

Adrian M. Ruf – Curriculum Vitae (January 4, 2021)

Email adrian.ruf@sam.math.ethz.ch
Webpage adrianmruf.github.io

Education/Employment

- Since 2021 **Lecturer**, ETH Zürich, Switzerland
- Since 2019 **Postdoctoral researcher**, ETH Zürich, Switzerland
Mentor: Prof. Siddhartha Mishra
- 2019 **PhD in Mathematics**, University of Oslo, Norway
Marie Skłodowska-Curie research position
Supervisors: Prof. Nils Henrik Risebro and Prof. Kenneth Karlsen
- 2016 **MSc in Mathematics**, Technical University of Berlin, Germany
Supervisor: Prof. Etienne Emmrich
- 2013 **BSc in Mathematics**, Technical University of Berlin, Germany

Publications

- [7] U. S. Fjordholm and A. M. Ruf. Second-order accurate TVD numerical methods for nonlocal non-linear conservation laws. *accepted for publication in SIAM J. Numer. Anal.* (2021)
[arxiv:2008.08326](#)
- [6] A. M. Ruf. Flux-stability for conservation laws with discontinuous flux and convergence rates of the front tracking method. *accepted for publication in IMA J. Numer. Anal.* (2021)
[arxiv:2008.08320](#)
- [5] J. Badwaik and A. M. Ruf. Convergence rates of monotone schemes for conservation laws with discontinuous flux. *SIAM J. Numer. Anal.*, 58(1): 607, (2020)
[doi:10.1137/19M1283276](#)
- [4] N. H. Risebro and A. M. Ruf. Numerical investigations into a model of partially incompressible two-phase flow in pipes. *SeMA*, (2019)
[doi:10.1007/s40324-019-00207-9](#)
- [3] A. M. Ruf, E. Sande, and S. Solem. The optimal convergence rate of monotone schemes for conservation laws in the Wasserstein distance. *J. Sci. Comput.*, 80: 1764, (2019)
[doi:10.1007/s10915-019-00996-1](#)
- [2] J. Ridder and A. M. Ruf. A convergent finite difference scheme for the Ostrovsky–Hunter equation with Dirichlet boundary conditions. *Bit Numer. Math.*, 59: 775, (2019)
[doi:10.1007/s10543-019-00746-7](#)
- [1] A. M. Ruf. Convergence of a full discretization for a second-order nonlinear elastodynamic equation in isotropic and anisotropic Orlicz spaces. *Z. Angew. Math. Phys.*, 68: 118, (2017)
[doi:10.1007/s00033-017-0863-z](#)

Preprints

- [8] J. Badwaik, C. Klingenberg, N. H. Risebro, and A. M. Ruf. Multilevel Monte Carlo finite volume methods for random conservation laws with discontinuous flux. (2020)
[arxiv:1906.08991](#)

Grants and Scholarships

- 2020 Research-in-Pairs grant, Oberwolfach Research Institute for Mathematics, Germany
- 2019 Scholarship for NUMHYP2019, University of Málaga, Spain
- 2018 Scholarship for an academic secondment (3 months), ETH Zürich, Switzerland
- Scholarship for HYP2018, Penn State University, USA

Invited talks

- 2020 *Convergence rates of numerical methods for conservation laws with discontinuous flux*
Differential Equations and Numerical Analysis Seminar
NTNU Trondheim, Norway
- Flux-stability for conservation laws with discontinuous flux and convergence rates of the front tracking method*
Åpen Post Seminar
University of Oslo, Norway
- 2019 *Convergence rates of monotone schemes in the Wasserstein distance*
Julius Maximilian University of Würzburg, Germany
- Second-order numerical methods for nonlocal conservation laws*
Polytechnic University of Bari, Italy
- Second-order numerical methods for nonlocal conservation laws*
ETH Zürich, Switzerland

Contributed talks

- 2020 *Recent advances in numerical analysis of conservation laws with discontinuous flux*
Graduate Colloquium in Applied Mathematics
ETH Zürich, Switzerland
- 2019 *Convergence rates of monotone schemes for conservation laws with discontinuous flux*
UiO PDE Seminar
University of Oslo, Norway
- Second-order numerical methods for nonlocal conservation laws*
NumHyp2019
University of Málaga, Spain
- 2018 *A second-order method for nonlocal conservation laws*
BIT Circus
Aalto University, Finland
- The Ostrovsky–Hunter equation with Dirichlet boundary conditions*
Hyp2018
Penn State University, USA
- Multiphase flow in pipelines*
Modcompshock Midterm Review Meeting
ETH Zürich, Switzerland

Research visits

2019 Julius Maximilian University of Würzburg, Germany,
 with Jayesh Badwaik (1 week)

Polytechnic University of Bari, Italy,
with Prof. Giuseppe Coclite (1 week)

2018 ETH Zürich, Switzerland,
 with Prof. Siddhartha Mishra (3 months)

Academic experience

2019 **Simula Research Laboratory, Fornebu, Norway**

Teaching assistant

Taught the course ‘Communication Scientific Research’ for PhD students and postdocs

2010 - **Technical University Berlin, Germany**

2016 *Teaching assistant*

Taught courses in Functional Analysis, Calculus and Calculus for Engineers

2015 - **Matheon Research Center, Berlin, Germany**

2016 *Student assistant*

Organized the Matheon advent calendar for students, coordinated and revised the calendar puzzles and solutions

2015 **TUBS, Berlin, Germany**

Coordinating assistant

Coordinated the 79th annual meeting of the DPG

2011 - **Unitus project Technical University of Berlin, Germany**

2012 *Student assistant*

Created and improved activity oriented learning materials used in mathematical courses for engineers, e.g. supporting teaching material, online platform Mumie, guidelines for teaching assistants, exam difficulty analyses

2009 - **Uniseminar Education AG, Switzerland**

2011 *Freelancer*

Created various mathematical teaching materials for the courses Mathematics I & II and Mathematical economics

Refereeing activity

Referee for: SIAM Journal of Numerical Analysis
 IMA Journal of Numerical Analysis
 Zeitschrift für angewandte Mathematik und Physik
 Calcolo

Supervision

Supervised the semester thesis of D. Ochsner, 2020, ETH Zürich

Supervised two students on their semester projects, 2018, University of Oslo

Teaching experience

2021	Spring:	Lectures for ‘Numerical Methods for Hyperbolic PDEs’ (ETH Zürich – scheduled)
2020	Spring:	Organization of ‘Numerical Methods for Physicists’ (ETH Zürich)
2019	Spring:	Exercise sessions for ‘Communicating Scientific Research’ (Simula)
2015	Fall:	Tutorials for ‘Calculus I for Mathematicians’ (TU Berlin)
	Spring:	Tutorials for ‘Functional Analysis I’ (TU Berlin)
2014	Fall:	Tutorials for ‘Calculus I for Engineers’ (TU Berlin)
	Spring:	Tutorials for ‘Calculus I for Engineers’ (TU Berlin)
2013	Fall:	Tutorials for ‘Calculus I for Engineers’ (TU Berlin)
	Spring:	Tutorials for ‘Calculus I for Engineers’ (TU Berlin)
2012	Fall:	Tutorials for ‘Calculus I for Engineers’ (TU Berlin)
	Spring:	Tutorials for ‘Calculus I for Engineers’ (TU Berlin)
2011	Fall:	Tutorials for ‘Calculus I for Engineers’ (TU Berlin)
	Spring:	Tutorials for ‘Calculus II for Mathematicians’ (TU Berlin)
2010	Fall:	Tutorials for ‘Calculus I for Mathematicians’ (TU Berlin)

Languages

German	First language
English	Proficient
Finnish	Basic knowledge
Norwegian	Basic knowledge

References

Prof. Siddhartha Mishra
ETH Zürich.
siddhartha.mishra@sam.math.ethz.ch

Prof. Ulrik Skre Fjordholm
University of Oslo.
ulriksf@math.uio.no

Prof. Nils Henrik Risebro
University of Oslo.
nilshr@math.uio.no