

Steffen Plunder

M.Sc. Mathematik

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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

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

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 and teaching assistant, TU Kaiserslautern, Supervised by Prof. Dr. Bernd Simeon.**
AG Differential-Algebraische Systeme

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 **19th 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, 90th 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*.

Organisation

- 2017 – 2019 **Student talks**, Organisation of voluntary series of talks.
- 1.6.2021 **VSM workshop: A PhD in mathematics – career possibilities & gender aspects**.
- 25.5.2022 – 29.5.2022 **VSM Mini-course: String theory for mathematicians**.

Languages

German	mother tongue	
English	fluently	<i>Level: C1</i>
Mandarin	beginner	<i>Level: A1</i>

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), Javascript (very good), Python (very good), MATLAB (good), C (good), C#, Java, Lua, R, SINGULAR.
Frameworks	Qt/PyQt (very good), DifferentialEquations.jl (good), numpy/scipy (very good), FEniCS (good), boost (good), Eigen (good), OpenGL (good), OpenMPI (good), G+SMo, IPOPT, VTK, SFML, SDL.

Grants, scholarships and 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)
- 2021 EMBO Scientific Exchange Grant (academic visit in Toulouse)

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).**
Organisation and initiation of events such as a mini course on string theory, workshop on career possibilities for PhD students and gender aspects, various social events.