

# Steffen Plunder

*M.Sc. Mathematik*

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## Personal Information

birthday March 17, 1994

nationality German

## Education

2004 to 2013 **Gymnasium**, Trifels Gymnasium Annweiler, Final grade: 1,6.

2013 to 2016 **Bachelor Mathematics**, TU Kaiserslautern, Final grade: 1,1.

Specialisation: Modelling and scientific computing,

Application subject: Physics,

Thesis: Molecular Dynamical Simulation for Polymers.

WS 2016/2017 **ERASMUS Semester**, TU Delft.

2016 – 2018 **Master Mathematics**, TU Kaiserslautern, Final grade: 1,1.

Specialisation: Partial differential equations, Application subject: Physics,

Thesis: Fiber based Lagrangian Modelling and Simulation of Skeletal Muscle Tissue.

1.3.2018 – 13.6.2018 **Academic visit**, The University of Auckland.

Project: Multiscale simulation of flows in saliva glands.

Supervised by Prof. James Sneyd.

1.10.2018 to 30.11.2018 **Academic visit**, Hausdorff Center of Mathematics, Bonn.

Project: Extension of a multiphase material simulation.

Supervised by Prof. Martin Rumpf and Dr. Behrend Heeren.

since 1.10.2019 **PhD candidate**, University of Vienna, Supervised by Sara Merino-Aceituno.

Kinetic Theory and Applications to Biology

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## Publications

- 2020 Plunder, S. and Simeon, B. (2020). *Coupled Systems of Linear Differential-Algebraic and Kinetic Equations with Application to the Mathematical Modelling of Muscle Tissue*. In Reis, T., Grundel, S., and Schops, S., editors, *Progress in Differential-Algebraic Equations II*, Differential-Algebraic Equations Forum, pages 357–395, Cham. Springer International Publishing

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## Work and Teaching Experience

- 2014-2016 **Tutor**, *TU Kaiserslautern*.  
Höhere Mathematik I: Analysis (for engineers)  
Foundation of Mathematics I (for Mathematicians and Physicists)  
Foundation of Mathematics II (for Mathematicians and Physicists)
- WS 2017/2018 **Tutor**, *TU Kaiserslautern*.  
Numerical methods for linear algebra and analysis
- 2012 – 2016 **Programming assistant**, *Fraunhofer Institut für Wirtschafts- und Technomathematik*, Department of Image Processing.  
GUI programming (Qt) and bug fixing within a C++ project.
- 2016 – 2017 **Programming assistant**, *TU Kaiserslautern and TU Delft*,  
Research groupd for differential algebraic systems.  
Algorithms for parameterisation and optimisation of NURBS surfaces with C++ and G+SMo (Geometry, Simulation and Modelling).
- WS 2018/2019 **Organisation and Tutor**, *TU Kaiserslautern*.  
Computer lab: Numerical methods for linear algebra and analysis
- 1.12.2018 to 30.9.2019 **Researcher**, *TU Kaiserslautern*, Supervised by Prof. Dr. Bernd Simeon.  
AG Differential-Algebraische Systeme

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## Workshops

- 30.1.2017 – 2.2.2017 **G+SMo Developer Days**, *TU Delft*.  
Talk: Optimization of B-Spline Parametrizations using G+SMo and IPOPT
- 28.9.2016 – 30.9.2017 **Mathematische Methoden in Big Data**, *Felix-Klein-Zentrum*.
- 9.3.2017 – 10.3.2017 **Models and Methods of Robust Optimization**, *ITWM*.
- 11.9.2017 – 14.9.2017 **19<sup>th</sup> ÖMG Meeting and Annual DMV Meeting**, *Salzburg*.  
Talk during the Students conference: Symplectic molecular dynamics.
- 27.9.2017 – 29.9.2017 **Networks and Uncertainty**, *Felix-Klein-Zentrum*.
- 18.2.2019 – 22.2.2019 **GAMM, 90<sup>th</sup> Annual Meeting**, *Vienna*.  
Talk: Lagrangian perspective on skeletal muscle models

18.3.2019 – 20.3.2019 **DESCRIPTOR**, *Paderborn*.

Talk: Partially mesoscopic and Lagrangian systems

14.12.2020 – 18.12.2020 **MAFRAN Winter School 2020**, *online*.

## Languages

German mother tongue

English fluently

Level: C1

## Computer skills

OS Linux (very good), Windows (good)

Database SQL

Tools Inkscape (good), LaTeX (good), GIMP (good), HTML, CSS

Programming languages Julia (very good), C++ (very good), Python (good), MATLAB (good), C (good), Javascript (good), C#, Java, Lua, R, SINGULAR.

Frameworks Qt (very good), numpy/scipy (very good), FEniCS (very good), boost (good), Eigen (good), OpenGL (good), OpenMPI (good), G+SMo, IPOPT, VTK, SFML, SDL.

## Prices

2013 Abiturpreis Mathematik, Abiturpreis Physik. (Price for math and physics after secondary school.)

2014 – 2016 Deutschlandstipendium (scholarship)

2016 – 2018 Felix-Klein scholarship by Fraunhofer ITWM

2017 Main price on the DMV Students conference 2017 (Funded research trip to Bonn)

2018 DAAD-PROMOS scholarship (academic visit in Auckland)

## Activities

2014 – 2018 **Fachschaftsrat (student council)**, *TU Kaiserslautern*.

During my commitment for the student council, I worked as: system administrator, outlook lectures, main organisation of the math party, Student-Talks, public relations, breakfast, beverage service, loan service.

2015 – 2018 **Various university commissions**, *TU Kaiserslautern*.

I was part of the following committees as a student member: Department council (math), library commission (senat), committee for studying and teaching (math), student representative in the examinations board (math)

since 2017 **member of the social democratic party (SPD)**.

since 2020 **Speaker of the Vienna School of Mathematics (VSM).**