



Dr.-Ing. Lutz Böhm

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Curriculum Vitae

Date of birth 26.09.1982

School education

August 1988 till July 1994	Siegerland Grundschule	Berlin, Germany
August 1994 till October 1994	Hans-Carossa-Oberschule	Gymnasium, Berlin, Germany
October 1994 till July 2001	Freiherr-vom-Stein-Oberschule Abitur (final grade: 2,4)	Gymnasium, Berlin, Germany

Civil service

August 2001 till May 2002 Co-worker in the center of distribution of the „Krankenhaus Spandau“

University education

October 2002 till January 2009	Technische Universität Berlin Studies of Energy and Process Engineering
April 2005	Vordiplom (grade: good)
September 2007 till April 2008 (<u>abroad</u>)	Student Research Project at University of New South Wales, Sydney, Australia, at UNESCO Centre for Membrane Science and Technology Topic: Experimental study of backwashing procedures for membranes used in Direct Contact Membrane Distillation
July 2008 till January 2009	Diploma Thesis at Technische Universität Berlin at the Chair of Chemical and Process Engineering Topic: Numerical investigation of the single bubble ascent between flat sheets
January 2009	Diplom-Ingenieur der Verfahrens- und Energietechnik (Graduated engineer in Process and Energy Engineering) Grade: very good
February 2009 till June 2015	PhD student at Technische Universität Berlin at the Chair of Chemical and Process Engineering Topic: Comparison of single bubble and bubble swarm behavior in narrow gaps inside flat sheet membrane modules
June 2015	Doktor der Ingenieurwissenschaften (PhD) Grade: passed with distinction (summa cum laude)

Activity during studies

December 2005 till September 2007 Student co-worker with teaching duties in “Energy, momentum and mass transfer II at Technische Universität Berlin at the Chair of Chemical and Process Engineering

Internships

June 2002 till August 2002	Abex Metallverarbeitung GmbH	Berlin, Germany
March 2005 till April 2005	Korsus Hansa Heizungstechnik GmbH	Berlin, Germany
October 2006 till April 2007 (<u>abroad</u>)	Sulzer Chemtech AG, Research and Development Section	Winterthur, Switzerland

Professional Career

January 2009 till April 2015	Research Assistant with teaching duties at Technische Universität Berlin, Chair of Chemical and Process Engineering
August 2010 till October 2010 (<u>abroad</u>)	Research visit at the University of British Columbia at Department of Civil Engineering (Filtration Technology Group of Prof. Dr. Pierre R. Bérubé), Vancouver, Canada
April 2015 until now	Research Assistant (PostDoc) with teaching duties at Technische Universität Berlin, Chair of Chemical and Process Engineering
February/August 2014/April 2019-2021	Parental leave (2019-2021: 50%)

Research fields (publication list attached)

Topic of the PhD thesis	Fluid dynamic investigation of multiphase flows with respect to membrane module optimization
After graduation additionally	Transport phenomena in reactive Newtonian and non-Newtonian multiphase systems

Expertise in the fields

Fluid dynamics	Particle Image Velocimetry Electrodiffusion method Computational fluid dynamics
Imaging	High speed camera imaging Automated image processing
Furthermore	Measurement of material properties Rainbow Schlieren Laser Induced Fluorescence Membrane filtration Mixing technology Automation (LabView) Statistical data processing (Matlab, Excel)

Third party funding

Successful proposals at	DAAD, DFG (SFB/TR63, SPP1740, SPP1934), AiF-ZIM and TU Berlin-interne Strukturförderung
officially (co-)acquired third party funding	(since 2016) approx. 1,7 M€ (unofficially involved approx. +0.3 M€)

Supervision of PhD students

Co-supervision of up to appr. 20 PhD students	
Official (co-)principal investigator	SPP1740 "Mass transfer of rising gas bubbles in reacting liquids" (2 nd funding period) SPP1934 "Interaction of mechanical stresses and productivity of biological agglomerates in (aerated) stirred fermenters" (1 st , 2 nd funding period) SFB/TR63 A10 "Gas/liquid mass transfer in reactive multiphase systems" (3 rd funding period) DFG Research Grant "Spatially resolved measurement of transient concentration and temperature fields using Schlieren and LIF technique"

Teaching

Lectures	Physikalische Chemie (Physical Chemistry) Energie-, Impuls- und Stofftransport IIA (Energy, momentum and mass transfer IIA, in parts) Energie-, Impuls- und Stofftransport IIB (Energy, momentum and mass transfer IIB) Verfahrenstechnik I (Process Engineering I)
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Tutorial	Verfahrenstechnik II (Process Engineering II, in parts) Membranverfahren (Membrane processes) Physikalische Chemie (Physical Chemistry, in parts) Analytische Übung zu Verfahrenstechnik I (Tutorial for Process Engineering I, in parts) Analytische Übung zu Verfahrenstechnik II (Tutorial for Process Engineering II)
Integrated lecture	Rechnergestützte Problemlösungen für die verfahrenstechnische Praxis (Computer based problem solving in process engineering, with Matlab and Excel)
Project	Verfahrensplanung (Process Design)
Practical Tutorial	Betrieb verfahrenstechnischer Maschinen und Apparate (Operation of process engineering machines and apparatuses)
Theses	Supervision of diverse Bachelor, Master and Diploma theses (list attached)

Organizational activities (selection)

Academic self-administration	Member of the Scientific Working Group in the Faculty Council of Faculty III at Technische Universität Berlin (2015-2017 substitutional, full member since 2017) Member of the Scientific Working Group in the steering committee of Faculty III at Technische Universität Berlin (full member since 2017) Member in the appointments committees for the professorships „Mechanical process engineering“, „Thermodynamics and Thermal process engineering“ and „Measurement and control“ Member of the WG „Support plan for women“ of the Faculty III at the Technische Universität Berlin ERASMUS representative of the Chair of Chemical and Process Engineering
(Co-)Organization of	Student trips to AICHEM 2012/2015 „Symposium Verfahrenstechnik - Zwischen Gestern und Morgen“ 2015 1 st TU Berlin CFD User Meeting 2011 1 st TU Berlin Faculty III PostDoc Meeting 2017

Guest Editor

MDPI Processes, Special Issue: “Multiphase Mass Transfer and Phase Equilibrium in Chemical Processes” 2022

Reviewer for Journals

Chemical Engineering Communications, Chemical Engineering Research and Design, Chemical Engineering Science, Chemie Ingenieur Technik, Desalination and Water Treatment, Engineering Reports, Experimental Thermal and Fluid Science, Journal of Membrane Science, Journal of Non-Newtonian Fluid Mechanics, Korea-Australia Rheology Journal, Microgravity - Science and Technology, Open Water Journal, Proceedings A, Sensors, The Canadian Journal of Chemical Engineering, Water Research

Reviewer for Organizations

Deutsche Forschungsgemeinschaft (DFG; German Research Foundation)

Applications for professorships

September 2019	1 out of 4 invited candidates for the “W1-Juniorprofessur für Wärme- und Stoffübertragung” (W1 professorship with tenure track “Heat and Mass transfer”) at Otto-von-Guericke University, Magdeburg
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Further qualifications

Laser safety officer
Biolab safety officer

Berlin, 11.01.2022

Lutz Böhm

List of publications from Lutz Böhm

(January 2022)

PhD thesis

Böhm, L. (2015) Comparison of single bubble and bubble swarm behavior in narrow gaps inside flat sheet membrane modules. PhD thesis, Technische Universität Berlin. (board: Bérubé, P. [University of British Columbia], Kraume, M. [Technische Universität Berlin], Schlüter, M. [Technischen Universität Hamburg-Harburg], Ziegler, F. [Technische Universität Berlin])

Articles in Journals

h-index	10
no. of original publications in peer reviewed journals with impact factor	21
no. of citations of the most frequently cited publication	111
pct. of first, prior to last and last authorship for the 10 most cited articles	90%
total citations	414

Source: [Google Scholar](#)

Huxoll F, Schlüter S, Budde R, Skiborowski M, Petzold M, Böhm L, Kraume M, Sadowski G (2021) Phase Equilibria for the Hydroaminomethylation of 1-Decene. J. Chem. Eng. Data **66**, 12, 4484-4495.

Petzold, M., Paul, N., Hohl, L., Böhm, L., Kraume, M. (2021) Gas/liquid mass transfer phenomena in micellar multiphase systems. Chem. Eng. Process. Process Intensif. **171**, 108547.

Schulz, J.M., Petzold, M., Böhm, L., Kraume, M. (2021) Tropfenbewegung und Stofftransport in technischen Flüssig/flüssig-Systemen - Teil 2: Auswirkung von Grenzflächeneffekten und Verunreinigungen. Chem. Ing. Tech. **93**, 8, 1214-1222.

Schulz, J.M., Petzold, M., Böhm, L., Kraume, M. (2021) Tropfenbewegung und Stofftransport in technischen Flüssig/flüssig-Systemen - Teil 1: Einzeltropfensedimentation ohne Grenzflächeneffekte. Chem. Ing. Tech. **93**, 3, 353-363.

Heine, J., Schulz, J.M., Junne, H., Böhm, L., Kraume, M., Bart, H.-J. (2021) Real-time visualization of internal and external concentration fields in multiphase systems via Laser-induced fluorescence and Rainbow Schlieren Deflectometry during and after droplet production. Chem. Ing. Tech. **93**, 1-2, 180-190.

Rešetar, I., Jurtz, N., Böhm, L., Kraume, M., Palz, N. (2021) Integrated Framework for Digital Design and Thermal Analysis of PCM Macro-encapsulations for Passive Indoor Cooling. Sustainable Cities and Soc. **66**, 102536.

Bliatsiou, C., Schrinner, K., Waldherr, P., Tesche, S., Böhm, L., Kraume, M., Krull, R. (2020) Rheological characteristics of filamentous cultivation broths and suitable model fluids. Biochem. Eng. J. **163**, 107746.

Schulz, J.M., Junne, H., Böhm, L., Kraume, M. (2020) Measuring local heat transfer by application of Rainbow Schlieren Deflectometry in case of different symmetric conditions. Exp. Therm. Fluid Sci. **110**, 109887.

Böhm, L., Hohl, L., Bliatsiou, C., Kraume, M. (2019) Multiphase stirred tank bioreactors - New geometrical concepts and scale-up approaches. Chem. Ing. Tech. **91**, 12, 1724-1746.

Enders, F., Merker, D., Kolano, M., Böhm, L., Kraume, M. (2019) Numerical Characterization of the Bubble Rise Behavior in Viscoelastic Liquids. Chem. Eng. Tech. **42**, 7, 1395-1403.

Bliatsiou, C., Malik, A., Böhm, L., Kraume, M. (2019) Influence of impeller geometry on hydromechanical stress in stirred liquid/liquid dispersions. Ind. Eng. Chem. Res. **58**, 7, 2537-2550.

Hohl, L., Panckow, R.P., Schulz, J., Jurtz, N., Böhm, L., Kraume, M. (2018) Description of disperse multiphase processes: quo vadis? Chem. Ing. Tech. **90**, 11, 1709-1729. (among top 10% most downloaded articles 2018/2019)

Merker, M., Böhm, L., Oßberger, M., Klüfers, P., Kraume, M. (2017) Mass transfer in reactive bubbly flows – A single bubble study. Chem. Eng. Technol. **40**, 1391-1399. (among top 10% most downloaded articles 2018/2019)

Böhm, L., Kraume, M. (2016) Comparison of the single bubble ascent in a Newtonian and a Non-Newtonian liquid: a phenomenological PIV study. Chem. Ing. Tech. **88**, 1-2, 93-106.

Böhm, L., Kraume, M. (2015) Fluid dynamics of bubble swarms rising in Newtonian and non-Newtonian liquids in flat sheet membrane systems. *J. Membr. Sci.* **475**, 533-544.

Böhm, L., Kurita, T., Kimura, K., Kraume, M. (2014) Rising behaviour of single bubbles in narrow rectangular channels in Newtonian and non-Newtonian liquids. *Int. J. Multiphase Flow* **65**, 11-23.

Böhm, L., Jankhah, S., Tihon, J., Bérubé, P., Kraume, M. (2014) Application of the electrodiffusion method to measure wall shear stress: Intergrating theory and practice. *Chem. Eng. Technol.* **37**, 6, 938-950.

Böhm, L., Prieske, H., Kraume, M. (2013) Fluid dynamic optimization of flat sheet membrane modules – movement of bubbles in vertical channels. *Chem. Eng. Trans.* **32**, 1501 - 1506.

Böhm, L., Drews, A., Kraume, M. (2013) Bubble induced shear stress in flat sheet membrane systems - Serial examination of single bubble experiments with the electrodiffusion method. *J. Membr. Sci.* **437**, 131 - 140.

Böhm, L., Drews, A., Prieske, H., Bérubé, P.R., Kraume, M. (2012) The importance of fluid dynamics for MBR fouling mitigation. *Bioresour. Technol.* **122**, 50 - 61.

Prieske, H., Böhm, L., Drews, A., Kraume, M. (2010) Optimised hydrodynamics for membrane bioreactors with immersed flat sheet membrane modules. *Desal. Water Treat.* **18**, 270 - 276.

Book chapters, Editorials and other publications

Gast, S., Tuttlies, U., Laurini, L., Kexel, F., Merker, D., Böhm, L., Taborda, M.A., Sommerfeld, M., Kraume, M., Schlüter, M., Herres-Pawlis, S., Nieken, U. (2021) Chapter: Investigation of reactive bubbly flows in technical apparatuses, in: Final report of the DFG priority program 1740, Fluid Mechanics and its Applications, Vol 128., Editor: Schlüter, M., Bothe, D., Herres-Pawlis S., Nieken U., Springer Nature, 621-642.

Böhm, L., Merker, D., Strassl, F., Herres-Pawlis, S., Oßberger, M., Klüfers, P., Schindler, S., Guhathakurta, J., Grottko, D., Simon, S., Rinke, G., Hlawitschka, M., von Kameke, A., Kexel, F., Schlüter, M., Gast, S., Tuttlies, U., Nieken, U., Weiner, A., Bothe, D., Hillenbrand, D., Marschall, H., Kraume, M. (2021) Chapter: Chemical reactions on freely ascending single bubbles, in: Final report of the DFG priority program 1740, Fluid Mechanics and its Applications, Vol 128., Editor: Schlüter, M., Bothe, D., Herres-Pawlis S., Nieken U., Springer Nature, 545-581.

Merker, D., Böhm, L., Kraume, M. (2021) Chapter: Mass transfer around gas bubbles in reacting liquids, in: Final report of the DFG priority program 1740, Fluid Mechanics and its Applications, Vol 128., Editor: Schlüter, M., Bothe, D., Herres-Pawlis S., Nieken U., Springer Nature, 231-265.

Böhm, L. (2021) Meinung: #IchBinHanna. *Chem. Ing. Tech.* **93**, 8, 1-2.

Böhm, L. (2021) Editorial: Matthias Kraume – Forschung und Lehre. *Chem. Ing. Tech.* **93**, 1-2, 3.

Böhm, L., Kolano, M., Kraume, M. (2016) Simulation of the single bubble ascent with OpenFOAM. *Czasopismo Techniczne Mechanika 1-M (1)*, 25-32.

Böhm, L., Kraume, M. (2012) Hydrodynamic investigation of single bubbles. *Czasopismo Techniczne Mechanika* **190**, 5, 21 - 29.

Presentations and Posters at conferences (98 appearances)

(*presenting author)

*Böhm, L., Merker, D., Strassl, F., Herres-Pawlis, S., Oßberger, M., Klüfers, P., Schindler, S., Guhathakurta, J., Grottko, D., Simon, S., Rinke, G., Hlawitschka, M., von Kameke, A., Kexel, F., Schlüter, M., Gast, S., Tuttlies, U., Nieken, U., Weiner, A., Bothe, D., Hillenbrand, D., Marschall, H., Kraume, M. (2021) Chemical reactions on freely ascending single bubbles. 13th European Congress of Chemical Engineering and 6th European Congress of Applied Biotechnology, online (Presentation)

*Petzold, M., Afraz, N., Hecht, K., Böhm, L., Kraume, M. (2021) Gas/Liquid Mass Transfer Phenomena in Micellar Emulsion Systems. 13th European Congress of Chemical Engineering and 6th European Congress of Applied Biotechnology, online (Presentation)

*Waldherr, P., Bliatsiou, C., Böhm, L., Kraume, M. (2021) Hydrodynamic stress on *Aspergillus niger* agglomerates in stirred tank bioreactors. 13th European Congress of Chemical Engineering and 6th European Congress of Applied Biotechnology, online (Presentation)

*Bliatsiou, C., Waldherr, P., Böhm, L., Kraume, M. (2021) Fluid dynamic characterisation of aerated single- and dual-impeller stirred tank reactors. 13th European Congress of Chemical Engineering and 6th European Congress of Applied Biotechnology, online (Presentation)

*Merker, D., Böhm, L., Kraume, M. (2021) Fluidodynamik und Stofftransport von Einzelblasen in den Stoffsystemen $\text{CO}_2/\text{NaOH}_{\text{aq}}$ und verschiedenen $\text{NO}/\text{Fe}(\text{Ligand})_{\text{aq}}$. Jahrestreffen der ProcessNet-Fachgruppen Computational Fluid Dynamics und Mehrphasenströmungen 2021, online (Presentation)

*Waldherr, P., Bliatsiou, C., Böhm, L., Kraume, M. (2021) Hydrodynamische Beanspruchung von filamentös wachsenden Mikroorganismen in gerührten Bioreaktoren. Jahrestreffen der ProcessNet-Fachgruppen Lebensmittelverfahrenstechnik, Mischvorgänge, Grenzflächenbestimmte Systeme und Prozesse, online (Presentation)

*Petzold, M., Afraz, N., Hohl, L., Hecht, K., Böhm, L., Kraume, M. (2020) Gas/liquid mass transfer in micellar multiphase systems: A comparison between falling film and stirred tank reactor. 10. ProcessNet-Jahrestagung und 34. DECHEMA-Jahrestagung der Biotechnologen 2020, online (Poster)

*Enders, F., Merker, D., Böhm, L., Kraume, M. (2020) Kräftevergleich an aufsteigenden Einzelblasen in newtonschen und nicht-newtonschen Medien. Jahrestreffen der ProcessNet-Fachgruppen Computational Fluid Dynamics und Gasreinigung 2020, Bamberg, Germany (Presentation)

*Junne, H., Schulz, J., Böhm, L., Kraume, M. (2020) Ortsaufgelöste Messung von Konzentrations- und Temperaturfeldern mittels Schlieren und LIF-Messtechnik. Jahrestreffen der ProcessNet-Fachgruppen Fluidverfahrenstechnik, Adsorption und Extraktion 2020, Berchtesgarden, Germany (Presentation)

2020/2021: Numerous cancelled presentations due to COVID-19 pandemic

*Bliatsiou, C., Böhm, L., Kraume, M. (2019) Untersuchungen der Partikelbeanspruchung in gerührten Systemen. Jahrestreffen der ProcessNet-Fachgruppen Mischvorgänge, Trocknungstechnik und Wärme- und Stoffübertragung 2019, Essen, Germany (Presentation)

*Panckow, R., Böhm, L., Muthig, M., Kraume, M. (2019) Vergleich der Partikelbeanspruchungen und Mischcharakteristika zwischen einem wellendurchmischten Single-Use Bioreaktor und einem gerührten Fermenter. Jahrestreffen der ProcessNet-Fachgruppen Mischvorgänge, Trocknungstechnik und Wärme- und Stoffübertragung 2019, Essen, Germany (Presentation)

*Petzold, M., Hohl, L., Böhm, L., Kraume, M. (2019) Einfluss von Blasen- und Tropfengrößenverteilung auf den Gas/Flüssigkeits-Stofftransport in mizellaren Lösungsmittelsystemen mit mehreren Dispersphasen. Jahrestreffen der ProcessNet-Fachgruppen Mischvorgänge, Trocknungstechnik und Wärme- und Stoffübertragung 2019, Essen, Germany (Presentation)

*Enders, F., Merker, D., Kolano, M., Böhm, L., Kraume, M. (2019) Comparison of the forces acting on a single bubble rising in Newtonian and non-Newtonian media. Jahrestreffen der ProcessNet-Fachgruppen Computational Fluid Dynamics 2018, Frankfurt a.M., Germany (Poster)

*Bliatsiou, C., Panckow, R., Waldherr, P., Böhm, L., Kraume, M. (2019) Untersuchungen der hydromechanischen Beanspruchung von Partikeln in gerührten Reaktoren. Jahrestreffen der ProcessNet-Fachgruppen Reaktionstechnik und Mehrphasenströmungen 2019, Würzburg, Germany (Presentation)

*Merker, D., Böhm, L., Kraume, M. (2019) Mass transfer at rising single bubbles in reacting iron ligand systems. Jahrestreffen der ProcessNet-Fachgruppen Reaktionstechnik und Mehrphasenströmungen 2019, Würzburg, Germany (Presentation)

*Panckow, R., Bliatsiou, C., Böhm, L., Kraume, M. (2019) Vergleich zwischen einem wellendurchmischten und einem gerührten Bioreaktor hinsichtlich der Partikelbeanspruchung in einem Flüssig/flüssig-Modellstoffsystem. Jahrestreffen der ProcessNet-Fachgruppen Reaktionstechnik und Mehrphasenströmungen 2019, Würzburg, Germany (Poster)

Bliatsiou, C., Panckow, R., *Petzold, M., Böhm, L., Kraume, M. (2019) Influence of impeller geometry on particle stress in stirred fermenters. 14th International Conference on Gas-Liquid and Gas-Liquid-Solid Reactor Engineering, Guilin, China (Presentation)

*Petzold, M., Afraz, N., Hecht, K., Böhm, L., Kraume, M. (2019) Characterization of gas/liquid mass transfer in complex micellar systems. 14th International Conference on Gas-Liquid and Gas-Liquid-Solid Reactor Engineering, Guilin, China (Presentation)

*Bliatsiou, C., Panckow, R., Waldherr, P., Böhm, L., Kraume, M. (2019) Untersuchungen der Partikelbeanspruchung in gerührten Systemen. 22. Köthener Rührer-Kolloquium, Köthen, Germany (Presentation)

- *Enders, F., Merker, D., Böhm, L., Kolano, M., Kraume, M. (2019) Comparison of the Forces Acting on Single Bubbles Rising in Non-Newtonian Media. 8th Conference Bubble & Drop, Sofia, Bulgaria (Presentation)
- *Bliatsiou, C., Panckow R., Böhm L., Kraume, M. (2019) Influence of impeller geometry on hydromechanical stress in agitated bioreactors. 12th European Congress of Chemical Engineering & 5th European Congress of Applied Biotechnology, Florence, Italy (Presentation)
- *Merker, D., Böhm, L., Kraume, M. (2019) Mass transfer at rising single nitric oxide bubbles in reacting iron ligand systems. 12th European Congress of Chemical Engineering & 5th European Congress of Applied Biotechnology, Florence, Italy (Presentation)
- Panckow R., Bliatsiou, C., Böhm L., Muthig, M., Maaß, S., Kraume, M. (2019) Comparison between a rocking and a stirred bioreactor concerning particle stress in a liquid-liquid model system. 12th European Congress of Chemical Engineering & 5th European Congress of Applied Biotechnology, Florence, Italy (Presentation)
- *Petzold, M., Afraz, N., Hecht, K., Böhm, L., Kraume, M. (2019) Impact of additives on mass transfer in gas/liquid/liquid systems. 12th European Congress of Chemical Engineering & 5th European Congress of Applied Biotechnology, Florence, Italy (Presentation)
- *Bliatsiou, C*, Böhm, L., Waldherr, P., Kraume, M. (2018) Modellsysteme für gerührte, partikuläre Kultivierungsbrühen. Jahrestreffen der ProcessNet Fachgruppen Fluidverfahrentchnik, Membrantechnik und Mischvorgänge, Unterhaching, Germany. (Presentation)
- *Panckow, R., Böhm, L., Muthig, M., Emmerich, J., Kraume, M. (2018) Charakterisierung des Mischverhaltens und der Scherbeanspruchung in einem wellendurchmischten Single-Use Bioreaktor durch fotooptische In-situ-Vermessung der Flockengröße und -form. Jahrestreffen der ProcessNet Fachgruppen Fluidverfahrentchnik, Membrantechnik und Mischvorgänge, Unterhaching, Germany. (Presentation)
- *Enders, F., Kolano, M., Böhm, L., Kraume, M. (2018) Numerische Charakterisierung des Aufstiegsverhaltens von Einzelblasen in viskoelastischen Medien. Jahrestreffen der ProcessNet Fachgruppen Mehrphasenströmung, Wärme- und Stoffübertragung und Computational Fluid Dynamics + Partikelmesstechnik, Bremen, Germany. (Presentation)
- *Merker, D., Böhm, L., Kraume, M. (2018) Fluiddynamik von Einzelblasen mit und ohne überlagertem Stofftransport reagierenden Flüssigkeiten. Jahrestreffen der ProcessNet Fachgruppen Mehrphasenströmung, Wärme- und Stoffübertragung und Computational Fluid Dynamics + Partikelmesstechnik, Bremen, Germany. (Presentation)
- *Panckow, R., Böhm, L., Emmerich, J., Swiatkowski, C., Kraume, M. (2018) Fotooptische In-situ-Vermessung der Flockengröße und -form zur Prozessoptimierung eines periodisch bewegten, wellendurchmischten Single-Use Bioreaktors. Jahrestreffen der ProcessNet Fachgruppen Mehrphasenströmung, Wärme- und Stoffübertragung und Computational Fluid Dynamics + Partikelmesstechnik, Bremen, Germany. (Presentation)
- *Panckow, R., Böhm, L., Muthig, M., Emmerich, J., Kraume, M. (2018) Analysis of mixing behaviour and microcarrier suspension in a rocking single use bioreactor with in situ imaging methods. 5th BioProScale Symposium 2018, Berlin, Germany. (Presentation)
- *Bliatsiou, C., Pommerehne, K., Tesche, S., Waldherr, P., Böhm, L., Krull, R., Kraume, M. (2018) Rheological characteristics of filamentous cultivation broths and suitable model systems. Himmelfahrtstagung 2018: Heterogeneities - A key for understanding and upscaling of bioprocesses in up- and downstream, Magdeburg, Germany. (Poster)
- *Panckow, R., Böhm, L., Muthig, M., Maaß, S., Kraume, M. (2018) Analysis of Floc Systems with Inline Imaging Methods for the Understanding and Process Optimisation of Shear Stress in Cell Systems. ACHEMA 2018, Frankfurt/Main, Germany. (Presentation)
- *Panckow, R., Bliatsiou, C., Böhm, L., Kraume, M. (2018) Tropfengrößenanalyse in einem wellendurchmischten Single-Use Bioreaktor zum Verständnis auftretender Scherkräfte in Zellsuspensionen. 21. Köthener Rührer-Kolloquium, Köthen, Germany. (Presentation)
- *Merker, D., Böhm, L., Enders, F., Kraume, M. (2018) Fluid dynamics of single bubbles in different continuous phases measured with two high-speed cameras carried on a real-time controlled linear guidance. 5th International Conference on Experimental Fluid Mechanics, München, Germany (Presentation)
- *Schulz, J., Junne, H., Böhm, L., Kraume, M. (2018) Development of an experimental setup applying the calibrated color schlieren technique for visualization and quantification of heat and mass transfer in multiphase systems. 5th International Conference on Experimental Fluid Mechanics, München, Germany (Presentation)

- *Schulz, J., Böhm, L., Kraume, M. (2018) Mass transfer and fluid dynamics in disperse multiphase systems: Interfacial phenomena in the presence of surfactants. 9th Conference of the International Marangoni Association, Guilin, China. (Presentation, upcoming)
- *Böhm, L., Bliatsiou, C., Panckow, R., Waldherr, P., Schestkova, H., Oechsle, A., Drusch, S., Pommerehne, K., Kampen, I., Krull, R., Kwade, A., Schmideder, S., Nowotny, P., Sedlmeier, S., Briesen, H., Kulozik, U., Weuster-Botz, D., Seidel, J., Lode, A., Steingröwer, J., Barros Groß, M., Radel, B., Kind, M., Nirschl, H., Schmidt, M.-P., Hirsch, S., Maaß, S., Veiter, L., Herwig, C., Kraume, M. (2018) Partikelcharakterisierung und -messtechniken in lebensmittel- und biotechnologischen Systemen. ProcessNet-Jahrestagung 2018, Aachen, Germany (Presentation)
- *Panckow, R., Böhm, L., Junne, S., Kraume, M. (2018) Größenverteilung von fluiden Partikeln in einem wellendurchmischten Single-Use Bioreaktor. ProcessNet-Jahrestagung 2018, Aachen, Germany (Presentation)
- *Petzold, M.*, Böhm, L., Kraume, M. (2018) Charakterisierung des Gas/Flüssigkeits-Stofftransports in mizellaren Lösungsmittelsystemen mit mehreren Flüssigphasen. ProcessNet-Jahrestagung 2018, Aachen, Germany (Presentation)
- *Pommerehne, K., Schrader, M., Bliatsiou, S., Schmideder, S., Böhm, L., Briesen, H., Kraume, M., Kwade, A., Krull, R. (2018) Experimental and numerical investigations on cultivations of filamentous microorganisms towards a better understanding and process control. ProcessNet-Jahrestagung 2018, Aachen, Germany (Presentation)
- *Enders, F., Merker, D., Kolano, M., Böhm, L., Kraume, M. (2018) Numerical characterization of the bubble rise behavior in viscoelastic liquids. 8th International Berlin Workshop on Transport Phenomena with Moving Boundaries 2018, Berlin Germany (Presentation)
- *Schulz, J., Junne, H., Böhm, L., Kraume, M. (2018) Visualization and quantification of interfacial mass transfer using rainbow schlieren deflectometry. 8th International Berlin Workshop on Transport Phenomena with Moving Boundaries 2018, Berlin Germany (Presentation)
- *Böhm, L., Merker, D., Kraume, M. (2017) Einflüsse auf Stofftransportmessungen in Mehrphasensystemen. Jahrestreffen der ProcessNet-Fachgruppen Mehrphasenströmungen, Partikelmesstechnik, Zerkleinern und Klassieren, Computational Fluid Dynamics und Mischvorgänge, Dresden, Germany. (Poster)
- *Merker, D., Böhm, L., Kraume, M. (2017) Fluidodynamik mit überlagerter Stoffübertragung von Einzelblasen in reagierenden Flüssigkeiten. Jahrestreffen der ProcessNet-Fachgruppen Mehrphasenströmungen, Partikelmesstechnik, Zerkleinern und Klassieren, Computational Fluid Dynamics und Mischvorgänge, Dresden, Germany. (Presentation)
- *Böhm, L., Merker, D., Kraume, M. (2017) Challenges in the determination of mass transfer coefficients in gas/liquid systems. 3rd International Symposium on Multiscale Multiphase Process Engineering (MMPE), Toyama, Japan. (Presentation)
- Böhm, L., *Bliatsiou, C., Kraume, M. (2017) Model Systems for Mixed Particulate Fermentation Broth. AIChE Annual Meeting 2017, Minneapolis, USA. (Presentation)
- *Merker, D., Böhm, L., Kraume, M. (2017) Fluid Dynamics with Superimposed Mass Transfer of Single Bubbles in Reacting Liquids. AIChE Annual Meeting 2017, Minneapolis, USA. (Presentation)
- *Schulz, J., Böhm, L., Kraume, M. (2017) Calibrated Color Schlieren: A new approach to the visualization and quantification of concentration fields and mass transfer in liquid/liquid systems. 21st International Solvent Extraction Conference, Miyazaki, Japan. (Presentation)
- Böhm, L., Kolano, M., *Kraume, M. (2016) Simulation of the single bubble ascent with OpenFOAM. 21st International Conference of Process Engineering and Chemical Plant Design 2016, Krakau, Poland. (Presentation)
- *Böhm, L., (2016) MBRs - Gestern, heute, morgen. Symposium Verfahrenstechnik – Zwischen Gestern und Morgen, Berlin, Germany. (Presentation)
- Böhm, L., *Kolano, M., Kraume, M. (2016) Simulation des Einzelblasenaufstiegs in engen Kanälen mittels OpenFOAM. Jahrestreffen der Fachgruppen Computational Fluid Dynamics und Mehrphasenströmungen, Bingen, Germany. (Presentation)
- *Merker, D. Böhm, L., Kraume, M. (2016) Fluidodynamik von Einzelblasen mit überlagertem Stofftransport. Jahrestreffen der Fachgruppen Computational Fluid Dynamics und Mehrphasenströmungen, Bingen, Germany. (Presentation)

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- Böhm, L., *Kraume, M. (2015) Relations between the single bubble and bubble swarm behavior in a confining geometry. The 6th International Workshop bubble and drop interfaced, Golm, Germany. (Presentation)
- *Merker, D., Böhm, L., Paul, N., Kraume, M. (2015) Untersuchung des Stofftransports an Einzelblasen. Jahrestreffen der Fachgruppen Computational Fluid Dynamics und Mehrphasenströmungen, Lüneburg, Germany. (Presentation)
- Böhm, L., Kraume, M. (2015) Was kann ich von Einzelblasenuntersuchungen für den Blasenschwarm lernen?. Jahrestreffen der Fachgruppen Computational Fluid Dynamics und Mehrphasenströmungen, Lüneburg, Germany. (Poster)
- *Böhm, L., *Kraume, M. (2015) Relations between the single bubble and bubble swarm behavior in a confining geometry. The 6th International Workshop bubble and drop interfaced, Golm, Germany. (Presentation)
- Böhm, L., *Merker, D., Paul, N., Kraume, M. (2015) Mass transfer in bubble columns - a single bubble approach. 12th International Conference on Gas-Liquid, Gas-Liquid-Solid Reactor Engineering, New York City, USA. (Presentation)
- Böhm, L., *Kraume, M. (2014) Einfluss der Flüssigkeitsrheologie auf das Blasenschwarmverhalten in Flachmembranmodulen. ProcessNet-Jahrestagung und 31. DECHEMA-Jahrestagung der Biotechnologen, Aachen, Germany. Chem. Ing. Tech. **86**, 1526-1527. (Presentation)
- *Böhm, L., Kraume, M. (2014) Untersuchung des Blasenschwarmverhaltens in Newtonschen und nicht-Newtonschen Fluiden. ProcessNet Jahrestreffen der Fachgruppen Mehrphasenströmungen und Wärme- und Stoffübertragung. Fulda, Germany. (Presentation)
- *Böhm, L., Kraume, M. (2014) Influence of the liquid rheology on the behavior of bubble swarms in flat sheet membrane modules. DECHEMA Infotag Membrantechnik „Neuentwicklungen Cross Flow Filtration - Membranen, Module und Prozesse“. Frankfurt a.M., Germany. (Poster)
- *Böhm, L., Kraume, M. (2014) Mass transfer from bubbles to reactive liquid phases. 2nd International Symposium on Multiscale Multiphase Process Engineering (MMPE), Hamburg, Germany. (Poster)
- *Böhm, L., Kraume, M. (2014) Bubble swarms rising in Newtonian and non-Newtonian liquids. 2nd International Symposium on Multiscale Multiphase Process Engineering (MMPE), Hamburg, Germany. (Poster)
- Böhm, L., *Kraume, M. (2014) Wall shear stress generated by bubble swarms in Newtonian and non-Newtonian liquids. AIChE Annual Meeting 2014, Atlanta, USA. (Presentation)
- *Böhm, L., Kraume, M. (2013) Untersuchung des Aufstiegs von Einzelblasen in Newtonschen und nicht-Newtonschen Fluiden mittels PIV. 21. Fachtagung Lasermethoden in der Strömungsmesstechnik. München, Germany. 66-1 - 66-6. (Presentation)
- Böhm, L., Prieske, H., *Kraume, M. (2013) Fluid Dynamic Optimization of Flat Sheet Membrane Modules – Movement of Bubbles in Vertical Channels. 11th International Conference on Chemical and Process Engineering, Milan, Italy. (Presentation)
- *Böhm, L., Kraume, M. (2013) Von der Einzelblase zum Blasenschwarm – Eine Grundlagenuntersuchung im rechtwinkligen Kanal. ProcessNet Jahrestagung der Fachgemeinschaft Fluidodynamik und Trenntechnik, Würzburg, Germany. Chem. Ing. Tech. **85**, 1423 – 1424. (Poster)
- *Böhm, L., Kraume, M. (2013) Is it reasonable to use air-water model systems in fluid dynamic investigations of MBRs? 2nd International Workshop MBR for the next generation. Berlin, Germany. (Presentation)
- *Böhm, L., Kraume, M. (2013) Untersuchung des Aufstiegs von Einzelblasen in rechtwinkligen Kanälen mittels Hochgeschwindigkeitskamera. ProcessNet Jahrestreffen der Fachgruppen Extraktion und Mehrphasenströmungen, Baden-Baden, Germany. (Poster)
- *Böhm, L., Kraume, M. (2013) A fundamental investigation of single bubble and bubble swarm behavior with respect to fouling prevention in membrane systems. AIChE Annual Meeting 2013, San Francisco, USA. (Presentation)

- Prieske, H., Böhm, L., *Drews, A., Kraume, M. (2013) Hydrodynamics of non-Newtonian fluids in MBR with flat sheet modules. 10. Aachener Tagung Wasser und Membranen. Aachen, Germany. (Presentation)
- *Böhm, L., Kraume, M. (2013) Bubble induced flow in flat sheet membrane systems - Serial examination of single bubble experiments. Torino Membrane Symposium - Membranes for liquid separation and water treatment: Environmental applications and future perspectives. Torino, Italy. (Presentation)
- *Al-Shamary, L., Böhm, L., Kraume, M. (2012) Optimized hydrodynamics for membrane bioreactor with immersed flat sheet membrane modules. Filtech 2011. Wiesbaden, Germany (Presentation)
- *Böhm, L., Kraume, M. (2012) Investigation of single bubbles rising in narrow rectangular channels with Particle Image Velocimetry. 16th Int Symp on Applications of Laser Techniques to Fluid Mechanics, Lisbon, Portugal. (Presentation)
- Böhm, L., *Kraume, M. (2012) Hydrodynamic investigation of single bubbles. 19th International Conference of Process Engineering and Chemical Plant Design 2012, Krakau, Poland. (Presentation)
- *Böhm, L., Prieske, H., Kraume, M. (2012) Optimierung der Reinigung von Plattenmembranmodulen mittels Untersuchung der Schubspannung. DECHEMA Jahrestagung 2012, Karlsruhe, Germany, Chem. Ing. Tech. **84** (6), 1366. (Presentation)
- Nguyen, L.A.T., Schwarze, M., Drews, A., Kraume, M., Schomäcker, R., *Böhm, L. (2012) Influence of Non-ionic Surfactants on Reverse Micellar-enhanced Ultrafiltration. Euromembrane 2012, London, Great Britain, Procedia Eng., **44**, 1692 - 1694 (Poster)
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- Böhm, L., Prieske, H., Kraume, M. (2012) Experimental and Numerical Investigation of Air Scouring Inside Flat Sheet Membrane Modules. Euromembrane 2012, London, Great Britain, Procedia Eng., **44**, 535 - 536 (Presentation)
- Böhm, L., *Kraume, M. (2012) Bestimmung der durch Einzelblasen erzeugten Scherraten in rechtwinkligen Kanälen. ProcessNet Jahrestreffen der Fachgruppen Mischvorgänge und Mehrphasenströmungen, Weimar, Germany. (Poster)
- *Böhm, L., Prieske, H., Al-Shamary, L., Drews, A., Kraume, M. (2011) Investigation of bubble movement on flat sheet membrane modules. 4th workshop on CFD modelling in MBR applications. Aachen, Germany. (Presentation)
- Bentzen, T.R., Ratkovich, N., *Böhm, L., Rasmussen, M.R. (2011) Numerical modelling of two types of MBR. 4th workshop on CFD modelling in MBR applications. Aachen, Germany. (Presentation)
- *Böhm, L., Jankhah, S., Bérubé, P. R., Kraume, M. (2011) Optimization of the fouling mitigation in membrane systems – A collaborative approach for flat sheets and hollow fibres, 6th IWA Specialist Conference on Membrane Technology for Water, Wastewater Treatment. Aachen, Germany. (Presentation)
- Böhm, L., Prieske, H., *Kraume, M. (2011) Determination of shear stress around single bubbles between flat sheet membranes, Poster, 1st international symposium on Multiscale Multiphase Process Engineering (MMPE) Kanazawa, Japan. (Poster)
- Böhm, L., Bérubé, P., Kraume, M. (2010) Messung von Schubspannungen beim Aufstieg von Einzelblasen. ProcessNet-Jahrestagung 2010. Aachen, Germany, Chem. Ing. Tech. **82**: 1397 - 1397. (Poster)
- Böhm, L., Prieske, H., Bérubé, P., Kraume, M. (2010) Investigation of single bubbles rising between parallel plates. Aachener Membran Kolloquium 2010. Aachen, Germany, Deutsche Nationalbibliothek: 791. (Poster)
- *Böhm, L., Prieske, H. et al. (2010) Optimierung eines Plattenmembranmoduls mittels Untersuchung des Aufstiegs von Einzelblasen zwischen Platten. ProcessNet Jahrestreffen der Fachausschüsse Lebensmittelverfahrenstechnik und Mehrphasenströmungen. Frankfurt/Main, Germany. (Presentation)
- Böhm, L., H. Prieske, Bérubé, P., Kraume, M. (2010) Numerische und experimentelle Untersuchung des Aufstiegs von Einzelblasen zwischen senkrechten Platten. Poster, ProcessNet Jahrestreffen der Fachausschüsse Computational Fluid Dynamics und Wärme- und Stoffübertragung. Hamburg, Germany. (Poster)
- Böhm, L., Prieske, H., Al-Shamary, L., Bérubé, P., *Kraume, M. (2010) Optimizing the cleaning of flat sheet membrane modules by numerical and experimental investigation of bubble movement between plates. AMS6/IMSTEC10. Sydney, Australia. (Presentation)

Prieske, H., Al-Shamary, L., Böhm, L., *Kraume, M. (2010) Optimised MBR design and aeration for enhanced deposition control. 3rd Oxford water and membrane research event. Oxford, Great Britain. (Presentation)

*Böhm, L., Kraume, M. (2010) Numerical and experimental investigation of the rise of bubbles in a rectangular channel with regard to membrane module optimization. Colloquium at the ASCR ICPF. Prague, Czech Republic. (Presentation)

*Böhm, L., Kraume, M. (2010) Improved deposition control for membrane bioreactors with immersed flat sheet membrane modules. Colloquium at the UBC Department of Civil Engineering. Vancouver, Canada. (Presentation)

Prieske, H., Böhm, L., *Drews, A., Kraume, M. (2009) Optimised hydrodynamics for membrane bioreactors with immersed flat sheet membrane modules. 5th IWA specialised membrane technology conference for water, wastewater treatment. Beijing, China. 1: 514 - 515. (Presentation)

Iversen, V., Hermann, S., Drews, A., Münz, J., Götz, G., Fatarella, E., Lesjean, B., *Böhm, L., Kraume, M. (2009) Textiles for the filtration of activated sludge in membrane bioreactors (MBRs) Filtech 2009. Wiesbaden, Germany. II: II-694 - II-701. (Presentation)

Prieske, H., *Böhm, L., Drews, A., Kraume, M. (2009) Improved deposition control for membrane bioreactors with immersed flat sheet membrane modules. Filtech 2009. Wiesbaden, Germany. II: II-615 - II-622. (Presentation)

*Prieske, H., Böhm, L. et al. (2009) Fluidynamische Auslegung von Membranbioreaktoren unter dem Aspekt der effektiven Deckschichtkontrolle. 8. Aachener Tagung Wasser und Membranen. Aachen, Germany, R. A. Aachener Verfahrenstechnik, 52056 Aachen. Aachen, Die deutsche Bibliothek - CIP Einheitsaufnahme. 1: A16-1 - A16-10 (Presentation)

Böhm, L., Prieske, H., Kraume, M. (2009) Numerische Simulation der Blasenbewegung zwischen ebenen Platten. Jahrestreffen der ProcessNet-Fachausschüsse Computational Fluid Dynamics, Mischvorgänge und Extraktion. Fulda, Germany (Poster)

*Böhm, L., Prieske, H., Drews, A., Kraume, M. (2009) Optimization of bubble movement on flat sheet membrane modules. 3rd workshop on CFD modelling in MBR applications. Toulouse, France. (Presentation)

Supervised student projects (19 projects)

Wiedenmann, M. (2018) Messung von Konzentrations- und Temperaturfeldern mittels Laser Induced Fluorescence (LIF). Master thesis.

Herrmann, S., Koschwitz, P., Küper, A., Maaß, A., Sobocinski, P., Stewers, L. (2017) Batch To Conti. Project "Process design"

Mergen, M., Schütte, D., Rademacher, M., Basireddy, S., Campos, J.A.A. (2016) Power-to-Methanol. Project "Process design"

Dufour, H., Köster, P., Mellerowicz, K., Schulze, U. (2016) VT 2030 - Was ist die Zukunft der Verfahrenstechnik. Project "Process design".

May, M. (2016) Simulation of the bubble ascent in Newtonian and non-Newtonian liquids with OpenFOAM. DAAD RISE Internship.

Rühl, P. (2016) Simulation des Einzelblasenaufstiegs in engen Kanälen mit OpenFOAM. Bachelor thesis.

Sobocinski, P. (2015) Untersuchung von Blasenschwärmen in einem rechtwinkligen Kanal mit Hilfe der Elektrodiffrusionsmethode. Bachelor thesis.

Wörtzel, J. (2014) Messung von Scherspannungen beim Aufstieg von Einzelblasen in nicht-Newtonschen Medien. Internship.

Pietsch, S. (2014) Untersuchung von Blasenschwärmen in einem rechtwinkligen Kanal mit Hilfe von Hochgeschwindigkeitskameraaufnahmen. Bachelor thesis.

Kohtz, S. (2014) Untersuchung des Einflusses von Wänden und der Rheologie auf den Aufstieg von Einzelblasen mit Hilfe der Particle Image Velocimetry. Diploma thesis.

Kurita, T. (2013) High speed camera investigation of the rise of single bubbles in non-Newtonian liquids. Internship.

Schallau, P. (2013) Untersuchung des Aufstiegs von Einzelblasen in einem rechtwinkligen Kanal mit Hilfe von Hochgeschwindigkeitskameraaufnahmen. Bachelor thesis.

Sowerwine, K. (2012) Investigation of the rise of single bubbles with a high speed camera. DAAD RISE Internship.

Kolev, N. (2012) Auswertung der Strömungsverhältnisse beim Aufstieg von Einzelblasen in engen Kanälen mit Hilfe von Particle Image Velocimetry. Bachelor thesis.

Ruiken, J.P. (2012) Messung und Auswertung von Scherspannungen beim Aufstieg von Einzelblasen in engen Kanälen. Bachelor thesis.

Lenhart, E. (2012) Visualisierung der Strömungsverhältnisse beim Aufstieg von Einzelblasen in engen Kanälen mit Hilfe von Particle Image Velocimetry. Diploma thesis.

Kolev, N. (2011) Messung der Scherraten beim Aufstieg von Einzelblasen. Internship.

Karsten, T. (2011) Automatisierung der Messung von Scherspannungen beim Aufstieg von Einzelblasen in engen Kanälen. Bachelor thesis.

Fleck, A. (2010) Bestimmung der Scherspannung beim Aufstieg von Einzelblasen in engen Kanälen mit Hilfe der Elektrodiffrusionsmethode. Bachelor thesis.