

**Monday, June 27****Lecture Hall Claude Bernard**

Session Chairs: Danielle BALLIVET-TKATCHENKO, Claude MIRODATOS

**10:00 Opening remarks****Sophie BÉJEAN**, President of the University of Burgundy**Michele ARESTA**, ICCDU Permanent Secretary**Danielle BALLIVET-TKATCHENKO**, ICCDU XI Chair**10:30 IL 01**

THE DANCE OF CARBON OXIDATION AND REDUCTION ON PLANET EARTH

**Frédéric CHEVALLIER***Laboratoire des Sciences du Climat et de l'Environnement/Gif sur Yvette, FR***11:10 IL 02**CO<sub>2</sub> CAPTURE PROCESSES - APPLICATIONS AND OPTIONS**Torsten KATZ***BASF SE, DE***Lecture Hall Claude Bernard / CO<sub>2</sub> reforming**

Session Chair: Riitta KEISKI

**12:00 OC 19**SPECIFIC FEATURES OF CO<sub>2</sub> ACTIVATION IN METHANE DRY REFORMING ON DOPED CERIA-ZIRCONIA WITH SUPPORTED PRECIOUS METALS AND/OR Ni**Vladislav SADYKOV***Borekov Institute of Catalysis & Novosibirsk State University, RU***12:20 OC 391**CO<sub>2</sub> REFORMING OF METHANE: INFLUENCE OF COMPOSITION OF NEW Ni-BASED PHYLLOSILICATES PRECURSORS CATALYSTS ON COKE FORMATION**Matte SIVAIAH***University of Poitiers, FR***12:40 OC 321**CATALYTIC PERFORMANCE AND CHARACTERIZATION OF Ni-CaO-ZrO<sub>2</sub> CATALYSTS FOR DRY REFORMING OF METHANE**Nannan SUN***Institute of Coal Chemistry/Taiyuan, Graduate School CAS/Beijing, CN***Lecture Hall Paul Paris / CO<sub>2</sub> capture**

Session Chair: Claude MIRODATOS

**12:00 OC 230**CO<sub>2</sub> CAPTURE IN CONJUGATED MICROPOROUS POLYMERS**Robert DAWSON***Chemistry Department & Centre for Materials Discovery/Liverpool, UK***12:20 OC 21**

MESOPOROUS POLY-MELAMINE-FORMALDEHYDE FOR REVERSIBLE CARBON DIOXIDE ADSORPTION

**Mei Xuan TAN***IBN-A\*STAR & National Singapore University, SG***12:40 OC 246**CO<sub>2</sub>-SEQUESTRATION USING ZEOLITE/CARBON NANOCOMPOSITES AND ZEOLITE-ONLY REPLICAS OF CARBON TEMPLATES**Paul A. SERMON***Brunel University & University of Surrey, UK*11<sup>th</sup> International Conference on Carbon Dioxide Utilization - ICCDU XI - June 27-30, 2011, Dijon-France**Monday, June 27****13:00 Lunch break/Posters hang up****Lecture Hall Claude Bernard**

Session Chair: Christian AMATORE, Richard HEYN

**14:30 IL 03**

WHY AND HOW HYBRID POROUS SOLIDS CAPTURE GREENHOUSE GASES?

**Gérard FEREY***University of Versailles, FR***15:10 IL 04**FROM WASTE TO VALUE WITH CO<sub>2</sub>: CHALLENGES AND OPPORTUNITIES FOR CATALYSIS RESEARCH**Walter LEITNER***RWTH Aachen University & MPI für Kohlenforschung/Mülheim an der Ruhr, DE***15:50 Coffee break****Lecture Hall Claude Bernard / CO<sub>2</sub> reforming**

Session Chair: Riitta KEISKI

**16:20 OC 361**

Ni-TUD-1 CATALYSTS FOR DRY REFORMING OF METHANE

**Ksenia PARKHOMENKO***University of Strasbourg, FR***16:40 OC cancelled****Lecture Hall Paul Paris / CO<sub>2</sub> capture**

Session Chair: Claude MIRODATOS

**16:20 OC 223**CO<sub>2</sub> CAPTURE USING Mg-MOF-74 PREPARED BY SONOCHEMICAL METHOD**Wha-Seung AHN***Inha University, KR***16:40 OC 233**METAL ORGANIC FRAMEWORK MIL-101 MODIFIED WITH TETRAETHYLENEPENTAMINE FOR CO<sub>2</sub> ADSORPTION AT HIGH TEMPERATURE AND LOW PRESSURE**Xingrui WANG***Chinese Academy of Sciences/Beijing, CN***17:00 Coaches departure to the Town Hall reception****17:30 Town Hall reception****from 20:00 Guided Dijon visit**11<sup>th</sup> International Conference on Carbon Dioxide Utilization - ICCDU XI - June 27-30, 2011, Dijon-France

**Tuesday, June 28****Lecture Hall Claude Bernard**

Session Chair: Ron ZEVENHOVEN

**08:30 IL 05**CAPTURE OF LOCALIZED SOURCE OF CO<sub>2</sub>: INORGANIC MATERIAL DESIGN FOR SOLID STATE CAPTURE FOR ENERGY COST-EFFECTIVE PROCESS**Fanny OUKHEMANOU***Rhodia LOF, FR***Lecture Hall Claude Bernard / CO<sub>2</sub> to organic carbonates**

Session Chair: Michael NORTH

**09:10 OC 354**

CARBOXYLATION OF ALCOHOLS FOR THE SYNTHESIS OF ORGANIC CARBONATES UNDER HETEROGENEOUS CONDITIONS

**Angela DIBENEDETTO***University of Bari, IT***09:30 OC 312**TANDEM CARBOXYLATION-HYDRATION REACTION SYSTEM FROM METHANOL, CO<sub>2</sub> AND BENZONITRILE TO DIMETHYL CARBONATE AND BENZAMIDE CATALYZED BY CERIUM OXIDE**Masayoshi HONDA***Tohoku University, JP***09:50 OC 36**

DIRECT SYNTHESIS OF DIMETHYL- AND DIETHYLCARBONATES OVER HETEROGENEOUS CATALYSTS

**Päivi MÄKI-ARVELA***Åbo Akademi University, FI***10:10 OC cancelled****Lecture Hall Paul Paris / CO<sub>2</sub> capture**

Session Chair: Vladislav SADYKOV

**09:10 OC 255**CO<sub>2</sub> SORPTION IN METHANE STEAM REFORMING PROCESS**Angeliki A. LEMONIDOU***Aristotle University of Thessaloniki & CPERI/CERTH, GR***09:30 OC 229**CO<sub>2</sub> CAPTURE AND TAR REFORMING BY BIFUNCTIONAL Fe/CaO ACTIVE SORBENTS**Ingrid ZAMBONI***University of Strasbourg, FR***09:50 OC 25**CO<sub>2</sub> CHEMISORPTION ON LITHIUM AND SODIUM CERAMICS. EFFECT OF THE WATER VAPOR ADDITION**Heriberto PFEIFFER***Universidad Nacional Autónoma de México, MX***10:10 OC 211**MICROBUBBLES GENERATED BY LOTUS CERAMICS FOR CO<sub>2</sub> SEQUESTRATION APPLICATIONS**Catalin POPA***Tokyo Institute of Technology, JP***10:30 Coffee break**11<sup>th</sup> International Conference on Carbon Dioxide Utilization - ICCDU XI - June 27-30, 2011, Dijon-France**Tuesday, June 28****Lecture Hall Claude Bernard**

Session Chair: Don DARENSBOURG

**11:00 IL 06**

CATALYTIC HYDROGENATION OF CARBON DIOXIDE USING Ir(III)-PINCER COMPLEXES

**Kyoko NOZAKI***The University of Tokyo, JP***Lecture Hall Claude Bernard / CO<sub>2</sub> to formic acid & derivatives**

Session Chair: Don DARENSBOURG

**11:40 OC 18**CO<sub>2</sub> REDUCTION INTO C1 AND C2 MOLECULES CATALYZED BY A POLYHYDRIDE RUTHENIUM COMPLEX UNDER MILD CONDITIONS**Sébastien BONTEMPS***LCC-CNRS/Toulouse, FR***12:00 OC 353**CO<sub>2</sub> HYDROGENATION USING GLYCEROL AS BIO-RENEWABLE H-DONOR**Paolo STUFANO***University of Bari, IT***12:20 OC 32 & OC 64**

CARBON DIOXIDE: THE KEY COMPOUND IN A VIABLE HYDROGEN STORAGE/DELIVERY SYSTEM

**Gábor LAURENCZY***EPFL, CH*CO<sub>2</sub> - A SUITABLE HYDROGEN VECTOR**Albert BODDIEN***Leibniz Institut für Katalyse, DE***Lecture Hall Paul Paris / CO<sub>2</sub> capture**

Session Chair: Ron ZEVENHOVEN

**11:40 OC 241**STUDY OF CaO CARBONATION FOR A CO<sub>2</sub> CAPTURE PROCESS**Lydie ROUCHON***École Nationale Supérieure des Mines de Saint-Etienne, FR***12:00 OC 227**THE IMPROVEMENT OF CO<sub>2</sub> ABSORPTION PROPERTIES OF LIMESTONE ORE BY THE ADDITIONS OF CHEMICAL SiO<sub>2</sub> AND NATURAL DIATOMITE**Wang FEI***Muroran Institute of Technology, JP***12:20 OC 235**

SEQUESTRATION OF CARBON DIOXIDE USING RED MUD

**Shaobin WANG***Curtin University, AU***12:40 OC cancelled****13:00 Lunch break/Poster session**11<sup>th</sup> International Conference on Carbon Dioxide Utilization - ICCDU XI - June 27-30, 2011, Dijon-France

**Tuesday, June 28**

**Lecture Hall Claude Bernard**

Session Chairs: Ferenc JOÓ & Joëlle MASCETTI

**14:30 IL 07**

N-HETEROCYCLIC CARBENE CATALYZED CO<sub>2</sub> TRANSFORMATIONS

**Yugen ZHANG**

*IBN-A\*STAR/Singapore, SG*

**15:10 IL 08**

IFPEN SOLUTIONS FOR LOWERING THE COST OF POST-COMBUSTION CARBON CAPTURE

**Pierre-Louis CARRETTE**

*IFP Energies nouvelles, FR*

**15:50 Coffee break**

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**Lecture Hall Claude Bernard / CO<sub>2</sub> to chemicals - General**

Session Chair: Ferenc JOÓ

**16:20 OC 357**

TAILORED Ru-NHC HYBRID CATALYTIC MATERIALS FOR THE HYDROGENATION OF CO<sub>2</sub> IN THE PRESENCE OF AMINE

**Mathieu BAFFERT**

*University of Lyon, FR*

**16:40 OC 33**

USE OF CARBON DIOXIDE VIA CATALYTIC CONVERSIONS OF A LACTONE PLATFORM CHEMICAL

**Arno BEHR**

*Technische Universität Dortmund, DE*

**17:00 OC 325**

COMPUTATIONAL STUDY OF THE MECHANISM OF THE Pd-CATALYZED CARBOXYLATION OF ARYL BROMIDES

**Ainara NOVA**

*ICIQ/Tarragona, ES*

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**Lecture Hall Paul Paris / CO<sub>2</sub> capture**

Session Chair: Joëlle MASCETTI

**16:20 OC 232**

CORROSION MECHANISMS OF CARBON STEEL IN MDEA-BASED CO<sub>2</sub> CAPTURE PLANTS

**Srdjan NESIC**

*Ohio University, USA*

**16:40 OC 248**

FUNCTIONALIZED NON-SILICEOUS POROUS METAL OXIDES FOR THE POST-COMBUSTION CAPTURE OF CO<sub>2</sub>

**Cindy AQUINO**

*CSIRO/Clayton, AU*

**17:00 OC 253**

POLYETHYLENIMINE COVALENTLY GRAFTED ON MESOSTRUCTURED POROUS SILICA FOR CO<sub>2</sub> CAPTURE

**Marc PERA-TITUS**

*IRCEL YON, FR*

11<sup>th</sup> International Conference on Carbon Dioxide Utilization - ICCDU XI - June 27-30, 2011, Dijon-France

**Tuesday, June 28**

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**17:20 OC 15**

PROMOTIONAL EFFECT IN OXIDATION OF AROMATIC ALCOHOLS AND CYCLIC OLEFINS OVER MESOPOROUS CARBON NITRIDES

**Sang-Eon PARK**

*Inha University, KR*

**17:40 OC 329**

CO<sub>2</sub> CHEMISTRY: CATALYTIC TRANSFORMATION CARBON DIOXIDE BASED ON ITS ACTIVATION

**Zhen-Zhen YANG**

*Nankai University/Tianjin, CN*

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**17:20 OC 221**

AMINE MODIFIED MESOPOROUS MATERIALS FOR CO<sub>2</sub> CAPTURE PREPARED BY A ONE-POT SOL-GEL METHOD

**Wei WEI**

*Institute of Coal Chemistry/Taiyuan, CN*

**17:40 OC cancelled**

**18:00 - 20:00 Poster session & Poster Party**

**20:00 Coaches departure to downtown**

11<sup>th</sup> International Conference on Carbon Dioxide Utilization - ICCDU XI - June 27-30, 2011, Dijon-France

**Wednesday, June 29****Lecture Hall Claude Bernard**

Session Chair: Michael RÖPER

**08:30 IL 09**PRODUCTION OF METHANOL FROM CO<sub>2</sub>**John Bøgild HANSEN***Haldor Topsøe A/S, DK***Lecture Hall Claude Bernard / CO<sub>2</sub> to methanol**

Session Chair: Michael RÖPER

**09:10 OC 372**NANO-STRUCTURED MESOPOROUS SUPPORTED Pd AND Cu-ZnO CATALYSTS FOR CO<sub>2</sub> HYDROGENATION TO METHANOL**Chunshan SONG***Pennsylvania State University, USA***09:30 OC 326**INFLUENCE OF CERIA ADDITION INTO THE CATALYTIC FORMULATION OF Cu-BASED SYSTEMS FOR THE HYDROGENATION OF CO<sub>2</sub>-TO-METHANOL**Giuseppe BONURA***ITAE-CNR/Messina, IT***09:50 OC 617**

CHEMICAL RECYCLING OF CARBON DIOXIDE: THE METHANOL ECONOMY

**Alain GOEPPERT***University of Southern California/Los Angeles, USA***10:10 OC 77**HYDROGENATION OF CO<sub>2</sub> AS A MEANS TO REDUCE GREENHOUSE-GAS EMISSIONS? A CASE STUDY**Luis A. ROBLES MACIAS***Total Gaz & Energies Nouvelles, FR***Lecture Hall Paul Paris / CO<sub>2</sub> to organic carbonates**

Session Chair: Angela DIBENEDETTO

**09:10 OC 115**

MECHANISTIC INSIGHTS INTO THE CYCLOADDITION OF SUPERCRITICAL CARBON DIOXIDE WITH EPOXIDES COMBINING IN SITU VIBRATIONAL SPECTROSCOPY AND QUANTUM CHEMISTRY CALCULATIONS

**Thierry TASSAING***University of Bordeaux, FR***09:30 OC 31**

SYNTHESIS OF CYCLIC CARBONATES FROM POWER STATION FLUE GAS

**Michael NORTH***Newcastle University, UK***09:50 OC 35**

AMBIENT CARBON DIOXIDE FIXATION CATALYSIS

**Arjan W. KLEIJ***ICIQ-ICREA/Tarragona, ES***10:10 OC 311**

ALIPHATIC POLYCARBONATES PRODUCED FROM THE COUPLING OF CARBON DIOXIDE AND OXETANES

**Donald J. DARENSBOURG***Texas A&M University/College Station, USA***10:30 Coffee break**11<sup>th</sup> International Conference on Carbon Dioxide Utilization - ICCDU XI - June 27-30, 2011, Dijon-France**Wednesday, June 29****Lecture Hall Claude Bernard**

Session Chair: Hervé TOULHOAT

**11:00 IL 10**

SOLAR FUEL PRODUCTION FROM CARBON DIOXIDE

**Etsuko FUJITA***Brookhaven National Laboratory, USA***Lecture Hall Claude Bernard / CO<sub>2</sub> photocatalytic reduction**

Session Chair: Hervé TOULHOAT

**11:40 OC 41**PHOTOCATALYTIC REDUCTION OF CO<sub>2</sub> OVER SOLID BASE PHOTOCATALYSTS**Kentaro TERAMURA***Kyoto University, JP***12:00 OC 44**

PHOTOCATALYTIC REDUCTION OF CARBON DIOXIDE BY DOPED TITANIA NANOCOMPOSITES UNDER SUNLIGHT

**Ying LI***University of Wisconsin-Milwaukee, USA***12:20 OC 424**N AND Cu-DOPED ZnO AS CO<sub>2</sub> PHOTOREDUCTION CATALYST**Víctor A. DE LA PEÑA O'SHEA***IMDEA Energía Institute/Madrid, ES***12:40 OC 414**

ARTIFICIAL PHOTOSYNTHESIS OF HYBRID SYSTEMS

**Rea Laila ANTONIOU KOUROUNIOTI***University of Nottingham, UK***Lecture Hall Paul Paris / CO<sub>2</sub> to organic carbonates & carbamates**

Session Chair: Sang-Eon PARK

**11:40 OC 310**A HIGHLY ACTIVE CATALYTIC SYTEM FOR CO<sub>2</sub>/EPOXIDE COPOLYMERIZATION**Bun Yeoul LEE***Ajou University, KR***12:00 OC 378**TAILORING THE ACTIVE SITE OF CATALYSTS FOR THE REACTION OF EPOXIDES AND CO<sub>2</sub>**Thomas E. MÜLLER***RWTH Aachen University, DE***12:20 OC 332**

INTRODUCTION TO SK'S ALIPHATIC POLYCARBONATE TECHNOLOGY

**Myung-Ahn OK***SK Innovation Co. Ltd/Daejeon, KR***12:40 OC 376**UTILIZATION OF CO<sub>2</sub> VIA CATALYSIS WITH IONIC LIQUIDS**Richard H. HEYN***SINTEF/Oslo, NO***13:00 Lunch break/Poster session**11<sup>th</sup> International Conference on Carbon Dioxide Utilization - ICCDU XI - June 27-30, 2011, Dijon-France

**Wednesday, June 29****Lecture Hall Claude Bernard**

Session Chair: Eckhard DINJUS

**14:30 IL 11**

GREEN CHEMISTRY AND THE BIOREFINERY

**James CLARK***University of York, UK***Lecture Hall Claude Bernard / Applications of dense CO<sub>2</sub>**

Session Chair: Manuel NUNES DA PONTE

**15:10 OC 410**FORMATION OF CARBON NANOSTRUCTURES VIA  
PHOTODISSOCIATION OF CARBON DIOXIDE NEAR THE CRITICAL  
POINT**Ortrud ASCHENBRENNER***University of Brighton, UK***15:30 OC 621**INTRAMOLECULAR DEHYDRATION OF POLYALCOHOL  
COMPOUNDS IN HIGH-TEMPERATURE LIQUID WATER WITH HIGH  
PRESSURED CARBON DIOXIDE**Masayuki SHIRAI***National Institute of Advanced Industrial Science and Technology, JP***15:50 OC 521**CO<sub>2</sub> AS SUPERCRITICAL ANTI-SOLVENT FOR THE  
MICRONIZATION OF BIOTHERAPEUTICS**Beatriz P. NOBRE***Technical University of Lisbon, PT***16:10 OC 52**QUALIFICATION OF TA6V ALLOY CLEANING PROCESSES USING  
SC-CO<sub>2</sub>**Rémy BESNARD***CEA/Valduc, FR***Lecture Hall Paul Paris / CO<sub>2</sub> to organic carbonates & carbamates**

Session Chair: Stéphane SARRADE

**15:10 OC 622**A NOVEL PHOSGENE-FREE PROCESS FOR PRODUCING MDI  
DERIVED FROM CO<sub>2</sub>**Haitao LIU***Chinese Academy of Sciences/Beijing, CN***15:30 OC 611**SOLUBILITY IN CO<sub>2</sub> AND CARBONATION STUDIES OF EPOXIDIZED  
FATTY ACID DIESTERS: TOWARD NEW BIO-BASED  
POLYURETHANES**Henri GRAMAIL***University of Bordeaux, FR***/ Alternative processes****15:50 OC 341**CO<sub>2</sub> COKE OF BIO-OIL UP-GRADE REACTION IN FLUID CATALYTIC  
CRACKING PROCESS**Marcelo M. PEREIRA***Universidade Federal do Rio de Janeiro, BR***16:10 OC 315**MICROSCALE MODELING OF CO<sub>2</sub> UTILISATION BY CARBON  
GASIFICATION**Petr NIKRITYUK***Technische Universität Bergakademie Freiberg, DE***16:30 Coffee break**11<sup>th</sup> International Conference on Carbon Dioxide Utilization - ICCDU XI - June 27-30, 2011, Dijon-France**Wednesday, June 29****Lecture Hall Claude Bernard**

Session Chair: Marcel BOUVET

**17:00 IL 12 as part of the International Year of Chemistry events**

VOYAGE AU CŒUR D'UNE FLUTE DE CHAMPAGNE

**Gérard LIGER-BELAIR***University of Reims Champagne-Ardenne, FR***18:30 Coaches departure to the Gala Dinner****19:00-23:30 Gala Dinner**

**Thursday, June 30****Lecture Hall Claude Bernard**

Session Chair: Aaron APPEL

**08:30 IL 13**DESIGN OF FUNCTIONAL POROUS MATERIALS FOR CO<sub>2</sub> CAPTURE AND CATALYTIC VALORIZATION**David FARRUSSENG***IRCELYON, FR***Lecture Hall Claude Bernard / Alternative processes**

Session Chair: Michele ARESTA

**09:10 OC 73**

SCALE-UP AND OPTIMISATION OF PRODUCTION OF PRECIPITATED CALCIUM CARBONATE FROM STEELMAKING SLAG

**Hannu-Petteri MATTILA***Åbo Akademi University, FI***09:30 OC 76**TWO BIRDS WITH ONE STONE: WHY CO<sub>2</sub> MINERALIZATION IS ATTRACTING INTEREST IN SINGAPORE**Jie BU***ICES-A\*STAR/Singapore, SG***09:50 OC 383**THE EFFECT OF METHANE ADDITION TO ODHE REACTION WITH CO<sub>2</sub> OVER Ni-La/SiO<sub>2</sub> CATALYST**Changwei HU***College of Chemistry/Sichuan, CN***10:10 OC cancelled****Lecture Hall Paul Paris / CO<sub>2</sub> as solvent & building block**

Session Chair: Masayuki SHIRAI

**09:10 OC 390**

RECENT DEVELOPMENTS IN CARBON DIOXIDE UTILIZATION AS CHEMICALS

**Iwao OMAE***Omae Research Laboratories/Saitama, JP***09:30 OC 62**THERMODYNAMIC STUDIES FOR THE SYNTHESIS OF 1,2 GLYCEROL CARBONATE FROM CO<sub>2</sub> AND GLYCEROL**Manuel NUNES DA PONTE***New University of Lisbon, PT***09:50 OC 54**

GLYCEROL AND SUPERCRITICAL CARBON DIOXIDE: NEW TOOLS FOR THE DESIGN OF GREENER CATALYTIC PROCESSES

**François JEROME***University of Poitiers, FR***10:10 OC 618**EFFECTS OF CO<sub>2</sub> PRESSURIZATION ON LIQUID-PHASE SELECTIVE HYDROGENATION OF NITROSTYRENE WITH A Pt/TiO<sub>2</sub> CATALYST**Hiroshi YOSHIDA***Hokkaido University, JP***10:30 Coffee break**11<sup>th</sup> International Conference on Carbon Dioxide Utilization - ICCDU XI - June 27-30, 2011, Dijon-France**Thursday, June 30****Lecture Hall Claude Bernard**

Session Chair: Jack LEGRAND

**11:00 IL 14**FROM NATURAL TO ARTIFICIAL PHOTOSYNTHESIS CHEMISTRY FOR THE PRODUCTION OF CO<sub>2</sub>-FREE HYDROGEN**Stenbjörn STYRING***Uppsala University, SE***Lecture Hall Claude Bernard / Alternative processes**

Session Chair: Chunshan SONG

**11:40 OC 61**CO<sub>2</sub> EMISSION AVOIDANCE BY ALUMINUM AND SYNGAS CO-PRODUCTION VIA VACUUM CARBOTHERMIC REDUCTION OF ALUMINA**Martin M. HALMANN***Weizmann Institute of Science/Rehovot, IL***12:00 OC 610**CO<sub>2</sub> EMISSIONS BY TRI-REFORMING**Daniel DEMBKOWSKI***Evonik Degussa GmbH, DE***12:20 OC 359**CATALYTIC CO<sub>2</sub> METHANATION AT LOW TEMPERATURE: A REAL ALTERNATIVE TO CONTROL CARBON DIOXIDE EMISSIONS**Alejandro KARELOVIC***Université Catholique de Louvain, BE***12:40 OC 63**

DREAM PRODUCTION FROM BASICS TO MATERIALS

**Christoph GUERTLER & Aurel WOLF***Bayer Material Science AG & Bayer Technology Services GmbH, DE***Lecture Hall Paul Paris / CO<sub>2</sub> electroreduction**

Session Chair: Alain DERONZIER

**11:40 OC 419**CO<sub>2</sub> ELECTRO-REDUCTION IN IONIC LIQUIDS AND APROTIC SOLVENTS – INFLUENCE OF PROTON TRANSFER ON SELECTIVITY**David PASQUIER***IFP Energies nouvelles, FR***12:00 OC 416**MECHANISMS OF CO<sub>2</sub> ELECTROREDUCTION AT COPPER METAL AND ITS OXIDES**Dimitri MIGNARD***The University of Edinburgh, UK***12:20 OC 415**MOLECULAR CATALYSTS FOR CO<sub>2</sub> REDUCTION**Aaron M. APPEL***Pacific Northwest National Laboratory, USA***12:40 OC 425**TOWARDS SELECTIVE SUSTAINABLE ELECTROCHEMICAL REDUCTION OF CO<sub>2</sub> USING A CARBONYL COMPLEX CATALYST BASED ON A NATURALLY-ABUNDANT METAL: [Mn(L)CO<sub>3</sub>Br] (L = 2,2'-BIPYRIDYL DERIVATIVES)**Sylvie CHARDON-NOBLAT***University of Grenoble, FR***13:00 Lunch break/Posters removed**11<sup>th</sup> International Conference on Carbon Dioxide Utilization - ICCDU XI - June 27-30, 2011, Dijon-France

Thursday, June 30

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**Lecture Hall Claude Bernard / Alternative processes**

Session Chair: Chunshan SONG

**14:00 OC 74**

SYNTHESIS GAS PRODUCTION BY SOLAR THERMOCHEMICAL  
REDUCTION OF CO<sub>2</sub> AND WATER

**Martin ROEB**

*German Aerospace Center/Cologne, DE*

**14:20 OC 68**

CO<sub>2</sub>-SPLITTING VIA 2-STEP THERMOCHEMICAL CYCLES BY  
USING A VOLUMETRIC POROUS SOLAR RECEIVER

**H. Isabel VILLAFÁN-VIDALES**

*PROMES-CNRS, FR*

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**Lecture Hall Paul Paris / CO<sub>2</sub> electroreduction**

Session Chair: Alain DERONZIER

**14:00 OC cancelled**

**14:20 OC 386**

CHEMICAL RECYCLING OF CO<sub>2</sub>: NEW THREE-COMPONENT  
CATALYTIC REACTIONS

**Thibault CANTAT**

*CEA Saclay, FR*

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**Lecture Hall Claude Bernard**

Session Chair: Chunshan SONG

**14:40 IL 15**

CONVERSION OF CARBON DIOXIDE FOR CARBON-RECYCLING: MIMICKING NATURE OR DOING EVEN BETTER...

**Michele ARESTA**

*University of Bari, IT*

**15:20 Poster Awards & Closing remarks**

**15:30 ICCDU XII presentation**

Poster sessions: Tuesday, June 28, 14:00-14:30  
18:00-20:00

Wednesday, June 29, 14:00-14:30

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**Topic 1: Fundamentals in CO<sub>2</sub> activation**

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- P 001**  
USING <sup>13</sup>C-NMR TO EXAMINE THE BINDING OF <sup>13</sup>C-ENRICHED CO<sub>3</sub><sup>2-</sup> TO AZACRYPTAND SCAFFOLDS IN AQUEOUS SOLUTION  
**Aljoscha WILD<sup>1,2</sup>, J. Paul G. MALTHOUSE<sup>1,2</sup>**  
<sup>1</sup>SFI Strategic Research Cluster in Solar Energy Conversion, <sup>2</sup>UCD Conway Institute of Biomolecular & Biomedical Research, Centre for Synthesis & Chemical Biology, University College Dublin (IE)
- P 002**  
MECHANISTIC STUDY OF CO<sub>2</sub> FIXATION IN DINUCLEAR ZINC (II) OCTA-AZACRYPTATES  
**Morad M. EL-HENDAWY<sup>1</sup>, Niall J. ENGLISH<sup>1,2</sup>, Damian A. MOONEY<sup>1,2</sup>**  
<sup>1</sup>SFI Strategic Research Cluster in Solar Energy Conversion, School of Chemical & Bioprocess Engineering, <sup>2</sup>Centre for Synthesis & Chemical Biology, University College Dublin (IE)
- P 003**  
LOW ENERGY ACTIVATION MODES FOR CO<sub>2</sub>  
**Henning VOGT, Sait ELMAS, Thomas E. MÜLLER**  
CAT Catalytic Center, ITMC, RWTH Aachen University (DE)
- P 004**  
QUANTUM CHEMICAL MODELLING OF ELEMENTARY STEPS IN THE COPOLYMERISATION OF CO<sub>2</sub> AND EPOXIDES  
**Willem K. OFFERMANS<sup>1</sup>, Sait ELMAS<sup>1</sup>, Christoph GÜRTLER<sup>1</sup>, Walter LEITNER<sup>2</sup>, Thomas E. MÜLLER<sup>1</sup>**  
<sup>1</sup>CAT Catalytic Center, RWTH-Aachen University, <sup>2</sup>ITMC, RWTH-Aachen University (DE)
- P 005**  
CAPTURE AND FUNCTIONALIZATION OF CO<sub>2</sub>: ROLE OF THE NITROGEN BASE  
**Christophe GOMES, Olivier JACQUET, Claude VILLIERS, Pierre THUERY, Michel EPHRITIKHINE, Thibault CANTAT**  
Laboratoire de Chimie de Coordination des Elements f, CEA Saclay, DSM, IRAMIS, Gif sur Yvette (FR)
- P 006**  
TRIAZINE BASED POROUS FRAMEWORKS FOR METAL FREE CO<sub>2</sub> ACTIVATION  
**Mohd Bismillah ANSARI, Sang-Eon PARK**  
Laboratory of Nano Green Catalysis & Nano Center for Fine Chemicals Fusion Technology, Department of Chemistry, Inha University, Incheon (KR)
- P 007**  
ORGANO-AMINE FUNCTIONALIZED MESO-STRUCTURE MATERIALS AS REGENARABLE CO<sub>2</sub> SORBENT  
**Yong-Hwan MO, Mohd Bismillah ANSARI, Jun LEE, Sang-Eon PARK**  
Laboratory of Nano Green Catalysis, Department of Chemistry, Inha University, Incheon (KR)

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- P 008**  
INSERTION OF CO<sub>2</sub> INTO L<sub>n</sub>M-H AND L<sub>n</sub>M-C BONDS WITH L<sub>n</sub>M = Pd(II) OR Pt(II) COMPLEXES  
**Antoine MONASSIER<sup>1</sup>, Sin Ying Tina LEE<sup>2</sup>, Yang LI<sup>2</sup>, Mirza COKOJA<sup>1</sup>, Fritz E. KÜHN<sup>1,2</sup>**  
<sup>1</sup>Technical University of Munich, Chair of Inorganic Chemistry, Catalysis Research Center, Garching, <sup>2</sup>Technical University of Munich, Molecular Catalysis, Catalysis Research Center, Garching (DE)
- P 009**  
MECHANISM OF DIMETHYL CARBONATE FORMATION FROM CO<sub>2</sub> AND CH<sub>3</sub>OH WITH (CH<sub>3</sub>)<sub>2</sub>Sn(OCH<sub>3</sub>)<sub>2</sub>: A DFT STUDY  
**Mahboubeh POOR KALHOR<sup>1</sup>, Henry CHERMETTE<sup>1</sup>, Danielle BALLIVET-TKATCHENKO<sup>2</sup>**  
<sup>1</sup>Sciences Analytiques, Université de Lyon 1, Villeurbanne, <sup>2</sup>Institut de Chimie Moléculaire de l'Université de Bourgogne, Dijon (FR)
- P 010**  
USE OF ORGANOTIN (+II and +IV) COMPOUNDS FOR CO<sub>2</sub> ACTIVATION  
**Zdeňka PADĚLKOVÁ, Roman OLEJNÍK, Aleš RŮŽIČKA**  
Department of General & Inorganic Chemistry, Faculty of Chemical Technology, University of Pardubice, Pardubice (CZ)
- P 011**  
CO<sub>2</sub> AND CS<sub>2</sub> ACTIVATION BY LOW VALENT GERMANIUM, TIN AND LEAD COMPLEXES  
**Zdeňka PADĚLKOVÁ, Roman OLEJNÍK, Aleš RŮŽIČKA**  
Department of General & Inorganic Chemistry, Faculty of Chemical Technology, University of Pardubice, Pardubice (CZ)
- P 012**  
ADSORPTION OF CO<sub>2</sub> OVER CERIA: OPERANDO MICROCALORIMETRY  
**Cécile DANIEL<sup>1</sup>, Yves SCHUURMAN<sup>1</sup>, David FARRUSSENG<sup>1</sup>, Frédéric MEUNIER<sup>2</sup>**  
<sup>1</sup>IRCELYON, Lyon, <sup>2</sup>LCS, Caen (FR)

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**Topic 2: CO<sub>2</sub> separation & capture**

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- P 013**  
CAPTURE OF CO<sub>2</sub> ON A Mg-AI LAYERED DOUBLE HYDROXIDE AT LOW TEMPERATURES  
**Daniela A. TORRES-RODRÍGUEZ<sup>1</sup>, Enrique LIMA<sup>1</sup>, Jaime S. VALENTE<sup>2</sup>, Heriberto PFEIFFER<sup>1</sup>**  
<sup>1</sup>Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México, <sup>2</sup>Instituto Mexicano del Petróleo (MX)
- P 014**  
ENHANCEMENT OF CARBON DIOXIDE CAPTURE ON HYDROTALCITE TYPE Mg-AI BY IMPREGNATION WITH Li, Na AND K  
**Zaira I. BEDOLLA-VALDEZ<sup>1</sup>, Jaime S. VALENTE<sup>2</sup>, Heriberto PFEIFFER<sup>1</sup>**  
<sup>1</sup>Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México, <sup>2</sup>Instituto Mexicano del Petróleo (MX)

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- P 015**  
RECONSTITUTION AND CO<sub>2</sub> CAPTURE EFFECTS OF Mg-Ga LAYERED DOUBLE HYDROXIDE IMPREGNATED WITH DIFFERENT ELEMENTS  
**Sergio S. RAMIREZ<sup>1</sup>, Heriberto PFEIFFER<sup>1</sup>, Jaime S. VALENTE<sup>2</sup>**  
<sup>1</sup>Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México, <sup>2</sup>Instituto Mexicano del Petróleo (MX)
- P 016**  
CO<sub>2</sub> ABSORPTION PROPERTIES IN THE LITHIUM ALUMINATE POLYMORPHS ( $\alpha$ -Li<sub>5</sub>AlO<sub>4</sub> AND  $\beta$ -Li<sub>5</sub>AlO<sub>4</sub>)  
**Tatiana L. ÁVALOS-RENDÓN, Heriberto PFEIFFER**  
*Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México (MX)*
- P 017**  
ZIRCONIUM-CONTAINING SOLID SORBENTS FOR CO<sub>2</sub> CAPTURE  
**Emiliana DVININOV, Hazel STEPHENSON**  
*MEL Chemicals, Manchester (UK)*
- P 018**  
CARBON FIBER COMPOSITES FOR CO<sub>2</sub> ADSORPTION  
**Cristina BANCIU, Adela BARA, Lucia LEONAT, Delia PATROI**  
*National Institute for Research & Development in Electrical Engineering INCDIE ICPE-CA, Bucharest (RO)*
- P 019**  
MODELLING OF CaO/CaCO<sub>3</sub> SOLID LOOPING CYCLE FOR CO<sub>2</sub> CAPTURE  
**Alexandre J. S. CHAMBEL<sup>1</sup>, Carla I. C. PINHEIRO<sup>2</sup>, Nilay SHAH<sup>3</sup>, Costas PANTELIDES<sup>3</sup>**  
<sup>1</sup>GEPSI-PSE Group, University of Coimbra, <sup>2</sup>IBB-Institute for Biotechnology & Bioengineering, Instituto Superior Técnico, <sup>3</sup>Centre for Process Systems Engineering, Imperial College London (PT/UK)
- P 020**  
CO<sub>2</sub> CAPTURE OVER K<sub>2</sub>CO<sub>3</sub>/MgO/Al<sub>2</sub>O<sub>3</sub> SORBENT IN A FLUIDIZED BED  
**Lei LI<sup>1,2</sup>, Yong LI<sup>1,2</sup>, Xia WEN<sup>1</sup>, Feng WANG<sup>1</sup>, Ning ZHAO<sup>1</sup>, Fukui XIAO<sup>1</sup>, Wei WEI<sup>1</sup>, Yuhan SUN<sup>1,3</sup>**  
<sup>1</sup>State Key Laboratory of Coal Conversion, Institute of Coal Chemistry, Chinese Academy of Sciences, Taiyuan, <sup>2</sup>Graduate University of the Chinese Academy of Sciences, Beijing, <sup>3</sup>Low Carbon Energy Center, Shanghai Advanced Research Institute, Chinese Academy of Sciences, Shanghai (CN)
- P 021**  
STUDY ON POTASSIUM-BASED DRY SORBENT FOR CO<sub>2</sub> CAPTURE FROM COAL-FIRED POWER PLANT  
**Joong Beom LEE, Tae Hyoung EOM, Dong HYEOK, Jeom In BAEK, Young Ho WI, Chong Kul RYU**  
*Green Growth Laboratory, KEPCO Research Institute, Daejeon (KR)*

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- P 022**  
REMOVAL OF CO<sub>2</sub> FROM FLUE GAS BY ADSORPTION ON ZEOLITES  
**Oliver John TAYLOR<sup>1,2</sup>, Pradeep SHUKLA<sup>1</sup>, Shaobin WANG<sup>1</sup>, Hua-Ming ANG<sup>1</sup>**  
<sup>1</sup>Department of Chemical Engineering, Curtin University, Perth <sup>2</sup>Department of Chemical Engineering, Loughborough University, Leicestershire (AU/UK)
- P 023**  
CO<sub>2</sub> ABSORPTION/RELEASE PROPERTIES OF DOLOMITE PYROLYSIS PRODUCTS CALCINED IN VACUUM ATMOSPHERE  
**Wang FEI, Toshihiro KUZUYA, Shinji HIRAI**  
*Department of Material Science & Engineering, Muroran Institute of Technology (JP)*
- P 024**  
PREPARATION OF SYNTHETIC Ca-BASED SORBENTS FOR CO<sub>2</sub> SEQUESTRATION  
**Carolina ALFONSIN<sup>1</sup>, Edgar SANTOS<sup>1</sup>, Auguste FERNANDES<sup>1</sup>, Ana Paula DIAS<sup>2</sup>, Carla C. PINHEIRO<sup>1</sup>, Filipa RIBEIRO<sup>1</sup>**  
<sup>1</sup>IBB, Instituto Superior Técnico, <sup>2</sup>ICEMS, Instituto Superior Técnico, Lisbon (PT)
- P 025**  
THE PROMOTER EFFECT OF STEAM IN GAS-SOLID CO<sub>2</sub> MINERALIZATION  
**James HIGHFIELD<sup>1</sup>, Jie BU<sup>1</sup>, Johan FAGERLUND<sup>2</sup>, Ron ZEVENHOVEN<sup>2</sup>**  
<sup>1</sup>Institute of Chemical & Engineering Sciences, Singapore, <sup>2</sup>Åbo Akademi University (SG/FI)
- P 026**  
HIGH TEMPERATURE CO<sub>2</sub> ADSORPTION WITH NATURAL CLAYS  
**Carlos MIGUEL<sup>1</sup>, Diogo MENDES<sup>1</sup>, Vânia GOMES<sup>1</sup>, Miguel A. VICENTE<sup>2</sup>, Raquel TRUJILLANO<sup>2</sup>, Vicente RIVES<sup>2</sup>, Sofia A. KORIL<sup>3</sup>, Antonio GIL<sup>3</sup>, Adélio MENDES<sup>1</sup>, Luis M. MADEIRA<sup>1</sup>**  
<sup>1</sup>Department of Chemical Engineering, University of Porto, <sup>2</sup>Department of Inorganic Chemistry, University of Salamanca, <sup>3</sup>Department of Applied Chemistry, Public University of Navarre (PT/ES)
- P 027**  
GRAFTING OF ALUMINIUM AND MAGNESIUM OXIDES ON SBA-15: NEW MATERIALS FOR CARBON DIOXIDE ADSORPTION  
**Arnošt ZUKAL, Jana MAYEROVÁ, Jakub PASTVA, Jiří ČEJKA**  
*J. Heyrovský Institute of Physical Chemistry, Academy of Sciences of the Czech Republic, Prague (CZ)*
- P 028**  
TECHNO-ECONOMIC STUDY OF CO<sub>2</sub> CAPTURE, TRANSPORTATION AND STORAGE FOR COAL-FIRED POWER PLANTS  
**Baoqun WANG, Huiquan LI, Weijun BAO**  
*Key Laboratory of Green Process & Engineering & National Engineering, Laboratory for Hydrometallurgical Cleaner Production Technology, Institute of Process Engineering, Chinese Academy of Sciences, Beijing (CN)*

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- P 030**  
 MESOPOROUS SOLIDS FOR LOW TEMPERATURE CARBON DIOXIDE ADSORPTION  
**David MADDEN, Wiebke REIMANN, Teresa CURTIN**  
*SFI Strategic Research Cluster in Solar Energy Conversion Materials & Surface Science Institute, Department of Chemical & Environmental Sciences, University of Limerick (IE)*
- P 031**  
 THERMAL AND SPECTROMETRIC METHODS FOR CHARACTERIZATION OF CATALYSTS FOR CO<sub>2</sub> STORAGE  
**Jose Flavio BENEVIDES FERREIRA<sup>1,2,3</sup>, Sarah HENRY AL SOFYANI<sup>1</sup>, Joëlle MASCETTI<sup>1</sup>, Gwénaëlle LE BOURDON<sup>1</sup>, Julien JOLLY<sup>3</sup>, Fanny OUKHEMANOU<sup>3</sup>, Adeline PERRO<sup>3</sup>, Pierre GUILLOT<sup>3</sup>, Laurent SERVANT<sup>1</sup>, Jean-Christophe BATSALE<sup>2</sup>, Bertrand PAVAGEAU<sup>3</sup>**  
*<sup>1</sup>Institut des Sciences Moléculaires, Université Bordeaux 1, <sup>2</sup>Laboratoire Transferts Écoulements Fluides Énergétique, Université Bordeaux1, <sup>3</sup>Rhodia Laboratoire du futur (LOF), Pessac (FR)*
- P 032**  
 CO<sub>2</sub> CAPTURE ON MOF's BY COMBINED CALORIMETRIC AND VOLUMETRIC TECHNIQUES  
**Emmanuel WIRTH, Rémi ANDRE, Pierre LE PARLOUËR**  
*Setaram Instrumentation, Caluire (FR)*
- P 033**  
 SELECTIVE CO<sub>2</sub> ADSORPTION BY A TRIAZACYCLONONANE-BRIDGED MICROPOROUS METAL-ORGANIC FRAMEWORK  
**Guillaume ORTIZ, Stéphane BRANDES, Yoann ROUSSELIN, Roger GUILARD**  
*Institut de Chimie Moléculaire de l'Université de Bourgogne, Dijon (FR)*
- P 034**  
 CO<sub>2</sub> TRANSFER USING SOL-GEL CERAMIC MEMBRANE WITH IMMOBILIZED CARBONIC ANHYDRASE  
**Nathalie FAVRE, Alain PIERRE**  
*IRCEL YON, Villeurbanne (FR)*
- P 035**  
 HIGH-PERFORMANCE CO<sub>2</sub> ABSORBERS  
**Hermann BUETTNER, Juergen MUELLER, Sebastian MAKRAN, Raphael JONKER**  
*University of Applied Sciences, Muenster (DE)*
- P 036**  
 NON-AQUEOUS AMINE BASED ABSORBENTS FOR CO<sub>2</sub> CAPTURE  
**Sung Yeup CHUNG, Yoon Ji LEE, Ki Chun LEE**  
*Environmental & Energy Research Team, Central Advanced Research & Engineering Institute, Hyundai-Kia Motors (KR)*

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- P 037**  
 DEVELOPING AND TESTING LOW-COST IONIC LIQUIDS FOR CO<sub>2</sub> CAPTURE  
**David GUTIÉRREZ-TAUSTE, James SKINNER, Monica DELLA PIRRIERA, Céline LARGEOT, Irene CASCALLANA**  
*Leitat Technological Center, Terrassa (ES)*
- P 038**  
 ON THE USE MONO AND DICATIONIC IONIC LIQUIDS FOR CO<sub>2</sub> CAPTURE  
**Cláudia CASSOL, Tânia CASSOL, Graciane MARIN, Fabrício FLORES, Jairton DUPONT**  
*UFRGS, Rio Grande do Sul (BR)*
- P 039**  
 COMPARISON OF CONVENTIONAL AND NOVEL ABSORBENTS FOR CO<sub>2</sub> CAPTURE  
**Elena PRIVALOVA<sup>1</sup>, Päivi MÄKI-ARVELA<sup>1</sup>, Kari ERÄNEN<sup>1</sup>, Dmitry Yu. MURZIN<sup>1</sup>, Jyri-Pekka MIKKOLA<sup>1,2</sup>**  
*<sup>1</sup>Åbo Akademi University, Process Chemistry Centre, Turku/Åbo, <sup>2</sup>Umeå University, Department of Chemistry, Chemical-Biological Center, Umeå (FI/SE)*
- P 040**  
 DEVELOPMENT OF NOVEL MULTI-AMINE ABSORBENTS FOR POST-COMBUSTION CO<sub>2</sub> CAPTURE  
**Jun-Han KIM, Ji-Hyun LEE, In-Young LEE, Kyung-Ryoung JANG, Jae-Goo SHIM**  
*KEPCO Research Institute (KR)*

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**Topic 3: Catalysis & biotechnologies for CO<sub>2</sub> conversion into energy products & chemicals**

- P 041**  
 DIRECT SYNTHESIS OF DIMETHYL CARBONATE FROM METHANOL AND CARBON DIOXIDE OVER ACID-BASE BIFUNCTIONAL Ga<sub>2</sub>O<sub>3</sub>/Ce<sub>0.6</sub>Zr<sub>0.4</sub>O<sub>2</sub> CATALYSTS  
**Yoon Jae LEE, Hye Jin LEE, Wangrae JOE, In Kyu SONG**  
*School of Chemical & Biological Engineering, Institute of Chemical Processes, Seoul National University, KR*
- P 042**  
 UTILIZATION OF CARBON DIOXIDE FOR THE SYNTHESIS OF DIETHYL CARBONATE  
**Ewelina LEINO<sup>1</sup>, Päivi MÄKI-ARVELA<sup>1</sup>, Dmitry Yu. MURZIN<sup>1</sup>, Jyri-Pekka MIKKOLA<sup>1,2</sup>**  
*<sup>1</sup>Åbo Akademi University, Process Chemistry Centre, Turku/Åbo, <sup>2</sup>Umeå University, Department of Chemistry, Chemical-Biological Center, Umeå, (FI/SE)*

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- P 043**  
 KINETIC STUDIES OF DIMETHYL CARBONATE SYNTHESIS FROM METHANOL AND CARBON DIOXIDE USING BUTYLENE OXIDE AS A CHEMICAL TRAP FOR WATER  
**Valerie ETA<sup>1</sup>, Päivi MÄKI-ARVELA<sup>1</sup>, Johan WÄRNÄ<sup>1</sup>, Dmitry Yu. MURZIN<sup>1</sup>, Jyri-Pekka MIKKOLA<sup>1,2</sup>**  
<sup>1</sup>Abo Akademi University, Process Chemistry Centre, Turku/Åbo, <sup>2</sup>Umeå University, Department of Chemistry, Chemical-Biological Center, Umeå (FI/SE)
- P 044**  
 Sn-BASED MESOPOROUS SILICA FOR THE CONVERSION OF CO<sub>2</sub> INTO DIMETHYL CARBONATE  
**Sreevardhan Reddy SANAPUREDDY, Danielle BALLIVET-TKATCHENKO, Laurent PLASSERAUD**  
*Institut de Chimie Moléculaire de l'Université de Bourgogne, Dijon (FR)*
- P 045**  
 SYNTHESIS OF DIMETHYL CARBONATE FROM CO<sub>2</sub> ASSISTANCE OF NANO-OXIDES PRODUCED BY AN ORIGINAL SUPERCRITICAL WATER DEVICE  
**Frédéric DEMOISSON, Moustapha ARIANE, Frédéric BERNARD**  
*Laboratoire Interdisciplinaire Carnot de Bourgogne, Université de Bourgogne, Dijon (FR)*
- P 046**  
 CATALYTIC PRODUCTION OF DIETHYLCARBONATE FROM CO<sub>2</sub> AND BIOETHANOL  
**Andrey RYZHIKOV, Nathalie TANCHOUX, François FAJULA**  
*Institut Charles Gerhardt Montpellier, Matériaux Avancés pour la Catalyse et la Santé, Montpellier (FR)*
- P 047**  
 SYNTHESIS OF ORGANIC CARBONATES VIA CO<sub>2</sub> FIXATION  
**Loubna GHARNATI, Wolfgang KLEIST, Jan-Dierk GRUNWALDT**  
*Karlsruhe Institute of Technology, Institute of Catalysis Research & Technology, Institute for Chemical Technology & Polymer Chemistry, Karlsruhe (DE)*
- P 048**  
 SYNTHESIS OF CYCLIC CARBONATES FROM CARBON DIOXIDE AND EPOXYDES CATALYZED BY β ZEOLITES CONTAINING DIALKYLIMIDAZOLIUM IONIC LIQUIDS  
**Edson COMIN, Marcelo L. MIGNONI, Katia B. GUSMÃO, Michèle O. de SOUZA, Roberto F. de SOUZA**  
*Institute of Chemistry-UFRGS, Porto Alegre (BR)*
- P 049**  
 LEWIS BASIC IONIC LIQUID-CATALYZED CONVERSIONS OF CARBON DIOXIDE INTO CHEMICALS  
**Zhen-Zhen YANG, Liang-Nian HE, Ya-Nan ZHAO**  
*State Key Laboratory & Institute of Elemento-Organic Chemistry, Nankai University (CN)*

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- P 050**  
 BIFUNCTIONAL ONIUM SALT CATALYZED ADDITION OF CARBON DIOXIDE TO EPOXIDES  
**Hendrik BÜTTNER, Kornelia LAU, Thomas WERNER**  
*Leibniz Institute for Catalysis, Rostock (DE)*
- P 051**  
 INFLUENCE OF MICROWAVE IRRADIATION ON THE SELECTIVE PRODUCTION OF CYCLIC CARBONATE OVER POLYCARBONATE USING DOUBLE METAL CYANIDE/IONIC LIQUID CATALYST SYSTEM  
**Manju Mamparambath DHARMAN, Soo-Jin CHOI, Jose THARUN, Dae-Won PARK**  
*Division of Chemical Engineering, Pusan National University, Busan (KR)*
- P 052**  
 SYNTHESIS OF PEG-SUPPORTED IONIC LIQUIDS FOR THE CYCLOADDITION OF CARBON DIOXIDE TO ALLYL GLYCIDYL ETHER  
**Hye-Ji CHOI<sup>1</sup>, Dong-Woo KIM<sup>1</sup>, Sun-Do LEE<sup>2</sup>, Dae-Won PARK<sup>1</sup>**  
<sup>1</sup>Division of Chemical & Biomolecular Engineering, Pusan National University, Busan, <sup>2</sup>Zeus Oil & Chemicals Co.,Ltd., Busan (KR)
- P 053**  
 INSERTION INTO EPOXIDE USING BASIC CATALYST  
**Lorraine CHRIST, Mary DJOUFAK, François FIGUERAS, Alain PERRARD, Daniel ARIAS**  
*IRCELYON, Lyon (FR)*
- P 054**  
 CYCLOADDITION OF CO<sub>2</sub> TO EPOXIDES: EFFECT OF LIGAND STERIC BULK ON CATALYTIC ACTIVITY  
**Christopher WHITEOAK<sup>1</sup>, Arjan W. KLEIJ<sup>1,2</sup>**  
<sup>1</sup>Institute of Chemical Research of Catalonia, Tarragona, <sup>2</sup>Catalan Institute of Research & Advanced Studies, Barcelona (ES)
- P 055**  
 SYNTHESIS OF CYCLIC CARBONATES FROM CARBON DIOXIDE AND EPOXIDES BY IRON(III)-BASED CATALYTIC SYSTEMS  
**Monica A. FUCHS, Ingmar E. HELD, Thomas A. ZEVACO, Manfred DÖRING**  
*Karlsruhe Institute of Technology, Institute of Catalysis Research & Technology, Karlsruhe (DE)*
- P 056**  
 SYNTHESIS OF SODIUM ACRYLATE FROM CO<sub>2</sub> AND ETHYLENE: NEW INSIGHTS IN A KEY STEP OF THE CATALYTIC CYCLE  
**Gabriella BODIZS<sup>1</sup>, Peng CAO<sup>1</sup>, Stephan SCHUNK<sup>2</sup>, Michael LIMBACH<sup>1,3</sup>**  
<sup>1</sup>CaRLa-Catalysis Research Laboratory, Heidelberg, <sup>2</sup>hte Aktiengesellschaft, Heidelberg, <sup>3</sup>BASF SE, Basic Chemicals Research, Ludwigshafen (DE)

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- P 057**  
LIGAND-FREE Ag(I)-CATALYZED CARBOXYLATION OF TERMINAL ALKYNES WITH CARBON DIOXIDE  
**Wen-Zhen ZHANG, Xiao ZHANG, Xiao-Bing LU**  
*State Key Laboratory of Fine Chemicals, Dalian University of Technology, Dalian (CN)*
- P 058**  
EN-ROUTE TO HOMOGENEOUS CATALYSIS OF ACRYLIC ACID FROM CO<sub>2</sub> AND ETHYLENE  
**S. Y. Tina LEE<sup>1</sup>, Yang LI<sup>1</sup>, Antoine MONASSIER<sup>2</sup>, Mirza COKOJA<sup>2</sup>, Fritz. E. KÜHN<sup>1,2</sup>**  
*<sup>1</sup>Molecular Catalysis, Catalysis Research Center, Technische Universität München, Germany, <sup>2</sup>Chair of Inorganic Chemistry, Catalysis Research Center, Technische Universität München (DE)*
- P 059**  
CARBON DIOXIDE AS A CARBON MONOXIDE SOURCE IN HYDROFORMYLATION OF 1-HEXENE CATALYZED BY RUTHENIUM CARBONYL POLYMER AND RHODIUM COMPOUNDS  
**Elina LAURILA, Larisa ORESMAA, Pipsa HIRVA, Matti HAUKKA**  
*Department of Chemistry, University of Eastern Finland, Joensuu (FI)*
- P 060**  
HYDROGEN STORAGE AND GENERATION IN AQUEOUS FORMATE-BICARBONATE CYCLE  
**Gábor PAPP<sup>1</sup>, Jenő CSORBA<sup>2</sup>, Gábor LAURENCZY<sup>3</sup>, Ferenc JOÓ<sup>1,2</sup>**  
*<sup>1</sup>Hungarian Academy of Sciences, Research Group of Homogeneous Catalysis, <sup>2</sup>Institute of Physical Chemistry, University of Debrecen, <sup>3</sup>Institut des Sciences et Ingénierie Chimiques, Ecole Polytechnique Fédérale de Lausanne (CH)*
- P 061**  
ISOCYANATE SYNTHESIS BASED ON CO<sub>2</sub> BY GENERATION OF CARMABATE AS INTERMEDIATE PRODUCT  
**Beatriz Blas MOLINOS, Jens LANGANKE, Walter LEITNER**  
*Institut für Technische Chemie & Makromolekulare Chemie, RWTH Aachen (DE)*
- P 062**  
FROM GREENHOUSE GAS TO FEEDSTOCK: THE FORMATION OF AMMONIUM CARBAMATE FROM CO<sub>2</sub> AND NH<sub>3</sub> AND ITS CONVERSION INTO UREA IN MILD CONDITIONS  
**Francesco BARZAGLI<sup>1</sup>, Fabrizio MANI<sup>2</sup>, Maurizio PERUZZINI<sup>1</sup>**  
*<sup>1</sup>ICCOM CNR, Sesto Fiorentino, <sup>2</sup>Department of Chemistry, University of Florence (IT)*
- P 063**  
CATALYTIC ACTIVITY OF MESOPOROUS SILICA FOR THE SYNTHESIS OF ALKYL CARBAMATE  
**Xintao LI<sup>1,2</sup>, Huiquan LI<sup>1</sup>, Haitao LIU<sup>1</sup>**  
*<sup>1</sup>Key Laboratory for Green Process & Engineering, National Engineering Laboratory for Hydrometallurgical Cleaner Production Technology, Institute of Process & Engineering, Chinese Academy of Sciences, Beijing, <sup>2</sup>Graduate University of Chinese Academy of Sciences, Beijing (CN)*  
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- P 064**  
TRANSESTERIFICATION OF DIMETHYL CARBONATE WITH SUBSTITUTED PHENOLS  
**Libor DUŠEK<sup>1</sup>, Aleš RUŽIČKA<sup>2</sup>, Petr ŠVEC<sup>3</sup>, Aleš EISNER<sup>4</sup>, Barbora VYSTRČILOVÁ<sup>1</sup>**  
*<sup>1</sup>Institute of Environmental & Chemical Engineering, University of Pardubice, <sup>2</sup>Department of General & Inorganic Chemistry, University of Pardubice, <sup>3</sup>Institute of Inorganic Chemistry of the ASCR, Rež, <sup>4</sup>Department of Analytical Chemistry, University of Pardubice (CZ)*
- P 065**  
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**Alexandre RAGUENES<sup>1,2</sup>, Benjamin LE GOUIC<sup>1</sup>, Jack LEGRAND<sup>1</sup>, Patrick LEGENTILHOMME<sup>1</sup>, Caroline GENTRIC<sup>1</sup>, Jérémy PRUVOST<sup>1</sup>, Jean-François CORNET<sup>3</sup>, Olivier LEPINE<sup>2</sup>**  
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- P 066**  
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**Stefanie BÖHNKE, Mirjam PERNER**  
*Microbiology & Biotechnology, University of Hamburg (DE)*
- P 067**  
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*<sup>1</sup>Department of Chemistry & CIRCC, University of Bari, IT, <sup>2</sup>Faculty of Chemistry, Jagiellonian University, Krakow (PL)*
- P 068**  
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*Texas A&M University (USA)*
- P 069**  
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*Karlsruhe Institute of Technology, Institute of Catalysis Research & Technology, Karlsruhe (DE)*
- P 070**  
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**Anish CYRIAC, Jihae PARK, Bun Yeoul LEE**  
*Department of Molecular Science & Technology, Ajou University, Suwon (KR)*

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- P 071**  
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**Jobi Kodiyan VARGHESE, Anish CYRIAC, Bun Yeoul LEE**  
*Department of Molecular Science & Technology, Ajou University, Suwon (KR)*
- P 072**  
PREPARATION OF FLAME-RETARDANT CO<sub>2</sub>/PROPYLENE OXIDE COPOLYMER  
**Anish CYRIAC, Sang Hwan LEE, Jobi Kodiyan VARGHESE, Ji Hae PARK, Bun Yeoul LEE**  
*Department of Molecular Science & Technology, Ajou University, Suwon (KR)*
- P 073**  
DINUCLEAR ZINC CATALYSTS FOR THE COPOLYMERIZATION OF CO<sub>2</sub> AND EPOXIDES  
**Maximilian. W. LEHENMEIER<sup>1</sup>, Christian BRUCKMEIER<sup>1</sup>, Stefan KISSLING<sup>1</sup>, Stephan KLAUS<sup>1</sup>, Peter DEGLMANN<sup>2</sup>, Anna-Katharina OTT<sup>2</sup>, Bernhard RIEGER<sup>1</sup>**  
*<sup>1</sup>Technische Universität München, WACKER-Lehrstuhl für Makromolekulare Chemie, <sup>2</sup>BASF SE, Ludwigshafen (DE)*
- P 074**  
CARBON DIOXIDE AS C1 BUILDING BLOCK FOR POLYMERS  
**Sait ELMAS<sup>1</sup>, Willy OFFERMANS<sup>1</sup>, Walter LEITNER<sup>2</sup>, Thomas E. MÜLLER<sup>1</sup>**  
*<sup>1</sup>CAT Catalytic Center, RWTH Aachen University, <sup>2</sup>ITMC, RWTH Aachen University (DE)*
- P 075**  
CO<sub>2</sub> UTILIZATION FOR POLYMER SYNTHESIS USING DIAMINE ABSORPTION: KINETIC AND ENTHALPIC BEHAVIOUR  
**Alain LEDOUX<sup>1</sup>, Nasreddine KÉBIR<sup>2</sup>, Fabrice BUREL<sup>2</sup>, Lionel ESTEL<sup>1</sup>**  
*<sup>1</sup>Laboratory of Chemical Process Safety, INSA-Rouen, <sup>2</sup>Laboratoire de Matériaux Macromoléculaires, INSA-Rouen (FR)*
- P 076**  
CO<sub>2</sub> CONVERSION TO SYNGAS BY METHANE TRIREFORMING PROCESS WITH NICKEL-CERIA-LANTANA CATALYSTS  
**Lidia PINO, Antonio VITA, Francesco CIPITÌ, Massimo LAGANÀ, Vincenzo RECUPERO**  
*CNR-ITAE "Nicola Giordano", Messina (IT)*
- P 077**  
CO<sub>2</sub> REFORMING OF CH<sub>4</sub> TO PRODUCE SYNTHESIS GAS OVER MODIFIED AND UNMODIFIED Ni/Al<sub>2</sub>O<sub>3</sub> CATALYSTS  
**Siddhartha SENGUPTA, Goutam DEO**  
*Department of Chemical Engineering, Indian Institute of Technology Kanpur, Kanpur (IN)*

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CARBON DIOXIDE REFORMING OF METHANE OVER NANOCOMPOSITE CATALYSTS BASED ON DOPED CeO<sub>2</sub>-ZrO<sub>2</sub> OXIDES AND NiO/YSZ  
**Natalia MEZENTSEVA<sup>1</sup>, Emilie MONDANGE<sup>2</sup>, Tamara KRIEGER<sup>1</sup>, Natalia SAZONOVA<sup>1</sup>, Galina ALIKINA<sup>1</sup>, Vladislav SADYKOV<sup>1</sup>**  
*<sup>1</sup>Boriskov Institute of Catalysis SB RAS, Novosibirsk, <sup>2</sup>European School of Chemistry, Strasbourg University (RU/FR)*
- P 079**  
SYNGAS PRODUCTION BY CO<sub>2</sub> REFORMING OF METHANE USING LnFeNi(Ru)O<sub>3</sub> PEROVSKITES AS PRECURSORS OF ROBUST CATALYSTS  
**Svetlana PAVLOVA<sup>1</sup>, Leila KAPOKOVA<sup>1</sup>, Rimma BUNINA<sup>1</sup>, Galina ALIKINA<sup>1</sup>, Nataliya SAZONOVA<sup>1</sup>, Tamara KRIEGER<sup>1</sup>, Arkadii ISHCHENKO<sup>1</sup>, Vladimir ROGOV<sup>1,2</sup>, Vladislav SADYKOV<sup>1,2</sup>, Claude MIRODATOS<sup>3</sup>**  
*<sup>1</sup>Boriskov Institute of Catalysis SB RAS, Novosibirsk, <sup>2</sup>Novosibirsk State University, Novosibirsk, <sup>3</sup>IRCELYON, Lyon (RU/FR)*
- P 080**  
A STUDY ON THE CORRELATION BETWEEN EXPERIMENTAL DATA AND CFD ANALYSIS USING KINETIC MODEL FOR CH<sub>4</sub>-CO<sub>2</sub>-H<sub>2</sub>O REFORMING  
**Jong-Hwa KIM<sup>1</sup>, Sung Ho KIM<sup>1</sup>, Jung Sook YOON<sup>1</sup>, Joon Ho KO<sup>1</sup>, Seok-Yong SONG<sup>1</sup>, Ki-Won JUN<sup>2</sup>**  
*<sup>1</sup>Environment Research Department, Industrial Research Institute, R&D division, Hyundai Heavy Industries Co., Ltd., Ulsan, <sup>2</sup>Petroleum Displacement Technology Research Center, Research Institute of Chemical Technology, Daejeon (KR)*
- P 081**  
SYNTHESIZED BY HYDROTHERMAL ROUTE FOR CATALYTIC REFORMING OF METHANE BY CO<sub>2</sub>  
**Rafik BENRABAA<sup>1,2</sup>, Hamza BOUKHLOUF<sup>1</sup>, Axel LÖFBERG<sup>2</sup>, Elisabeth BORDES-RICHARD<sup>2</sup>, Rose-Noëlle VANNIER<sup>2</sup>, Akila BARAMA<sup>1</sup>**  
*<sup>1</sup>Laboratoire de Matériaux Catalytiques et Catalyse en Chimie Organique, Faculté de Chimie, USTHB, Alger, <sup>2</sup>Unité de Catalyse et de Chimie du Solide, Université des Sciences et Technologies de Lille, Villeneuve d'Ascq (DZ/FR)*
- P 082**  
SYNTHESIS GAS PRODUCTION BY REFORMING OF CO<sub>2</sub> CONTAINING FLUE GASES  
**Esa TURPEINEN, Mika HUUHTANEN, Riitta L KEISKI**  
*University of Oulu, Department of Process & Environmental Engineering (FI)*
- P 083**  
KINETIC MODELING FOR CH<sub>4</sub>-CO<sub>2</sub>-H<sub>2</sub>O REFORMING BY CHEMKIN PROGRAM  
**Sung Ho KIM, Jung Sook YOON, Jong-Hwa KIM, Joon Ho KO, Seok-Yong SONG**  
*Environment Research Department, Industrial Research Institute, R&D division, Hyundai Heavy Industries Co., Ltd. (KR)*
- P 084**  
CO<sub>2</sub> REFORMING OF METHANE OVER Mg-PROMOTED Ni/SiO<sub>2</sub> CATALYSTS: THE INFLUENCE OF Mg PRECURSOR AND IMPREGNATION SEQUENCE  
**Jianqiang ZHU, Xiaoxi PENG, Lu YAO, Changwei HU**  
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CO<sub>2</sub> REFORMING OF METHANE OVER Al, Zr AND Cu PROMOTED Ni/SiO<sub>2</sub> CATALYST

Lu YAO, Jianqiang ZHU, Xiaoxi PENG, Changwei HU

Key Laboratory of Green Chemistry & Technology, Ministry of Education, College of Chemistry, Sichuan University, Chengdu (CN)

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NICKEL NANOPARTICLES SUPPORTED ON ALUMINA FOR THE DRY REFORMING OF METHANE

Pedro Pablo FLORES<sup>1</sup>, Alexia CORDOVA<sup>1</sup>, Juan ALVAREZ<sup>1</sup>, Monica BARTOLINI<sup>1</sup>, Egle PIETRI, Mireya GOLDWASSER<sup>1</sup>, M. Josefina PEREZ ZURITA<sup>1,3</sup>, Jean-François LAMONIER<sup>2</sup>

<sup>1</sup>Centro de Catálisis, Petróleo y Petroquímica, Universidad Central de Venezuela, Caracas, <sup>2</sup>Unité de Catalyse et de Chimie du Solide, Université des Sciences et Technologies de Lille, Villeneuve d'Ascq, FR, <sup>3</sup>On leave at AICISE, Calgary University, (VE/CA)

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MIXED REFORMING OF METHANE OVER CaO-Ni/MgO-Al<sub>2</sub>O<sub>3</sub>: EFFECT OF CALCIUM CONTENT

Hae-Gu PARK, Yun-Jo LEE, Ki-Won JUN, Kyoung-Su HA

Alternative Chemicals/Fuel Research Center, Korea Research Institute of Chemical Technology, Daejeon (KR)

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INTRINSIC ACTIVITY IN LOW TEMPERATURE DRY REFORMING OF WELL DEFINED NICKEL-BASED CATALYSTS

David BAUDOUI<sup>1</sup>, Uwe RODEMERCK<sup>2</sup>, Jean-Pierre CANDY<sup>1</sup>, Laurent VEYRE<sup>1</sup>, Chloé THIEULEUX<sup>1</sup>, Christophe COPERET<sup>1,3</sup>

<sup>1</sup>Université de Lyon, Institut de Chimie de Lyon, CPE Lyon, Villeurbanne, <sup>2</sup>Leibniz Institute for Catalysis, University of Rostock, <sup>3</sup>Department of Chemistry, ETH Zurich, (FR/DE/CH)

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UTILIZATION OF CARBON DIOXIDE FOR PRODUCTION OF CHEMICALS

Azhar HASHMI, Flaiyh AL-ANAZI, Mohammed AL-HAZMI, Khalid EIDAN

Chemical Catalysis Section, SABIC Technology & Innovation, Riyadh (SA)

P 090

EFFECT OF VARIOUS GAS FLOW PARAMETERS AND COMPOSITIONS ON CO<sub>2</sub> METHANATION: VIABILITY STUDY

Fabien OCAMPO, Benoit LOUIS, Anne-Cécile ROGER

University of Strasbourg, LMSPC (FR)

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COKE-CO<sub>2</sub> REACTION IN FLUID CATALYTIC CRACKING PROCESS: EFFECT OF MODIFIED ALUMINA

Thiago CRISPIM<sup>1</sup>, Fabiana M. SANTOS<sup>1</sup>, Maria Luisa GONÇALVES<sup>1</sup>, Luciana T. DOS SANTOS<sup>2</sup>, Leonardo F. MELLO<sup>3</sup>, Benoit LOUIS<sup>4</sup>, Marcelo M. PEREIRA<sup>1</sup>

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CO<sub>2</sub>-TO-METHANOL USING A NUCLEAR ENERGY SOURCE: STUDY OF THE REVERSE WATER GAS-SHIFT (RWGS) ISSUE

Phuangphet VIBHATAVATA<sup>1</sup>, Daniel BIANCHI<sup>2</sup>, Jean-Marc BORGARD<sup>1</sup>, Michel TABARANT<sup>1</sup>

<sup>1</sup>CEA Saclay, <sup>2</sup>IRCELYON (FR)

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DEHYDROGENATION OF ISOBUTANE TO ISOBUTENE WITH CARBON DIOXIDE

Guosong SUN<sup>1,2</sup>, Qingze HUANG<sup>2</sup>, Huiquan LI<sup>3</sup>, Haitao LIU<sup>3</sup>

<sup>1</sup>The College of Materials Science & Engineering, Beijing University of Technology, <sup>2</sup>Guangxi Research Institute of Chemical Industry, Nanning, <sup>3</sup>Key Laboratory for Green Process & Engineering, National Engineering Laboratory for Hydrometallurgical Cleaner Production Technology, Institute of Process Engineering, Chinese Academy of Sciences, Beijing (CN)

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SYNTHESIS AND CHARACTERIZATION OF Fe<sup>3+</sup> DOPED CERIA/Fe<sup>0</sup> NANOMATERIALS

Iona MOOG, Cédric FERAL-MARTIN, Etienne DURAND, Alain DEMOURGUES, Jérôme MAJIMEL

ICMCB-CNRS, Université Bordeaux 1, Pessac (FR)

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#### Topic 4: Photocatalytic & electrochemical reduction of CO<sub>2</sub>

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CARBON CAPTURE & RECYCLING (CCR) USING NANOSTRUCTURED PHOTOCATALYSTS SUPPORTED ON SILICA NANOSPRINGS™

M. Grant NORTON<sup>1,2</sup>, Tejasvi PRAKASH<sup>1</sup>, Oscar G. MARIN-FLORES<sup>1</sup>, Timothy CANTRELL<sup>1</sup>, David N. MCILROY<sup>1,3</sup>, Giancarlo CORTI<sup>1</sup>

<sup>1</sup>GoNano Technologies, Inc., Moscow, <sup>2</sup>Washington State University, Pullman, <sup>3</sup>University of Idaho, Moscow (USA)

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CO<sub>2</sub>-ENHANCED PHOTOLUMINESCENCE INTENSITY OF VARIOUS METAL OXIDES

Shosuke MOCHIZUKI, Takashi SAITO

Nihon University, College of Humanities & Sciences (JP)

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PHOTOCATALYTIC REDUCTION OF CO<sub>2</sub> IN A BATCH SLURRY PHOTOREACTOR

Silvia GARGALE<sup>1</sup>, Guido SPANÒ<sup>2</sup>, Roberto BUZZONI<sup>2</sup>, Francesco DE ANGELIS<sup>1</sup>

<sup>1</sup>Dipartimento di Chimica, Università dell'Aquila, <sup>2</sup>Centro Ricerche per le Energie non Convenzionali Istituto eni Donegani - eni SpA - Novara (IT)

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PHOTOCATALYSIS OF CO<sub>2</sub> THE EFFECT OF METAL DOPING  
**Ola OLUWAFUNMILOLA, Maroto-Valer MERCEDES, Liu DONG, Mackintosh SARAH**  
*The National Centre for Carbon Capture & Storage, University of Nottingham (UK)*
- P 099**  
EFFECTS OF HIGHLY DISPERSED Cu DOPANT ON TiO<sub>2</sub> FOR CO<sub>2</sub> PHOTO-CATALYTIC REDUCTION  
**Dong LIU<sup>1</sup>, Mercedes MAROTO-VALER<sup>1</sup>, Adam LEE<sup>2</sup>**  
*<sup>1</sup>Centre for Innovation in Carbon Capture & Storage, University of Nottingham, <sup>2</sup>School of Chemistry, Cardiff University (UK)*
- P 100**  
CO<sub>2</sub> RECYCLING BY PHOTOCATALYTIC REDUCTION  
**Jesusa RINCÓN, Isaac ASENCIO, Rafael CAMARILLO, Fabiola MARTÍNEZ, Susana TOSTÓN**  
*Department of Chemical Engineering, Faculty of Environmental Sciences & Biochemistry, University of Castilla-La Mancha (ES)*
- P 101**  
FACILE ONE-POT MICROWAVE SYNTHESIS OF Ti-TUD-1 AND ITS PHOTOCATALYTIC ACTIVITY IN PHOTOREDUCTION OF CO<sub>2</sub> TO METHANOL  
**Abhishek BURRI, Sang Eon PARK**  
*Laboratory of Nano Green Catalysis & Nano Center for Fine Chemicals Fusion Technology, Department of Chemistry, Inha University, Incheon (KR)*
- P 102**  
ENZYMATIC PHOTOREDUCTION OF CO<sub>2</sub>  
**Lena SUFFNER<sup>1</sup>, Gerrit A. LUNISTRA<sup>1</sup>, Peter BURGER<sup>2</sup>, Stefanie BÖHNKE<sup>3</sup>, Mirjam PERNER<sup>3</sup>**  
*University of Hamburg, <sup>1</sup>Institute of Technical & Macromolecular Chemistry, <sup>2</sup>Institute of Inorganic & Applied Chemistry, <sup>3</sup>Biocenter Klein Flottbek (DE)*
- P 103**  
[Os(diimine)(CO)<sub>2</sub>Cl<sub>2</sub>] COMPLEXES AS NEW MOLECULAR PHOTOCATALYSTS FOR CO<sub>2</sub> REDUCTION  
**Jérôme CHAUVIN<sup>1</sup>, Frédéric LAFOLET<sup>1</sup>, Sylvie CHARDON-NOBLAT<sup>1</sup>, Alain DERONZIER<sup>1</sup>, Minna JAKONEN<sup>2</sup>, Matti HAUUKKA<sup>2</sup>**  
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- P 104**  
BIS-HETERO NUCLEAR COMPLEXES AS CATALYSTS FOR PHOTOCATALYTIC REDUCTION OF CO<sub>2</sub>  
**Frédéric LAFOLET, Juan-Carlos CANALES, Jérôme CHAUVIN, Sylvie CHARDON-NOBLAT, Alain DERONZIER**  
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**Franck DE GUGLIELMO<sup>1,2</sup>, Pierre MILLET<sup>1</sup>, Alireza RANJBARI<sup>1</sup>, Ally AUKAULOO<sup>1</sup>, Fabien AUPRETRE<sup>2</sup>**  
*<sup>1</sup>Institut de Chimie Moléculaire et des Matériaux, Université Paris 11, <sup>2</sup>Compagnie Européenne des Technologies de l'Hydrogène, Villebon sur Yvette (FR)*
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- Topic 5: CO<sub>2</sub> as solvent**
- P 107**  
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**Cédric SLOSTOWSKI<sup>1,2</sup>, Samuel MARRE<sup>1</sup>, David MESGUICH<sup>1</sup>, Jean-Marc BASSAT<sup>1</sup>, Bertrand PAVAGEAU<sup>2</sup>, Emmanuel MIGNARD<sup>2</sup>, Cyril AYMONIER<sup>1</sup>**  
*<sup>1</sup>CNRS, Université de Bordeaux, ICMCB, <sup>2</sup>CNRS-Rhodia-Université Bordeaux 1, Laboratoire du Futur (FR)*
- P 108**  
SUPERCRITICAL FLUID-ASSISTED DECORATION OF GRAPHENE SHEETS WITH NANOCRYSTALS  
**Van Hoa NGUYEN, Jae Jin SHIM**  
*School of Chemical Engineering, Yeungnam University, Gyeongsangbuk (KR)*
- P 109**  
SOLUBILITY OF BENZENE-1,4-DIBORONIC ACID AND PENTACENE IN SUPERCRITICAL CARBON DIOXIDE  
**Truc NGO<sup>1</sup>, Robert GEORGE<sup>2</sup>, James KEEGAN<sup>1</sup>**  
*<sup>1</sup>Department of Engineering, University of San Diego, <sup>2</sup>Advanced Systems & Applied Sciences Division, SPAWAR Systems Center- Pacific, (USA)*
- P 110**  
CARBON DIOXIDE: A SOLUTION TO ORGANIC SOLVENT SUBSTITUTION IN CLEANING PROCESSES  
**Guy LUMIA, Christian BOUSCARLE, Frédéric CHARTON**  
*CEA DEN Marcoule, Supercritical Fluids & Membranes Laboratory, Bagnols sur Cèze (FR)*
- P 111**  
A COMPARISON OF COMPENDIAL NORMAL PHASE LC METHODS RUN UNDER SUPERCRITICAL FLUID CHROMATOGRAPHY CONDITIONS  
**Andrew J. AUBIN<sup>1</sup>, Michael D. JONES<sup>1</sup>, Isabelle DURIEUX<sup>2</sup>**  
*<sup>1</sup>Waters Corporation, <sup>2</sup>Waters SAS (USA/FR)*
- P 112**  
SUPERCRITICAL CO<sub>2</sub> EXTRACTION OF BIOLOGICAL INSECTICIDES FROM SAVORY AND LAVENDER  
**Kristina ROCHOVA<sup>1</sup>, Marketa KURCOVA<sup>1</sup>, Marie SAJFRTOVA<sup>1</sup>, Helena SOVOVA<sup>1</sup>, Roman PAVELA<sup>2</sup>**  
*<sup>1</sup>Institute of Chemical Process Fundamentals of the ASCR, <sup>2</sup>Crop Research Institute, Prague (CZ)*

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SUPERCRITICAL FLUID EXTRACTION OF BOTANICAL INSECTICIDES FROM RUE  
**Marie SAJFRTOVA<sup>1</sup>, Kristina ROCHOVA<sup>1</sup>, Jindrich KARBAN<sup>1</sup>, Helena SOVOVA<sup>1</sup>, Roman PAVELA<sup>2</sup>**  
<sup>1</sup>Institute of Chemical Process Fundamentals of the ASCR, <sup>2</sup>Crop Research Institute, Prague (CZ)
- P 114**  
EXTRACTION OF PHENOLIC COMPOUNDS FROM MANGO LEAVES (*Mangifera indica* L.) WITH SUPERCRITICAL FLUIDS  
**María Teresa FERNÁNDEZ, Casimiro MANTELL, Miguel RODRIGUEZ, Lourdes CASAS, Enrique MARTINEZ DE LA OSSA**  
Department of Chemical Engineering & Food Technology, University of Cádiz (ES)
- P 115**  
CO-PRECIPITATION OF ETHYL CELLULOSE AND AMPICILLIN MICROPARTICLES BY SUPERCRITICAL ANTISOLVENT PROCESS  
**Antonio MONTES, Dolores GORDILLO, Clara PEREYRA, Enrique J. MARTÍNEZ DE LA OSSA**  
Department of Chemical Engineering & Food Technology, University of Cádiz (ES)
- P 116**  
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**Rafał BOGEL-ŁUKASIK**  
National Laboratory for Energy & Geology, Unit of Bioenergy, Lisbon (PT)
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UTILIZATION OF CO<sub>2</sub> AS TRIGGER IN THE SYNTHESIS OF NOVEL SWITCHABLE IONIC LIQUIDS FOR THE DISSOLUTION OF LIGNOCELLULOSIC MATERIALS  
**Ikenna ANUGWOM<sup>1</sup>, Päivi MÄKI-ARVELA<sup>1</sup>, Pasi VIRTANEN, Jyri-Pekka MIKKOLA<sup>1,2</sup>**  
<sup>1</sup>Åbo Akademi University, Process Chemistry Centre, Turku/Åbo, <sup>2</sup>Umeå University, Department of Chemistry, Chemical-Biological Center, Umeå (FI/SE)
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**Antonello DECORTES<sup>1</sup>, Arjan W. KLEIJ<sup>1,2</sup>, Masoumeh TAHERIMEHR<sup>3</sup>, Paolo PESCARMONA<sup>3</sup>**  
<sup>1</sup>Institute of Chemical Research of Catalonia, Tarragona, <sup>2</sup>Catalan Institute of Research & Advanced Studies, Barcelona, <sup>3</sup>Centre for Surface Chemistry & Catalysis University of Leuven, K.U. Leuven, (ES/BE)
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**Chris SMITH<sup>1,2</sup>, Thierry TASSAING<sup>1</sup>, Eric CLOUTET<sup>2</sup>, Henri CRAMAIL<sup>2</sup>**  
<sup>1</sup>Institut des Sciences Moléculaires, Université Bordeaux, <sup>2</sup>Laboratoire de Chimie des Polymères Organiques, Université Bordeaux, (FR)
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CO<sub>2</sub> VS PROPANE SOLVENT IN DIMERIZATION OF BUTENE  
**Rauli KOSKINEN<sup>1</sup>, Marja TIITTA<sup>2</sup>, Helka TURUNEN<sup>1,3</sup>, Riitta L. KEISKI<sup>1</sup>**  
<sup>1</sup>Department of Process & Environmental Engineering, University of Oulu, <sup>2</sup>Neste Oil Corporation, Porvoo, <sup>3</sup>Neste Jacobs Oy, Porvoo (FI)
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TANDEM STAUDINGER-AZA-WITTIG REACTION IN SUPERCRITICAL CO<sub>2</sub>: SYNTHESIS OF COMPOUNDS OF INTEREST  
**Florence DUMARÇAY-CHARBONNIER<sup>1</sup>, Danielle BARTH<sup>2</sup>, Alain MARSURA<sup>1</sup>**  
<sup>1</sup>Laboratoire de Structure et Réactivité des Systèmes Moléculaires Complexes, Nancy-Université, <sup>2</sup>Laboratoire des Sciences du Génie Chimique, Nancy-Université (FR)
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ALDOL REACTIONS IN DENSE AND SUPERCRITICAL CARBON DIOXIDE AS INNOVATIVE REACTION MEDIUM  
**Nikolai MUSKO<sup>1,2</sup>, Jan-Dierk GRUNWALDT<sup>2</sup>, Georgios M. KONTOGEORGIS<sup>1</sup>, Ioannis TSIVINTZELIS<sup>1</sup>**  
<sup>1</sup>Center for Energy Resources Engineering, Department of Chemical & Biochemical Engineering, Technical University of Denmark, Lyngby, <sup>2</sup>Institute of Chemical Technology & Polymer Chemistry & Institute for Catalysis Research & Technology, Karlsruhe (DK/DE)
- P 125**  
HYDROGENATION OF 1,2-EPOXYETHYLBENZENE IN SUPERCRITICAL CARBON DIOXIDE SOLVENT  
**Chandrashekhara V. RODE<sup>1</sup>, Aritomo YAMAGUCHI<sup>2</sup>, Osamu SATO<sup>2</sup>, Norihito HIYOSHI<sup>2</sup>, Masayuki SHIRAI<sup>2</sup>**  
<sup>1</sup>National Chemical Laboratory, <sup>2</sup>National Institute of Advanced Industrial Science & Technology (IN/JP)
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STEREOSELECTIVE HYDROGENATION OF 4-ALKYLPHENOLS OVER SUPPORTED RHODIUM METAL CATALYSTS IN SUPERCRITICAL CARBON DIOXIDE SOLVENT  
**Masayuki SHIRAI<sup>1</sup>, Aritomo YAMAGUCHI<sup>1</sup>, Osamu SATO<sup>1</sup>, Chandrashekhara V. RODE<sup>2</sup>, Norihito HIYOSHI<sup>1</sup>**  
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CATALYTIC HYDROGENATION OF CARVONE IN HIGH PRESSURE CO<sub>2</sub> INTO VALUABLE PRODUCTS

Catarina Isabel MELO<sup>1</sup>, Marco GOMES DA SILVA<sup>1</sup>, Rafał BOGEL-ŁUKASIK<sup>1,2</sup>, Manuel NUNES DA PONTE<sup>1</sup>, Ewa BOGEL-ŁUKASIK<sup>1</sup>

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**Topic 6: CO<sub>2</sub> in the context of Green Chemistry for sustainability**

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ACTIVITY OF DIFFERENT CATALYSTS FOR THE ADDITION OF CO<sub>2</sub> TO THE SUBSTITUTED EPOXIDES

Tomáš WEIDLICH<sup>1</sup>, Aleš RŮŽIČKA<sup>2</sup>, Petr ŠVEC<sup>3</sup>

<sup>1</sup>Chemical Technology Group, Institute for Environmental & Chemical Engineering, University of Pardubice, <sup>2</sup>Department of General & Inorganic Chemistry, University of Pardubice, <sup>3</sup>Institute of Inorganic Chemistry of the ASCR, Řež (CZ)

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SOLUBILITY OF CARBON DIOXIDE IN QUATERNARY AMMONIUM IONIC LIQUIDS

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BICARBONATE CATALYSIS IN THE HYDROGENATION OF CINNAMALDEHYDE

Imre SZATMÁRI<sup>1</sup>, Gábor PAPP<sup>2</sup>, Ferenc JOÓ<sup>1,2</sup>, Ágnes KATHÓ<sup>1</sup>

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ENERGETIC COMPARISON OF THE UTILIZATION OF CO<sub>2</sub> FOR THE PRODUCTION OF METHANOL OR METHANE AS A CHEMICAL STORAGE FOR RENEWABLE ENERGY

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THERMOCHEMICAL CO<sub>2</sub> SPLITTING BASED ON Fe<sub>3</sub>O<sub>4</sub>/FeO REDOX REACTIONS USING CONCENTRATED SOLAR ENERGY

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CO-UTILIZATION OF CO<sub>2</sub> AND WASTE OIL SHALE ASH TO PRODUCE CALCIUM CARBONATE

Olga VELTS<sup>1,2</sup>, Mai UIBU<sup>1</sup>, Juha KALLAS<sup>1</sup>, Rein KUUSIK<sup>1</sup>

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GREEN CHEMISTRY PERSPECTIVES FOR THE CAPTURE CONVERSION AND UTILIZATION OF DIFFUSE OR POINT SOURCE GREENHOUSE GASES

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SUSTAINABILITY ASSESMENT OF CHEMICAL UTILIZATION OF CO<sub>2</sub>

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**Topics 7/8: LCA methods & Impact of CO<sub>2</sub> regulations on industrial processes**

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COMPARATIVE EVALUATION OF ENVIRONMENTAL BEHAVIOUR OF SURFACE PREPARATION AND COATING PROCESSES IMPLEMENTING LIFE CYCLE ASSESSMENT METHOD

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