



Julius Busse (M.Sc.)

Student of Mathematics

Research Interests

<i>Fluid Dynamics</i>	Modelling the flow of polluted water as a colloidal suspension.
<i>computational mathematics</i>	Applying complexity theory and programming to mathematics. Numerically solving DEs . Bridging the gap between theory and application through the use of computers.
<i>stochastic differential equations</i>	Stochastic delayed differential equations (population models). Master's thesis: "Extinction properties of SDE population models with non locally Lipschitz noise coefficients" (working on observing Itô processes with noise $\sigma(y(t), t) = y(t)^p$). Simulations with Julia.
<i>functional analysis</i>	Operator and spectral theory.

Education

- 09/24 - 08/28 **PhD candidate**, *University College Dublin, Ireland*
(EGD) PhD in Geophysical Fluid Dynamics (thesis title: "Modelling coastal pollution") under the supervision of Prof. James Herterich.
- 02/22 - 07/24 **Master of Mathematics**, *University of Leiden, Netherlands*
Master's thesis on stochastic delayed differential equations (Prof. Onno van Gaans). Courses taught in Dutch and English. Graduated *cum laude* with a GPA of 8.5 and a thesis grade of 9.0.
- 10/18 - 01/22 **Bachelor of Mathematics** (minor in computer science), *University of Siegen, Germany*
Final grade: 1.1 (best possible grade: 1.0)
Grade of bachelor's thesis: 1.0
Bachelor's thesis (Prof. Volker Michel) here: julius-gs.de/bachelorarbeit. Worked with ITWM (Fraunhofer institute Kaiserslautern)
- 08/10 - 07/18 **Abitur**, *Sankt-Franziskus-Schule, Olpe*
Grade: 1.9
Advanced courses: Mathematics and Physics

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Experiences

- 04/23 - 02/24 **Tutoring and Grading**, *University of Leiden*
Teaching Assistant for 'Numerical Mathematics', 'Algebra and Number Theory', 'Calculus for Life Sciences' (Dr. Mark Roelands, Prof. Jan Brinkhuis, Dr. Garnet Akeyr, all work in Dutch).
- 12/22 - 09/23 **Pre-Study Programme**, *University of Leiden POPcorner*
Teach extracurricular math to VWO students with immigration backgrounds (in Dutch).
- 10/19 - 03/22 **Grading and exercise management**, *University of Siegen*
Teaching Assistant (SHK) in Siegen, giving exercise groups, grading homework, typesetting lecture notes for Analysis I and II (both twice), Higher Mathematics III, Elements of Analysis, Numerics I and II, and Numerics for Engineers (Prof. Gregor Nickel, Prof. Thorsten Raasch, Prof. Franz-Theo Suttmeier, Prof. Robert Plato and Dr. Gero Stoffels).
- 08/21 **TOEFL iBT**, *TU Dortmund*
Reached 116/120 points on the TOEFL (Test of English as a Foreign Language) (highest level in all test categories)
- 10/20 - 09/21 **Scholarship holder of the *Deutschlandstipendium***, *Federal Ministry of Education and Research*
Prestigious German excellence scholarship for one year (letter of recommendation from Prof. Volker Michel, supported with ca. €4000).
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IT-Skills

Host my own webserver, calendar service, cloud storage system (all free and open source software). Have used Python and Julia extensively (the former in my Bachelor's thesis for the Fraunhofer institute in Kaiserslautern and the latter in the simulations in my Master's thesis) and have some knowledge about R and C++.

Use `git` for version control of my own projects and some of them can be found on my GitLab: julius-gs.de/gitlab.

Languages

- o German (native language)
- o English (fluently)
- o Dutch (fluently)
- o Italian (very basic, currently studying)

Private Interests

- computers Theoretical computer science, automating workflows, typesetting documents with \LaTeX
- linguistics Phonology, (Low) German dialects
- music Playing the guitar, transcribing, singing
- sports lifting weights, Brazilian jiu jitsu