

Dominic Breit

Curriculum vitae

Institute of Mathematics, TU Clausthal,
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Personal Information

Date of Birth **September 6, 1983**
Place of Birth **Saarbrücken, Germany**
Nationality **German**
Status **married, two children**

Education

11/2009–12/2013 **Habilitation in Mathematics, LMU Munich**
"Existence theory for generalized Newtonian fluids"
Referees: Diening (LMU Munich), Frehse (University of Bonn),
Málek (Charles University, Prague), Süli (University of Oxford)

10/2007–10/2009 **PhD study in Mathematics, Saarland University, with distinction**
"New regularity theorems for anisotropic variational integrals"
Referees: Bildhauer, Fuchs, Ural'tseva (St. Petersburg State University)

10/2003–07/2008 **Diploma study in Business Administration, Saarland University**
"Estimating time continuous models in financial econometrics by EMM and GMM"

10/2003–09/2007 **Diploma study in Mathematics, Saarland University**
"Regularity analysis for the Ramberg-Osgood model in three dimensions"
Referees: Bildhauer, Fuchs

06/2003 **School leaving, Theodor-Heuss-Gymnasium, Sulzbach**

Employment

10/2022– **Technical University Clausthal**
Full Professor (W3) at the Institute of Mathematics

08/2018–10/2022 **Heriot-Watt University Edinburgh**
Associate Professor (Reader) in the Department of Mathematics

10/2014–08/2018 **Heriot-Watt University Edinburgh**
Lecturer in the Department of Mathematics

10/2013–10/2014 **Ludwig-Maximilian University Munich**
Substitute of a professorship at the Mathematical Institute

10/2012–10/2013 **University of Florence**
Research fellow in the Department of Mathematics "Ulisse Dini"

10/2011–10/2012 **Ludwig-Maximilian University Munich**
Assistant lecturer at the Mathematical Institute

04/2011–10/2011 **University of Oxford**
Research fellow at the Oxford Centre for Nonlinear PDE

- 10/2009–04/2011 **Saarland University**
Assistant lecturer in the Department of Mathematics
- 10/2005–10/2009 **Saarland University**
(Student) research assistant in the Department of Mathematics

Awards/Grants

- 01/2024–12/2026 **DFG project (221.000€)**
Compressible Euler equations with transport noise equations
DFG Priority Programme CoScaRa
- 10/2019 **Heriot-Watt University Teaching Excellence Award**
for global learning and teaching
- 9/2017–03/2021 **PhD scholarship (£56.700)**
Numerical approximation of stochastic Navier–Stokes equations
Carnegie Trust Scotland, Student: Alan Dodgson
- 06/2014 **Habilitation award of Münchner Universitätsgesellschaft 2014**
Best habilitation thesis at LMU Munich
- 10/2012–10/2013 **Postdoc fellowship (30.000€)**
Leopoldina (German National Academy of Science)
- 10/2011 **Dr. Eduard-Martin-Award 2011**
Best PhD thesis of the Faculty for Math. & CS at Saarland University
- 04/2011–10/2011 **Postdoc fellowship (13.800€)**
Alexander von Humboldt foundation
- 07/2009 **Best-Diploma Award**
Department of Economics at Saarland University
- 10/2008–10/2009 **PhD fellowship**
Landesgraduiertenförderung of Saarland

Selected publications

- D. Breit, A. Cianchi, L. Diening & S. Schwarzacher: *Global Schauder estimates for the p -Laplace system*. **Arch. Rational Mech. Anal.** 243, 201–255. (2022)
- D. Breit, E. Feireisl & M. Hofmanová: *Solution semiflow for the isentropic Euler system*. **Arch. Rational Mech. Anal.** 235, 167–194. (2020)
- D. Breit, L. Diening & F. Gmeineder: *On the Trace Operator for Functions of bounded \mathbb{A} -Variation*. **Anal. PDE** 13, 559–594. (2020)
- D. Breit, E. Feireisl, M. Hofmanová & B. Maslowski: *Stationary solutions to the compressible Navier–Stokes system driven by stochastic forces*. **Probab. Theory Relat. Fields** 174, 981–1032. (2019)
- D. Breit & S. Schwarzacher: *Compressible fluids interacting with a linear-elastic shell*. **Arch. Rational Mech. Anal.** 228, 495–562. (2018)

Services

- Referee for peer-reviewed journals
- Arch. Ration. Mech. Anal. • Ann. Appl. Probab. • Ann. Probab.
 - Calc. Var. & PDE • Comm. PDE • Found. Comp. Math.
 - IMA J. Num. Anal. • J. Diff. Equ. • J. Funct. Anal.
 - J. Math. Fluid Mech. • J. Math. Pures Appl. • J. Nonlinear Sci.
 - J. Sci. Computing • Math. Mod. Meth. Appl. Sci. • Nonlinearity
 - Num. Math. • Probab. Theory Relat. Fields • Rev. Mat. Iberoamericana
 - SIAM J. Math. Anal. • SIAM J. Num. Anal. • Stoch. PDE: Anal. Comp.
- Referee for funding bodies
- Humboldt foundation • Austrian Science Fund
 - Dutch Research Council • Science Fund of the Republic of Serbia
 - Croatian Science Foundation
- Lecturing
- Plenary speaker: summer school Mathematical Aspects of Fluid Flows, Kacov, Czech Republic, 05/2017
- Organizing
- Summer school on mathematical fluid mechanics, ICMS Edinburgh, 09/2016, (together with B. Goddard & M. Schmuck).
 - Minisymposium "Stochastic PDEs", Equadiff 2017, Bratislava, 07/2017, (together with M. Hofmanová).
 - Summer school on multiscale problems in nonlinear PDEs, ICMS Edinburgh, 09/2017, (together with B. Goddard & M. Schmuck)
- PhD examiner
- J. Žabenský, 2015 (Charles University, Prague)
 - A. Abbatiello, 2018 (University of Campania, Caserta)
 - K. Cheung, 2019 (Heriot-Watt University, Edinburgh)
 - G. Sperone, 2019 (Politecnico Milan)
 - J. A. Forlano, 2020 (Heriot-Watt University, Edinburgh)
 - J. Molla, 2020 (Heriot-Watt University, Edinburgh)
 - R. He, 2021 (Heriot-Watt University, Edinburgh)
 - S. Dimoudis, 2022 (Heriot-Watt University, Edinburgh)
 - U. Pappalettera, 2022 (Scuola Normale, Pisa)
 - C. A. Antonini, 2024 (University of Milan)

Teaching

- TU Clausthal **Advanced Analysis**, *BSc Mathematics*, 2023/2024
- TU Clausthal **Mathematical Fluid Mechanics**, *MSc Mathematics*, 2023
- TU Clausthal **Functional Analysis**, *MSc Mathematics*, 2022, 2023
- TU Clausthal **Analysis and Linear Algebra**, *BSc Mathematics/CS*, 2022/2023
- Heriot-Watt Univ. **Optimization**, *BSc/MSc Mathematics*, 2015–2021
- Heriot-Watt Univ. **Mathematics for Engineers & Scientists III**, *service lecture*, 2015–2021
- LMU Munich **Numerics II**, *MSc Mathematics*, 2014
- LMU Munich **Mathematics for Pharmacists**, *service lecture*, 2014
- LMU Munich **Sobolev spaces**, *MSc Mathematics*, 2013
- LMU Munich **Numerics I**, *BSc Mathematics*, 2013
- Univ. of Florence **Function spaces**, *PhD Mathematics*, 2013

LMU Munich **Mathematics for Nature Science II**, *service lecture*, 2012
 LMU Munich **Mathematics for Nature Science I**, *service lecture*, 2011
 Saarland University **Preliminaries in mathematical fluid mechanics**, *MSc Mathematics*, 2010
 Saarland University **Sobolev spaces**, *MSc Mathematics*, 2010
 Saarland University **Preliminaries in the calculus of variations**, *BSc Mathematics*, 2009

Supervised students

02/2024– **R. Boadi**, *PhD thesis*
 "Compressible Euler equations with transport noise"

09/2017–03/2023 **A. Dodgson**, *PhD thesis*
 "Convergence rates of the numerical approximation of stochastic Navier–Stokes equations in 2D and 3D"

09/2018–09/2022 **T. C. Moyo**, *PhD thesis*
 "Dissipative solutions to the stochastic Euler equations"

09/2015–10/2018 **P. R. Mensah**, *PhD thesis*
 "The stochastic compressible Navier–Stokes system on the whole space and some singular limits"

08/2022 **X. Zhang**, *MSc group project*
 "Diffusion processes"

08/2022 **J. Huang**, *MSc group project*
 "Itô's formula and applications"

08/2022 **W. He**, *MSc group project*
 "Existence for stochastic differential equations"

08/2021 **C. Alope**, *MSc project*
 "Itô's formula and applications"

08/2020 **J. Liang**, *MSc group project*
 "Long-time behaviour of stochastic differential equations"

08/2020 **Y. Wang**, *MSc group project*
 "Stochastic differential equations and partial differential equations"

08/2020 **S. Zhu**, *MSc group project*
 "Stochastic differential equations"

08/2020 **N. Szente**, *MSc group project*
 "Itô's formula and applications"

08/2020 **Y. Huang**, *MSc group project*
 "Itô diffusions and Markov processes"

08/2019 **S. Chen**, *MSc group project*
 "Financial modelling with jump processes"

08/2019 **Q. Li**, *MSc group project*
 "Financial modelling with jump processes"

08/2018 **C. Sun**, *MSc project*
 "Pricing Financial Derivatives by PDE-Methods"

- 12/2016 **A. Dodgson**, *MSc project*
"Numerical approximation of the stochastic heat equation by Discontinuous Galerkin methods"
- 08/2016 **E. Antonopoulou**, *MSc project*
"Finite Element Approximation of steady flows of non-Newtonian fluids"
- 08/2015 **G. Zanolì**, *MSc project*
"Adaptive Finite Element Methods"
- 06/2014 **W. H. Stefani**, *Master's thesis*
"Partial regularity for parabolic systems with subquadratic growth"
- 06/2014 **A. Schmidt**, *Diploma thesis*
"Numerical Analysis of generalized Newtonian fluids"
- 11/2013 **F. X. Gmeineder**, *Master's thesis*
"Approximation Theorems for parabolic BV and BD spaces"
- 2012–2019 **18 Bachelor's theses**