



Gesellschaft für Chemische Technik  
und Biotechnologie e.V.

## PROGRAMME

October 10 – 13, 2010  
Berchtesgaden/Germany

# Green Solvents Conference

[www.dechema.de/gsfs2010](http://www.dechema.de/gsfs2010)



DECHEMA  
Gesellschaft für Chemische Technik  
und Biotechnologie e.V.

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IN COOPERATION WITH

**PROCESSNET**  
EINE INITIATIVE VON DECHEMA UND VDI-GVC

## INVITATION

The solvent is a strategic parameter for chemical transformations occurring in solution phase and plays a crucial role for the implementation of such processes on a laboratory and industrial scale. On a molecular level, the solvent helps to bring reagents in direct contact and stabilises or destabilises intermediates and transition states. In process design, the use of solvents determines the choice of work-up procedures and requires recycling or disposal strategies. The aim of the conference is to highlight innovative concepts for the substitution of volatile organic solvents in solution phase synthesis. Emphasis will be laid on the development and application of alternative reaction media based on advanced fluids such as aqueous phases, ionic liquids, supercritical phases, green organic solvents, or soluble polymers, but includes also phase-separable reagents and related separation strategies in all areas of chemical synthesis. The lecture programme consists of a special Sunday evening lecture, keynote and invited lectures and submitted oral presentations with no parallel sessions. The poster session plays a key role for the discussion of cutting edge results in the field. The 2010 edition of “Green Solvents for Synthesis” will be held in the picturesque location of Berchtesgaden at the Lake Königssee in the Bavarian Alps between Munich and Salzburg. An excursion on the lake and a conference dinner in a typical Bavarian setting is part of the social programme.

We look forward to welcoming you at an exciting meeting.

The Organising Committee

# COMMITTEES

## ORGANISING COMMITTEE

<b>W. Leitner</b>	RWTH Aachen/D, Chairman
<b>K.R. Seddon</b>	Queen's University of Belfast/UK
<b>P. Wasserscheid</b>	University of Erlangen-Nuremberg/D
<b>A. Wells</b>	AstraZeneca, Loughborough/UK
<b>D. Demtröder</b>	DECHEMA e. V., Frankfurt am Main/D
<b>B. Feisst</b>	DECHEMA e. V., Frankfurt am Main/D

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<b>M. Poliakoff</b>	University of Nottingham/UK
<b>R.D. Rogers</b>	University of Alabama, AL/USA
<b>U. Vagt</b>	BASF SE, Ludwigshafen/D

## PROGRAMME AT A GLANCE

Sunday, 10 October 2010		Monday, 11 October 2010	
		<i>Chair</i> Seddon	
		8:30 <b>KEYNOTE LECTURE</b> Dunn	
		9:10 Eta	
		9:35 Knez	
		10:00 Coffee break	
		<i>Chair</i> Chiappe	
		10:30 <b>KEYNOTE LECTURE</b> Greiner	
		11:10 Türk	
		11:35 Horváth	
12:00	<b>EXCURSION</b> Lake Königssee	12:00 Lunch	
		12:00 Mitgliederversammlung der Fachsektion „Advanced Fluids“	
		13:00	
		<i>Chair</i> Hempel	
		13:30 <b>KEYNOTE LECTURE</b> Ikariya	
		14:10 Müller	
		14:35 Muldoon	
		15:00 Schubert	
		15:25 Coffee break	
		<i>Chair</i> Massonne	
	15:55 <b>KEYNOTE LECTURE</b> Szesni		
	16:35 Adschiri		
	17:00 Jess		
	17:25 <b>KEYNOTE LECTURE</b> Sarrade		
18:00	<b>WELCOME RECEPTION</b>	18:05 <b>POSTER SESSION</b>	
19:45	<b>OPENING ADDRESS</b> Leitner	20:00	
20:00	<b>OPENING LECTURE</b> Jessop		

## PROGRAMME AT A GLANCE

Tuesday, 12 October 2010		Wednesday, 13 October 2010	
<i>Chair</i> Wells		<i>Chair</i> Olivier-Bourbigou	
8:30 <b>KEYNOTE LECTURE</b> Vogt		8:30 <b>KEYNOTE LECTURE</b> Szarvas	
9:10 Puga		9:10 Busch	
9:35 Soh		9:35 Lozano	
10:00 Coffee break		10:00 Heyn	
10:00 Coffee break		10:25 Coffee break	
<i>Chair</i> Behr		<i>Chair</i> Wasserscheid	
10:30 <b>KEYNOTE LECTURE</b> Gladysz		10:55 <b>KEYNOTE LECTURE</b> Grunwaldt	
11:10 Schwarze		11:35 Bica	
11:35 Riisager		12:00 Schatz	
12:00 Lunch		12:25 <b>KEYNOTE LECTURE</b> Bell	
<i>Chair</i> Park		13:05 <b>POSTER AWARD</b> <b>CLOSING REMARKS</b>	
13:30 <b>KEYNOTE LECTURE</b> Howdle		13:15 <b>END OF CONFERENCE</b>	
14:10 Perosa			
14:35 Wang			
15:00 <b>KEYNOTE LECTURE</b> Fischmeister			
15:40 Coffee Break			
<i>Chair</i> Poliakoff			
16:10 <b>KEYNOTE LECTURE</b> Lee			
16:50 Szydlo			
17:15 Buijs			
17:40 <b>KEYNOTE LECTURE</b> Kragl			
18:20 <b>END OF</b> <b>LECTURE PROGRAMME</b>			
19:30 <b>BAVARIAN</b> <b>CONFERENCE DINNER</b>			

## LECTURE PROGRAMME

### Sunday, 10 October 2010

- 12:00 **EXCURSION LAKE KÖNIGSSEE**
- 
- 18:00 **WELCOME RECEPTION**  
at the Kongresshaus Berchtesgaden
- 
- 19:45 **OPENING ADDRESS**  
W. Leitner, RWTH Aachen/D
- 
- 20:00 **OPENING LECTURE**  
**The search for green solvents: we're half way there!**  
P.G. Jessop, Queen's University, Kingston Ontario/CDN
- 

## LECTURE PROGRAMME

### Monday, 11 October 2010

- Chair: K.R. Seddon, Queen's University of Belfast/UK*
- 
- 8:30 **KEYNOTE LECTURE**  
**Green solvents in the pharmaceutical industry**  
P.J. Dunn, Pfizer Global Research and Development, Sandwich/UK
- 
- 9:10 **Ionic liquids as effective reaction medium for the synthesis of DMC from CO<sub>2</sub> and methanol**  
V. Eta, P. Mäki-Arvela, D. Yu. Murzin, T. Salmi, Åbo Akademi, Turku/FIN; J-P. Mikkola, Umeå University/S
- 
- 9:35 **Processing polymeric bio-materials using supercritical CO<sub>2</sub>**  
Z. Knez, E. Markocic, M. Škerget, University of Maribor/SLO
- 
- 10:00 *Coffee break*
- 
- Chair: C. Chiappe, University of Pisa/I*
- 
- 10:30 **KEYNOTE LECTURE**  
**Continuous flow for and with ionic liquids**  
L. Greiner, DECHEMA e.V., Frankfurt am Main/D
- 
- 11:10 **Supercritical CO<sub>2</sub> as novel particle formation media: applications to the formation of metallic nanoparticles**  
M. Türk, Karlsruhe Institute of Technology (KIT)/D
- 
- 11:35 **γ – Vaterolactone for γ – Vaterolactone**  
L. Qi, G.R. Akien, I.T. Horváth, City University of Hong Kong/HK
- 
- 12:00 *Lunch*
- 
- 12:00 **Mitgliederversammlung**  
13:00 **der Fachsektion „Advanced Fluids“**
-

## LECTURE PROGRAMME

## Monday, 11 October 2010

*Chair: M. Hempel, Deutsche Bundesstiftung Umwelt, Osnabrück/D*

- 13:30 **KEYNOTE LECTURE**  
**Carbon dioxide as a greener solvent and reactant for catalytic reactions**  
 T. Ikariya, Tokyo Institute of Technology/J
- 14:10 **On the applicability of biodiesel as absorbent for the improvement of aromatic hydrocarbons removal: an industrial application**  
 M.T. Müller, H. Arellano-Garcia, TU Berlin/D; H. Thielert, Uhde GmbH, Dortmund/D; G. Wozny, TU Berlin/D
- 14:35 **Investigating the influence of neoteric solvents on the Pd(II) catalysed oxidation of alcohols**  
 D.S. Bailie, L. Bartek, E. Brennan, G.M.A Clendenning, Queen's University of Belfast/UK; B.A. Core, University of St. Andrews/UK; L. Liang, M.J. Muldoon, Queen's University of Belfast/UK
- 15:00 **Ionic liquids: media for size controlled synthesis of nanoparticles and safe-to-handle nanoparticle dispersions**  
 A. Willm, T.J.S Schubert, F. Stiemke, IOLITEC GmbH, Heilbronn/D
- 15:25 *Coffee break*
- Chair: K. Massonne, BASF SE, Ludwigshafen/D*
- 15:55 **KEYNOTE LECTURE**  
**Ionic liquids in heterogeneous catalysis**  
 N. Szesni, Süd-Chemie AG, Bruckmühl/D
- 16:35 **Green supercritical route for super hybrid materials**  
 T. Adschiri, Tohoku University, Sendai/J
- 17:00 **Analysis of evaporation and thermal decomposition of ionic liquids by thermogravimetry at ambient pressure and UHV**  
 F. Heym, University of Bayreuth/D; B.M. Etzold, University of Erlangen-Nuremberg/D; C. Kern, A. Jess, University of Bayreuth/D
- 17:25 **KEYNOTE LECTURE**  
**Supercritical CO<sub>2</sub> processes applications: from extraction plants to material science**  
 S. Sarrade, CEA Marcoule, Bagnols-sur-Cèze/F
- 18:05 – 20:00 **POSTER SESSION**

## LECTURE PROGRAMME

## Tuesday, 12 October 2010

*Chair: A. Wells, AstraZeneca, Loughborough/UK*

- 8:30 **KEYNOTE LECTURE**  
**Aqueous and ionic liquid two-phase hydroformylation and hydroaminomethylation**  
 D. Vogt, TU Eindhoven/NL
- 9:10 **New ionic liquids from perhydroazepine and 3-methylpiperidine**  
 T. Belhocine, A.V. Puga, K.R. Seddon, G. Srinivasan, Queen's University of Belfast/UK; S. Forsyth, K. Whiston, INVISTA, Wilton/UK
- 9:35 **Biodiesel production potential of algal lipids extracted with supercritical carbon dioxide**  
 L. Soh, J.B. Zimmerman, Yale University, New Haven, CT/USA
- 10:00 *Coffee break*
- Chair: A. Behr, TU Dortmund/D*
- 10:30 **KEYNOTE LECTURE**  
**Fluorous solvents for catalyst recovery, catalyst activation and product protection**  
 J.A. Gladysz, Texas A&M University, College Station, TX/USA
- 11:10 **Aqueous micellar solutions as green solvents for hydrogenation reactions: reaction and catalyst recycling**  
 M. Schwarze, T. Hamerla, TU Berlin/D; J.S. Milano-Brusco, RWTH Aachen/D; S. Wille, L. Mokrushina, University of Erlangen-Nuremberg/D; I. Smirnova, TU Hamburg-Harburg/D; W. Arlt, University of Erlangen-Nuremberg/D; R. Schomäcker, TU Berlin/D
- 11:35 **New ionic liquid catalyst systems for direct dehydration of glucose and its polymers into 5-hydroxymethylfurfural**  
 T. Ståhlberg, A. Riisager, S. Rodríguez, P. Fristrup, TU Denmark, Lyngby/DK
- 12:00 *Lunch*

## LECTURE PROGRAMME

## Tuesday, 12 October 2010

*Chair: S.-E. Park, Inha University, Incheon/ROK*

13:30 **KEYNOTE LECTURE**  
**Polymeric materials for medical applications: a supercritical approach**  
 S.M. Howdle, University of Nottingham/UK

14:10 **Extremely functional and easily tunable green ionic liquids**  
 M. Fabris, V. Lucchini, M. Noè, A. Perosa, M. Selva,  
 University of Venice/I

14:35 **Thermoregulated PEG biphasic system for separation and recovery of transition-metal nanoparticle catalyst**  
 Z. Sun, Y.H. Wang, J.Y. Jiang, Z.L. Jin, Dalian University of Technology/PRC

15:00 **KEYNOTE LECTURE**  
**Carbonate solvents for selective homogeneous catalysis**  
 C. Fischmeister, University of Rennes/F

15:40 *Coffee break*

*Chair: M. Poliakoff, University of Nottingham/UK*

16:10 **KEYNOTE LECTURE**  
**Integrated technology of hydrothermal synthesis and supercritical water oxidation**  
 Y.-W. Lee, Seoul National University/ROK

16:50 **New chiral catalysts for asymmetric oxidation in green media**  
 F. Szydło, M.Y. Elkadiri, B. Andrioletti, University Claude Bernard Lyon 1, Villeurbanne/F

17:15 **Sustainable production of tetrahydrocannabinol using supercritical carbon dioxide**  
 H. Perrotin-Brunel, W. Buijs, TU Delft/NL; M.J.E. Roosmalen van, FeyeCon D&I B.V, Weesp/NL; J. Spronsen van, TU Delft/NL; R. Verpoorte, University of Leiden/NL; C.J. Peters, Petroleum Institute, Abu Dhabi/UAE; G.J. Witkamp, TU Delft /NL

17:40 **KEYNOTE LECTURE**  
**Biocatalysis in non-conventional media – past, present and future**  
 U. Kragl, University of Rostock/D

18:20 **END OF LECTURE PROGRAMME**

19:30 **BAVARIAN CONFERENCE DINNER**

## LECTURE PROGRAMME

## Wednesday, 13 October 2010

*Chair: H. Olivier-Bourbigou, IFP-Lyon, Solaize/F*

8:30 **KEYNOTE LECTURE**  
**Ionic liquids: commercial applications, toxicological assessments and regulatory requirements**  
L. Szarvas, K. Müller, BASF SE, Ludwigshafen/D

9:10 **Dehydration of ethanol in water under sub- and supercritical conditions**  
H. Busch, H. Vogel, TU Darmstadt/D

9:35 **Batch and continuous flow efficient enzymatic synthesis of biodiesel in mono- and multiphase systems based on ILs and  $\text{scCO}_2$**   
P. Lozano, J. Bernal, University of Murcia/E; M. Vaultier, CNRS, Rennes/F

10:00 **Utilisation of  $\text{CO}_2$  via catalysis with ionic liquids**  
R. Heyn, K. Thorshaug, T. Didriksen, Ø. Vistad, SINTEF Materials and Chemistry, Oslo/N

10:25 *Coffee break*

*Chair: P. Wasserscheid, University of Erlangen-Nuremberg/D*

10:55 **KEYNOTE LECTURE**  
**Heterogeneous catalysis in dense carbon dioxide: opportunities, limitations and understanding**  
 J.-D. Grunwaldt, Karlsruhe Institute of Technology (KIT)/D

11:35 **From plant to drug – ionic liquids for the isolation of valuable ingredients from biomass**  
K. Bica, P. Gaertner, TU Vienna/A

12:00 **Merging the worlds of bio- and metal organic catalysis – tandem reactions in aqueous media**  
 K. Tenbrink, H. Gröger, M. Seßler, J. Schatz, University of Erlangen-Nuremberg/D

12:25 **KEYNOTE LECTURE**  
**The role of ionic liquids in the conversion of biomass to fuels and chemicals**  
 A.T. Bell, University of California, Berkeley, CA/USA

13:05 **POSTER AWARD AND CLOSING REMARKS**

13:15 **End of conference**

## POSTER PROGRAMME

- P 1 **Dehydration of 2-methyl-1,3-propanediol to isobutyraldehyde in sub- and supercritical water**  
A. Soler, K. Krantchev, H. Vogel, TU Darmstadt/D
- P 2 **The application of molecular modelling in the optimisation of reactive cotton dyeing in supercritical carbon dioxide**  
W. Buijs, V. Fernandez Cid, G-J. Witkamp, TU Delft/NL
- P 3 **Oxidation of alcohols and ketones with peroxyacids in ionic liquids as efficient solvents**  
 S. Baj, A. Chrobok, TU Silesian, Gliwice/PL
- P 4 **Dimcarb and ionic liquids: reactive solvents for the Kolbe-Schmitt synthesis**  
A. Stark, University of Jena/D; C. Hofmann, R. Wirker, TU Chemnitz/D; B. Ondruschka, S. Huebschmann, D. Kralisch, University of Jena/D
- P 5 **Deacidification of soybean oil using ionic liquids or Poly(ethyleneglycol)s**  
V. Najdanovic-Visak, M.S. Manic, New University of Lisbon, Caparica/P; Z.P. Visak, Centro de Química Estrutural, Lisbon/P; M. Nunes da Ponte, New University of Lisbon, Caparica/P
- P 6 **Thermodynamic characterisation of an IL synthesis combining online spectroscopy and calorimetry**  
S. Hardy, C. Minnich, L. Greiner, M.A. Liauw, RWTH Aachen/D
- P 7 **Pretreatment of lignocellulosic materials with ionic liquids: which potential?**  
 D. Morvan, C. Vallee, IFP-Lyon, Solaize/F; M. Ropars, IFP, Rueil-Malmaison/F; H. Olivier-Bourbigou, IFP-Lyon, Solaize/F
- P 8 **Enzyme-catalysed C-C bond formation using 2-methyl-THF: efficient and bio-based alternative to DMSO and MTBE**  
S. Shanmuganathan, D. Natalia, A. Wittenboer, W. Leitner, L. Greiner, P. Domínguez de María, RWTH Aachen/D
- P 9 **Effect of higher water content on different ionic liquids**  
M. Ramunno, N. Ebel, P. Wasserscheid, E. Schlücker, University of Erlangen-Nuremberg/D
- P 10 **Catalytic modification of cellulose in ionic liquids**  
A. Osichow, S. Mecking, University of Konstanz/D
- P 11 **Ionic liquids and the NOE: interactions in the liquid phase**  
R. Giernoth, Y. Lingscheid, University of Cologne/D
- P 12 **Special ionic liquids in the synthesis of organised magnetic surfaces**  
P. Dytrych, P. Kluson, Z. Hubicka, H. Pelantova, Academy of Sciences of the Czech Republic, Prague/CZ; M. Vesely, TU Brno/CZ; M. Slater, University of Bangor, Gwynedd/UK

## POSTER PROGRAMME

- P 13 **Activity and stability of immobilised cellulase in anhydrous mixtures of ILs containing cellulose**  
P. Lozano, B. Bernal, University of Murcia/E; M. Vaultier, CNRS, Rennes/F
- P 14 **Selective catalytic hydrogenation of terpenes by nanoparticle catalysts**  
D. Peters, M. Hölscher, W. Leitner, RWTH Aachen/D
- P 15 **Solvent concepts to recycle homogeneous catalysts of the cross-metathesis of methyl oleate with 4-octene**  
A. Behr, J. Pérez-Gomez, H. Witte, TU Dortmund/D
- P 16 **Inline ATR-IR spectroscopy to determine reaction kinetics in multiphase catalysis**  
M. Picard, L. Greiner, W. Leitner, RWTH Aachen/D
- P 17 **Low-viscous ionic liquids including electron-withdrawing groups**  
S. Kitaoka, K. Nobuoka, T. Arima, N. Yoshiiwa, Y. Ishikawa, Oita University/J
- P 18 **Ionic liquids for chiral application of DNA**  
K. Nobuoka, S. Kitaoka, A. Nakamura, K. Sumi, Y. Ishikawa, Oita University/J
- P 19 **Light and heavy fluororous cyclopentadienes – challenging way to a ubiquitous ligand**  
J. Cermak, L. Cervenková Stastná, Academy of Sciences of the Czech Republic, Prague/CZ
- P 20 **Two phase system of benzaldehyde lyase catalysed reaction in supercritical carbon dioxide**  
D. Natalia, C. Kohlmann, RWTH Aachen/D; M. Ansorge-Schumacher, TU Berlin/D; L. Greiner, RWTH Aachen/D
- P 21 **In-situ monitoring of lignin in ionic liquids by means of a novel ATR-UV probe**  
J. Viell, RWTH Aachen/D; L. Küpper, Infrared fibre sensors/D; W. Marquardt, RWTH Aachen/D
- P 22 **Synthesis of nano-catalysts by chemical fluid deposition (CFD) and their application in the transformation of biomass-derived monomers**  
 K. Yan, F. Qin, R. Weiß, N. Theyssen, Max-Planck-Institute for Coal Research, Mülheim/D; W. Leitner, RWTH Aachen/D
- P 23 **Synthesis of polyvinyl pyridine ferrite nanocomposites in supercritical carbon dioxide**  
N. Bhullar, Maharaja Agrasen Institute of Technology, New Delhi/IND; B. Joshi, Serc Division Department of Science and Technology, New Delhi/IND



## POSTER PROGRAMME

- P 24 **Application of supported ionic liquid phase (SILP) catalysis to Monsanto carbonylation reactions**  
C.W. Hanning, R. Fehrmann, A. Riisager, O. Nguyen Van Buu, TU Denmark, Lyngby/DK
- P 25 **Palladium catalysts with ionic liquid layer in Suzuki and Hiyama reactions**  
T. Borkowski, A.M. Trzeciak, University of Wrocław/PL
- P 26 **Cascade reactions for sustainable conversion of fatty acid methyl esters**  
S.L. Dessel, T. Hermanns, J. Klankermayer, W. Leitner, RWTH Aachen/D
- P 27 **Phase equilibria of ionic liquids in petroleum processing**  
M.J. Earle, Queen's University of Belfast/UK; H. Rodríguez, University of Santiago de Compostela/E; K.R. Seddon, Queen's University of Belfast/UK; A. Arce, A. Soto, University of Santiago de Compostela/E
- P 28 **Comparison of CO<sub>2</sub> capture capacity of RTILs and SILs**  
E. Privalova, P. Mäki-Arvela, K. Eränen, D.Yu. Murzin, Åbo Akademi, Turku/FIN; J.-P. Mikkola, Umeå University/S
- P 29 **Ecofriendly oxidation of olefins catalysed by transition-metal porphyrins in ionic liquids media**  
G. Chatel, M. Draye, University of Savoie, Chambéry/F; B. Andrioletti, University of Lyon, Villeurbanne/F; N. Kardos, University of Savoie, Chambéry/F; C. Goux-Henry, University of Lyon, Villeurbanne/F
- P 30 **Mechanical pretreatment of biomass for efficient dissolution in ionic liquids**  
Q. Yan, M. Modigell, RWTH Aachen/D
- P 31 **New tropos-BIPHEP ligands for asymmetric catalysis in chiral ionic liquids**  
P. Oczipka, G. Franciò, J. Klankermayer, W. Leitner, RWTH Aachen/D
- P 32 **Aqueous green synthesis of starch-graft-poly(ethylacrylate)**  
V. Singh, S. Maurya, P.K. Tandon, University of Allahabad/IND
- P 33 **Catalysis by solid supported transition metal ions in the oxidation of hydrocarbons, aromatic aldehydes and phenols in liquid phase and under solvent-less conditions**  
P. Tandon, V. Singh, University of Allahabad/IND
- P 34 **Experimental measurements of electrical conductivity and viscosity of EMIM-CnS ionic liquids and their mixtures with ethanol at four temperatures**  
E. Rilo Siso, J. Vila, L. Segade, University of Coruña/E; L.M. Varela, University of Santiago de Compostela/E; O. Cabeza, University of Coruña/E

## POSTER PROGRAMME

- P 35 **Sustainable production of EMIM ClO<sub>4</sub>**  
P. Keil, M. Schmeißer, M. Kick, R. van Eldik, A. König, University of Erlangen-Nuremberg/D
- P 36 **Continuous-flow (bio)catalytic processes for the transformation of 1,3-propanediol**  
V. Sans Sangorrin, M. Sotenko, A. Lapkin, University of Warwick, Coventry/UK
- P 37 **Oxadiazoline and ketoimine Pd(II) complexes as highly efficient catalysts for Suzuki-Miyaura cross-couplings in scCO<sub>2</sub>**  
R.R. Fernandes, J. Lasri, TU Lisbon/P; M.F.C. Guedes da Silva, Lusophone University of Humanities and Technology, Lisbon/P; A.M.F. Palavra, J.A.L. Silva, A.J.L. Pombeiro, TU Lisbon/P
- P 38 **Physicochemical and solvent properties of morpholinium dicyanamide ionic liquids**  
C. Chiappe, C.S. Pomelli, S. Rajamani, University of Pisa/I
- P 39 **Homogeneously catalysed Suzuki coupling and hydrogenation reaction as tandem in three phase microemulsions**  
H. Nowothnick, K. Seifert, R. Schomäcker, TU Berlin/D
- P 40 **Highly recyclable, low antimicrobial and antifungal toxicity ionic liquids: a new strategy for Brønsted acid catalysed reaction**  
R. Gore, Dublin City University/IRL; L. Myles, University of Dublin/IRL; M. Špulák, M. Pour, KAOCH, Hradec Kralove/CZ; S. Connon, University of Dublin/IRL; N. Gathergood, Dublin City University/IRL
- P 41 **Tungstate and molybdate based ionic liquids for the extractive and oxidative desulfurization (EODS) of fuel oils**  
T. Gloeckner, A. Jess, University of Bayreuth/D
- P 42 **Rhodium-catalysed hydroformylation in aqueous – multiphase systems**  
A. Rost, T. Hamerla, R. Schomäcker, TU Berlin/D
- P 43 **TGA and DSC analysis of choline chloride based binary mixtures**  
Q. Abbas, L. Binder, TU Graz/A
- P 44 **Design, synthesis and application of novel chiral ionic liquids from amino acids**  
S. Leder, K. Bica, P. Gaertner, TU Vienna/A
- P 45 **Carbon dioxide as a building block for production of polymers**  
G. Erre, Y. Dienes, J. Barraet, W. Offermans, B. Köhler, W. Leitner, C. Gürtler, T.E. Müller, RWTH Aachen/D
- P 46 **Di-alkyl and tetra-alkyl pyrazolium ionic liquids: synthesis, characterisation and properties**  
A. Sanzone, C. Chiappe, C. Brocchetta, University of Pisa/I

- P 47 **The Wacker oxidation in ionic liquids**  
A. Sanzone, C. Chiappe, University of Pisa/I
- P 48 **Synthesis of novel bimetallic redox catalysts for sustainable chemistry**  
 A. Prokofieva, F. Doro, S. Soomro, W. Leitner, C. Gürtler, T. Müller, RWTH Aachen/D
- P 49 **Synthesis, characterisation and use of copper nanoparticles/montmorillonite composite to accelerate the oxidation of various organic functionalities by sodium ferrate**  
V. Singh, S.B. Singh, P.K. Tandon, University of Allahabad/IND
- P 50 **Dielectric characterisation of ion jelly films**  
T. Carvalho, A.R. Brás, N. Correia, R. Igreja, C.J. Dias, New University of Lisbon, Caparica/P; N.M.T. Lourenço, C.A.M. Afonso, Instituto Superior Técnico, Lisbon/P; S. Barreiros, P. Vidinha, M. Dionísio, New University of Lisbon, Caparica/P
- P 51 **Development and characterisation of ionic nucleotides for different bioapplications**  
 D. Garcia, S. Barreiros, I. Sá-Nogueira, P. Vidinha, New University of Lisbon, Caparica/P
- P 52 **Asymmetric hydrogenation of alpha- and beta-keto esters in continuous gas-phase applications using supported ionic liquid phase (SILP) catalysts**  
M.J. Schneider, E. Öchsner, M. Haumann, P. Wasserscheid, University of Erlangen-Nuremberg/D
- P 53 **Synthesis, properties, and utilization of 1-ethyl-3-methylimidazolium alkylbenzene sulfonate ionic liquids**  
D. Raynie, K. Shen, South Dakota State University, Brookings, SD/USA
- P 54 **Selective hydrogenation of aromatic amines over heterogeneous catalysts**  
E. Gebauer-Henke, L. Blumenthal, W. Leitner, A. Sim, G. Voss, T.E. Müller, RWTH Aachen/D
- P 55 **Acido-base equilibrium in room temperature ionic liquids: the role of different solvation contributions**  
M. Malvaldi, C. Chiappe, University of Pisa/I
- P 56 **Continuous gas-phase hydroformylation using supported ionic liquid phase (SILP) catalysts - importance of type and amount of ionic liquid**  
 A. Schönweiz, A. Buchele, W. Arlt, M. Haumann, P. Wasserscheid, University of Erlangen-Nuremberg/D

- P 57 **Advanced supported ionic liquid phase (SILP) materials for catalysis**  
M. Haumann, University of Erlangen-Nuremberg/D; R. Franke, Evonik Oxeno GmbH, Marl/D; P. Wasserscheid, University of Erlangen-Nuremberg/D
- P 58 **Gas-phase dimethyl carbonate synthesis using novel supported ionic liquid phase (SILP) catalysts**  
M. Haumann, University of Erlangen-Nuremberg/D; M. Stricker, J. Sundermeyer, University of Marburg/D; B. Melcher, P. Wasserscheid, University of Erlangen-Nuremberg/D
- P 59 **Enzymatic production of eicosapentaenoic acid (EPA) ethyl esters from microalgae with supercritical fluids**  
A. Seibert, University of Stuttgart/D; U. Schmid-Staiger, W. Trösch, Fraunhofer IGB, Stuttgart/D; T. Hirth, University of Stuttgart/D
- P 60 **A COSMO-RS based guide to analyse/quantify the polarity of ionic liquid media**  
J. Palomar, Autonomous University of Madrid/E; J.S. Torrecilla, Complutense University, Madrid/E; J. Lemus, V.R. Ferro, Autonomous University of Madrid/E; F. Rodríguez, Complutense University, Madrid/E
- P 61 **SILP-scCO<sub>2</sub> system for continuous flow asymmetric hydrogenation**  
A. Badoiu, U. Hintermair, G. Franciò, J. Klankermayer, W. Leitner, RWTH Aachen/D
- P 62 **From CO<sub>2</sub> to aialkyl carbonates with organometallic and heterogeneous catalysts**  
 D. Ballivet-Tkatchenko, CNRS, Dijon/F; S. Chambrey, S. Vasireddy, University of Bourgogne/F; M. Poor Kalhor, H. Chermette, University of Lyon/F
- P 63 **Phosphonium nitrate ionic liquid catalysed electrophilic aromatic oxy-chlorination**  
M. Noè, A. Perosa, M. Selva, University of Venice/I; L. Zambelli, Galentis S.r.L., Marcon/I
- P 64 **The metathesis of 1-olefins over supported Re-catalysts in supercritical CO<sub>2</sub>**  
M. Fabris, A. Perosa, M. Selva, University of Venice/I; P. Licence, University of Nottingham/UK
- P 65 **Effective n-octane isomerization under exceptionally mild conditions using a novel class of superacidic ionic liquids**  
C. Apfel, M. Haumann, P. Wasserscheid, University of Erlangen-Nuremberg/D

- P 66 **Continuous gas-phase absorption using supported ionic liquid phase (SILP) materials**  
D. Roth, F. Kohler, M. Haumann, P. Wasserscheid, University of Erlangen-Nuremberg/D
- P 67 **Designing multifunctional ionic liquids for biomass processing**  
A.J. Kunov-Kruse, A. Riisager, R. Fehrmann, TU Denmark, Lyngby/DK
- P 68 **SILP catalysts for the asymmetric hydrogenation**  
 I. Podolean, S.M. Coman, V.I. Parvulescu, University of Bucharest/RO; W. Leitner, RWTH Aachen/D; C. Hardacre, Queen's University of Belfast/UK
- P 69 **Thermoregulated biphasic complex catalysis in polyether modified quaternary ammonium salts ionic liquids**  
 D. Wu, B. Tan, Y.L. Li, Y.H. Wang, J.Y. Jiang, Z.L. Jin, TU Dalian/PRC
- P 70 **Preferential solvation in mixtures of ionic liquids**  
H. Niedermeyer, J. Hallett, P. Hunt, T. Welton, Imperial College, London/UK
- P 71 **Production of biodiesel from the fat of poultry leftovers using the high-temperature pressurized methanol (HTPM) process**  
K. Elst, T. De Baerdemaeker, L. Van Ginneken, VITO, Mol/B
- P 72 **Alkaline ionic liquids applied in supported ionic liquid catalysts (SILCA) for selective hydrogenation of citral**  
P. Virtanen, Åbo Akademi, Turku/FIN; E. Salminen, University of Turku/FIN; T. Salmi, J.-P. Mikkola, Åbo Akademi, Turku/FIN
- P 73 **Do ion pairs exist in ionic liquids?**  
J. Hallett, H. Niedermeyer, M. Lui, T. Welton, Imperial College, London/UK
- P 74 **PEG – 400 as an efficient reaction medium for the synthesis of Hantzsch 1, 4 - dihydropyridines**  
A. Ezabadi, F. Tosan, Islamic Azad University-Central Branche, Tehran/IR

**POSTER SESSION**

The authors are requested to be present at their poster(s) for discussion during the poster session on **Monday, 11 October 2010 from 18:05-20:00.**

The posters will be displayed continuously throughout the conference.

Submission of **last minute posters** is still possible **until 1 September 2010 at: [www.dechema.de/gsf2010](http://www.dechema.de/gsf2010)**

The selection of the posters will be based on the review of 1-page abstracts (incl. figures) by the committee. If you should – for any reason – not be able to follow this procedure, please contact the conference office.

**EXHIBITION**

The exhibition organised in conjunction with this conference offers above all a forum for the companies who are in business of creatively transforming the latest research results into innovative products.

They have the chance to display the full spectrum of instruments, equipment and services to an international expert public.

Located in an area adjacent to the lecture room and poster session, the exhibition will be a showcase for all participants and a valuable communication tool.

If you would like to participate in the exhibition, please contact the conference office.

**CONFERENCE OFFICE**

DECHEMA e.V.  
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 E-Mail: [feisst@dechema.de](mailto:feisst@dechema.de)

## SOCIAL EVENTS

**Sunday, 10 October 2010**

**12:00 – 17:00**

### **Excursion to and on the Lake Königssee**

Known the world over for its emerald green water and unique mountain landscape. Cruise silently across the lake on an electric-powered boat and hear the famed Königssee echo. Continue on to the peninsula of St. Bartholomä with the unmistakable red onion domes atop its ancient pilgrimage church.

Lying in majestic aura and aloofness, surrounded by towering rock faces, the emerald Königssee resembles a fjord set in the Bavarian alps. The Watzmann East Face almost reaches a staggering 1800 meters. The lake itself is a good 190 meters deep.

Lake Königssee is a unique experience at any time of the year: The guided tour will start and end at the Kongresshaus Berchtesgaden. Lunch is not included in the ticket.

Ticket: 30 €

Please register online at [www.dechema.de/gsfs2010](http://www.dechema.de/gsfs2010)



## SOCIAL EVENTS

**Sunday, 10 October 2010**

**18:00 – 19:45**

### **Welcome Reception**

To welcome the conference participants an informal gathering will take place at the Kongresshaus Berchtesgaden. Drinks and snacks will be served by invitation of the organiser.

Ticket: free of charge

**Monday, 11 October 2010**

**18:05 – 20:00**

### **Poster Session**

Visit the posters and talk to the exhibitors and to your colleagues with a glass of wine in your hand. All participants are invited to the poster session which will take place in the foyer of the lecture hall among the poster walls and exhibition stands allowing active discussion. Drinks and snacks will be served by invitation of the organiser.

Ticket: free of charge

**Tuesday, 12 October 2010**

**19:30 – 23:30**

### **Bavarian Conference Dinner**

The venue of the conference dinner will be in the charming brewery “Bräustüberl Berchtesgaden” ([www.braeustueberl-berchtesgaden.de](http://www.braeustueberl-berchtesgaden.de)). Enjoy an Bavarian buffet with local beer and typical Bavarian entertainment.

As seating capacity is limited, please order early to avoid disappointments!

Ticket: 40 €

Bavarian buffet and 2 drinks

Please register online at [www.dechema.de/gsfs2010](http://www.dechema.de/gsfs2010)



## GENERAL INFORMATION

### VENUE / LOCATION

Kongresshaus Berchtesgaden  
Maximilianstr. 9  
83471 Berchtesgaden/Germany  
[www.berchtesgaden.de/kongresshaus](http://www.berchtesgaden.de/kongresshaus)



### CONFERENCE LANGUAGE

The conference language will be English.

### CONFERENCE OFFICE

**until 8 October 2010**

DECHEMA e.V.  
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**10 – 13 October 2010**

Kongresshaus Berchtesgaden  
Maximilianstr. 9  
83471 Berchtesgaden/Germany

Phone: +49/(0)8652/967-348  
E-Mail: [feisst@dechema.de](mailto:feisst@dechema.de)

### Office hours

Sunday,	10 October 2010	17:00 – 21:00
Monday,	11 October 2010	08:00 – 18:30
Tuesday,	12 October 2010	08:00 – 18:30
Wednesday,	13 October 2010	08:00 – 13:30

## GENERAL INFORMATION

### REGISTRATION

Please register online at [www.dechema.de/gsf2010](http://www.dechema.de/gsf2010).

There is no registration deadline as long as free capacity is available.

Please note that registrations received after **27 September 2010** may not appear in the list of participants.

Confirmation of registration and the invoice will be sent after receipt of registration.

Conference ticket, name tag, the book of abstracts and the list of participants will be available at the conference office in Berchtesgaden.

### REGISTRATION FEES

The registration fee includes admission to all sessions, the exhibition, the poster programme, the list of participants, the book of abstracts, the welcome reception on Sunday, the poster party on Monday and soft drinks during the coffee breaks.

Conference Tickets for participants <sup>1)</sup>	Members <sup>1)</sup>	Others
from Industry	650 €	665 €
from Academia	355 €	370 €
Student *	110 €	125 €
Exhibitor <sup>4)</sup>		1.500 €
Excursion Lake Königssee <sup>3)</sup>	30 €	
Bavarian Conference Dinner <sup>3)</sup>	40 €	

1) DECHEMA personal members, VDI-GVC members and EFCE passport holders

2) No VAT requested acc. to § 4,22 UStG

3) inclusive 19 % VAT

4) Plus 7 % VAT

\* Please attach a copy of your student identity card

### REMITTANCE OF FEES

Fees should be remitted on receipt of the invoice in favour of DECHEMA e.V., stating the invoice number and the keyword "GSFS", to one of the DECHEMA accounts as indicated on the invoice. Payment by credit card is also possible.

Please note that at the conference office only payment in Euro, either by cash or by credit card can be accepted, but no other currency.

## GENERAL INFORMATION

### CANCELLATIONS AND REFUNDS

30 € for administrative costs will be charged for cancellations received **before 7 September 2010**. Thereafter 80 % of the registration fee will be invoiced; however the book of abstracts and the list of participants will be sent. Only written cancellations will be accepted (email, letter or fax).

Cancellations for conference dinner and excursions will be accepted free of charge by **1 October 2010**. After that date the full amount must be charged.

If the event is cancelled by DECHEMA the whole fees will be refunded. Further claims for compensation are excluded.

### LUNCH

Lunch is not included in the conference fee. You will have the opportunity to have lunch in numerous restaurants in Berchtesgaden.

### VISA FORMALITIES

Participants from a number of countries may need an entry visa for the Federal Republic of Germany. It is recommended that the visa should be applied as soon as possible before the meeting. If a formal invitation letter is needed please contact the conference office in good time.

### INSURANCE

The organisers are not responsible for loss or damage to the private property of participants and accompanying persons which may occur either during or arising from the conference. Participants should therefore take whatever steps they consider necessary for their insurance.

### ACCOMMODATION

Accommodation has been reserved for the conference participants at a special discount. Reservations should be directly made by the participants **before 10 September 2010**. Please complete the Hotel reservation form. You will find a hotel list on the conference website.

The reservations are binding. Charges for rooms which will not be used or will not be cancelled before **20 September 2010** must be paid by the participant.

## GENERAL INFORMATION

### HOW TO REACH BERCHTESGADEN

#### By air

##### Arrival at Salzburg Airport

Salzburg Airport is located approx. 25 to 30 minutes from Berchtesgaden. An one-way taxi journey from the airport to Berchtesgaden costs from 40 € to 50 €. If several participants arrive at the same time, a shuttle bus will be provided to Berchtesgaden.

After your registration for the conference you will receive a booking form for the shuttle service.

##### Arrival at Munich Airport

Munich Airport lies 156 km from Berchtesgaden (a good 2 hours of driving). Berchtesgaden's train station has a connection on the Intercity line from Munich to Salzburg. The journey takes around 3,5 hours (no direct connections).

#### By train

Train connection from Munich, Innsbruck, Vienna and Salzburg.

Internet: [www.bahn.de/i/view/GBR/en](http://www.bahn.de/i/view/GBR/en)

##### Arrival at Salzburg Train Station

Salzburg train station is located approx. 25 – 30 minutes from Berchtesgaden. An one-way taxi journey from the train station to Berchtesgaden costs from 40 € to 50 €. An one-way train ticket to Berchtesgaden costs 25 € and the journey takes 1 hour.

##### Arrival at Berchtesgaden Train Station

The Kongresshaus is just 5 minutes from Berchtesgaden train station.

#### By car

By car from the north, the west or the east you achieve us by means of the federal highway A8 Munich Salzburg, exit „Bad Reichenhall“, then follow the road B20 to Berchtesgaden. From the south over the „Tauernautobahn“, exit „Salzburg Süd“, then follow the road B305 to Berchtesgaden.

### HOW TO REACH THE CONFERENCE SITE

The Kongresshaus Berchtesgaden is situated directly in the city center. Signs will show you the way directly to the Kongresshaus.



## GENERAL INFORMATION

### BERCHTESGADEN

When the word „vacation“ had not yet been invented, Berchtesgaden had long been visited by prominent guests. Bavaria's kings chose the land at the foot of Mount Watzmann as their summer residence. What the nobility once kept for themselves is, today, enjoyed by all for what it has to offer: culture and cures, excitement and recuperation.

At the heart of the climatic cure region, Berchtesgaden is truly a spring of health.

The historical town centre boasts decorated façades, churches and the Royal Palace. Perched on a hillside is the famous pilgrimage church of Maria Gern, a Baroque jewel set in an exquisite alpine jewel box.

For more information on Berchtesgaden please look at [www.berchtesgaden.de](http://www.berchtesgaden.de)



Conference Venue