

INSTITUT FÜR MAKROMOLEKULARE CHEMIE DER UNIVERSITÄT FREIBURG

Hermann – Staudinger – Haus



Bericht über die wissenschaftlichen Aktivitäten

2012

PUBLIKATIONEN

- 1 ANDRINGA, A.-M.
CHRISTIAN ROELOFS, W.S.
SOMMER, M.
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DISSERTATIONEN

- | | |
|--------------------|--|
| ANSELM, Melanie | Polyethylen- und Polyoctenamer-Nanocomposite durch katalytische Polymerisation in Gegenwart von funktionalisierten Graphenen |
| SCHÜSSELE, Andreas | Neue Additive und thermoreversible Conetzwerksysteme für selbstheilende NBR-Elastomere |

DIPLOMARBEITEN

BLATTMANN, Hannes Rolf	Synthese von multifunktionellen Amidoaminen zur Herstellung von isocyanatfreien Polyurethan-Netzwerken und Cellulosecarbonat Compounds
BODENDORFER, Simon	Synthese und rheologische Charakterisierung hyperverzweigter polyionischer Flüssigkeiten mit variierenden Anionen
BÖHM, Ricarda	Charakterisierung des hyperverzweigten Poly-3-Ethyl-3-hydroxymethyloxetans sowie verschiedene Funktionalisierungen
BURGER, Dominik	Synthese und Charakterisierung von sterisch stabilisierten wässrigen Dispersionen.
BURGER, Stefanie	Bestimmung des attraktiven und repulsiven Glasübergangs einer binären Kolloidmischung.
ERATH, Roman	Neue polymere Nanokomposite auf der Basis von Graphen/Silikon und perlmutterartigen sprühbaren Multischichtsystemen aus Chitosan/Bentonit
KASPER, Patrick	Modifizierte hyperverzweigte Polyetherpolyole als Selbstheilungs-Additive in Elastomeren
LAZAR, Ion	Darstellung neuartiger Duroplastmaterialien auf Basis hochvernetzter Poly(2-oxazoline) und tosylierten Makroinitiatoren
SCHIEFER, Daniel	Polyamid 12 Nanokomposite auf Basis funktionalisierter Graphite und Graphene
SCHUBERT, C.R.	Synthese und rheologische Eigenschaften von hyperverzweigten Polyglycerinen
SCHWABE, Jeremia	Selbstreparierende <i>i</i> PP-Nanokomposite und funktionalisierte Stöber-Partikel für schockabsorbierende Materialien

MASTERARBEITEN

DOLD, Martin	Mikroextrusion und Siebdruck von Graphenen für Leiterbahnen und Superkondensatoren
KIRSCHVINK, Felix	Mineralisierte funktionalisierte Graphene als Träger für Ein- und Mehrzentren-Katalysatoren zur Herstellung von Polyolefinen und Polyethylen-Reaktorblends
KOTRADE, Philip	Bio-basierte Polymere auf der Basis von Norcantharidin, Amidoaminen und der kationischen Polymerisation von 7-Oxabicyclo-[2.2.1]-heptan
SCHMIDT, Stanislaus	Cyclische Carbonate auf Basis von Butadien und Sorbitol für biobasierte isocyanatfreie Polyurethane
SCHNEIDER, Jochen	Bestimmung der Stromautokorrelationsfunktion in kolloidalen Dispersionen mittels Lichtstreuung

BACHELORARBEITEN

BOŽIĆ, Michael	Reaktionsextrudierte Polyamide aus nachwachsenden Bisazlactonen und Synthese cyclischer Carbamate
GAISER, Steffen	Isocyanatfreie Polyurethane auf Basis von nachwachsenden Rohstoffen
GISIN, Joshua	Synthese und Charakterisierung sterisch stabilisierter Poly-Fluoracrylat-Latices
HAUSSER, Franziska	Synthese thermoplastischer polarer Copolymere auf Basis nachwachsender Rohstoffe unter vollständiger stofflicher Nutzung durch Reaktivextrusion mittels Kettenverlängerungssystemen
KOST, Jonas	Synthese von maßgeschneiderten Kern-Schale-Partikeln und Charakterisierung mittels statischer und dynamischer Lichtstreuung
SAAR, Julia Selina	Synthese von catecholterminierten Lupasolderivaten
WERNER, Marcel	Untersuchung des Phasenverhaltens zweier binärer Kolloidsysteme
WIEDMEIER, Daniel	Hyperverzweigte Polyionische Flüssigkeiten mit Polyisobuten Schale
ZUNKER, Simon	Funktionalisierte Graphene als Nanofüllstoffe für Polyurethan-Gießelastomere

VORTRÄGE und POSTER

- 1 BARTSCH, E.
WILLENBACHER, N. Influence of particle softness and attraction range on the fluidity of highly concentrated polymer latex dispersions with polymer-induced depletion attractions
Jahrestreffen des DFG-Schwerpunkts 1273, Karlsruhe, Juni 2012
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SHASTRI, V.P. NGF Dependent Neurons Can Sense and Process Nano-Scale Topographical Cues
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- 5 BODENDORFER, S.
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BARTSCH, E. Synthesis and polymerization kinetics of sterically stabilized perfluorinated aqueous latex
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BARTSCH, E. Synthesis and polymerization kinetics of sterically stabilized perfluorinated aqueous latex
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POGODINA, N. Triborheology and Molecular Structure of Novel Ionic Liquids Influenced by Flow and Electrical Fields
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- 15 FRIEDRICH, C. Flüssig-fest-Übergänge in dispersen Materialien am Beispiel von Polymeren mit nanoskaligen Füllstoffen
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FRIEDRICH, C. Rheological characteristics of hyperbranched polyglycerols of different functionalities
International Congress on Rheology, Lissabon, August 2012
- 20 KERSCHER, B.
BECKERT, F.
MÜLHAUPT, R. Hypervverzweigte polymere ionische Flüssigkeiten als Nanotransporter, Polymeradditive und kompartimentierte Systeme
21. FMF Kolloquium, Schluchsee, Oktober 2012
- 21 KIESSLING, A.
BARTSCH, E. Influence of nanofillers on the drying and properties of polymer latex films
Winter workshop 2012, Strasbourg, Frankreich, Februar 2012
- 22 KIESSLING, A.
BARTSCH, E. Influence of nanofillers on the drying and properties of polymer latex films
SoMas Summer School 2012, Mittelwihr, Frankreich, Juli 2012
- 23 KIESSLING, A.
BARTSCH, E. Influence of nanofillers on the drying and properties of polymer latex films
Fall workshop 2012, Freiburg, November 2012
- 24 MÜLHAUPT, R.
TÖLLE, F.
FABRITIUS, M.
GAMP, K.
SCHOPP, S.
HOFMANN, D. Funktionalisierte Graphene aus Graphit (FUNgraphen): Scale-up, Dispersion und Anwendungen
Inno.CNT Jahreskongress 2012, Bayreuth, Februar 2012
- 25 MÜLHAUPT, R. Nano goes Macro!
SKZ Fachtagung „Nanotechnologien für die Kunststofftechnik“, Würzburg, März 2012
- 26 MÜLHAUPT, R. 2D Makromoleküle und Nanomaterialien aus Kohlenstoff
Expertentreff „Neue Materialien“ Universität Halle, März 2012
- 27 MÜLHAUPT, R. Hermann Staudinger bis hin zu modernen High-Tech-Werkstoffen
MNU Bundeskongress, Freiburg, April 2012

- 28 MÜLHAUPT, R. Bio-Inspired Materials for Construction: Prospects and Challenges
BASF GMB Trostberg, April 2012
- 29 MÜLHAUPT, R. 3D Dispensing and 3D Printing for Modern Sustainable Architecture
BASF GMB Trostberg, April 2012
- 30 MÜLHAUPT, R. Neue Kohlenstoff-Materialien und 3D Druck
Universität Münster, April 2012
- 31 MÜLHAUPT, R. Makromolekulare Chemie: Von Hermann Staudinger bis hin zu vielseitigen polymeren Stoffen und multifunktionalen Systemen
Schülertage Universität Freiburg, April 2012
- 32 MÜLHAUPT, R.
BECKERT, F.
STEURER, P.
TÖLLE, F.
THOMANN, R.
FRIEDRICH, C. Novel 2D carbon macromolecules and carbon hybrid materials based upon functionalized graphenes and graphene graft copolymers
EMRS 2012 Spring Meeting Straßburg, Mai 2012
- 33 MÜLHAUPT, R.
STEURER, P.
TÖLLE, F.
FABRITIUS, M.
STÜRZEL, M.
BREIT, B. Decorated functionalized graphenes as new catalysts for hydrogenation, C-coupling and polymerization reactions
EMRS 2012 Spring Meeting Straßburg, Mai 2012
- 34 MÜLHAUPT, R. From graphite to graphene: new carbon materials, sheet-coil polymers, nanocomposites and 3-D printing
S-PolyMat 2012, Kerkrade/NL, Mai 2012
- 35 MÜLHAUPT, R. Technische Thermoplaste – Möglichkeiten und Herausforderungen
- Ressourcen- und Energieeffizienz, Erneuerbare Kunststoffe
- Nanocomposites, Blends und Additive
Fachtagung „Technische Kunststoffe“ des SKZ Würzburg, Juni 2012
- 36 MÜLHAUPT, R. Functionalized graphene and new carbon hybrid materials
3rd German-Japanese Joint Symposium Development and Technology of Carbon Materials Arbeitskreis Kohlenstoff der Deutschen Keramischen Gesellschaft e.V. Berlin, Juni 2012

- 37 MÜLHAUPT, R. Funktionalisierte Graphene für polymere Werkstoffe, 3D-Druck und Katalyse
GDCh Vortrag Düsseldorf, Juli 2012
- 38 MÜLHAUPT, R. Vom Graphit zu Graphenen: Neue Kohlenstoff-Hybridmaterialien und 3D-Druck von Graphen-Batterien
5. NRW Nano-Konferenz Dortmund, September 2012
- 39 MÜLHAUPT, R. Smart Materials for Modern Sustainable Architecture
Biennial Meeting of the GDCh-Division of Macromolecular Chemistry Mainz, Oktober 2012
- 40 MÜLHAUPT, R. Multi site catalysts and all-polyolefin nanocomposites
Chemelot International Polyolefins Symposium Maastricht/NL Oktober 2012
- 41 MÜLHAUPT, R. Taylor-made Graphenes for Advanced Nanocomposites, Catalysts and 3D Printing
Scientific Symposium "Chemistry Shaping the Future" im Rahmen des Deutsch-Russischen Jahres Fa. Lanxess Moskau, November 2012
- 42 MÜLHAUPT, R. From Graphite to Graphenes and 3D Printing of Catalysts and Batteries
Vortrag an der ETH Zürich, November 2012
- 43 MÜLHAUPT, R. Macromolecular Chemistry and Materials for Sustainable Development
Symposium der Universität Lyon „Tomorrow towards a selected chemistry“, Dezember 2012
- 44 POOCZA, L.
SHASTRI, V.P. Effect of Periodic Nanoroughness on Shape and Function in Pre-osteoblasts
Makromolekulares Kolloquium Freiburg, Februar 2012
- 45 SAMADI, M.
SCHNEIDER, J.
WURTH, J.
TESKE, N.
SHASTRI, V.P. Adapting Nanoparticles for Cellular Delivery via Modified Polyesters
Makromolekulares Kolloquium Freiburg, Februar 2012
- 46 SHASTRI, V.P. Nanoscale Paradigms for Controlled Release
Controlled Release Society – India Chapter Meeting, Mumbai, India, February 2012

- 47 SHASTRI, V.P. Nanoscale Paradigms for Controlled Release
3rd AIST-ANNA Seminar on Nanoparticles and Single Molecules: Applications of Light & Nanomaterials for the Innovation of Technology and Life Science, Takamatsu, Japan, February 2012
- 48 SHASTRI, V.P.
FORGET, A.
POOCZA, L. Understanding the Role of the Materials Space in Defining Cell Fate and Function
Makromolekulares Kolloquium Freiburg, Februar 2012
- 49 SHASTRI, V.P. Advanced Therapies – An Overview of Needs for Biomaterials for Health
European Commission Directorate General for Research and Innovation Workshop on Biomaterials for Health, Brussels, Belgium, March 2012
- 50 SHASTRI, V.P. Understanding the Biodistribution of Functional Nanoparticles Using Multi-Modal Imaging
INTERREG-Nano@Matrix Kick-off Meeting, CNRS, Strasbourg, France, April 2012
- 51 SHASTRI, V.P. Understanding the Role of Materials Space in Defining Cell Fate and Function
Department of Chemistry, Universidade Federal de Minas Gerais, Belo Horizonte, Brazil, April 2012
- 52 SHASTRI, V.P. State of the Art Drug Delivery Systems
First Meeting of the Network of Nano-and Biotechnology Nanofar Workshop on Intellectual Property Technology Transfer Project CNPq 074/2010, Universidade Federal de Minas Gerais Belo Horizonte, Brazil, April 2012
- 53 SHASTRI, V.P. The Nano-Bio Interface and Implications for Intra-Cellular Delivery
University of Cagliari, Cagliari, Italy, July 2012
- 54 SHASTRI, V.P. Understanding the Role of the Materials Space in Defining Cell Fate and Function
University of Cagliari, Cagliari, Italy, July 2012
- 55 SHASTRI, V.P. Nanoengineering Paradigms for Controlled Release
University of Cagliari, Cagliari, Italy, July 2012
- 56 SHASTRI, V.P. Defining Cell Fate and Function Using Physical Cues
University Hospital – Basel, Group of Prof. Ivan Martin, Basel, Switzerland, November 2012

- 57 SOMMER, M. Step growth and chain growth polymerization for the synthesis of multifunctional conjugated materials: Endgroup analysis and structure formation
Gordon Research Konferenz, Toskana, Mai 2012
- 58 SOMMER, M. Conjugated polymers for organic electronics: Step growth versus chain growth polymerizations
Tag der Forschung, Juli 2012
- 59 SOMMER, M. Conjugated polymers via step growth and chain growth polymerizations
Polydays Berlin Juli 2012
- 60 SOMMER, M. Conjugated polymers for organic electronics: Step growth versus chain growth polymerizations
IRTG Seminar Freiburg, Oktober 2012
- 61 SOMMER, M. Synthesis and self-organization of well-defined and defect-free semicrystalline conjugated polymers
Konferenz Excitonic and lectronic processes in soft matter, Schluchsee, Oktober 2012
- 62 SOMMER, M. Conjugated polymers for organic electronics: Step growth versus chain growth polymerizations
QE Seminar Physik, November 2012
- 63 TÖLLE, F.
MÜLHAUPT, R. Graphen - der neue Kohlenstoffwerkstoff der Zukunft - Synthese und Anwendungen von funktionalisiertem Graphen
SmartTex Workshop Weimar, Mai 2012
- 64 TÖLLE, F.
FABRITIUS, M
MÜLHAUPT, R Emulsifier-free concentrated graphene dispersions for printing flexible electronics and freestanding graphene films
MRS Spring Meeting San Francisco, April 2012
- 65 VASQUEZ, D.
SCHNEIDER, J.
MANZI, V.
SHASTRI, V.P. Effect of physical properties of colloidal nanoparticles on polyelectrolyte multilayer assembly
Makromolekulares Kolloquium Freiburg, Februar 2012
- 66 VONWIL, D.
CHRISTENSEN, J.
RONNEBERGER, O.
SHASTRI, V.P. Development of Methodologies for Multimodal *in vivo* Imaging in Rats
Functional Imaging for Regenerative Medicine (FIRM) Workshop at National Institute of Standards and Technology (NIST) Gaithersburg (USA), Mai 2012

- 67 VONWIL, D.
CHRISTENSEN, J.
RONNEBERGER, O.
SHASTRI, V.P. Development of Methodologies for Multimodal *in vivo*
Imaging in Rats
Perkin Elmer Owners Meeting London (UK), Juni
2012
- 68 WIEMANN, M.
VESARATCHANON, J. S.
THORWARTH, O.
WILLENBACHER, N.
BARTSCH, E. Polymer-induced Attractions – an Alternative Route to
Highly Concentrated, Freely Flowing Colloidal
Dispersions
Makromolekulares Kolloqium 2012, Freiburg,
Februar 2012
- 69 WIEMANN, M.
BARTSCH, E. Effect of cross-link density on the re-entrant melting of
microgel colloids
76. Frühjahrstagung der Deutschen Physikalischen
Gesellschaft, Berlin, März 2012.

VERANSTALTUNGEN

Makromolekulares Kolloquium Freiburg, Februar 2012 (856 Teilnehmer)

WISSENSCHAFTLICHE LEITUNG UND MITARBEITER
DES INSTITUTS

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PROF. DR. V. PRASAD SHASTRI

DOZENTEN

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PROF. DR. DR. CHRISTIAN FRIEDRICH

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SCHWABE, Jeremia

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SCHMIDT, Stanislaus

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BACHELORSTUDIUM

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GISIN, Joshua
HAUSSER, Franziska
KOST, Jonas
MÜLLERS, Stefan
SAAR, Julia
STIHL, Markus
WERNER, Marcel
ZUNKER, Simon

GÄSTE DES INSTITUTS

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ZIEM, B.
INSTITUT FÜR CHEMIE UND BIOCHEMIE, FU BERLIN

GASTVORTRÄGE

im Institut für Makromolekulare Chemie der Universität Freiburg im Breisgau

(im Rahmen des Gemeinsamen Seminars über makromolekulare und physikalische Chemie und des IRTG: Soft Matter Science sowie der GDCh)

- 1 18.01.12 DR. JOHANNES BLEIBEL
MPI für Intelligente Systeme, Stuttgart
Cosmology in a petri dish? Simulation of collective dynamics of colloids at fluid interfaces
- 2 25.01.12 DR. HOLGER SCHMALZ
Makromolekulare Chemie II, Universität Bayreuth
Crystalline-Core Micelles (CCMs): A Toolbox for Complex Surface-Compartmentalized Nanostructures
- 3 08.02.12 PROF. DR. OTTO GLATTER
Dept. of Chemistry, Universität Graz, Österreich
Hierarchically Organized Nanostructured Materials – an Example of Applied Soft Matter Science
- 4 15.02.12 DR. PETER LINDNER
Institut Laue-Langevin (ILL), Grenoble, Frankreich
Soft Matter Research at the ILL – Status and Perspectives
- 5 04.04.12 PROF. BARBARA NEBE
Universität Rostock, Biomedical Research Center, Dept. of Cell Biology
Topography and plasmachemistry as influencing factors for cell adhesion processes
- 6 20.04.12 PROF. NICOLA TIRELLI
University of Manchester, School of Biomedicine and School of Materials, UK
Materials chemistry, responsive polymers and anti-inflammatory therapies
- 7 25.04.12 PROF. MICHAEL WÜBBENHORST
University of Leuven, Belgien
Ultrathin polymer films: sensing polymer dynamics and chain perturbations on multiple length scales by dielectric relaxation spectroscopy
- 8 07.05.12 GDCh-Vortrag:
PROF. DR. HOLGER BRAUNSCHWEIG
Institut für Anorganische Chemie, Universität Würzburg
Steinhofer Vorlesung:
Transfer, Metathesis and Catenation: Reactivity Patterns Emerging from Borylene Complexes

- 9 23.05.12 DR. JEAN-PIERRE MALVAL
Institute of Materials Science of Mulhouse, Frankreich
Molecular Engineering Strategies for the Development of Highly Efficient Two-Photon Activable Initiators
- 10 30.05.12 DR. VINCENT ROUCOULES
Institute of Materials Science of Mulhouse, Frankreich
Plasma Polymers for Designing Reversible Mechanoresponsive Bioactive Surfaces
- 11 06.06.12 DR. MARC BRECHT
Universität Tübingen, IPTC
Nanoparticles Affects the Function of Photosystem I
- 12 11.06.12 PROF. VIOLA VOGEL
Dept. of Health Sciences and Technology, ETH Zürich, Schweiz
The forceful play of cells with extracellular matrix and bacteria
- 13 18.06.12 GDCh Vortrag:
PROF. DR. SERENA DEBEER
MPI für Bioanorganische Chemie, Mülheim/Ruhr
X-ray spectroscopic studies of biological nitrogen fixation
- 14 20.06.12 PROF. BERNARD LOTZ
Institut Charles Sadron, Strasbourg, Frankreich
The structure of crystalline polymers: contributions of electron microscopy and AFM
- 15 26.06.12 DR. ANDREA BALDUCCI
Universität Münster, Institut für Physikalische Chemie, MEET
Strategies for the development of high performance supercapacitors
- 16 27.06.12 DR. MARIA NASH
Institute of Polymer Science and Technology (ICTP-CSIC), Madrid, Spanien
Nanoscale thermoresponsive coatings for cell and cell sheet regeneration
- 17 03.07.12 GDCh Vortrag:
PROF. DR. BARRY TROST
Stanford University, Stanford CA, USA
A challenge for total synthesis: atom economy
- 18 09.07.12 GDCh Vortrag:
PROF. DR. MARKUS ANTONIETTI
MPI of Colloids and Interfaces Potsdam
C/N- Polymers for Artificial Photosynthesis, as Enzyme-Mimicks, and in Electrocatalysis

- 19 16.07.12 GDCh Vortrag:
 PROF. DR. PETER WASSERSCHIED
 Chemische Reaktionstechnik, Universität Erlangen-Nürnberg
 Ionic Liquid Thin Films in Catalysis – Fundamental Aspects and Applications
- 20 17.10.12 PROF. PIERRE-J. LUTZ
 Institute Charles Sadron, CNRS UPR 22, Strasbourg, France
 Poly(ethylene oxide) Based Materials: From Synthesis to Biomedical Applications
- 21 07.11.12 PROF. CARLOS RODRIGUEZ CABELLO
 G.I.R. BIOFORGE - Group for Advanced Materials and Nanobiotechnology, Universidad de Valladolid, Spain
 Tailored Design of Elastin-like Recombinamers for Biomedical and Biotechnological Uses: Architectural Functionality Enhances Domain Functionality
- 22 14.11.12 DR. SYLVAIN GABRIELE
 Université de Mons, Belgien
 From soft matter to biophysics: how cell mechanics control cell functions?
- 23 21.11.12 PROF. ROBERT MAGERLE
 Fakultät für Naturwissenschaften, Technische Universität Chemnitz
 3D Imaging and Nanoscale Mechanics of Polymeric Materials
- 24 28.11.12 PROF. CHRISTIAN MÜLLER
 Chalmers University of Technology, Göteborg in Sweden.
 Disordered Polymer Solar Cells
- 25 28.11.12 PROF. CHRISTIAN MÜLLER
 Chalmers University of Technology, Göteborg, Sweden
 Nucleation Phenomena in Polymer Semiconductor Systems
- 26 05.12.12 PROF. ULRICH SCHWARZ
 Institute for Theoretical Physics, University of Heidelberg
 Material laws for cells and tissues
- 27 12.12.12 DR. FIRAS AWAJA
 Marie Curie Senior Research Fellow, Center for Materials and Microsystems, Trento, Italy
 Autohesion of Polymers for Active Medical Implants Applications
- 28 18.12.12 PROF. DR. DIETER SCHLÜTER
 ETH Zürich, Schweiz
 Synthesis of 2D Polymers