

MACROMOLECULAR COLLOQUIUM FREIBURG

25 – 27 FEBRUARY 2015

WEDNESDAY, 25 FEBRUARY 2015

Registration desk opens at 11 a.m.

14:00 Opening Remarks

Prof. Dr. Prasad Shastri, Director Institute for Macromolecular Chemistry, University of Freiburg
Prof. Dr. Gunther Neuhaus, Vice Rector University of Freiburg
Prof. Dr.-Ing. habil. Stefan Hiermaier, Director Fraunhofer EMI and Freiburg
Center of Excellence Sustainability

SPECIAL SESSION: POLYMERS CREATING A SUSTAINABLE FUTURE

Chair: Rolf Mülhaupt

14:15 RUDY KOOPMANS (Dow Europe GmbH, Switzerland)
Rethinking Plastics as Materials: Opportunities for Innovation

14:45 RÜDIGER BAUNEMANN (Plastics Europe Germany e.V.)
Sustainability and Plastics Industry

15:15 VOLKER SCHÄDLER (BASF Polyurethanes GmbH, Germany)
Polymer Innovations@BASF: Tackling the Sustainability Challenge

15:45 CHRISTIAN KOCH (Alphakat GmbH Bamberg, Germany)
Catalytic Conversion of Plastics and Bio Wastes to Diesel

16:15 COFFEE BREAK

17:00 MARKUS ANTONIETTI (Max Planck Institute of Colloids and Interfaces Potsdam, Germany),
D. Esposito
Biorefining Approaches to (New) Monomers and Polymers

17:30 MATTHIAS ULLRICH (Evonik Industries AG), J. Nitsche, F.-E. Baumann, F. Erhardt, S.
Schaffer, J. Herwig
"High Performance Palms" - Polyamide 12 from Palm Kernel Oil Feedstock

18:00 CHRISTOPH GÜRTLER (Bayer Material Science, Germany)
Sustainable Carbon Sources for The Chemical Industry – CO₂ Is Becoming a Direct and
Indirect Component in Polyurethane Plastics

18:30 JULIAN WEBER (BMW Group)
The BMW Approach to Sustainable Individual Mobility

19:00 RAINER GRIESSHAMMER (Ökoinstitut Freiburg, Germany)
Chancen und Herausforderungen einer nachhaltigen Chemie

19:30 GET TOGETHER (Foyer Paulussaal)

THURSDAY, 26 FEBRUARY 2015

9:00 KLAUS MÜLLEN (Max Planck Institute for Polymer Research Mainz, Germany)
A Polymer Chemistry of Graphene

9:30 HENNING SIRRINGHAUS (University of Cambridge, UK)
Charge Transport Physics of High Mobility Conjugated Polymers

10:00 SHAHRAM MIHAN (Basell Polyolefine GmbH, Germany)
Creating a New Class of Polyethylene Products: The Hybrid Concept

10:30 INTRODUCTION OF POSTERS

- 1 S. IGDE (Uni Düsseldorf), D. Pussak, A. Müller, P. Maffre, N. Mujkic-Ninnemann, Ch. Zellmer, G.U. Nienhaus, Th. K. Lindhorst, L. Hartmann
Cyclic Precision Glycomacromolecules as Multivalent Ligands: A Thermodynamic Study
- 2 H. PAULSEN (Uni Hamburg), D. Szopinski, G. A. Luinstra
RAFT/MADIX Chain Transfer Agents with Monosaccharide Entities: A Pathway to Stimuli-Responsive Polymers with Monosaccharide End Groups
- 3 A. RÜDIGER (Uni Paderborn), W. Bremser, O. Strube
Enzyme-Mediated in situ Formation of Casein Biocoatings
- 4 C. FODOR (Uni Fribourg), B. Gajewska, J. Pollard, N. Bruns
Enzymatic Atom Transfer Radical Polymerization of N-Vinylimidazole
- 5 F. N. FÜHRER (Uni Potsdam), Ch. Secker, H. Schlaad
Exploring Routes to New Amino Acid-based Polymers
- 6 H. KÖHRING (Uni Mainz), I. Bellinghausen, J. Saloga, H. Frey
Degradable PEG-acetal-dimethacrylates as Building Block for PEG Nanocarriers: Allergen Encapsulation and Controlled Release
- 7 F. DORNER (Uni Freiburg), E.K. Riga, W. Hartleb, A. Al-Ahmad, K. Lienkamp
Self-Regenerating Antimicrobial Surface Coatings
- 8 M. MATLOUBI (Uni Freiburg), V.P. Shastri
Novel Biodegradable Polyurethane for Thermally Activatable Cardiovascular Stents
- 9 J.-P. COUTURIER (Uni Potsdam), A. Laschewsky, M. Sütterlin, E. Wischerhoff, C. Hettrich
Responsive Inverse Opal Hydrogels for Facile Sensing of Biomolecules
- 10 J. HAHN (Helmholtz-Zentrum Geesthacht), J.I. Clodt, V. Filiz, V. Abetz
Protein Separation Performance of Self-Assembled Block Copolymer Membranes
- 11 B. TORGER (TU Dresden), D. Vehlow, B. Urban, B. Woltmann, C. Striegler, D. Weber, R. Schwartz-Albiez, A. Seckinger, E.A. Cavalcanti-Adam, U. Hempel, D. Appelhans, M. Müller
Adhesive Drug Releasing Polyelectrolyte Complex Coatings for Bone Repair
- 12 J. THIELE (TU Dresden), Y. Ma, D. Foschepoth, M.M.K. Hansen, C. Steffen, H.A. Heus, W.T.S. Huck
Gene Expression in Hydrogel Microcompartments

- 13 B. C. MA (Max Planck Institute for Polymer Research), K. Landfester, K. Zhang
Shape Control of Conjugated Microporous Polymer Nanoparticles with Visible Light Driven Photocatalytic Activity in Aqueous Medium
- 14 D. GRÄFE (Leibniz Institut für Polymerforschung Dresden e.V.), S. Zschoche, D. Appelhans, B. Voit
Bi-Sensitive Hydrogels as Actuator/Sensor Material
- 15 D. PIRNER (Uni Bayreuth), M. Dulle, S. Förster
Structure and Dynamics of H-bridged Transient Micellar Networks
- 16 V.K. RASTOGI (Uni Freiburg), T. Herberger, P. Samyn
Nanofibrillated Cellulose as a Nucleating Agent to Improve Polyhydroxyalkanoates Crystallization Behavior
- 17 A. KIESSLING (Uni Freiburg), L. Jacomine, V. Le Houérou, Ch. Gauthier, E. Bartsch
Nanostructured Composites: From Molecular Diffusion to Macroscopic Performance
- 18 K. TÄUBER (Uni Potsdam), Q. Zhao, J. Yuan
Porous Membranes from Poly(ionic liquid)s
- 19 M. SUCKOW (TU Dresden), F. Böhme, A. Das, G. Heinrich, B. Voit
New Poly(Ionic Liquids) Based on Maleic Anhydride-Containing Polymers for Self-Healing Materials
- 20 M. GÖRING (TU Chemnitz), A. Yulinova, A. Seifert, P. Müller, K. Schreiter, D. Nickel, Th. Lampke, S. Spange
Twin Polymerization as a Method for Metal-Plastic Interface Design
- 21 J. BRANDT (TU Dresden), N.K. Guimard, K.O. Oehlenschlaeger, K. Pahnke, Ch. Barner-Kowollik, F.G. Schmidt, A. Lederer
Temperature Dependent in situ Characterization of Dynamic Bonding Reactions
- 22 B. TARTSCH (Malvern Instruments), B. Sabagh, S. Olivier, P.G. Clarke
Elucidation of Macromolecular Structure Using the Mark-Houwink-Sakurada Plot
- 23 G. GUNKEL-GRABOLE (Uni Basel), A. Car, L. Marot, V.V. Naik, C.G. Palivan, W.P. Meier
Impact of Poegma Brushes on Gas Transport through PDMS Membranes
- 24 A. KUTZ (Uni Erlangen-Nürnberg), J. Düring, S. Frühbeißer, F. Gröhn
Improving Photocatalytic Activity through Electrostatic Self-Assembly: Polyelectrolytes as Tool for Solar Energy Conversion?

11:50 COFFEE AND POSTERS

13:00 LUNCH BREAK

- 14:00 MICHAEL BUCHMEISER (University of Stuttgart, Germany), S. Naumann, E. Frank, L. Steudle, J. Spörl, B. Clauß, F. Hermanutz, F. G. Schmidt
High-Performance Fibers and Matrices for Lightweight Fiber-Reinforced Structures
- 14:30 ANDREAS GREINER (University of Bayreuth, Germany), G. Duan, M. Langner
Ultra-Light Hierarchical 3D Polymer Structures

- 14:50 BERNHARD BLÜMICH (RWTH Aachen, Germany), A. Adams, E. Danieli, T. Meldrum, D. Oligschläger, K. Singh, W. Zia
NMR-Spectroscopy and Nondestructive Testing by Compact NMR
- 15:10 ANDREAS WALTHER (DWI-Leibniz-Institut Aachen, Germany), Th. Heuser, E. Weyandt, A.-K. Steppert
Programmed to Self-Destruct: Dynamic Soft Materials via Non-Equilibrium Self-Assembly
- 15:30 CHRISTOPH SCHICK (University of Rostock, Germany), E. Zhuravlev, J. W. P. Schmelzer, A. S. Abyzov, V. M. Fokin, R. Androsch
Tammann's Crystal Nuclei Development Approach Applied to the Analysis of Crystallization of Macromolecules
- 15:50 COFFEE BREAK**
- 17:00 CORINNE NARDIN (University of Geneva, Switzerland), D. Kedracki, I. Safir, E. Prado, J. N. Abraham
DNA Hybrids: Structure Formation and Modes of Interaction
- 17:20 LEONID IONOV (Leibniz Institute of Polymer Research Dresden, Germany), G. Stoychev, S. Zakharchenko, S. Turcaud, J. Dunlop
Biomimetic Soft Microorigami: Shape-Programmed Folding of Stimuli-Responsive Polymer Films
- 17:40 FREDERIK WURM (Max Planck Institute for Polymer Research Mainz, Germany)
Poly(Phosphoester)s: From Adhesives To Stealth Polymers
- 18:00 MANFRED SCHMIDT (Johannes Gutenberg University Mainz, Germany)
Polymers for Tumor Immune Therapy: in vitro and in vivo Results on Multifunctional Cylindrical Brush Polymer Conjugates
- 18:20 ALEXANDER BÖKER (RWTH Aachen, Germany), P. van Rijn, M. Tutus, Ch. Kathrein, N. C. Mougini, H. Park, Ch. Hein, M. P. Schürings
Nanoporous Ultra-Thin Membranes Formed via Self-Assembly of Protein-Polymer-Conjugates
- 18:40 ADRIAN NAJER (University of Basel, Switzerland), D. Wu, A. Bieri, F. Brand, C. G. Palivan, H.-P. Beck, W. Meier
Conquering Infections Using Polymer-Based Nanomimics of Host Cell Membranes

19:30 DINNER (Mensa Rempartstrasse)

FRIDAY, 27 FEBRUARY 2015

- 9:00 HENRI CRAMAIL (Bordeaux Montaigne University, France), A. Llevot, E. Grau, S. Carlotti, S. Grelier
Crossing the Biomass Feedstocks for Novel Bio-Sourced Polymers
- 9:30 BERNHARD RIEGER (Technische Universität München, Germany)
Catalytic Precision Polymerization for Sustainable Polymer Synthesis
- 10:00 ROBERT LISKA (Vienna University of Technology, Austria)
3D Printing of a New Generation of Biocompatible and Biodegradable Photopolymers

10:30 INTRODUCTION OF POSTERS

- 1 J. KAINZ (TU München), P. Werz, B. Rieger
Thermosensitive Polyethylenimine for Highly Efficient Carbon Dioxide Release
- 2 D. VAVŘINOVÁ (Charles University in Prague), M. J. Bojdys
Layered Functional Materials: Extending the 'Graphene' Family
- 3 S. DÜNKI (Swiss Federal Laboratory for Materials Science and Technology/Empa), F. Nüesch, D. Opris
Polar Silicones for Dielectric Elastomer Transducers
- 4 A. STENBOCK-FERMOR (RWTH Aachen), Th. M. Juraschek, A. Knoll, A. Böker, L. Tsarkova
Enhanced Ordering Dynamics in Solvent-Annealed Block-Copolymer Films on Polymeric-Network Supports
- 5 M. DOLGUSHEV (Uni Freiburg), D.A. Markelov, Y. Y. Gotlib, A. Blumen
NMR Relaxation of the Orientation of Single Segments in Semiflexible Dendrimers
- 6 S. BODENDORFER (Uni Freiburg), J. Schwabe, M. Stürzel, R. Mülhaupt
Tandem-Catalysis and Multi-Site-Catalyst-Mediated Nanostructure Formation for Self-Reinforcing Polyethylene Reactor Blends
- 7 W. DONG (Uni Wuppertal), U. Scherf
Aggregation Induced Emission and Amplified Explosive Detection of Tetraphenylethylene-Substituted Polycarbazoles
- 8 M. HUFNAGEL (Uni Bayreuth), M. Fischer, Th. Thurn-Albrecht, M. Thelakkat
Design Principles for Fullerene Grafted Block Copolymers as a Key to Well-Defined Nanoscale Morphology
- 9 M. SCHEUBLE (Uni Stuttgart), M. Goll, Th. V. Richter, A. Ruff, M. C. Ruiz Delgado, S. Ludwigs
Bridging the Gap: From Linear to Branched Polythiophenes
- 10 A. BERNDT (TU Dresden), D. Pospiech, M. Plötner, M. Al-Hussein, D. Jehnichen, B. Voit, W.-J. Fischer
Solution Processable Polymeric High-k Gate Dielectrics for Printed Thin Film Transistor Applications
- 11 D. SCHIEFER (Uni Freiburg), T. Wen, Y. Wang, H. Komber, P. Braunstein, G. Reiter, M. Sommer
Synthesis of Highly Regioregular, Sterically Hindered Polythiophenes and their Anisotropic Photophysical Properties in Large Spherulites
- 12 T. ERDMANN (TU Dresden), J. Back, R. Tkachov, A. Ruff, B. Voit, S. Ludwigs, A. Kiriya
Dithienosilole-Based All-Conjugated Block Copolymers Synthesized by a Combination of Quasi-Living Kumada and Negishi Catalyst-Transfer Polycondensations
- 13 M. SPEER (Uni Bonn), P. Schmidt, J.-J. Jassoy, Ch. Sterzenbach, B. Esser
Redox Polymers as Cathode-Active Materials for Lithium Metal Batteries
- 14 S. CIFTCI (RWTH Aachen), N. Anwar, A.-K. Steppert, A. J. C. Kuehne
Monodisperse Particles Prepared from a Wide Variety of Conjugated Polymer Structures for Organic Photonics
- 15 R. SCHNEIDER (Empa), Th. Geiger, S. R. Lüthi, K. Albrecht, M. Brülisauer, A. Bernard
Transparent PDMS/ CaF₂ Composites with Improved Thermal Conductivity

- 16 A. REISCH (Uni Strasbourg), Y. Arntz, P. Didier, Y. Mély, A. S. Klymchenko
Small and Ultrabright Dye-Doped Polymer Nanoparticles
- 17 O. ECKARDT (Uni Jena), Ch. Pietsch, D. Brauer, F. Schacher
Well-Defined Core-Shell Hybrid Nanoparticles via Sol-Gel Processes
- 18 CH. TOLLE (TU Braunschweig), H. Menzel
Polymer Nanoparticles for Triggered Drug Releases
- 19 D. SCHEID (TU Darmstadt), Ch. G. Schäfer, S. Vowinkel, M. Rehahn, M. Gallei
Polymeric Opal Structures: Preparation, Stimuli-Responsiveness and Ceramic Precursor
- 20 A. OTT (Humboldt University Berlin), Y. Lu, M. Ballauff
Hybrid Colloidal Structures Based on Plasmonic Metal Nanoparticles
- 21 F. KARAGÖZ (Max Planck Institute for Polymer Research), R. Dorresteyn, K. Müllen, M. Klapper
Polarity Reversal of Nanoparticle Surfaces by the Use of Light Sensitive Polymeric Emulsifiers
- 22 W. SCHMOLKE (FU Berlin), A. Habicht, S. Seiffert
Sensitive Microgels as Model Materials
- 23 G. MARIANI (Grenoble & Erlangen) (Uni Nürnberg), D. Moldenhauer, R. Schweins, F. Gröhn
Encoding the Shape of Nano-Assemblies through Molecular Building Blocks: Thermodynamics as Key to a Fundamental Understanding of Structure Directing Effects
- 24 K. RENGGLI (MIT), M.S.B. Raredon, B. Imperiali, P.T. Hammond, L.G. Griffith
Sortase-Mediated Click Chemistry to Functionalize 3D-Printed Scaffolds with Growth Factors and Adhesion Peptides for Optimized Cell Viability

11:50 COFFEE AND POSTERS

13:00 LUNCH BREAK

- 14:00 CHRISTOPHER BARNER-KOWOLLIK (Karlsruhe Institute of Technology, Germany)
Precision Designed Cellulose Materials via Light and Thermally Triggered Ligations
- 14:20 JOZSEF KARGER-KOCSIS (Budapest University of Technology and Economics, Hungary), Á. Kmetty
Thermoplastic Starch Containing Blends and Composites
- 14:40 FILIP DU PREZ (Ghent University, Belgium), O. Türünc, S. Billiet, K. De Bruycker, J. Winne
From Olive Oil to Olive Foil: TAD's the Spirit!
- 15:00 MICHAEL SOMMER (University of Freiburg, Germany), F. Lombeck, F. Nübling, R. Maitisidike, H. Komber, D. Fazzi, A. Luzio, M. Caironi
Direct Arylation in Materials Chemistry: Better than Stille and Suzuki Cross-Coupling?
- 15:20 MICHAEL RYAN HANSEN (Aarhus University, Denmark)
A Bottom-Up View on Molecular Order, Disorder and Dynamics in π -Conjugated Polymers

15:40 COFFEE BREAK

16:30 POSTER AWARDS donated by WILEY VCH

**MICROSYMPOSIUM in HONOR of
PROF. DR. ROLF MÜLHAUPT'S 60th BIRTHDAY**

Chair: Prasad Shastri

- 16:40 SABINE LUDWIGS (University of Stuttgart, Germany)
Laudatio
- 16:50 THOMAS SPECK (University of Freiburg, Germany), O. Speck, H. Bohn, T. Masselter
Polymer-Based Solutions for Bio-Inspired Building Construction
- 17:20 STEFAN MECKING (University of Konstanz, Germany)
Aqueous Polyolefin Catalysis
- 17:35 GÜNTER REITER (University of Freiburg, Germany), H. Zhang, M. Yu, B. Zhang, R. Reiter, M. Vielhauer, R. Mülhaupt, J. Xu
Correlating Polymer Crystals via Self-Induced Nucleation
- 17:50 HOLGER FREY (University of Mainz, Germany), J. Herzberger, J. Blankenburg, V. Wilms, A.-K. Hesse
Glycidyl Amines: Easily Accessible, Yet Little Explored Epoxide Monomers for pH-Responsive Polyethers, Smart Nanoparticles and More
- 18:05 JÜRGEN FINTER (Sika Technology AG), M. Gössi, A. Kramer
CIBA RAM 965 - Enabling Light Weight Construction in Automotive with Chemistry
- 18:20 WALTER RICHTERING (RWTH Aachen, Germany)
What Is Special about Soft Responsive Microgels?
- 18:35 JÖRG KRESSLER (MLU Halle-Wittenberg, Germany), M.H. Bilal, M. Samiullah, T. Naolou, M.V. Weiss, G. Hause, K. Mäder
Enzymatic Synthesis of Polyesters, Structure Formation and Application in Pharmacy
- 18:50 JÖRG TILLER (TU Dortmund, Germany), D. Quitmann, R. Hoeher, B. Heuwers, F. Katzenberg
Shape Memory Natural Rubber (SMNR) – A Novel Smart Material
- 19:05 THORSTEN STEINBERG (University Medical Center Freiburg, Germany), S. Schulz, M. Angarano, R. Mülhaupt, P. Tomakidi
Nonwoven Medical Device Developed for Soft Tissue Regeneration: From Invention to Innovation
- 19:20 RAINER HAAG (Freie Universität Berlin, Germany), Q. Wei
Mussel-Inspired Dendritic Polymers as Universal Multifunctional Coatings
- 19:35 ROLF MÜLHAUPT Closing

