Laura König-Mattern

curriculum vitae

Education

09/2019–today **PhD student**, *Max Planck Institute for Dynamics of Complex Technical Systems, Magdeburg*, Process Systems Engineering, supervisor: Prof. Kai Sundmacher

04/2017–08/2019 **Master of Science**, *Systems Engineering and Engineering Cybernetics*, Otto von Guericke University Magdeburg
final grade: 1.4

10/2013–04/2017 **Bachelor of Science**, *Biosystems Engineering*, Otto von Guericke University Magdeburg
final grade: 2.0

08/2005–07/2013 **Abitur**, *Gymnasium Geschwister Scholl*, Gardelegen
final grade: 1.4

Scholarships and awards

10/21 **Award for Science Communication**, *Federal Ministry of Education and Research (BMBF)*, Bioeconomy-Camp, 3,000 €

03/21–03/2023 **Christiane Nüsslein-Volhard scholarship**, *Christiane Nüsslein-Volhard Foundation, Bayer*

08/2012–08/2013 **Pupils scholarship**, *Joachim Herz Foundation, Robert Bosch Foundation*

Publications

- Johannes Kopton, Liisa Rihko-Struckmann, **Laura König-Mattern**, Kai Sundmacher *uperstructure optimization of a microalgal biorefinery design with life cycle assessment (LCA)-based and economic objectives*, Biofuels, Bioproducts and Biorefining, 2023, *accepted*
- **Laura König-Mattern**, Anastasia O. Komarova, Arpa Ghosh, Steffen Linke, Liisa Rihko-Struckmann, Jeremy Luterbacher, Kai Sundmacher *High-throughput computational solvent screening for lignocellulosic biomass processing*, Chemical Engineering Journal, 2023, doi: 10.1016/j.cej.2022.139476
- **Laura König-Mattern**, Steffen Linke, Liisa Rihko-Struckmann, Kai Sundmacher *Computer-aided solvent screening for the fractionation of wet microalgae biomass*, Green Chemistry, 2021, doi: 10.1039/D1GC03471E

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- Falko Frenzel, **Laura König-Mattern**, Valerie Stock, Linn Voss, Maxi B Paul, Holger Sieg, Albert Braeuning, Andreas Voigt, Linda Böhmert, *NanoPASS: an easy-to-use user interface for nanoparticle dosimetry with the 3DSDD model*, Particle and Fibre Toxicology, 2020
- L. Böhmert, **L. König**, H. Sieg, D. Lichtenstein, N. Paul, A. Braeuning, A. Voigt, A. Lampen, *In vitro nanoparticle dosimetry for adherent growing cell monolayers covering bottom and lateral walls*, Particle and Fibre Toxicology, 2018, 15:42, doi: 10.1186/s12989-018-0278-9

Talks

- **Laura König-Mattern**, Edgar I. Sanchez-Medina, Anastasia O. Komarova, Steffen Linke, Liisa Rihko-Struckmann, Jeremy Luterbacher, Kai Sundmacher, *Tailored solvent design for lignin dissolution using graph neural networks*, 14th European Congress of Chemical Engineering and 7th European Congress of Applied Biotechnology, September 18, 2023, Berlin (Germany), *Keynote lecture*
- **Laura König-Mattern**, Steffen Linke, Liisa Rihko-Struckmann, Kai Sundmacher, *Lipid extraction in microalgal biorefineries: A COSMO-RS approach* , 18th International Conference on Renewable Resources and Biorefineries, June 1-3, 2022, Bruges (Belgium)
- **Laura König-Mattern**, Anastasia O. Komarova, Arpa Ghosh, Steffen Linke, Liisa Rihko-Struckmann, Jeremy Luterbacher, Kai Sundmacher, *Computational solvent screening for the organosolv fractionation of lignocellulosic biomass* , International Symposium on Green Chemistry, May 16-20, 2022, La Rochelle (France)
- **Laura König-Mattern**, Steffen Linke, Liisa Rihko-Struckmann, Kai Sundmacher, *Computational Solvent Screening for the Fractionation of Wet Microalgal Biomass Exemplified by Phaeodactylum tricornutum*, 13th European Congress of Chemical Engineering and 6th European Congress of Applied Biotechnology, September 22, 2021, virtual
- **Laura König-Mattern**, Steffen Linke, Liisa Rihko-Struckmann, Kai Sundmacher, *Computational solvent screening for efficient microalgal-based biorefineries exemplified by Phaeodactylum tricornutum*, International Conference on Algal Biomass, Biofuels and Bioproducts, June 16, 2021, virtual

Poster presentations

- Liisa Rihko-Struckmann, Johannes Kopton, **Laura König-Mattern**, Steffen Linke, Liisa Rihko-Struckmann, Kai Sundmacher, *Multi-objective life cycle optimization for sustainable biorefinery design*, 11th International Conference on Life Cycle Management, September 6-7, 2023, Lille (France)
- **Laura König-Mattern**, Steffen Linke, Liisa Rihko-Struckmann, Kai Sundmacher, *Computer-aided solvent selection for the design of sustainable biorefinery processes*, SmartProSys Symposium, March 2, 2022, Magdeburg (Germany)

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- Andreas Voigt, **Laura König-Mattern**, Paul Meier, Kai Sundmacher, *Process optimization of a continuously operated helically coiled flow tube crystallizer*, ISIC 21 21st International Symposium on Industrial Crystallization, August 30, 2021, Potsdam (Germany)
- Christopher McHardy, **Laura König-Mattern**, Yang Bai, Julius Knappert, Cornelia Rauh, Liisa Rihko-Struckmann, Kai Sundmacher, *Prozessintegration von Zellaufschluss und Extraktion zur Fraktionierung feuchter Mikroalgen-Biomasse*, Chemie Ingenieur Technik, 2020
- **L. König**, V. Wiedmeyer, A. Voigt, K. Sundmacher, *Crystallization in standard batch crystallizers and advanced helically coiled flow tubes: Numerical limits of current simulation methods*, Young Professionals Conference on Process Engineering, March 2019, Magdeburg (Germany)

Teaching and student supervision

- **Student supervision**: I supervised several theses and student assistants, and guided them in their experiments and computational work.
- **Process Systems Engineering** („Systemverfahrenstechnik “, Otto von Guericke University Magdeburg): I am teaching Master students developing mathematical models for Process Systems on different hierarchical levels and train them to solve the developed models computationally (summer term 2020-2023). I substituted for my professor in several lectures.
- **Simulation Engineering** („Simulationstechnik “, Otto von Guericke University Magdeburg): I started giving excercises on MATLAB for Bachelor students as a student assistant (winter terms 2015-2018) and continued teaching as a PhD student (winter term 2019).

Work experience

06/2017–09/2017 **Student assistent**, *Chair of Process Systems Engineering*, Otto von Guericke University Magdeburg
Task: support in crystallization projects

01/2017–04/2017 **Internship**, *Anhaltinische Verfahrens- und Anlagentechnik GmbH*, Magdeburg
Internship in the field of fluidized-bed technology

05/2016–11/2016 **Student assistent**, *Max Planck Institute for Dynamics of Complex Technical Systems*, Magdeburg
Research group: Process Systems Engineering
Task: support of research projects in chemical looping

09/2014–04/2015 **Student assistent**, *Max Planck Institute for Dynamics of Complex Technical Systems*, Magdeburg
Research group: Analysis and Redesign of Biological Networks
Task: lab work in systems biology

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03/2014 **Laboratory Internship**, *Leibniz Institute for Neurobiology*, Magdeburg
Research group: Special Lab Molecular Biological Techniques
Task: lab work in proteomics

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