

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

10/2024–09/2027	DFG project (240.000€) Compressible fluid-structure interactions
01/2024–12/2026	DFG project (221.000€) Compressible Euler equations with transport noise 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
- Ann. Appl. Probab.
 - Ann. Probab.
 - Arch. Ration. Mech. Anal.
 - 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
 - National Science Centre, Poland
- 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 , <i>service lecture</i> , 2012
LMU Munich	Mathematics for Nature Science I , <i>service lecture</i> , 2011
Saarland University	Preliminaries in mathematical fluid mechanics , <i>MSc Mathematics</i> , 2010
Saarland University	Sobolev spaces , <i>MSc Mathematics</i> , 2010
Saarland University	Preliminaries in the calculus of variations , <i>BSc Mathematics</i> , 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. Aloke**, *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. Zanoli**, *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**