properties of KIT6\_Zr as solid catalyst for the dehydration of sorbitol to isosorbide**

M. J. Ginés-Molina\*, J. Santamaría-González, P. Maireles-Torres

<sup>1</sup>*Universidad de Málaga, Departamento de Química Inorgánica, Cristalografía y Mineralogía (Unidad Asociada al ICP-CSIC), Facultad de Ciencias, Campus de Teatinos, 29071 Málaga, España*

**11.40-12.00. O-61.**

**Lignin valorization by partial oxidation of pyrolysis vapors to produce valuable co-products for economic biorefineries**

Matthew M. Yung, Calvin Mukarakate, Eric Tan, Mark R. Nimlos

*National Bioenergy Center, National Renewable Energy Laboratory, Golden, CO, USA*

**12.00-12.20. O-62.**

**Production of dimethylether as a clean fuel for the future: an accessible dream thanks to the conversion of methanol on properly used Keggin heteropolyacid catalysts, mistakes to avoid and recipes to follow !**

Josefine Schnee, Eric M. Gaigneaux

*Institute of Condensed Matter and Nanosciences (IMCN), Université Catholique de Louvain (UCL), B-1348 Louvain-la-Neuve, Belgium*

*Lunch*

**13.20-13.40. O-63.**

**Cascade biocatalysis for valorization of  $\alpha$ -pinene**

Madalina Tudorache<sup>1</sup>, Sabina Ion<sup>1</sup>, Andra Mirescu<sup>1</sup>, Erica Ferrandi<sup>2</sup>, Daniela Monti<sup>2</sup>, Vasile I Parvulescu<sup>1</sup>

<sup>1</sup> *University of Bucharest*, <sup>2</sup>*Istituto di Chimica del Riconoscimento Molecolare, CNR, Italy*

**13.40-14.00. O-64.**

**Combination of bio- and chemocatalysis to valorize hemicelluloses: challenges and opportunities in xylan conversion**

Gerd Hilpmann<sup>1</sup>, Mick Miro Ayubi<sup>1</sup>, Oliver Spadiut<sup>2</sup>, Henrik Grénman<sup>3</sup>, Tapio Salmi<sup>3</sup>, Rüdiger Lange<sup>1</sup>, Thomas Walther<sup>4</sup>, Anett Werner<sup>4</sup>, Susanne Steudler<sup>4</sup>

<sup>1</sup>Chair of Chemical Engineering and Process Plants, TU Dresden, 01062 Dresden; <sup>2</sup>Res. Group: Integrated Bioprocess Development, Chair of Bioprocess Engineering, TU Vienna, 1060 Vienna; <sup>3</sup>Laboratory of Industrial Chemistry and Reaction Engineering, Åbo Akademi University, 20500 Turku; <sup>4</sup>Chair of Bioprocess Engineering, TU Dresden, 01062 Dresden

**14.00-14.20. O-65.**

**Hydrothermal and photocatalytic conversion of glucose with commercial titanium dioxide catalysts (TiO<sub>2</sub>).**

Insaf Abdouli, Frederic Dappoze, Marion Eternot, Chantal Guillard, Nadine Essayem  
*IRCELYON, 69100, Villeurbanne, France*

**14.20-14.40. O-66.**

**Solid acid foams for continuous dehydration of xylose to furfural in a biphasic extractive media**

M. Fernanda Neira D'Angelo, D. Perez Ferrandez, P. Ruiz Lopez, Vladan Krzelj  
*Eindhoven University of Technology*

**14.40-15.20 KL5**

**Molecular insights into ketone formation and its application in biorefineries**

Michael Renz

Institute of Chemical Technology, Valencia, Spain

**15.20 - Closing ceremony and farewell coffee**