

Curriculum vitae **Dr. Hana Mizerová**

PERSONAL DETAILS

Date of birth: November 10th, 1988
Nationality: Slovak
Email: hana.mizerova@fmph.uniba.sk, mizerova@math.cas.cz
Webpage: <http://hore.dnom.fmph.uniba.sk/~mizerova/>

HIGHER EDUCATION

- 01/09/2012 - 07/12/2015 **Doctor of Natural Sciences in Mathematics** (Dr. rer. nat.) *summa cum laude*
(PhD equivalent) Faculty of Physics, Mathematics and Computer Science
Johannes Gutenberg University Mainz, Germany
- 13/09/2010 - 21/06/2012 **Master of Science in Mathematics** (Mgr.) *summa cum laude*
Faculty of Mathematics, Physics and Informatics
Comenius University in Bratislava, Slovakia
- 06/09/2007 - 01/07/2010 **Bachelor of Science in Mathematics** (Bc.) *summa cum laude*
Faculty of Mathematics, Physics and Informatics
Comenius University in Bratislava, Slovakia

RESEARCH EXPERIENCE

- since 01/03/2018 **PostDoc researcher**
Czech Academy of Sciences, Prague, Czech Republic
within *Czech Grant Agency (GAČR) grant*
- since 27/02/2018 **Assistant professor**
Comenius University in Bratislava, Slovakia
- 01/10/2017 - 31/01/2018 **PostDoc researcher**
Czech Academy of Sciences, Prague, Czech Republic
within *ERC Advanced Grant "MATHEF"*
- 01/04/2017 – 30/09/2017 **PostDoc researcher**
Johannes Gutenberg University Mainz, Germany
within *Internal University Research Funding (IURF) grant*
- 13/02/2017 - 31/03/2017 **Junior Simons Professor**
Polish Academy of Sciences, Banach center, Warsaw, Poland
within *Simons Semester "CrossFields PDEs"*
- 15/12/2015 – 31/03/2017 **Research assistant**
Johannes Gutenberg University Mainz, Germany
- 09/09/2013 - 08/03/2014 **PhD student (research stay in Tokyo)**
Waseda University in Tokyo, Japan
6-months-long stay funded by *German Research Foundation (DFG)*
- 10/12/2012 – 09/12/2015 **PhD student**
German Research Foundation (DFG) scholarship
Johannes Gutenberg University Mainz; Technical University Darmstadt, Germany
within *International Research Training Group (IRTG) "Mathematical Fluid Dynamics"*
- 01/09/2012 – 09/12/2012 **Research assistant**
Johannes Gutenberg University Mainz, Germany

AWARDS

- 2018 **Seal of Excellence by the European Commission**
for the proposal submitted under H2020-MSCA-IF-2017
- 2016 **Prize of the Faculty for excellent dissertation thesis**
Faculty of Physics, Mathematics and Computer Science
Johannes Gutenberg University Mainz, Germany
- 2012 **Rector's award for excellent master thesis**
Rector's award for outstanding study results
Comenius University in Bratislava, Slovakia

PARTICIPATION IN PROJECTS, RECEIVED FUNDING

- 01/03/2018 - 31/12/2020 **Czech Grant Agency (GAČR) grant** 18-05974S [PI: Eduard Feireisl]
"Oscillations and concentrations versus stability in the equations of mathematical fluid dynamics"
PostDoc researcher
- 01/10/2017 - 31/01/2018 **ERC Advanced Grant** 320078 [PI: Eduard Feireisl]
"Mathematical Thermodynamics of Fluids"
PostDoc researcher
- 01/04/2017 - 30/09/2017 **Grant of IURF JGU Mainz** [PI: Mária Lukáčová]
"Uniformly stable numerical schemes for multiscale weakly compressible flows"
PostDoc researcher
- 13/02/2017 - 31/03/2017 **Simons Foundation grant** 346300
within *Simons Semester "CrossFields PDEs"*
Junior Simons Professorship
[collaborators: Agnieszka Świerczewska-Gwiazda, Piotr Gwiazda]
- 24/02/2015 - 30/09/2017 **DFG Collaborative Research Center (CRC) TRR 146**
"Multiscale Simulation Methods for Soft Matter Systems"
associate PhD student and PostDoc researcher
- 07/2017, 01/2016 *travel grants* from **IURF JGU Mainz**
- 07/2016 *travel grant* from **German Academic Exchange Service (DAAD)**
- 10/12/2012 – 09/12/2015 **DFG IRTG 1529 "Mathematical Fluid Dynamics"**
doctoral scholarship
[supervisors: Mária Lukáčová; in Tokyo: Hirofumi Notsu, Masahisa Tabata]

INVITATION TO INTERNATIONAL CONFERENCES AND WORKSHOPS

- 05/2018 *Workshop on Mathematical Fluid Dynamics*
DFG IRTG 1529, **Bad Boll, Germany**
- 11/2016 *KI-Net Young Researches Workshop:*
Stochastic and deterministic methods in kinetic theory
Duke University, **Durham, North Carolina, USA**
- 11/2016 *Oberwolfach Seminar: Different Mathematical Perspectives on Description of Unresolved Scales in Multiscale Systems*
Oberwolfach Research Institute for Mathematics, **Oberwolfach, Germany**
- 10/2016 *CoMFoS16: Mathematical Analysis of Continuum Mechanics and Industrial Applications II*
Kyushu University, **Fukuoka, Japan**
- 03/2016 *Algoritmy 2016*
Slovak University of Technology, **Podbanské, Slovakia**

INVITED SEMINAR TALKS

- 12/2017 *Current problems in numerical mathematics*, Czech Academy of Sciences
- 12/2017 *Nečas seminar on continuum mechanics*, Charles University
- 11/2017 *Seminar on partial differential equations*, Czech Academy of Sciences
- 10/2016 Seminar at Institute of Science and Engineering, Kanazawa University
- 12/2015 *Seminar on qualitative theory of differential equations*, Comenius University
- 03/2014 *Seminar on partial differential equations*, Czech Academy of Sciences
- 09/2013 Seminar at Waseda Institute for Advanced Study, Waseda University

SHORT-TERM RESEARCH STAYS (from one week to one month)

- 04/2018 Johannes Gutenberg University Mainz, Germany
- 10/2016 Kanazawa University, Japan
- 09/2016 Czech Academy of Sciences, Prague, Czech Republic
- 03/2015 Waseda University in Tokyo, Japan
- 03/2014 Czech Academy of Sciences, Prague, Czech Republic

EDITORIAL WORK

- since 04/2018 editorial board member of *Applications of Mathematics* (Springer)

JOURNAL REFEREEING

- since 06/2018 reviewer for *Proceedings of the London Mathematical Society* (Wiley)
- since 03/2018 reviewer for *Mathematical Methods in Applied Sciences* (Wiley)
- since 11/2017 reviewer for *IMA Journal of Numerical Analysis* (Oxford University Press)
- since 05/2017 reviewer for *Applied Mathematics and Computation* (Elsevier)

PARTICIPATION IN INTERNATIONAL CONFERENCES AND WORKSHOPS

- 08/2018 Summer school and Workshop *Waves in Flows*, Prague
- 08/2018 The 4th International conference *Applications of Mathematics*, Prague
- 01/2018 The 15th Japanese – German Workshop on Mathematical Fluid Dynamics, Tokyo
- 12/2017 Conference *Prague Compressible Meeting*, Prague
- 07/2017 International conference *Equadiff 2017*, Bratislava
- 03/2017 Workshop *Current Topics in Kinetic Theory* within “*CrossFields PDEs*”, Warsaw
- 02/2017 Workshop *Ideal Fluids and Transport* within “*CrossFields PDEs*”, Warsaw
- 08/2016 Summer school and Workshop *Fluids under Pressure*, Prague
- 06/2016 Workshop *Hybrid Simulation Methods in Fluid Dynamics*, Munich
- 10/2015 Workshop *Women in Applied Math & Soft Matter Physics*, Mainz
- 10/2015 International conference SPP 1506 – IRTG 1529, Darmstadt
- 06/2015 Workshop for Young Researchers in Fluid Dynamics, Darmstadt
- 05/2015 The 14th School *Mathematical Theory in Fluid Mechanics*, Kácov
- 03/2015 The 11th Japanese – German Workshop on Mathematical Fluid Dynamics, Tokyo
- 11/2014 Symposium *Simulation and Optimization of Extreme Fluids*, Heidelberg
- 10/2014 Autumn school and Workshop on Mathematical Fluid Dynamics, Bad Boll
- 08/2014 Summer school and Workshop *Particles in Flow*, Prague
- 01/2014 Winter school *Fluids and Snow*, La Clusaz
- 11/2013 The 9th Japanese – German Workshop on Mathematical Fluid Dynamics, Tokyo
- 06/2013 The 8th Japanese – German Workshop on Mathematical Fluid Dynamics, Tokyo
- 05/2013 The 13th School *Mathematical Theory in Fluid Mechanics*, Kácov
- 09/2012 International conference *Algoritmy 2012*, Podbanské

PUBLICATIONS

Co-author of 10 researchers in 7+2 articles published/submitted in international peer-reviewed journals.
20 citations by 10 documents (Scopus); 49 citations (GoogleScholar)

ARTICLES IN INTERNATIONAL PEER-REVIEWED JOURNALS

(alphabetical order of authors)

- 2018** H. Mizerová, B. She: A conservative scheme for the Fokker-Planck equation with applications to viscoelastic polymeric fluids
J. Comput. Phys. 374, pp. 941–953
DOI: [10.1016/j.jcp.2018.08.015](https://doi.org/10.1016/j.jcp.2018.08.015)
- 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: <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: <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: <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: <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: <https://doi.org/10.1016/j.na.2015.03.001>

ARTICLES UNDER REVISION

(alphabetical order of authors)

- 2018** E. Feireisl, M. Lukáčová-Medvid'ová, H. Mizerová: A finite volume scheme for the Euler system inspired by the two velocities approach, submitted to *Numer. Math.*, arXiv: <https://arxiv.org/abs/1805.05072>
- 2018** E. Feireisl, M. Lukáčová-Medvid'ová, H. Mizerová: Convergence of finite volume schemes for the Euler equations via dissipative measure-valued solutions, submitted to *Found. Comput. Math.*, arXiv: <https://arxiv.org/abs/1803.08401>

THESES

- 2015** *Analysis and numerical solution of the Peterlin viscoelastic model*
(dissertation) Johannes Gutenberg University Mainz
pdf: <http://ubm.opus.hbz-nrw.de/volltexte/2015/4231/>
- 2012** *The Navier-Stokes equations with boundary conditions involving pressure*
(master thesis) Comenius University in Bratislava
- 2010** *On the Navier-Stokes equations*
(bachelor thesis) Comenius University in Bratislava

TEACHING EXPERIENCE

Comenius University in Bratislava

- Winter 2018/19 Numerical methods (lecture + tutorial)
Variational methods in differential equations (lecture)
Ordinary differential equations (tutorial)

Johannes Gutenberg University Mainz

- Winter 2016/17 Numerics of ordinary differential equations (tutorial)
Summer 2016 Basics of numerical mathematics (tutorial)
Summer 2014 Seminar on complex fluids (assistance)
Winter 2012/13 ODEs and functions of complex variable (tutorial)

LANGUAGE SKILLS

- Slovak native speaker
English fluent
German good working knowledge
Czech good working knowledge
Spanish basic communication skills
Japanese basics (Hiragana and Katakana)

SOFTWARE AND PROGRAMMING SKILLS

C code, MATLAB, COMSOL Multiphysics, ParaView, LaTeX