

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

- 06/2019 Conference *Numerical methods for hyperbolic problems 2019*, **Málaga, Spain**
- 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 *Algorithm 2016*
Slovak University of Technology, **Podbanské, Slovakia**

INVITED SEMINAR TALKS

- 01/2019 *RTG Energy, Entropy and Dissipative Dynamics*, RWTH Aachen University
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)

- 01, 03/2019; 01, 05/2018 Johannes Gutenberg University Mainz, Germany
10/2016 Kanazawa University, Japan
09/2016; 03/2014 Czech Academy of Sciences, Prague, Czech Republic
03/2015 Waseda University in Tokyo, Japan

ARTICLES IN INTERNATIONAL PEER-REVIEWED JOURNALS

- 2019** E. Feireisl, M. Lukáčová-Medvid'ová, **H. Mizerová**:
Convergence of finite volume schemes for the Euler equations via dissipative measure-valued solutions, to appear in *Found. Comput. Math.*,
DOI: <https://doi.org/10.1007/s10208-019-09433-z>
- 2019** E. Feireisl, M. Lukáčová-Medvid'ová, **H. Mizerová**, B. She:
Convergence of a finite volume scheme for the compressible Navier-Stokes system, to appear in *ESAIM: M2AN*
DOI: <https://doi.org/10.1051/m2an/2019043>
- 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>

PREPRINTS UNDER REVISION

- 2019** E. Feireisl, M. Lukáčová-Medvid'ová, **H. Mizerová**:
 \mathcal{K} -convergence as a new tool in numerical analysis,
arXiv: <https://arxiv.org/abs/1904.00297>
- 2019** E. Feireisl, M. Lukáčová-Medvid'ová, **H. Mizerová**, B. She:
On the convergence of a finite volume method for the Navier-Stokes-Fourier system, submitted to *SIAM J. Numer. Anal.*, arXiv: <https://arxiv.org/abs/1903.08526>
- 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>

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

EDITORIAL WORK

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

PARTICIPATION IN INTERNATIONAL CONFERENCES AND WORKSHOPS

- 05/2019 EMS School *Mathematical Aspects of Fluid Flows*, Kácov
10/2018 Fall school *Hyperbolic conservation laws and mathematical fluid dynamics*, Würzburg
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

TEACHING EXPERIENCE

Comenius University in Bratislava

Summer 2019 Numerical methods (2)
Numerical mathematics (1)
Winter 2018/19 Numerical methods (1)
Variational methods for differential equations
Ordinary differential equations

Johannes Gutenberg University Mainz

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

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