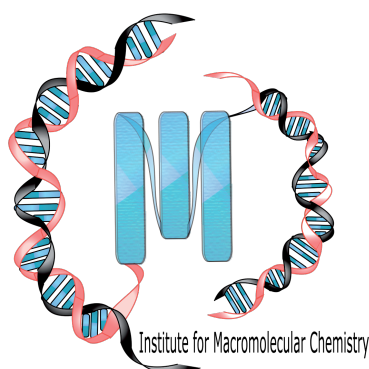


# INSTITUT FÜR MAKROMOLEKULARE CHEMIE DER UNIVERSITÄT FREIBURG

Hermann – Staudinger – Haus



## Bericht über die wissenschaftlichen Aktivitäten

# 2017

Stefan-Meier-Str. 31, 79104 Freiburg, Germany





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## DISSERTATIONEN

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2. BENITEZ, Alejandro                Cellulose Nanofibril Nanopapers and Bioinspired Nanocomposites
3. BLUMENTHAL, Nils Rene            The Role of Cellular Mechanotransduction in the Central Nervous System and Neural Development
4. HEUSER, Thomas                    Self-Regulating Materials with transient lifetimes via internal feedback
5. HUBER, Michael Peter              Dispersion und Ausrichtung von Korund-Nanoplättchen in bioinspirierten Epoxid- und Vinylester-Harzsystemen und deren Anwendung als chemische Verbundanker
6. RATZSCH, Karl-Friedrich            Entwicklung einer Niederfeld-NMR-Rheologie-Kombination zur Untersuchung des Kristallisationsverhaltens von Polymeren, September 2017
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9. SCHLECHTENDAHL, Mark Dietrich    Kohlenstoffbasierte Nanofüllstoffe für Olefinblockcopolymer- und Mehrlagenkomposite
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GROSS, Lukas	Photo-cross-linking of transparent hybrid nanopapers (CNF/polymer nanocomposite) and their mechanical properties
HECKEL, Jonas	Light Scattering from aggregated polystyrene microgels
MAX, Johannes Bernhard	Isocyanatfreie Synthese biobasierter Polyhydroxyurethan-Blockcopolymerer und thermoplastischer Elastomere
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SEHL, Elmar Nikolas	Thermoresponsive Kammpolymerer und Poly(vinylencarbonat) Partikel
WOLF, Michael	Charakterisierung der Fließeigenschaften und Extrusionsfähigkeit eines trimodalen PE-Blends
YAN, Wenqing	Bilayered polymer brushes with controlled topology
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ZHANG, Chen	Synthesis and Characterization of Photo-Cross-Linked Carboxylated Agarose Hydrogels
ZIMMERMANN, Marcel	Dispersionsblends auf Basis von Altpapier und mikrofibrillierter Cellulose für PP-Komposite

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3. HAMBITZER, Roland                    Leitfähige, kratzfeste und sprühfähige Beschichtungen unter Verwendung von graphenisierten mineralischen Füllstoffen
4. LÖSCH, Amelia                         Synthese und Charakterisierung verschiedener telechelischer Ionomere aus bi-carboxyliertem Poly(cycloocten)
5. SAUER, Mike                            Variation der Partikelgröße und Implementierung einer Zulaufpolymerisation bei der Dispersionspolymerisation von Styrol
6. SCHMIDT, Ricarda Sophia            Kern-Schale-Hydrogelpartikel und deren Kühlfähigkeit in Polyurethan-Schaumsystemen
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## VORTRÄGE und POSTER

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52. WALTHER, A. Static and Dynamic Bioinspired Self-Assembled Material System  
Seminar Universität Straßburg, Institut Charles Sadron (Frankreich), September 2017
53. WALTHER, A. Molecular Motors meet Polymers: Towards Active Plastics  
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GDCh Vortrag Universität Duisburg-Essen (Deutschland), Oktober 2017
55. WALTHER, A. Static and Dynamic Bioinspired Self-Assembled Material System  
Adolphe Merkle Institut Fribourg (Schweiz), November 2017
56. WALTHER, A. Adaptive and Autonomous Bioinspired Material Systems  
GDCh Vortrag Universität Saarbrücken (Deutschland), November 2017
57. WALTHER, A. Autonom dynamische Materialsysteme  
Physikalisches Kolloquium, TU Chemnitz (Deutschland), November 2017
58. WALTHER, A. Autonomous, out-of-equilibrium self-assemblies and material systems with programmable lifetimes  
Ringberg Castle Symposium on 4D Molecular Systems Engineering (Deutschland), Dezember 2017
59. WERNER, M. PFA-PEG particles: A colloidal model system for the investigation of phase diagrams of PEGylated drug carrier systems  
Vortrag 91<sup>st</sup> ACS Colloid & Surface Science Symposium, New York City (USA), Juli 2017

60. WERNER, M.  
BURGER, S.  
LINDNER, P.  
BARTSCH, E. Investigation of the osmotic deswelling of polystyrene microgels by polymer addition  
91<sup>st</sup> ACS Colloid & Surface Science Symposium  
New York City (USA), Juli 2017
61. WERNER, M.  
VON SEGGERN, N.  
TAPPE, M.  
WERNET, M.  
BARTSCH, E. PFA-PEG particles: A colloidal model system for the investigation of phase diagrams of PEGylated drug carrier systems  
IRTG SOMAS Summer School, Mittelwihr,  
Frankreich, Juli 2017
62. WERNER, M. PFA-PEG particles: A colloidal model system for the investigation of phase diagrams of PEGylated drug carrier systems  
Vortrag 31<sup>st</sup> Conference of the European Colloid and Interface Society, Madrid, Spanien, September 2017
63. WERNER, M.  
BURGER, S.  
LINDNER, P.  
BARTSCH, E. Investigation of the osmotic deswelling of polystyrene microgels by polymer addition  
31<sup>st</sup> Conference of the European Colloid and Interface Society, Madrid, Spanien, September 2017
64. WIEDMANN, S.  
KERSCHER, B.  
DECHER, G.  
LUTZ, J-F.  
MÜLHAUPT, R. Compartmentalized Smart Polymer Ionic Liquids for Responsive Systems  
IRTG Summer School, Mittelwihr (Frankreich), Juli 2017
65. XIANG, S. N.  
SAREM, M.  
SHAH, S.  
SHASTRI, V. P. Altering nanoparticle uptake pathway by engineering cell membrane stiffness  
Cell Physics 2017, Saarland University,  
Saarbrücken (Deutschland), Oktober 2017

## VERANSTALTUNGEN

Makromolekulares Kolloquium Freiburg, Februar 2017 (circa 700 Teilnehmer)

WISSENSCHAFTLICHE LEITUNG UND MITARBEITENDE  
DES INSTITUTS

PROFESSOREN

PROF. DR. ROLF MÜLHAUPT (DIREKTOR)  
PROF. DR. V. PRASAD SHASTRI (DIREKTOR)  
PROF. DR. ECKHARD BARTSCH  
PROF. DR. DR. CHRISTIAN FRIEDRICH  
PROF. DR. ANDREAS WALTHER

EMERITI

PROF. DR. WALTHER BURCHARD  
PROF. DR. DR. H.C. HANS-JOACHIM CANTOW  
PROF. DR. DR. H.C. HEINO FINKELMANN  
PROF. DR. WOLFRAM GRONSKI  
PROF. DR. DR. H.C. HANS ADAM SCHNEIDER

WISSENSCHAFTLICHE MITARBEITER

DR. LUCAS AHRENS  
DR. XINLONG FAN  
DR. RALF HANSELMANN  
DR. MARKUS HEINY  
DR. MARIAM SAMADI  
DR. MELIKA SAREM  
DR. RALF THOMANN  
DR. PRADEEP WYSS

## DOKTORAND\*INNEN

ASMACHER, Anne

BURKARD, Jochen

BURK, Laura

BLUMENTHAL, Nils

DRESLER, Christopher

GISIN, Joshua

GLIEM, Matthias

GRÖER, Saskia

HEGE, Cordula

HEES, Timo

HEINEN, Laura

HERRERA, Laura Cecilia

HUBER, Michael

JIAO, Dejin

KOZUR, Alexander

KIESSLING, Andy

LESNICHII, Vasilii

LI, Aijun

LOSSADA TORO, Francisco

MATLOUBI, Maziar

MÖNKEMEYER, Florian

NÜBLING, Fritz

PÖSSEL, Burkhardt

RUKEYAMU, Matzsidike

SCHÄRTL, Nicole

SCHLECHTENDAHL, Mark

SCHIMPF, Vitalij

SCHMIDT, Simon

SCHMIDT, Stanislaus

STARCK, Laurent

STOLZ, Benjamin

TRÖTSCHLER, Tobias Michael

WOLF, Jürgen Daniel

WANG, Qian

XIANG, Shengnan

YANG, Yuan

YAO, Chunyan

ZHANG, Weihai

ZHANG, Wenli

ZHONG, Fan

ZOU, Yuming

**STUDIARENDE IM  
MASTERSTUDIUM**

GYARMATI-BUCHMÜLLER,  
Fabian  
CHEN, Yian  
GÄBERT, Chris  
GHRISSI, Faycel  
KEMPE, Fabian  
KUNZ, Susanna  
LENGEMANN, Adrian  
MANGOLD, Mikel  
SCHMIDT, Simon  
SCHWARZ, Benjamin  
SEHL, Elmar  
STEGERER, Dominik  
TRITSCHLER, Benedikt  
XU, Liang  
YANG, Yuan  
YOUNGHUN, Shin  
ZHANG, Chen

**STUDIARENDE IM  
BACHELORSTUDIUM**

BUCHHEIT, Hannah  
HALDA RIBEIRA, Anielen  
LUITZ, Manuel  
PAFFRATH, Lukas  
PFOHL, PATRIZIA  
REITENBACH, Julija  
RIEHLE, Felix  
RUSITOV, Dennis  
STEHLE, Philipp  
STRAUB, Paula



## 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)

1. 11.01.17. PROF. DR. TIMO BETZ  
*University of Münster*  
Learning from fluctuations: The mechanics of active and passive cellular assemblies
2. 18.01.17. PROF. WIEBKE DRENCKHAN & DR. MANISH KAUSHAL  
*CNRS & Institut Charles Sadron*  
Outstanding stability of free-standing co-polymer films above the glass transition
3. 25.01.17 PROF. DR. THOMAS VOIGTMANN  
*University of Düsseldorf*  
History dependent material properties of glasses
4. 01.02.17 DR. RAPHAËL VOITURIEZ  
*CNRS*  
First-passage times of Markovian and non Markovian random walks
5. 08.02.17 DIPL.-ING. JAN-GEORG ROSENBOOM  
*ETH Zurich*  
Ring-Opening Polymerization for 100 % Renewables-Based Polyethylene Furanoate (PEF) for the “Green Bottle”
6. 14.03.17 DR. TOORU OOYA  
*University of Kobe*  
Hydration-Controlled Design of Biomaterials Using Polyols  
Invited guest talk
7. 05.04.17 PROF. DR. STEFAN U. EGELHAAF  
*University of Düsseldorf*  
Microscopic Structure and Dynamics of Colloids under Transient Shear
8. 26.04.17 Dr. KALOIAN KOYNOV  
*MPI Mainz*  
Fluorescence Correlation Spectroscopy as a Versatile Tool in Polymer, Colloid and Interface Science

9. 04.05.17 PROF. DR. STEFAN U. EGELHAAF  
*University of Düsseldorf*  
Microscopic Structure and Dynamics of Colloids under Transient Shear
10. 10.05.17 PROF. DR. KARI DALNOKI-VERESS  
*McMaster University & CNRS*  
Soft Materials at surfaces and interfaces: Elastocapillarity
11. 17.05.17 DR. FABIEN MONTEL  
*Ecole Normale Supérieure de Lyon*  
Transport through the nuclear pore complex: two complementary approaches
12. 24.05.17 DR. DIDIER LONG  
*Laboratoire Polymère et Matériaux Avancés (LPMA), Solvay*  
Strain hardening of glassy polymers: theory and simulation
13. 31.05.17 DR. VALERIY LUCHNIKOV  
*Institut de Science des Matériaux de Mulhouse (IS2M)*  
Spontaneous folding and rolling of polymer films: a micromechanical phenomenon and a method of microfabrication
14. 14.06.17 DR. MAMATIMIN ABBAS  
*University of Bordeaux*  
Interface engineering in Organic Field Effect Transistors
15. 19.06.17 PROF. Dr. BILL VAN MEGEN  
*Royal Melbourne Institute of Technology, RMIT University, Australia*  
Collective modes in hard sphere systems; cage effect
16. 21.06.17 PROF. DR. MICHAEL MAYER  
*University of Fribourg, Switzerland*  
Characterization of Single Proteins in Nanopores
17. 28.06.17 PROF. PHILIPPE GUÉGAN  
*Sorbonne Universités-UPMC, Institut Parisien de Chimie Moléculaire (IPCM), - UMR 8232 Chimie des Polymères, Paris, France*  
New Prospects in Anionic Polymerization: New Initiator Families and Challenging Monomers
18. 19.07.17 PROF. DR. JAN BEHRENDTS  
*FU Berlin*  
Spins in Solar Cells: Charge Separation from an EPR Perspective

19. 20.07.17 PROF. DR.-ING. HORST FISCHER  
*RWTH Aachen University Hospital*  
Drop-on-demand 3D bioprinting of tailored cell-laden hydrogel blends  
Makro Series Seminar: Hot Topics in Polymers, Materials Science and Biophysics
20. 26.07.17 PROF. DR. MARCUS MÜLLER  
*University of Göttingen*  
Kinetics of structure formation and defects in block copolymers
21. 01.08.17 DR. BERND BRUCHMANN  
*BASF*  
Polyaddition and Polycondensation Polymers  
Seminar "Industrial Polymer Science" BASF SE
22. 02.08.17 DR. MARTIN WEBER  
*BASF*  
Thermoplastic Materials  
Seminar "Industrial Polymer Science" BASF SE
23. 03.08.17 DR. ANDREAS KUENKEL  
*BASF*  
Biodegradable and renewable polymers  
Seminar "Industrial Polymer Science" BASF SE
24. 20.09.17 PROF. DR. WEIAN ZHANG  
*East China University of Science and Technology*  
Porphyrin-containing polymers for photodynamic therapy (PDT)  
Invited guest talk
25. 28.09.17 PROF. DR. MURUGAPPAN MUTHUKUMAR  
*University of Massachusetts & FRIAS*  
Physics of Charged Macromolecules in Solution
26. 29.09.17 PROF. DR. MARK D. FOSTER  
*The University of Akron, USA*  
Closed Loops: Their Impact on Melt Surface Fluctuations and Surface Segregation in Blends
27. 18.10.17 PROF. DR. MICHAL BORKOVEC  
*University of Geneva, Switzerland*  
Interparticle Forces in Aqueous Solutions
28. 25.10.17 DR. ABRAHAM CHEMTOB  
*Institut de Science des Matériaux de Mulhouse (IS2M)*  
In Situ Generated Ruthenium-Arene Catalyst for Ring-Opening Metathesis Photopolymerization Through Photolabile N-Heterocyclic Carbene (NHC) Ligand

29. 08.11.17 DR. MARTIN BRINKMANN  
*University of Strasbourg*  
Highly oriented and crystalline semi-conducting and conducting polymer films prepared by high-temperature rubbing
30. 15.11.17 PROF. DR. RAINER HAAG  
*FU Berlin*  
IRTG seminar: Multivalent Nanosystems as Potent Inhibitors for Pathogens
31. 22.11.17 PROF. DR. SANDRO KELLER  
*University of Kaiserslautern*  
Solubilization of Membrane Proteins into Functional Lipid-Bilayer Nano-discs Using Amphiphilic Copolymers
32. 23.11.17 PROF. DR. ROLAND NETZ  
*FU Berlin*  
A Highly Stretched Polymer in Water is an Energetic, not an Entropic Spring
33. 29.11.17 PROF. DR. MURUGAPPAN MUTHUKUMAR  
*University of Massachusetts & FRIAS*  
Virus Assembly: Organizing Principles from Polymer Physics
34. 06.12.17 PROF. DR. ALESSIO ZACCONE  
*University of Cambridge, United Kingdom*  
Towards predictive atomistic theory & simulations of dynamic mechanical response of glassy polymers based on the underlying vibrational spectrum
35. 13.12.17 DR. ANDREAS SPERLICH  
*University of Würzburg*  
The role of spin in organic solar cells and organic LEDs – insights from a magnetic resonance perspective
36. 20.12.17 PROF. DR. CECELIA CLEMENTI  
*Rice University, USA*  
Incorporating Experimental Data into Long Timescales Macromolecular Simulations

## GÄSTE DES INSTITUTS

FORGET, A., DR.

QUEENSLAND UNIVERSITY OF TECHNOLOGY, SOUTH BRISBANE, AUSTRALIEN

FISCHER, H., PROF. DR.

DENTAL MATERIALS AND BIOMATERIALS RESEARCH, RWTH AACHEN UNIVERSITY  
HOSPITAL, AACHEN, DEUTSCHLAND

IVÁN, B., PROF. DR.

DEPARTMENT OF POLYMER CHEMISTRY AND MATERIAL SCIENCE, CHEMICAL  
RESEARCH CENTER, HUNGARIAN ACADEMY OF SCIENCES, BUDAPEST, UNGARN

OOYA, T., DR.

GRADUATE SCHOOL OF ENGINEERING, FACULTY OF ENGINEERING, KOBE  
UNIVERSITY, KOBE, JAPAN