

Personal Information

Gender: Male
Birth: Apr, 1987, Anhui
Nationality: Chinese
Email: she@math.cas.cz
Tel: +420 - 222 090 703
Address: Zitna 25, 11567, Prague, Czech Republic
Homepage: http://www.math.cas.cz/homepage/main_page.php?id_membre=211

Interests

viscoelastic fluids; (in)compressible Navier–Stokes; fluid–structure interaction
energy stability; convergence; finite volume; finite element; finite difference

Education

- 3.2012 - 3.2015 *Doctor of Natural Sciences* in Mathematics
Faculty of Physics, Mathematics and Computer Science
Johannes Gutenberg University Mainz, Germany
Thesis: *Numerical simulation on some viscoelastic fluids.* Supervisor: *Mária Lukáčová*
- 9.2008 - 7.2011 *Master of Science* in Fluid Dynamics
Institute of Applied Physics and Computational Mathematics, Beijing
China Academy of Engineering Physics, Beijing, China
Thesis: *Gas kinetic scheme for compressible two-phase flow model*
containing *non-conservative terms.* Supervisor: *Guiping Zhao*
- 9.2004 - 7.2008 *Bachelor of Science* in Modern Mechanics
Department of Modern Mechanics,
University of Science and Technology of China, Hefei, China

Academic experience

- 5.2018 - present *Researcher*
Czech Academy of Sciences, Prague, Czech Republic
- 2.2019 - 12.2021 *Scientific researcher* (part time job associated to GAČR grant)
Charles University in Prague, Czech Republic
- 7.2015 - 4.2018 *PostDoc* (Mentor: Eduard Feireisl)
Czech Academy of Sciences, Prague, Czech Republic
- 3.2015 - 6.2015 *PostDoc* (Mentor: Mária Lukáčová)
Johannes Gutenberg University Mainz, Germany
- 9.2013 - 3.2014 *PhD student* (research stay in Japan)
Waseda University, Japan
6-months stay funded by *German Research Foundation (DFG)*
- 3.2012 - 3.2015 *PhD student* (supervisor: Mária Lukáčová)
Johannes Gutenberg University Mainz, Germany

Projects & Funding

- 1.2019 - 12.2021 *Czech Grant Agency (GAČR) grant 19-11707Y* (PI: Sebastian Schwarzacher)
- 1.2019 - 12.2020 *Czech Grant Agency (GAČR) grant 18-05974S* (PI: Eduard Feireisl)
- 11.2018 *European Mathematical Society travel grant*
- 5.2018 - 12.2018 *Czech Grant Agency (GAČR) grant 16-03230S* (PI: Šárka Nečasová)
- 7.2015 - 4.2018 *ERC Advanced Grant 320078* (PI: Eduard Feireisl)
- 3.2012 - 3.2015 *DFG IRTG 1529 "Mathematical Fluid Dynamics"*, doctoral scholarship

Short-term research visits

- 2,3,6/2019 University of Mainz, Germany. Prof. Mária Lukáčová.
- 1.2019 IAPCM, China, Prof. Qiangchang Ju
- 12.2018 Nanjing University, China, Prof. Yong Lu
- 12.2018 University of Toulon, France. Prof. Antonín Novotný
- 4.2018 University of Mainz, Germany. Prof. Mária Lukáčová.
- 4.2018 Comenius University in Bratislava, Slovakia. Dr. Hana Mizerová.
- 3.2018 Comenius University in Bratislava, Slovakia. Dr. Hana Mizerová.
- 1.2018 Institute of Applied Physics and Computational Mathematics, China, Prof. Jiequan Li
- 11.2017 University of Mainz, Germany. Prof. Mária Lukáčová.
- 3.2017 Polish Academy of Science, Poland. Prof. Agnieszka Świerczewska-Gwiazda.
- 12.2016 University of Mainz, Germany. Prof. Mária Lukáčová & Dr. Hana Mizerová.
- 12.2015 University of Mainz, Germany. Prof. Mária Lukáčová.
- 5.2014 Beijing Normal University, China. Prof. Jiequan Li.
- 6.2013 Ecole des Ponts ParisTech, France. Prof. Tony Lelièvre.

Talks in conference and workshop

- 12.2018 International Young Scholars Shenzhen Forum of SYSU, Zhuhai
- 12.2018 Leipzig – Prague meeting, Oberwiesenthal
- 12.2018 Berlin – Prague meeting, TU Berlin
- 9.2018 The 2nd Chinese–Czech conference on Mathematical Fluid Mechanics, Prague
- 8.2018 International Conference Application of Mathematics 2018, Prague
- 5.2018 *ESSAM Mathematical Modelling, Numerical Analysis and Scientific Computing*, Kácov
- 5,2018. International Workshop on Mathematical Fluid Dynamics, Bad Boll
- 12.2017 International workshop for young researchers, Tongji University, Shanghai
- 9.2017 Poitiers-Prague-Würzburg workshop on PDEs, Prague
- 7.2017 International conference Equadiff 2017, Bratislava
- 5.2017 *ESSAM Mathematical Aspects of Fluid Flows*, Kácov
- 10.2016 Advanced numerical methods: recent developments, analysis, and applications, Paris
- 9.2016 First China Czech Conference on Mathematical Fluid Mechanics, Beijing
- 3.2015 The 11th Japanese-German Workshop on Mathematical Fluid Dynamics, Tokyo
- 10.2014 Autumn School and Workshop on Mathematical Fluid Dynamics, Bad Boll
- 5.2014 Sino-German symposium on numerical methods for compressible fluid flows, Beijing
- 1.2014 Winter Seminar and Klausurtagung "Fluids and Snow", Chalet Giersch, La Clusaz
- 11.2013 The 9th Japanese-German Workshop on Mathematical Fluid Dynamics, Tokyo
- 6.2013 The 8th Japanese-German Workshop on Mathematical Fluid Dynamics, Tokyo
- 6.2012 The 5th Japanese-German Workshop on Mathematical Fluid Dynamics, Tokyo

Invited seminar talks

- 30.4.2019 Hohai University, Nanjing
- 29.4.2019 Nanjing University, Nanjing
- 25.4.2019 Beijing University of Technology, Beijing
- 8.4.2019 University of Zagreb, Zagreb
- 5.1.2019 Capital Normal University, Beijing
- 3.1.2019 Institute of Applied Physics and Computational Mathematics (IAPCM), Beijing
- 26.11.2018 Faculty of Mathematics and Physics, Charles University, Prague
- 13.11.2018 Institute of Mathematics, Czech Academy of Sciences, Prague
- 19.7.2018 Department of Mathematics, Nanhong University, Nanjing
- 17.7.2018 Department of Mathematics, Nanjing University, Nanjing
- 11.7.2018 Department of Mathematics, Tongji University, Shanghai
- 15.6.2018 Institute of Mathematics, Czech Academy of Sciences, Prague
- 3.1.2018 Institute of Applied Physics and Computational Mathematics (IAPCM), Beijing
- 30.11.2017 Faculty of Mathematics and Physics, Charles University, Prague
- 13.10.2017 Institute of Mathematics, Czech Academy of Sciences, Prague.
- 23.9.2016 Institute of Mathematics, Tongji University, Shanghai.
- 7.4.2016 Faculty of Mathematics and Physics, Charles University, Prague.
- 4.12.2015 Institute of Mathematics, Czech Academy of Sciences, Prague.
- 10.2.2015 Institute of Mathematics, Technical University Darmstadt, Darmstadt.
- 23.9.2013 Waseda Institute for Advanced Study, Waseda University

Publications

- 2019 E. Feireisl, M. Lukáčová-Medvid'ová, H. Mizerová, and **B. She**.
Convergence of a finite volume scheme for the compressible Navier-Stokes system.
Accepted by *ESAIM: M2AN*, ArXiv: <https://arxiv.org/abs/1811.02866>
- 2018 R. Hošek and **B. She**. Convergent numerical method for the compressible Navier-Stokes-Fourier system: a stabilized scheme.
Accepted by *IMA J. Numer. Anal.*. Doi: <https://doi.org/10.1093/imanum/dry057>
- 2018 H. Mizerová and **B. She**. A conservative scheme for the Fokker-Planck equation with applications to viscoelastic polymeric fluids.
J. Comput. Phys. 374: 941–953. Doi: <https://doi.org/10.1016/j.jcp.2018.08.015>
- 2018 R. Hošek, and **B. She**. Stability and consistency of a finite difference scheme for compressible viscous isentropic flow in multi-dimension.
J. Numer. Math., 26(3): 114–140. Doi: <https://doi.org/10.1515/jnma-2017-0010>
- 2018 E. Feireisl, M. Lukáčová-Medvid'ová, Š. Nečasová, A. Novotný and **B. She**.
Asymptotic preserving error estimates for numerical solutions of compressible Navier-Stokes equations in the low Mach number regime.
SIAM Multiscale Model. Simul. 16(1): 150–183. Doi: <https://doi.org/10.1137/16M1094233>
- 2016 M. Lukáčová-Medvid'ová, H. Notsu, and **B. She**. Energy dissipative characteristic schemes for the diffusive Oldroyd-B viscoelastic fluid.
Int. J. Numer. Methods Fluids 81(9): 523–557. Doi: <https://doi.org/10.1002/flid.4195>
- 2016 M. Lukáčová-Medvid'ová, H. Mizerová, **B. She**, and J. Stebel. Error analysis of finite element and finite volume methods for some viscoelastic fluids.
J. Numer. Math., 24(2): 105–123. Doi: <https://doi.org/10.1515/jnma-2014-0057>

Preprints

- 2019 E. Feireisl, M. Lukáčová-Medvid'ová, H. Mizerová, and **B. She**:
On the convergence of a finite volume scheme for the compressible Navier–Stokes–Fourier system, submitted to *SINUM*, ArXiv: <https://arxiv.org/abs/1903.08526>