

# Curriculum vitae Dr. Hana Mizerová

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## Personal details

Date, place of birth: November 10th, 1988 in Trnava, Slovakia  
Nationality: Slovak  
Email: hana.mizerova@fmph.uniba.sk, mizerova@math.cas.cz

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## Academic achievements

- 2015 Doctor of Natural Sciences in Mathematics (Dr. rer. nat.)**  
*summa cum laude*  
Johannes Gutenberg University Mainz, Germany
- 2012 Master of Science in Mathematics (Mgr.)**  
*with honours*  
Comenius University in Bratislava, Slovakia
- 2010 Bachelor of Science in Mathematics (Bc.)**  
*with honours*  
Comenius University in Bratislava, Slovakia

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## Academic prizes and awards

- 2016 Prize of the Faculty for excellent dissertation thesis**  
Faculty of Physics, Mathematics and Computer Science, JGU Mainz
- 2012 Award of the Rector for excellent master thesis**  
Comenius University in Bratislava

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## Research and teaching experience

- 02/2018 - present Researcher/Lecturer**  
Comenius University in Bratislava  
Department of Mathematical Analysis and Numerical Mathematics
- 10/2017 - 01/2018 PostDoc researcher**  
Czech Academy of Sciences, Prague  
within *ERC Advanced Grant “Mathematical Thermodynamics of Fluids”*
- 03/2018 - present** within *GAČR Grant 18-05974S*
- 04/2017 - 09/2017 PostDoc researcher**  
Johannes Gutenberg University Mainz
- 02/2017 - 03/2017 Junior Simons Professorship**  
Polish Academy of Sciences, Banach center, Warsaw  
within *Simons Semester “CrossFields PDEs”*
- 12/2015 - 03/2017 scientific assistant**  
Institute of Mathematics, Johannes Gutenberg University Mainz
- 09/2013 - 03/2014 research stay**  
Waseda University in Tokyo
- 12/2012 - 12/2015 PhD student**  
Johannes Gutenberg University Mainz  
within IRTG 1529 “*Mathematical Fluid Dynamics,*” and partially within  
CRC TRR 146 “*Multiscale Simulation Methods for Soft Matter Systems*”  
funded by *German Research Foundation DFG*
- 09/2012 - 12/2012 PhD student and scientific assistant**  
Institute of Mathematics, Johannes Gutenberg University Mainz

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### Grants and received funding

- 01/2018 - 12/2020 **Oscillations and concentrations versus stability in the equations of mathematical fluid dynamics (18-05974S)**  
*team member*
- 10/2017 - 01/2018 **Mathematical Thermodynamics of Fluids (MATHEF(320078))**  
*PostDoc researcher*
- 04/2017 - 09/2017 **Uniformly stable numerical schemes for multiscale weakly compressible flows**  
*PostDoc researcher*
- 12/2012 - 12/2015 **DFG IRTG 1529 “Mathematical Fluid Dynamics”**  
*doctoral scholarship*
- 07/2017, 01/2016 **travel grants** from Internal University Research Funding of JGU Mainz  
07/2016 **travel grant** from German Academic Exchange Service DAAD

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### List of publications

- 2018 P. Gwiazda, M. Lukáčová-Medvid'ová, H. Mizerová, A. Świerczewska-Gwiazda: Existence of global weak solutions to the kinetic Peterlin model, *Nonlinear Anal.-Real* 44, pp. 465-478, DOI:[10.1016/j.nonrwa.2018.05.016](https://doi.org/10.1016/j.nonrwa.2018.05.016)
- 2017 M. Lukáčová-Medvid'ová, H. Mizerová, Š. Nečasová, M. Renardy: Global existence result for the generalized Peterlin viscoelastic model *SIAM J. Math. Anal.* 49-4, pp. 2950-2964, DOI:[10.1137/16M1068505](https://doi.org/10.1137/16M1068505)
- 2017 M. Lukáčová-Medvid'ová, H. Mizerová, H. Notsu, M. Tabata: Numerical analysis of the Oseen-type Peterlin viscoelastic model by the stabilized Lagrange-Galerkin method, Part I: A nonlinear scheme *ESAIM: M2AN* 51, pp. 1637-1661, DOI:[10.1051/m2an/2016078](https://doi.org/10.1051/m2an/2016078)
- 2017 M. Lukáčová-Medvid'ová, H. Mizerová, H. Notsu, M. Tabata: Numerical analysis of the Oseen-type Peterlin viscoelastic model by the stabilized Lagrange-Galerkin method, Part II: A linear scheme *ESAIM: M2AN* 51, pp. 1663-1689, DOI:[10.1051/m2an/2017032](https://doi.org/10.1051/m2an/2017032)
- 2016 M. Lukáčová-Medvid'ová, H. Mizerová, B. She, J. Stebel: Error analysis of finite element and finite volume methods for some viscoelastic fluids, *J. Numer. Math.* 24(2), pp. 105-123, DOI:[10.1515/jnma-2014-0057](https://doi.org/10.1515/jnma-2014-0057)
- 2015 M. Lukáčová-Medvid'ová, H. Mizerová, Š. Nečasová: Global existence and uniqueness result for the diffusive Peterlin viscoelastic model, *Nonlinear Anal.-Theor.* 120, pp. 154-170, DOI:[10.1016/j.na.2015.03.001](https://doi.org/10.1016/j.na.2015.03.001)

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### Submitted papers

- 2018 E. Feireisl, M. Lukáčová-Medvid'ová, H. Mizerová: A finite volume scheme for the Euler system inspired by the two velocities approach, arXiv:[1805.05072](https://arxiv.org/abs/1805.05072)
- 2018 H. Mizerová, B. She: A conservative scheme for the Fokker-Planck equation with applications to viscoelastic polymeric fluids, CAS IM preprint:
- 2018 E. Feireisl, M. Lukáčová-Medvid'ová, H. Mizerová: Convergence of finite volume schemes for the Euler equations via dissipative measure-valued solutions, arXiv:[1803.08401](https://arxiv.org/abs/1803.08401)

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### Thesis

- 2015 Analysis and numerical solution of the Peterlin viscoelastic model

Johannes Gutenberg University Mainz  
pdf: <https://publications.ub.uni-mainz.de/theses/>

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### Research stays and visits

- 10/2016 Kanazawa University, Japan  
03/2014, 09/2016 Czech Academy of Sciences, Prague, Czechia  
03/2015 Waseda University in Tokyo, Japan

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### Invitation to international conferences and workshops

- 05/2018 *Workshop on Mathematical Fluid Dynamics*, IRTG 1529, Bad Boll  
11/2016 *KI-Net Young Researches Workshop: Stochastic and deterministic methods in kinetic theory*, Durham, North Carolina  
11/2016 *Oberwolfach Seminar: Different Mathematical Perspectives on Description of Unresolved Scales in Multiscale Systems*, Oberwolfach  
10/2016 *CoMFoS16: Mathematical Analysis of Continuum Mechanics and Industrial Applications II*, Fukuoka  
03/2016 *Algoritmy 2016*, Podbanské

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### Participation in conferences, workshops and schools

- 01/2018 The 15th Japanese – German International Workshop on Mathematical Fluid Dynamics, Tokyo, Japan  
07/2017 International conference *Equadiff 2017*, Slovak University of Technology, Bratislava, Slovakia  
03/2017 Workshop *Current Topics in Kinetic Theory*, Simons Semester “*CrossFields PDEs*”, Warsaw, Poland  
02/2017 Workshop *Ideal Fluids and Transport*, Simons Semester “*CrossFields PDEs*”, Warsaw, Poland  
08/2016 Summer school and Workshop *Fluids under Pressure*, Prague, Czechia  
06/2016 Workshop *Hybrid Simulation Methods in Fluid Dynamics*, Munich, Germany  
10/2015 Workshop *Women in Applied Math & Soft Matter Physics*, Mainz, Germany  
10/2015 International conference SPP 1506 – IRTG 1529, Darmstadt, Germany  
06/2015 Workshop for Young Researchers in Fluid Dynamics, Darmstadt, Germany  
05/2015 The 14th School *Mathematical Theory in Fluid Mechanics*, Kácov, Czechia  
03/2015 The 11th Japanese – German International Workshop on Mathematical Fluid Dynamics, Tokyo, Japan  
11/2014 Symposium *Simulation and Optimization of Extreme Fluids*, Heidelberg, Germany  
10/2014 Autumn school and Workshop on Mathematical Fluid Dynamics, Bad Boll, Germany  
08/2014 Summer school and Workshop *Particles in Flow*, Prague, Czechia  
01/2014 Winter school *Fluids and Snow*, La Clusaz, France  
11/2013 The 9th Japanese – German International Workshop on Mathematical Fluid Dynamics, Tokyo, Japan  
06/2013 The 8th Japanese – German International Workshop on Mathematical Fluid Dynamics, Tokyo, Japan  
05/2013 The 13th School *Mathematical Theory in Fluid Mechanics*, Kácov, Czechia  
09/2012 Conference *Algoritmy 2012*, Podbanské, Slovakia

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### Software and programming skills

C code, LaTeX, MATLAB, COMSOL Multiphysics, ParaView

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### Language skills

**Slovak** native speaker  
**English** fluent  
**German** good working knowledge  
**Spanish** basic communication skills