

# Adrian M. Ruf – Curriculum Vitae (August 21, 2020)

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Email [adrian.ruf@sam.math.ethz.ch](mailto:adrian.ruf@sam.math.ethz.ch)  
Webpage [adrianmruf.github.io](https://adrianmruf.github.io)

## Education/Employment

- 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

- [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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/10.1007/s00033-017-0863-z)

## Preprints

- [6] A. M. Ruf. Flux-stability for conservation laws with discontinuous flux and convergence rates of the front tracking method. (2020)  
[arxiv:2008.08320](https://arxiv.org/abs/2008.08320)
- [7] 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](https://arxiv.org/abs/1906.08991)
- [8] U.S. Fjordholm and A. M. Ruf. Second-order accurate TVD numerical methods for nonlocal non-linear conservation laws. (2020)  
[arxiv:2008.08326](https://arxiv.org/abs/2008.08326)

## 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, ETH Zürich, Switzerland
- Scholarship for HYP2018, Penn State University, USA

## 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)

## Invited talks

- 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

- 2019      *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

## Academic experience

- 2019      **Simula Research Laboratory, Fornebu, Norway**  
            *Teaching assistant*  
            Taught the course ‘Communication Scientific Research’ for PhD students and postdocs

2010 - 2016	<b>Technical University Berlin, Germany</b> <i>Teaching assistant</i> Taught courses in Functional analysis, Calculus and Calculus for engineers
2015 - 2016	<b>Matheon Research Center, Berlin, Germany</b> <i>Student assistant</i> Organized the Matheon advent calendar for students, coordinated and revised the calendar puzzles and solutions
2015	<b>TUBS, Berlin, Germany</b> <i>Coordinating assistant</i> Coordinated the 79th annual meeting of the DPG
2011 - 2012	<b>Unitus project Technical University of Berlin, Germany</b> <i>Student assistant</i> 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

## Teaching

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	Mother tongue
English	Proficient
Finnish	Basic knowledge
Norwegian	Basic knowledge