

The Virginia Polytechnic Institute and State University
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EDUCATION

Doctor of Philosophy	12/2016
Institute of Organic Chemistry, Johannes Gutenberg University Mainz, Germany	
Diploma (Masters equivalent)	3/2013
Institute of Organic Chemistry, Johannes Gutenberg University Mainz, Germany	
Intermediate Diploma (Bachelors equivalent)	3/2010
Johannes Gutenberg University of Mainz, Germany	

RESEARCH EXPERIENCE

Postdoctoral Researcher, Mentor: Timothy E. Long	4/2017 - present
Department of Chemistry and the Macromolecules Innovation Institute Virginia Polytechnic Institute and State University - Blacksburg, VA, USA Topic: 3D Printing of High Performance Engineering Polyimides	
Research Associate, Advisor: Holger Frey	1/2017 - 4/2017
Institute of Organic Chemistry Johannes Gutenberg University Mainz, Germany Topic: Functional Polyether Copolymers by Ring Opening Polymerization	
Graduate Research Assistant, Advisor: Holger Frey	9/2012 - 12/2016
Institute of Organic Chemistry Johannes Gutenberg University Mainz, Germany Topic: Stimuli-Responsive Multifunctional Poly(ethylene glycol) Copolymers	
Visiting Researcher, Advisor: Daniel Taton	2/2016 - 5/2016
Laboratoire de Chimie des Polymères Organiques University of Bordeaux - Pessac Cedex, France Topic: Quaternized Amino-Functional Poly(ethylene glycol) Copolymers as Polymeric Ionic Liquids	
Intern at BASF Corporation, "Explore Together program"	5/2013 - 8/2013
BASF Corporation Wyandotte, MI, USA Topic: Development of Heat-Resistance Overprint Varnish	
Exchange Student Researcher, Advisor: E. Bryan Coughlin	9/2011 - 2/2012
Polymer Science and Engineering Department University of Massachusetts - Amherst, MA, USA Topic: Functionalization of Poly(vinyl acetate) with Poly(lactic acid)	

AWARDS AND HONORS

"Material Science in Mainz" dissertation award	to be awarded in 10/2017
Member of the Gutenberg-Akademie Mainz (Top 5% of PhD students)	4/2015 - 12/2016
Member of the BASF Mentoring Program "Discover Together"	5/2014 - 12/2016
Fellowship of the "Verband der Chemischen Industrie e.V."	2/2014 - 2/2016
Fellow of the graduate school "Material Science in Mainz"	12/2013 - 12/2016
German Academic Exchange Service (DAAD) scholarship	9/2011 - 2/2012

ADDITIONAL EXPERIENCE

- Mentor**, Mentoring a REU summer student - topic: "food, energy, water" 5/2017 – 8/2017
The Virginia Polytechnic Institute and State University, VA, USA
- Student Organizer**, Summer school in Mainz on Soft Matter 7/ 2015
Johannes Gutenberg University Mainz, Germany
- Mentor**, Mentoring Bachelor and Master students 2/2014 – 1/2016
Johannes Gutenberg University Mainz, Germany
- Student Organizer**, Winter school in Mainz on Nanoscience 1/2014
Johannes Gutenberg University Mainz, Germany
- Teaching Assistant** in Polymer and Organic Chemistry 10/2012 - 12/2015
Johannes Gutenberg University Mainz, Germany
- Personal Assistant** to Dr. Andreas Lang, Head of QC-Laboratory PM-OQI-2 4/2012 - 9/2012
Operations - Quality Control Inorganics 3/2011 - 6/2011
Merck KGaA Darmstadt, Germany
- Semester Abroad** 8/2011 - 2/2012
Polymer Science and Engineering Department
University of Massachusetts - Amherst, MA, USA

PUBLICATIONS

- D. Leibig, M. Morsbach, G. Grune, **J. Herzberger**, A. H. E. Müller, H. Frey "Die lebende anionische Polymerisation." *Chemie in Unserer Zeit* **2017**, 51, 254-263.
- J. Herzberger**, D. Leibig, J. Langhanki, C. Moers, T. Opatz, H. Frey "Clickable PEG via Anionic Copolymerization of Ethylene Oxide and Glycidyl Propargyl Ether." *Polymer Chemistry* **2017**, 8, 1882-1887.
- M. Kluenker, M. N. Tahir, R. Ragg, K. Korschelt, P. Simon, T. E. Gorelik, B. Barton, S. I. Shylin, M. Panthöfer, **J. Herzberger**, H. Frey, V. Ksenofontov, A. Möller, U. Kolb, J. Grin, W. Tremel "Pd@Fe₂O₃ Superparticles with Enhanced Peroxidase Activity by Solution Phase Epitaxial Growth." *Chemistry of Materials* **2017**, 29, 1134-1146.
- J. Seiwert, **J. Herzberger**, D. Leibig, H. Frey "Thioether-bearing Hyperbranched Polyether Polyols: A Versatile Platform for Orthogonal Functionalization." *Macromolecular Rapid Communication* **2017**, 38, 1600457.
- R. Ragg, A. M. Schilman, K. Korschelt, C. Wieseotte, M. Kluenker, M. Viel, L. Völker, S. Preiß, **J. Herzberger**, H. Frey, K. Heinze, P. Blümler, M. N. Tahir, F. Natalio, W. Tremel "Intrinsic Superoxide Dismutase Activity of MnO Nanoparticles Enhances Magnetic Resonance Imaging Contrast." *Journal of Materials Chemistry B* **2016**, 4, 7423-7428.
- J. Herzberger**, * D. Leibig,* J. C. Liermann, H. Frey "Conventional Oxyanionic versus Monomer-Activated Anionic Copolymerization of Ethylene Oxide with Glycidyl Ethers: Striking Differences in Reactivity Ratios." *ACS Macro Letters* **2016**, 5, 1206-1211. *contributed equally
- J. Herzberger**, K. Fischer, D. Leibig, M. Bros, R. Thiermann, H. Frey "Oxidation-Responsive and "Clickable" Poly(ethylene glycol) via Copolymerization of 2-(Methylthio)ethyl Glycidyl Ether." *Journal of the American Chemical Society* **2016**, 138, 9212-9223.

M. E. Christ, **J. Herzberger**, M. Montigny, M. Wagner, W. Tremel, H. Frey "Poly(THF-co-Cyano Ethylene Oxide): Cyano Ethylene Oxide (CEO) Copolymerization with THF Leading to Multifunctional and Water-Soluble PolyTHF Polyelectrolytes." *Macromolecules* **2016**, *49*, 3681-3695.

M. N. Tahir, **J. Herzberger**, F. Natalio, O. Köhler, R. Branscheid, E. Mugnaioli, V. Ksenofontov, M. Panthöfer, U. Kolb, H. Frey, W. Tremel "Hierarchical Ni@Fe₂O₃ Superparticles through Epitaxial Growth of γ -Fe₂O₃ Nanorods on in situ Formed Ni Nanoplates." *Nanoscale* **2016**, *8*, 9548-9555.

J. Herzberger, K. Niederer, H. Pohlit, J. Seiwert, M. Worm, F. R. Wurm, H. Frey "Polymerization of Ethylene Oxide, Propylene Oxide, and Other Alkylene Oxides: Synthesis, Novel Polymer Architectures, and Bioconjugation." *Chemical Reviews* **2016**, *116*, 2170-2243.

J. Herzberger, H. Frey "Epicyanohydrin: Polymerization by Monomer Activation Gives Access to Nitrile-, Amino-, and Carboxyl-Functional Poly(ethylene glycol)." *Macromolecules* **2015**, *48*, 8144-8153.

J. Herzberger, D. Kurzbach, M. Werre, K. Fischer, D. Hinderberger, H. Frey "Stimuli-Responsive Tertiary Amine Functional PEGs Based on *N,N*-Dialkylglycidylamines." *Macromolecules* **2014**, *47*, 7679-7690.

CONTRIBUTED PRESENTATIONS

Synthesis and characterization of isocyanate-free polyureas. American Chemical Society Meeting, Washington, D.C., USA (oral, **8/2017**)

An Approach to Smart Poly(ethylene glycol). Organic Chemistry Colloquium, Johannes Gutenberg University Mainz, Germany (oral, **10/2016**)

Thioether-Functional Poly(ethylene glycol) Copolymers: Oxidation-Responsive Micelles and "Click" Chemistry. Warwick Polymer Conference, Warwick, United Kingdom (poster, **7/2016**)

An Approach to Smart Poly(ethylene glycol). BASF SE, Ludwigshafen, Germany (oral, **6/2016**)

Multi-Functional Poly(ethylene glycol) via Epicyanohydrin. "Materials Science in Mainz" seminar, Lisbon, Portugal (oral, **10/2015**)

Multi-Functional Poly(ethylene glycol) via Epicyanohydrin. International Symposium on Ionic Polymerization, Bordeaux, France (oral, **7/2015**)

Tertiary Amine-Functional Poly(ethylene glycols): Thermo- and pH-Responsive Behavior in Aqueous Solution. American Chemical Society Meeting, San Francisco, CA, USA (poster, **8/2014**)

Tertiary Amine-Functional Poly(ethylene glycols): Thermo- and pH-Responsive Behavior in Aqueous Solution. "Materials Science in Mainz" seminar, Prague, Czech Republic (poster, **7/2014**)

SKILLS

Synthetic chemistry • column chromatography • mass spectrometry analysis • polymer chemistry • Schlenk and glovebox techniques • anionic polymerization • ring-opening polymerization • step-growth polymerization • nuclear magnetic resonance spectroscopy (1D and 2D) • Fourier-transform infrared spectroscopy • UV/Vis spectroscopy • fluorescence spectroscopy • size exclusion chromatography • dynamic light scattering • thermogravimetric analysis • differential scanning calorimetry • photo differential scanning calorimetry • photo-rheology • scanning electron microscopy • stereolithography