Patrick Tolksdorf

Research Interests

· Development of methods from Harmonic Analysis and their application to non-smooth problems from fluid mechanics.

· Maximal L^1-regularity in homogeneous Besov spaces with applications to fluids, e.g., fluids with a free boundary or compressible fluids.

· Investigation of elliptic operators in divergence form with mixed Dirichlet/Neumann boundary conditions.

Professional Experience

10/2019 –	Johannes Gutenberg-Universität Mainz, assistant professor for Functional Analysis
10/2018 – 09/2019	Université Paris-Est Créteil, PostDoc within the project ANR INFAMIE (with Raphaël Danchin)
10/2017 – 09/2018	TU Darmstadt, PostDoc (with Matthias Hieber)
10/2016 – 09/2017	TU Darmstadt, PostDoc within IRTG 1529 (with Matthias Hieber)
03/2014 – 08/2014	TU Darmstadt, Teaching assistant (with Matthias Hieber)

Academic Experience

02/2014 – 08/2016	TU Darmstadt, Dr. rer. nat. in mathematics (grade: **with exceptions**) Thesis: On the L^p-theory of the Navier–Stokes equations on Lipschitz domains Supervisor: Robert Haller-Dintelmann
04/2012 – 08/2013	TU Darmstadt, M.Sc. in mathematics (grade: **with exceptions**) Thesis: The Kato Square Root Problem for Mixed Boundary Conditions Supervisor: Robert Haller-Dintelmann
10/2009 – 03/2012	TU Darmstadt, B.Sc. in mathematics (grade: **good**) Thesis: Riesz-Spectral Theory for the Flexible Beam Equation Supervisor: Robert Haller-Dintelmann
10/2008 – 09/2009	TU Darmstadt, first year in B.Sc. in physics
08/2005 – 06/2007	Martin-Niemöller-Schule, Wiesbaden, high school (grade: **good**)

Fundings

03/2021 – 04/2022   Teaching project "Digital Exams"

02/2014 – 08/2016   PhD scholarship of the "Studienstiftung des deutschen Volkes"

Awards

2017   Award of the "Vereinigung von Freunden der Technischen Universität Darmstadt"
for **exceptional scientific achievements**

2013   Main price at the "Studierendenkonferenz" of the DMV

Organization of Workshops

· Final workshop of the "ISEM 27" at CIRM in Luminy, scheduled for 06/2024.
Joint with Moritz Egert, Robert Haller, and Sylvie Monniaux.

· Workshop "Mathflows 2022" at CIRM in Luminy, 12/2022.
Joint with Raphaël Danchin, Piotr Mucha, and Ewelina Zatorska.

Research Stays

02/2022   Research in Residence, CIRM, Luminy
(with Matthias Hieber, Hideo Kozono, Sylvie Monniaux, 2 weeks)

05/2019   Weierstraß-Institute, Berlin (with Joachim Rehberg, 2 weeks)

04/2019   Max-Planck-Institute, Leipzig (with Jonas Sauer, 1 week)

03/2019   Aix-Marseille Université, Marseille (with Sylvie Monniaux, 1 week)

02/2018   Tohoku University, Sendai, Japan (with Tsukasa Iwabuchi, 2 weeks)

10/2017   Warsaw University, Warsaw, Poland (with Piotr Mucha, 1 week)

02/2017   Tohoku University, Sendai, Japan (with Tsukasa Iwabuchi, 3 weeks)

12/2016   University of Kentucky, Lexington, USA (with Zhongwei Shen, 2 weeks)

02/2015 – 06/2015   University of Kentucky, Lexington, USA (with Russell Brown, 4 months)