

Curriculum vitae

Martin F. Haase, PhD

DFG Postdoctoral Fellow at University of Pennsylvania
Department of Chemical and Biomolecular Engineering
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Education\Professional Experience

- 2014-now **DFG-Fellow**, University of Pennsylvania (UPenn), Department of Chemical and Biomolecular Engineering, [Prof. Kate Stebe](#), [Prof. Daeyeon Lee](#), *Bicontinuous Pickering emulsions by Solvent Transfer Induced Phase Separation (STRIPS)*
- 2012-2014 **Postdoc**, New York University (NYU), Center of Soft Matter Research, [Prof. J. Brujic](#), *Coupling phase separation with surface active materials to form complex emulsions*
- 2008-2011 **PhD (Dr. rer. nat.) in Physical Chemistry**, Max Planck Institute of Colloids and Interfaces, Germany, [Prof. Helmuth Möhwald](#), [Prof. Dmitry Shchukin](#), *Modification of Nanoparticle-Surfaces for Emulsion Stabilization and Encapsulation of Active Molecules for Anti-Corrosive Coatings*, grade: Magna cum laude
- 2004-2008 **Diploma (Dipl. Ing. (FH)) in Process Engineering**, Beuth University, Berlin, Germany, Supervisors: [Prof. E. Löwe](#), [Prof. S. Enders](#), Thesis: *Experimental Analysis of the Solubility of Nonpolar Drugs in water*, carried out at TU-Berlin, Department of Thermodynamics and Thermal Process Engineering, cumulative grade 1.5
- 2002-2004 Basic studies environmental engineering, University of Applied Sciences Bingen, Germany
- 2001-2002 Civile service (social year), BHW Wetterau, Germany, home for handicapped people
- 1999-2001 Diploma from secondary school for university admission, KBS Bad Nauheim, Germany

Industry Internships

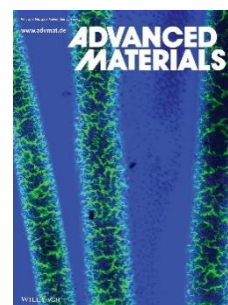
- 2007 Lurgi GmbH (Air Liquid), Frankfurt/Main, Germany, Harald Koempel, 3 months, *Basic engineering for a large scale "Methanol to Propylene" Plant*, [link](#)
- 2006 Uhde Inventa Fischer (ThyssenKrupp), Berlin, Germany, Udo Mühlbauer, 2 months, *Basic engineering large scale polyester plant and operation of a polylactide pilot plant*, [link](#)
- 2005 Silica Verfahrenstechnik, Berlin, Germany, 2 months, *Construction of gas adsorption plants*, [link](#)
- 2004 HME-Regelungstechnik, Bad Kreuznach, Germany, 2 months, *Fine metal processing*
- 2002 Umweltamt (Environmental agency), Department of water surveillance, Frankfurt/Main, Germany, 2 months, *sample drawing, analytical contaminant determination*, [link](#)

Teaching

- 2015 *Summer program seminar speaker* for high school students, [Marylin Huff](#), [UPenn](#)
- 2014-2015 *Personal Youtube.com channel*: 14 self-made teaching videos about colloid and interface science with more than 4,000 views and 7,600 watched minutes, [link](#)
- 2014 *Supervision and project assignment* for a 4 month internship of a high school student, [NYU](#)
- 2013-2014 *Mini course lecturer* (3 seminars) for high school teachers, Math for America, [Noah Heller](#), New York, [link](#)
- 2014 *Seminar speaker* for art students, [Prof. Pablo Garcia](#), [School of Visual Arts](#), New York
- 2012-2014 *Teaching volunteer* for K-12 students, [Ben Dubin Thaler](#), [Biobus.org](#), New York, [link](#)
- 2009-2009 *Teaching assistant* Physical Chemistry, [Prof. Bechmann](#), [University of Potsdam](#), Germany
- 2007-2008 *Teaching assistant* Thermodynamics, 4 semesters, [Prof. Seifert](#), [Beuth University Berlin](#), Germany
- 2007 *Teaching assistant* in Engineering Mechanics, 1 semester, [Prof. Kleinschrodt](#), [Beuth University Berlin](#), Germany

Publications

- 2016 M.F. Haase, K. J. Stebe, D. Lee, *Bijel Membranes for Separation Processes*, **in preparation**
- 2016 [M.F. Haase](#), N.S. Mood, K. J. Stebe, D. Lee, *Bijel Fiber Mechanics*, **in preparation**
- 2015 [M.F. Haase](#), K. J. Stebe, D. Lee, *Continuous Fabrication of Hierarchical and Asymmetric Bijel Microparticles, Fibers and Membranes by Solvent Transfer-induced Phase Separation (STRIPS)*, *Advanced Materials*, [27](#), [44](#), [7065](#)
Article was featured on the **front cover** of *Advanced Materials*, [link](#)
- 2014 [M.F. Haase](#), J. Brujic, *Tailoring of High-Order Multiple Emulsions by the Liquid-Liquid Phase Separation of Ternary Mixtures*, *Angewandte Chemie International Edition*, [126](#), [44](#), [11987](#)
Article was highlighted in *Science*, [346](#), [6205](#), [51](#)
- 2013 L.L. Pontani, [M.F. Haase](#), I. Raczowska, J. Brujic, *Immiscible lipids control the morphology of patchy emulsions*, *Soft Matter*, [9](#), [7150-7157](#)
- 2012 [M.F. Haase](#), D. Grigoriev, H. Moehwald, D.G. Shchukin, *Development of Nanoparticle Stabilized Polymer Nanocontainers with High Content of the Encapsulated Active Agent and Their Application in Water Borne Anti Corrosive Coatings*, *Advanced Materials*, [24](#), [18](#), [2429-2435](#)
- 2012 D.O. Grigoriev, [M.F. Haase](#), N. Fandrich, A. Latnikova, D.G. Shchukin, *Emulsion Route in Fabrication of Micro- and Nanocontainers for Biomimetic Self Healing and Self Protecting Functional Coatings*, *Bioinspired, Biomimetic and Nanobiomaterials*, [1](#), [101-116](#)
- 2012 O. Zech, [M.F. Haase](#), T. Zemb, H. Moehwald, *Froth Flotation via Microparticle Stabilized Foams*, *Colloid Surface A*, [413](#), [2-6](#)
- 2011 [M.F. Haase](#), *Modification of Nanoparticle Surfaces for Emulsion Stabilization and Encapsulation of Active Molecules for Anti-Corrosive Coatings*, [University of Potsdam](#), [link to thesis](#)



- 2011 M.F. Haase, D. Grigoriev, H. Moehwald, B. Tiersch, D.G. Shchukin, *Nanoparticle Modification by Weak Polyelectrolytes for pH Responsive Pickering Emulsions*, **Langmuir**, [27\(1\), 74–82](#)
- 2010 M.F. Haase, D. Grigoriev, H. Moehwald, B. Tiersch, D.G. Shchukin, *Encapsulation of Amphoteric Substances in a pH Responsive Pickering Emulsion*, **Journal of Physical Chemistry C**, [114, 17304–17310](#)

Patents

- 2015 M.F. Haase, K.J. Stebe, D. Lee, *Tailoring of Bijel Materials by Mass Transfer-Induced Liquid-Liquid Phase Separation of Ternary Mixtures*, Filed 2015, **US Provisional Patent: 62/169,295**
- 2016 J. Brujic, M. F. Haase - **US Patent 20,160,051,954**

Awards

- 2015 University of Pennsylvania Nano Day, **Animation award**, [link](#)
- 2015 5th International Colloids Conference **Poster price**, Amsterdam, Netherlands, [link](#), [link to poster](#)
- 2014 Research Fellowship from **DFG (German Research Foundation)**, 16 months, [link to award](#)

Peer reviewing

ACS Nano, Angewandte Chemie Int. Ed., Langmuir, ACS Applied Materials & Interfaces, Journal of Materials Science

Invited Presentations and conference presentations

- 2015 **Invited:** M.F. Haase, *Mass transfer induced phase separation of ternary mixtures: From onion emulsions to asymmetric bijel structures and the analysis of their mechanical properties*, **Dr. Paul Clegg, University of Edinburgh**, Scotland
- 2015 M.F. Haase, K. Stebe, D. Lee, *Tailoring of Bijel fibers and membranes by mass transfer-induced liquid-liquid phase separation of ternary mixtures*, **ECIS Conference**, Bordeaux, France, presentation, [link](#)
- 2015 M.F. Haase, J. Brujic, *Tailoring of High-Order Multiple Emulsions by the Liquid-Liquid Phase Separation of Ternary Mixtures*, **ECIS Conference**, Bordeaux, France, poster
- 2015 M.F. Haase, K. Stebe, D. Lee, *Tailoring of Bijel fibers and membranes by mass transfer-induced liquid-liquid phase separation of ternary mixtures*, **5th International Colloids Conference**, Amsterdam, Netherlands, presentation
- 2015 M.F. Haase, J. Brujic, *Tailoring of High-Order Multiple Emulsions by the Liquid-Liquid Phase Separation of Ternary Mixtures*, **5th International Colloids Conference**, Amsterdam, Netherlands, poster, [link](#)
- 2015 M.F. Haase, K. Stebe, D. Lee, *Tailoring of Bijel fibers and membranes by mass transfer-induced liquid-liquid phase separation of ternary mixtures*, **ACS Colloids Conference**, Pittsburgh, USA, presentation

- 2014 M.F. Haase, J Brujic, *General principles of ternary phase separation into multilayered emulsions facilitate wide applications*, **ACS Colloid and Surface Science Symposium**, Philadelphia, USA, presentation, [link](#)
- 2014 M.F. Haase, J Brujic, *Ternary liquid mixtures control the multiplicity, shape and internal structure of emulsion droplets*, **APS March Meeting**, Denver, USA, presentation
- 2014 L.L. Pontani, D Bargteil, M.F. Haase, J Brujic, *Liquid domains of lipid monolayers on the surface of oil-in-water emulsions*, **APS March Meeting**, Denver, USA, presentation
- 2014 Y. Zhang, LL Pontani, M.F. Haase, L Feng, R Sha, N Seeman, J Brujic, P Chaikin, *Programmable Sequential Assembly in a DNA Functionalized Emulsion System*, **APS March Meeting**, Denver, USA, presentation
- 2013 M.F. Haase, J. Brujic, *Controlling the architecture of emulsion droplets: phase separation of immiscible liquids and interfacial rigidification*, **Evolution of Colloidal Matter**, New York, USA, poster, [link](#)
- 2011 M.F. Haase, *Modification of Nanoparticle Surfaces*, **Helmuth Möhwald Festival**, Potsdam, presentation, [link](#)
- 2011 M.F. Haase, *Encapsulation of Active Molecules for Anti-Corrosive Coatings*, **ECIS**, Berlin, presentation, [link](#)
- 2011 O. Zech, M.F. Haase, D. Shchukin, T. Zemb, H. Moehwald, *Partial hydrophobization of rare earth oxide microparticles and their recovery via foam flotation*, **ECIS**, Berlin, poster, [link](#)
- 2010 M.F. Haase, *Particle Stabilized Emulsions: New Strategies for Particle Hydrophobization*, **ECIS**, Prague, poster, [link](#)
- 2009 M.F. Haase, *Application of Inhibitor loaded Mesoporous TiO₂ Particles in Active Anti-Corrosive Coatings* **Zsigmondy Kolloquium**, Bayreuth, poster

Skills

Engineering: Heat and mass transfer, thermic process engineering, transport phenomena, industrial plant design, engineering mechanics, control engineering, chemical reaction engineering, 3D CAD design, apparatus engineering, computational fluid dynamics, finite element modelling, bioprocess engineering, environmental process engineering

Chemistry: Synthesis of colloidal particles (inorganic, polymeric, hydrogels), synthesis of polymers, surfactants (ionic, nonionic, polymeric, proteins, HLB number, packing parameter), emulsions, electrochemistry of corrosion (electrical impedance measurements, scanning vibrating electrode technique, salt chamber, polymeric barrier coatings), droplet based microfluidics, lipid and block copolymer bilayers, binary and ternary liquid mixtures, surface tension measurements (tensiometry, Langmuir-Blodgett-Pockels trough, pendant drop and contact angle measurements), dynamic light scattering, confocal laser scanning microscopy, electrophoretic mobility measurements, spectrometry, electron microscopy, X-Ray diffraction

IT-skills: Ansys CFX, FEMLAB, SIMSCI Pro II, Aspen Plus, Origin, AutoCAD, Inventor, C++, Visual Basic, Maple

Languages: German (native), English and Spanish (both fluently)