



# DECHEMA

Gesellschaft für Chemische Technik  
und Biotechnologie e.V.

## PROGRAMME

October 10–13, 2010

University of Hamburg / Germany

# 10<sup>th</sup> International Workshop on Polymer Reaction Engineering

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DECHEMA  
Gesellschaft für Chemische Technik  
und Biotechnologie e.V.

Theodor-Heuss-Allee 25  
60486 Frankfurt am Main

Tel.: ++49 (0)69 75 64-249

Fax: ++49 (0)69 75 64-176

E-Mail: [strauss@dechema.de](mailto:strauss@dechema.de)  
[www.dechema.de/pre10](http://www.dechema.de/pre10)



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Universität Hamburg

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## WELCOME ADDRESS

### 10<sup>th</sup> International Workshop on Polymer Reaction Engineering

We are pleased to invite you to three and a half days of engineering and science in the field of polymer reactions at the 10<sup>th</sup> event of this triannual international workshop series.

Ten workshops mean 27 years of research and development with huge changes in commercial applications and industrial and academic researchers, constantly changing their focus on specific polymerisation techniques or systems as well as new inspirations from neighbouring technological fields. The workshop has always presented the spearhead of scientific and technological development and thus became a must for industrial professionals as well as junior and senior academics. It also serves as a platform to overview the general progress in chemical engineering and industrial application of polymerisation technology.

The anniversary programme comprises new polymerisation processes using non-classical energy input, new process technology or reaction systems, enhanced efficiency of energy, time and matter; classical and enzymatic catalysis; developments and applications in the growing field of modelling and simulations; progress in the basic engineering of polymerisation technology as well as improvements in sustainability of existing or new processes with respect to waste reduction and renewable feedstock will be addressed.

The Scientific Committee cordially welcomes you to attend this International Workshop in Hamburg giving technological overviews in seven keynote lectures and more than 80 presentations (orals and posters). The programme will be complemented by company presentations and opportunities to socialise with the scientific community.

Proceedings of the workshop will be published in the series "Macromolecular Symposia". A copy of the proceedings is part of the conference fee of each regular attendant. The proceedings will be published and sent to the attendants some months after the workshop.

DECHEMA Society for Chemical Engineering and Biotechnology and the University of Hamburg cordially invite you to participate in the 10<sup>th</sup> International workshop on Polymer Reaction Engineering in Hamburg/Germany.

The workshop language will be English.

## CHAIRMAN

**Prof. H.-U. Moritz** University of Hamburg/D

## LOCAL ORGANISING COMMITTEE

**Dr. L. Nick** DECHEMA e.V., Frankfurt/Main/D

**Dr. W. Pauer** University of Hamburg/D

## SCIENTIFIC COMMITTEE

**Prof. J. M. Asua** University of the Basque Country,  
San Sebastian/E

**Dr. R. Bachmann** Bayer Technology Services GmbH,  
Leverkusen/D

**Prof. K.-Y. Choi** University of Maryland, MD/USA

**Prof. M.F. Cunningham** Queen's University, Kingston/CDN

**Dr. W.-D. Hergeth** Wacker Chemie AG, Burghausen/D

**Prof. A.M. van Herk** Eindhoven University of Technology/NL

**Dr. K.-D. Hungenberg** BASF SE, Ludwigshafen/D

**Prof. R. A. Hutchinson** Queen's University, Kingston/CDN

**Prof. J. Kosek** Prague Institute of Chemical Technology/CZ

**Prof. B.-G. Li** Zhejiang University, Hangzhou/PRC

**Prof. M. Morbidelli** ETH Hönggerberg, Zurich/CH

**Dr. M. Stickler** Evonik Röhm GmbH, Darmstadt/D

## THE WORKSHOP IS ORGANISED BY

DECHEMA e.V.

Society for Chemical Engineering and Biotechnology  
Frankfurt am Main/D

Phone: ++49 (0)69 7564-249

Fax: ++49 (0)69 7564-176

eMail: [strauss@dechema.de](mailto:strauss@dechema.de)

## Sunday, 10 October 2010

- 
- 17.00 **Registration and Informal Get-together**  
– by invitation of the organisers in the foyer of the lecture hall
- 19.00
- 
- 18.00 For interested participants of the workshop and their accompanying persons a guided visit of the International Maritime Museum is possible. After the tour the evening will end in a bar close to the Museum at approx. 20.00 (see Social Programme, page 18).
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## Monday, 11 October 2010

- 09.00 **Welcome**  
H.-U. Moritz, University of Hamburg/D  
*Chair: R. Bachmann, Bayer Technology Services GmbH, Leverkusen/D*
- 09.10 **KEYNOTE LECTURE**  
**Polymerisation reactions for engineering colloidal materials**  
M. Morbidelli, ETH Hönggerberg, Zurich/CH
- 09.45 **Synthesis of high solids content latexes with small particle size: competitive particle growth**  
I.F.A Mariz, J.C. de la Cal, J.R. Leiza, University of the Basque Country, San Sebastian/E
- 10.10 **Computational analysis of mixing and scale-up in emulsion polymerisation reactors**  
J. Pohn, Queen's University, Kingston/CDN; M. Heniche, L. Fradette, Ecole Polytechnique, Montreal/CDN; M. Cunningham, T. McKenna, Queen's University, Kingston/CDN
- 10.35 **Coffee Break and Poster Presentation**  
*Chair: M. Stickler, Evonik Röhm GmbH, Darmstadt/D*
- 11.00 **Molecular vs. conventional kinetics of emulsion polymerisation**  
K. Tauer, H. Hernandez, MPI of Colloids and Interfaces, Golm/D
- 11.25 **Modeling and simulation of complex emulsion copolymerisation processes**  
A. Böttger, W.-D. Hergeth, E. Frauendorfer, Wacker Chemie AG, Burghausen/D  
*Chair: J.M. Asua, University of the Basque Country, San Sebastian/E*
- 11.50 Poster introduction by the authors  
Brief statements of max. 3 minutes  
**(Poster Numbers P.1 – P.30)**
- 13.20 **Lunch Break**

## Monday, 11 October 2010

- Chair: K.-Y. Choi, University of Maryland, MD/USA*
- 14.20 **KEYNOTE LECTURE**  
**Needs and opportunities – molecular modelling meets process modelling**  
H. Weiss, BASF SE, Ludwigshafen/D
- 14.55 **Quantum chemistry study of free-radical polymerisation kinetics**  
M. Dossi, D. Moscatelli, G. Storti, Politecnico di Milano/I
- 15.20 **Robust modelling of precipitation and dispersion copolymerisation of fluorinated monomers in supercritical carbon dioxide**  
L.I. Costa, G. Storti, M. Morbidelli, ETH Hönggerberg, Zurich/CH; L. Ferro, A. Galia, G. Filardo, Università di Palermo/I
- 15.45 **Effect of real morphology on transport and reaction in reconstructed polyolefin particles**  
M. Bobak, L. Meisterova, A. Zubov, J. Kosek, Institute of Chemical Technology Prague/CZ
- 16.10 **Simulation of chain-length differentiated properties in high-pressure high-temperature ter-polymerisation**  
K. Becker, M. Busch, TU Darmstadt/D; I. Garcia-Castro, BASF SE, Ludwigshafen/D
- 16.35 **Coffee Break and Poster Presentation**  
*Chair: K.-D. Hungenberg, BASF SE, Ludwigshafen/D*
- 17.15 Poster introduction by the authors  
Brief statements of max. 3 minutes  
**(Poster Numbers P.31 – P.56)**
- 18.35 **Poster Party**  
– Drinks and snacks will be offered in the foyer of the lecture hall
- 20.30

## Tuesday, 12 October 2010

*Chair: N.N.*

- 08.30 **KEYNOTE LECTURE**  
**Industrial polymerisation monitoring**  
W.-D. Hergeth, E. Frauendorfer, Wacker Chemie AG, Burghausen/D
- 09.05 **Experimental design under a Bayesian framework for complex polymerisation processes**  
A. Nabifar, A. Penlidis, University of Waterloo/CDN
- 09.30 **Activity monitoring for a polymerisation catalyst system**  
U. Tracht, R. Leiberich, Bayer Technology Services GmbH, Leverkusen/D; H.I. Paul, U. Wiesner, LANXESS Deutschland GmbH, Leverkusen/D
- 09.55 **Packed bed minireactor for pulsed gas phase catalytic polymerisation: complex interactions between heat transfer and activity in stopped flow ethylene polymerisation**  
E. Tioni, V. Monteil, Université de Lyon-ESCOPE, Villeurbanne/F; T. McKenna, Queen's University, Kingston/CDN; R. Spitz, J.P. Broyer, Université de Lyon-ESCOPE, Villeurbanne/F
- 10.20 **Coffee Break and Poster Presentation**  
*Chair: M. Morbidelli, ETH Hönggerberg, Zurich/CH*
- 10.50 **KEYNOTE LECTURE**  
**Chain length dependence of rate constants in radical polymerisation systems**  
G. Russell, University of Canterbury/NZ
- 11.25 **Kinetics and modelling of *N*-vinyl pyrrolidone free-radical polymerisation in aqueous and non-aqueous solution**  
S. Santanakrishnan, R. Hutchinson, Queen's University, Kingston/CDN; L. Ucnova, M. Stach, Polymer Institute of the Slovak Academy of Sciences, Bratislava/SK; M. Buback, University of Göttingen/D
- 11.50 **Reactive distillation: an attractive alternative for the synthesis of unsaturated polyester**  
M. Shah, E. Zondervan, Eindhoven University of Technology/NL; M.L. Oudshoorn, DSM Research, Geleen/NL; A.B. De Haan, Eindhoven University of Technology/NL
- 12.15 **Innovative reactor design for the efficient devolatilisation of low-molecular-weight products from high-viscosity polymer melts, verified by a reaction / mass-transfer model for polyamide 6**  
Th. Rieckmann, F. Frei, University of Applied Sciences Cologne/D; S. Völker, University of Kassel/D
- 12.40 **Lunch Break**

## Tuesday, 12 October 2010

*Chair: R.A. Hutchinson, Queen's University, Kingston/CND*

- 13.45 **KEYNOTE LECTURE**  
**Data reconciliation and control in styrene-butadiene emulsion polymerisations**  
J.C. Pinto, University of Rio de Janeiro/BR
- 14.20 **Polymerisation of butyl acrylate in the two phase slug flow regime of microcapillary reactors**  
M. Mendorf, A. Moenter, T. Moll, D.W. Agar, J. Tiller, TU Dortmund/D
- 14.45 **Microwave effects due to anionic or cationic initiators in emulsion polymerisation reactions**  
C. Costa, Universidade Federal de Santa Catarina, Florianópolis/BR; V.H.S. Santos, Instituto de Tecnologia e Pesquisa, Aracaju/BR; C. Sayer, P.H.H. Araujo, Universidade Federal de Santa Catarina, Florianópolis/BR; A.F. Santos, M. Fortuny, Universidade Tiradentes, Aracaju/BR
- 15.10 **A novel production route for nylon-6: aspects of microwave-enhanced catalysis**  
J. Meuldijk, B.H.P. van de Kruijs, J.A.J.M. Vekemans, L.A. Hulshof, R. Duchateau, C.E. Koning, Eindhoven University of Technology/NL
- 15.35 **Coffee Break and Poster Presentation**  
*Chair: J. Kosek, Prague Institute of Chemical Technology/CZ*
- 15.55 **Effect of catalysts supporting on tandem polymerisation of ethylene stock in synthesis of LLDPE**  
B. Li, J. Zhang, H. Fan, Zhejiang University, Hangzhou/PRC; S. Zhu, McMaster University, Hamilton/CDN
- 16.20 **Ethylene polymerisation by metallocene catalysts supported over siliceous materials with bimodal pore size distribution**  
J. Moreno, R. van Grieken, A. Carrero, B. Paredes, Universidad Rey Juan Carlos, Mostoles (Madrid)/E
- 16.45 **Scale-up and industrial production of carbon nanotubes in a fluidised-bed reactor**  
O. Schlueter, R. Bellinghausen, L. Mleczo, V. Michele, Bayer Technology Services, Leverkusen/D; R. Weber, Bayer MaterialScience, Leverkusen/D
- 17.10 **End of Lecture Session**
- 19.30 **Conference Dinner**  
– (see Social Programme, page 19)
- 23.00 Please register!

## Wednesday, 13 October 2010

*Chair: A.M. van Herk, Eindhoven University of Technology/NL*

## 08.30 KEYNOTE LECTURE

**Automatic continuous online monitoring of polymerisation reactions**

W.F. Reed, Tulane University, New Orleans, LA/USA

09.05 **A continuous-flow polymerisation microprocess with online SEC and inline polymer recovery by micromixer-assisted micro or nano-precipitation**

F. Bally, C.A. Serra, Université de Strasbourg/F; C. Brochon, Université de Bordeaux 1/F; N. Anton, T. Vandamme, Université de Strasbourg/F; G. Hadziioannou, Université de Bordeaux 1/F

09.30 **Online model-based process safety concepts in polymerisation**

L.G. Manders, M. Meister, J. Bausa, K.-D. Hungenberg, BASF SE, Ludwigshafen/D

09.55 **Safety and quality aspects of acrylic acid monomers**

R.H. Brand, A. Hartwig, C. Pfeifer, N. Dürr, A. Drochner, H. Vogel, Technische Universität Darmstadt/D

10.20 **Coffee Break and Poster Presentation**

*Chair: W.-D. Hergeth, Wacker Chemie AG, Burghausen/D*

## 10.50 KEYNOTE LECTURE

**An initiation emulsion raft polymerisation**

Y. Luo, Zhejiang University, Hangzhou/PRC

11.25 **Living free radical polymerisation in disperse medium: experimental and computational analysis**

G.G.C. Montezuma, S. Contant, G. Chaparro, L.M.F. Lona, University of Campinas/BR

11.50 **Assessment of control in atom transfer radical polymerisation and nitroxide mediated polymerisation of styrene: a comparative study**

E.B. Burrick, L. Bentein, D.R. D'hooge, M.-F. Reyniers, G.B. Marin, Ghent University/B

12.15 **Waterborne ethylene-acrylic dispersions**

S.N. Sausa, J.M. Asua, University of the Basque Country, Donostia-San Sebastián/E

## Wednesday, 13 October 2010

12.40 **Prediction of the viscoelastic behavior of highly-branched polymer chains using a combined stochastic, topological and rheological approach**

P. Pladis, D. Meimaroglou, A. Baltas, CETH/CPERI, Thessaloniki/GR; C. Kiparissides, CETH & AUTH, Thessaloniki/GR

13.05 **Closing Remarks**

H.-U. Moritz, University of Hamburg/D

13.15 **End of the Workshop**



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## Aspects of polymer reaction technology

- P.1 **Characterisation of milli-/micro-reactors for smart scale processes**  
C. Schwede, W. Loth, M. Kleiner, A. Brodhagen, BASF SE, Ludwigshafen/D
- P.2 **Functionalisation of carbon black particles with poly(vinylidene fluoride)**  
R. Vukicevic, S. Beuermann, University of Potsdam, Golm/D; P. Hierzenberger, S. Hild, University of Linz/A
- P.3 **New modelling insights in SG1-mediated styrene polymerisation**  
L. Bentein, D.R. D'hooge, M.-F. Reyniers, G.B. Marin, Ghent University/B
- P.4 **Modelling the equilibrium morphology of nanodroplets in the presence of nanofillers**  
Y. Reyes, M. Micusik, A. Bonnefond, M. Paulis, J.R. Leiza, Universidad del Pais Vasco, Donostia-San Sebastián/E
- P.5 **Controlling the molecular architecture of waterborne polyurethane-acrylic nanocomposites by combining free radical and addition polymerisation**  
A. Lopez, University of the Basque Country, Donostia-San Sebastián/E; E. Degrandi, ESPCI, Paris/F; Y. Reyes, University of the Basque Country, Donostia-San Sebastián/E; E. Canetta, University of Surrey, Guildford/UK; C. Creton, ESCPI, Paris/F; J.L. Keddie, University of Surrey, Guildford/UK; J.M. Asua, University of the Basque Country, Donostia-San Sebastián/E
- P.6 **Reaction calorimeter as synthetic tool for the synthesis of multiblock copolymers**  
N. Weber, MPI of Colloids and Interfaces, Potsdam/D; J. Texter, Eastern Michigan University, Ypsilanti, MI/USA; K. Tauer, MPI of Colloids and Interfaces, Potsdam/D
- P.7 **Study on the functionalisation of multi-walled carbon nanotube with polystyrene-co-poly(diphenyl (4-vinylphenyl) phosphine) copolymer and its application in palladium-catalysed Suzuki-Miyaura cross-coupling reactions**  
C.W. Yeh, Y.Z. Chen, K.C. Shih, M.L. Hsueh, Industrial Technology Research Institute, Tainan/RC
- P.8 **Tailoring MWD of bimodal polyethylene in the presence of Ziegler-Natta catalyst**  
S. Hakim, L. Moballegh, Iran Polymer and Petrochemical Institute, Tehran/IR

- P.9 **Miniemulsion polymerisation of styrene using poly(ethylene oxide) macro RAFT agents as a stabiliser and control agent**  
F.H. Franco, University of São Paulo, Lorena/BR; J.C. Moreira, Federal University of ABC, Santo André/BR; L.P. Barcaro, A.M. Santos, University of São Paulo, Lorena/BR
- P.10 **Heat and mass transfer in nano and microcellular foams**  
R. Pokorny, A. Zubov, J. Marsalek, L. Seda, J. Kosek, Institute of Chemical Technology, Prague/CZ
- P.11 **Diffusion in semi-crystalline polyolefins: experiments and modelling**  
H. Hajova, K. Smolna, R. Pokorny, Z. Grof, J. Kosek, Institute of Chemical Technology, Prague/CZ
- P.12 **DNA adsorption of uniform-crosslinked microgel with double-responsive, polycationic molecular brushes**  
B. Saraçoğlu, Cumhuriyet University, Sivas/TR; B. Elmas, A. Tuncel, Hacettepe University, Ankara/TR
- P.13 **Slurry polymerisation of ethylene – thermodynamic data of ethylene/propane mixtures in condensed and supercritical state**  
S. Kröner, M. Wang, M. Bartke, University of Hamburg/D
- P.14 **Synthesis of nanocomposites with layered double hydroxides**  
R. Botan, T. Nogueira, Unicamp, Campinas/BR; R.D. Silva, P.F.M.P. Machado, University of Campinas/BR; F. Wypych, UFPR, Curitiba/BR; L.M.F. Lona, Unicamp, Campinas/BR

## Catalysis in polymer reaction engineering

- P.15 **Ring opening polymerisation of cyclic esters: D,L-lactide and its copolymers with glycolide**  
R. Mazarro, I. Gracia, J.F. Rodriguez, University of Castilla-La Mancha, Ciudad Real/E; G. Y. Yu, Storti, ETH Zurich/CH
- P.16 **Kinetic analysis of ring opening polymerisation of L,L-lactide**  
Y. Yu, Swiss Federal Institute of Technology, Zurich/CH; G. Storti, M. Morbidelli, EHT Hönggerberg, Zurich/CH
- P.17 **Mass transfer and kinetics in heterophasic copolymerisation of propylene**  
T. Kröner, M. Bartke, University of Halle-Wittenberg, Halle/D
- P.18 **Ethylene polymerisation over  $\text{Ph}_2\text{C}(\text{Cp})(\text{t-Bu}_2\text{Flu})\text{ZrCl}_2$  supported on  $\text{SiO}_2$ -MAO**  
R. van Grieken, J.M. Escola, E. Casas, Rey Juan Carlos University, Madrid/E; C. Martin, Repsol-YPF Research Center, Madrid/E; A. Macho, D. López, Rey Juan Carlos University, Madrid/E

## Modelling and simulation in polymer reaction engineering

- P.19 **Suspension copolymerisation of styrene/divinylbenzene with gel formation: kinetic modelling using in-line FTIR-ATR monitoring and SEC-MALLS product characterisation**  
M. Gonçalves, V. Pinto, R. Dias, LSRE – Instituto Politécnico de Bragança/P; M.R. Costa, LSRE – Instituto Politécnico de Bragança, Porto/P
- P.20 **Modelling and multiobjective dynamic optimisation of a fed-batch emulsion copolymerisation process for control of the resulting particles morphology**  
B. Benyahia, A. Latifi, C. Fonteix, F. Pla, CNRS, Nancy-Université, INPL, Nancy/F
- P.21 **Analysis of MWD changes during polymer degradation using inverse problem in population balance**  
M. Uliana, R. Giudici, University of Sao Paulo/BR
- P.22 **Modelling solid-state polymerisation of PET**  
A. Alle, Federal University of Sao Paulo - UNIFESP, Diadema/BR; R. Giudici, University of Sao Paulo/BR
- P.23 **Individual rate coefficients for PEGylated and fluorinated methacrylate radical polymerisations**  
R. Siegmann, A. Jelcic, S. Beuermann, University of Potsdam, Golm/D
- P.24 **A quantum chemistry investigation of vinyl chloride free radical polymerisation**  
D. Cuccato, M. Dossi, D. Moscatelli, G. Storti, Politencico di Milano/I
- P.25 **Kinetic modelling of quinoid polymerisations as precursor routes toward PPV synthesis: influence of reaction conditions on polymer yield**  
P. Van Steenberge, University of Ghent/B; J. Vandenbergh, D. Vanderzande, Hasselt University/B; M.-F. Reyniers, G. Marin, University of Ghent/B
- P.26 **A combined quantum chemical and experimental study of free radical copolymerisation kinetics**  
M. Dossi, Politecnico di Milano/I; L. Kun, R.A. Hutchinson, Queen's University, Kingston/CDN; D. Moscatelli, Politecnico di Milano/I
- P.27 **Emulsion polymerisation in the presence of hydrophilic monomer: modelling and experimental results**  
U. Rivas, J.R. Leiza, J.M. Asua, University of the Basque Country, Donostia-San Sebastián/E

- P.28 **A detailed polymerisation model for Cerenol® polyols**  
P. Mueller, E. Murphy, B. Rajagopalan, J. Congalidis, A. Minter, E. I. du Pont de Nemours and Company, Wilmington/USA
- P.29 **Optimised kinetic parameters for polystyrene batch reactor**  
M. Hosen, M. Hussain, F. Mjalli, University of Malaya, Kuala Lumpur/MAL
- P.30 **Modelling of tubular high-pressure polyethylene reactors**  
M. Busch, T. Herrmann, Technical University of Darmstadt/D; B. Gall, D. Lilge, G. Mannebach, I. Vittorias, LyondellBasell Industries R&D, Frankfurt am Main/D
- P.31 **Modelling of PET quality parameters for a closed-loop recycling system for food contact**  
Th. Rieckmann, F. Frei, University of Applied Sciences Cologne/D; S. Völker, University of Kassel/D
- P.32 **Experimental and modelling analysis of lactic acid polycondensation at equilibrium**  
F. Codari, G. Storti, M. Morbidelli, EHT Hönggerberg, Zurich/CH
- P.33 **An open architecture computer aided framework for the dynamic simulation and optimisation of polymerisation processes**  
A. Krallis, V. Saliakas, PolymerS Ltd & CErth/CPERI, Thessaloniki/GR; C. Kiparissides, CErth & AUTH, Thessaloniki/GR
- P.34 **Dynamic simulation of the microbial PHB production in *Alcaligenes latus* cultures**  
G. Penloglou, CErth/CPERI & AUTH, Thessaloniki/GR; C. Chatzidoukas, A. Roussos, CErth/CPERI, Thessaloniki/GR; C. Kiparissides, CErth & AUTH, Thessaloniki/GR
- P.35 **Simulation-based product-design in high-pressure polymerisation technology**  
M. Busch, Technical University of Darmstadt/D
- P.36 **Computational fluid dynamics (CFD) as a screening tool for micromixers in a polymerisation plant**  
D. Ziegenbalg, C. Kompter, D. Kralisch, University of Jena/D
- P.37 **Heat flux and heat balance calorimetry for the estimation of conversion in an emulsion polymerisation reactor**  
M. Esposito, C. Sayer, P.H.H. Araújo, Universidade Federal de Santa Catarina, Florianópolis/BR
- P.38 **Modelling of the high-impact polystyrene morphogenesis**  
M. Vonka, J. Chmelar, L. Seda, J. Kosek, Institute of Chemical Technology, Prague/CZ

- P.39 **Dynamic simulation of olefin polymerisation in mesostructured heterogeneous single site catalysts**  
B. Paredes, R. van Grieken, J.M. Bravo, Universidad Rey Juan Carlos, Mostoles (Madrid)/E
- P.40 **Mathematical modelling of fast emulsion polymerisation**  
 J. Katzer, University of Hamburg/D

#### New polymerisation processes

- P.41 **Influence of the macromixing on the free radical polymerisation in the Taylor-Couette reactor**  
Z. Liu, M. Kind, Karlsruhe Institute of Technology (KIT)/D
- P.42 **A calorimetric study of surfactant-free emulsion polymerisation stabilised by laponite clays**  
N. Sheibat-Othman, E. Bourgeat-Lami, University of Lyon, Villeurbanne/F; A. Dos Santos, Universidade de São Paulo/BR
- P.43 **Synthesis of poly(vinyl acetate)/montmorillonite (PVAc/MMT) nanocomposites via in situ emulsion polymerisation for application as adhesives.**  
J.C. Cazotti, R.M. Moraes, A.M. Santos, University of Sao Paulo, Lorena/BR
- P.44 **Axisymmetric microsystems for the synthesis of size- and morphology-controlled polymer particles**  
 Z. Chang, Université de Strasbourg/F; S. Li, Technical University of Ilmenau/D; I. Kraus, C. Serra, M. Bouquey, Université de Strasbourg/F; J.M. Köhler, Technical University of Ilmenau/D
- P.45 **A calorimetric study of commercial monomer autopolymerisation: an accident investigation in transport and storage of DVB**  
G. Maschio, V. Casson, University of Padova/I
- P.46 **Stimuli-responsive poly(N-vinylcaprolactam-co-acrylic acid) coated magnetic nanoparticles: synthesis and characterisation**  
S. Medeiros, P. Oliveira, University of São Paulo, Lorena/BR; A. Elaissari, University Claude Bernard - Lyon 1/F; A. Santos, University of São Paulo, Lorena/BR
- P.47 **Improved synthesis of rod-coil block-copolymers through anionic polymerisation applying microreaction technology**  
C. Kompter, D. Ziegenbalg, D. Kralisch, University of Jena/D; S. Sell, E. Klemm, Jenpolymer Materials Ltd. & Co. KG, Jena/D
- P.48 **Preparation of a new cation exchanger by reversible addition-fragmentation chain transfer polymerisation for protein separation (ion-exchange chromatography)**  
B. Saraçoğlu, Cumhuriyet University, Sivas/TR; S. Patir, A. Tuncel, Hacettepe University, Ankara/TR

- P.49 **Experimental investigation and numerical simulation of spray processes**  
J. Laackmann, R. Sedelmayer, L. Cepelyte, K. Walag, W. Pauer, H.-U. Moritz, University of Hamburg/D; W. Säckel, F. Keller, U. Nieken, University of Stuttgart/D
- P.50 **A continuous emulsification-polymerisation process for miniemulsions**  
 U. El-Jaby, M. Cunningham, T. McKenna, Queen's University, Kingston/CDN
- P.51 **Free radical polymerisation analysis: using tri-functional initiator and by living process (NMRP)**  
 E. Galhardo, P.F.M: P.B. Machado, L.M.F. Lona, University of Campinas/BR

#### Sustainable polymer reaction engineering

- P.52 **Residual monomer reduction in polymer latex products by extraction with supercritical carbon dioxide**  
M. Aerts, J. Meuldijk, J.T.F. Keurentjes, Eindhoven University of Technology/NL
- P.53 **Free radical copolymerisation kinetics and dispersed phase polymerisation of the bio-renewable monomer  $\gamma$ -methyl- $\alpha$ -methylene- $\gamma$ -butyrolactone with methyl methacrylate, butyl acrylate and styrene**  
R. Cockburn, T.F.L McKenna, R.A.H. Hutchinson, Queen's University, Kingston/CDN
- P.54 **Renewable raw materials as comonomers – kinetic modelling by polymer reaction engineering**  
M. Müller, F. Becker, K.-D. Hungenberg, V. Warzelhan, BASF SE, Ludwigshafen/D
- P.55 **On the synthesis of high molecular weight functional poly lactides**  
 A. Seretis, T. Mantourlias, CETH/CPERI & AUTH, Thessaloniki/GR; K. Karidi, S. Parouti, P. Pladis, CETH/CPERI, Thessaloniki/GR; C. Kiparissides, CETH & AUTH, Thessaloniki/GR

## EXHIBITION

Parallel to the workshop an exhibition will take place. The exhibition space is close to the lecture and poster hall which allows an ideal integration of lectures, poster discussions and exhibition.

**i** For further information please contact the conference office (strauss@dechema.de)

## SOCIAL PROGRAMME

**Sunday, 10 October 2010**

**17.00 – 19.00**

**Get-together**

The organisers of the workshop invite all participants to take part in an informal Get-together in the foyer of the lecture hall, after they have contacted the congress office for final enrolment.

The participants are invited to a welcome drink.

**Please register!**

**Sunday, 10 October 2010**

**18.00 – 20.00**

**Visit of the International Maritime Museum Hamburg (IMMH)**

Hamburg has a new sea mark! The International Maritime Museum Hamburg invites you to explore 3000 years of maritime history. The nine “decks” in the historic Kaispeicher B tell of discoverers and conquistadors, of captains and ordinary sailors. On the tour you will discover new horizons, you will feel the lure of far-away shores and experience how nature challenges mankind and how it re-establishes the boundaries over and over again. And you will find out how curiosity and the striving for power spur the advancement of seafaring.

After the tour the evening will end in a bar close to the museum at approx. 20.00 (at participants own costs).

There will be a bus transfer to the museum starting at 18.00 Uhr at the Conference venue.

Cost per person: € 15.00 (incl. bustransfer, admission ticket, English guide and VAT)

**Please register!**

The museum is located at: Koreastrasse 1, 20457 Hamburg  
www.internationales-maritimes-museum.de

**Monday, 11 October 2010**

**18.35 – 20.30**

**Poster Party**

The posters will be on display throughout the whole workshop from Sunday evening to Wednesday. In addition all participants are invited to a poster party in the foyer of the lecture hall in between poster walls allowing active discussions. Free drinks and snack will be served.

**Please register!**

**Tuesday, 12 October 2010**

**19.30 – 23.00**

**Conference Dinner**

The conference dinner will take place on board of the windjammer “Rickmer Rickmers” located at the famous “Landungsbrücken” in Hamburg St. Pauli. The windjammer was constructed in Bremerhaven in 1896; after an adventurous and dangerous



journey across the world she returned to Hamburg in 1983. Enjoy the atmosphere at a hot/cold buffet with German specialities and wines.

Cost per person: € 55.00 (including buffet, drinks, VAT)

**Please register!**

The windjammer “Rickmer Rickmers” is located at:  
St. Pauli Landungsbrücken, Brücke 1, 20359 Hamburg

**Access by train-station “Landungsbrücken”**



## GENERAL INFORMATION

### LOCATION

The Workshop will take place at  
University of Hamburg  
Institute of Technical and Macromolecular Chemistry  
Bundesstraße 45  
20146 Hamburg/D

### CONGRESS OFFICE

**Until Friday, 8 October 2010**

DECHEMA e.V.  
Congress Office  
Renate Strauss  
P.O. Box 15 01 04  
60061 Frankfurt am Main/D  
Phone: +49 (0) 69 7564-249  
Fax: +49 (0) 69 7564-176  
e-Mail: [strauss@dechema.de](mailto:strauss@dechema.de)

**During the workshop, as of Sunday, 10 October 2010  
till Wednesday, 13 October 2010**

University of Hamburg  
Institute of Technical and Macromolecular Chemistry  
Bundesstraße 45  
20146 Hamburg/D

### REGISTRATION

Please complete all appropriate sections of the enclosed registration form and return it to DECHEMA e.V. Please use a single copy of the registration form for each participant.

**Online-Registration at:** [www.dechema.de/pre10](http://www.dechema.de/pre10).

Confirmation of registration and an invoice will be sent after receipt of the registration. Your name tag, all relevant tickets for further events, the list of participants and the book of abstracts will be available upon arrival at the conference office.

In general there is no registration deadline as long as free capacity is available. **Please note:** registrations which will be done after **17 September 2010** can not be guaranteed to appear in the list of participants.

## GENERAL INFORMATION

### REGISTRATION FEE

#### Conference Tickets<sup>4)</sup>

	Members <sup>1)</sup>	Others
Presenting authors from industry	€ 485	€ 500
Presenting authors from university	€ 220	€ 235
Participants from industry	€ 560	€ 575
Participants from academia	€ 300	€ 315
PhD-Students <sup>2)</sup>	€ 80	€ 95
Conference Dinner <sup>3)</sup>	€ 55	€ 55
Visit of the International Maritime Museum <sup>3)</sup>	€ 15	€ 15

- 1) DECHEMA personal members or EFCE/EFC passport bearers
- 2) With student identity card or confirmation letter of PhD-adviser
- 3) Inclusive 19% VAT
- 4) No VAT requested acc. to § 4.22 UStG

The conference ticket includes the list of participants, the book of abstracts, proceedings (except PhD-students), welcome reception, poster party as well as beverages during the breaks.

Participation of PhD-students is limited and only possible if seating capacity remains available. If so, tickets will be issued on a “first come first served” basis.

### REMITTANCE OF FEE

Fees should be remitted on receipt of the invoice in favour of DECHEMA e.V. to one of the accounts listed on the invoice, stating the complete invoice number and the name of the participant.

Payment can also be made by credit card (MasterCard, VISA, American Express, Diners, please see the registration form).

Please note that at the conference office only cash payment in Euros or by credit card but no foreign currency can be accepted.

## GENERAL INFORMATION

### CANCELLATION AND REFUNDS

€ 30.00 administrative costs will be charged for written cancellations (letter, fax or e-mail) received by **17 September 2010**. Thereafter 80% of the conference fee will be invoiced and the book of abstracts will be sent.

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

Cancellations for the Conference Dinner will be accepted free of charge until **17 September 2010**. After that date, the full amount will be charged.

### INSURANCE

The organiser cannot accept responsibility for loss or damage to the private property of participants and accompanying persons which may occur either during or arising from the workshop. Participants should therefore take whatever steps they consider necessary to insure their belongings.

### PUBLICATIONS

Manuscripts of all contribution will be published in the Book of Abstracts which will be distributed at the beginning of the workshop.

After the workshop full papers will be published as a special volume of "Macromolecular Symposia" by Wiley-VCH.

### VISA FORMALITIES

Participants from a number of countries may need an entry visa for 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 Secretariat of DECHEMA e.V. in good time.

### LUNCH

We recommend the local restaurants in the vicinity of University of Hamburg; a list will be available at the registration desk.

## GENERAL INFORMATION

### ACCOMMODATION

Accommodation has been reserved for the conference participants at a special discount. Reservations should be directly made by the participants before **27 August 2010**.

#### **Mercur Hotel Hamburg an der Messe**

Schröderstiftstr. 3

20146 Hamburg

Tel.: ++49 (0)40 45069-2931

Fax: ++ 49(0)40 45069-2940

Email: H5394-sb@accor.com

[www.mercure.com](http://www.mercure.com) / [www.accorhotels.com](http://www.accorhotels.com)

Single room € 83 (incl. VAT, plus breakfast)  
walking distance (approx. 10 min)

#### **Hotel Bellmoor**

Morrweidenstr. 34

20146 Hamburg

Tel.: ++49 (0)40 4133110

Fax: ++49 (0)40 41331141

Email: [info@hotel-bellmoor.de](mailto:info@hotel-bellmoor.de)

[www.hotel-bellmoor.de](http://www.hotel-bellmoor.de)

Single room € 88 (incl. VAT and breakfast)  
walking distance (approx. 15 min)

#### **NH Hoteles Hamburg-Norge**

Schäferkampallee 49

20357 Hamburg

Tel.: ++49 (0)40 441150

Fax: ++49 (0)40 44115577

Email: [nhhamburgnorge@nh-hotels.com](mailto:nhhamburgnorge@nh-hotels.com)

[www.nh-hotels.de/nh/de/hotels/deutschland/hamburg/nh-hamburg-norge.html](http://www.nh-hotels.de/nh/de/hotels/deutschland/hamburg/nh-hamburg-norge.html)

Single room € 89 (incl. VAT, plus breakfast)  
walking distance (approx. 15 min)

## GENERAL INFORMATION

### HOW TO REACH HAMBURG

#### By train:

Hamburg is easily accessible by train and has three train stations in addition to the main train station, those being Altona, Dammtor and Harburg. Most InterCity (IC) and InterCity Express (ICE) trains stop at all four stations. The train station to University of Hamburg is “Dammtor”.

#### By car:

If you travel by car, Hamburg is very easy to reach. Lying centred between the motorways A7 (North/South tangent), A1 (Bremen-Lübeck), A24 (Berlin-Hamburg) and the A23 (from Heide).

#### By plane:

The Hamburg Airport is only 8 km outside town ([www.ham.airport.de](http://www.ham.airport.de)).

### TRANSPORT IN HAMBURG

#### Taxi:

There are taxi ranks in front of all the terminals. A ride from the airport to the city centre takes about 30 minutes and costs approx. € 25.

#### HVV (Hamburg Public Transport)

Hamburg Airport has a direct rail connection to the city centre by suburban rail line S1, which will take you to or from the main station, Hauptbahnhof, or Jungfernstieg [city centre].

For detailed information about public transportation in Hamburg please visit: [www.hvv.de/en](http://www.hvv.de/en).

## GENERAL INFORMATION

### LOCATION MAP OF UNIVERSITY OF HAMBURG



Conference venue

The bus stop closest to the conference site is Grindelallee (“Röntgenstraße”, Bus 5 from Dammtor train station); the closest underground stop is station “Schlump”.

