

Dr. Bangwei She

Curriculum Vitae

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 Mathematic, 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

- since 5.2018 *Researcher*
Czech Academy of Sciences, Prague, Czech Republic
- since 2.2019 *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 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

- 1.2020 - 12.2022 *Czech Grant Agency (GAČR) grant 20-01074S* (PI: Vít Dolejší and Tomáš Vejchodský)
- 1.2019 - 12.2021 *Czech Grant Agency (GAČR) No. 19–11707Y* (PI: Sebastian Schwarzacher)
- 1.2019 - 12.2020 *Czech Grant Agency (GAČR) No. 18–05974S* (PI: Eduard Feireisl)
- 11.2018 *European Mathematical Society solidarity travel grant*
- 5.2018 - 12.2018 *Czech Grant Agency (GAČR) No. 16–03230S* (PI: Šárka Nečasová)
- 7.2015 - 4.2018 *ERC Advanced Grant No. 320078* (PI: Eduard Feireisl)
- 3.2012 - 3.2015 *DFG IRTG 1529 “Mathematical Fluid Dynamics”, doctoral scholarship*

Academic activities

- **21 Invited seminar talks in 11 institutions**, including:
Capital Normal University; Charles University; IAPCM in Beijing; Nanjing University; Nanhang University; Hohai University; AUST; TU Darmstadt; Tongji University; Waseda University; Uni-Zagreb.
- **21 talks on international conferences and workshops in 6 countries**, including:
China; Czech; France; Germany; Japan; and Slovakia, e.g. Oberwolfach; Equadiff 2017; Japanese-German International workshop; Sino-German workshop, Chinese-Czech conference;
- **20 research visits to 10 institutions**, including:
Ecole des Ponts ParisTech, Paris; IAPCM, Beijing; JGU-Mainz; Polish Academy of Sciences, Warsaw; Waseda University, Tokyo; Nanjing University; University of Toulon; Beijing Normal University; University of Zagreb; and Comenius University in Bratislava.
- **9 publications** in impacted journals, including:
J. Comput. Phys.(1x), IMA J. Numer. Anal.(2x), SIAM Multiscale Model. Simul.(1x),
Int. J. Numer. Methods Fluids(1x), J. Numer. Math.(2x), ESAIM:M2AN(1x), J. Sci. Comput.(1x),
3 preprints on the topic of stability/convergence of numerical solutions for multi-dimensional compressible Navier–Stokes and related-problems
- ORCID: 0000-0002-5025-0070
Researcher ID: P-4304-2017
Mathscinet ID: 1165111
Scopus ID: 55047690100

Publications

- 2020 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.
Accepted by *IMA J. Numer. Anal.* link to ArXiv: <https://arxiv.org/abs/1903.08526>
- 2020 H. Mizerová, and **B. She**:
Convergence and error estimates for a finite difference scheme for the multi-dimensional compressible Navier-Stokes system.
J. Sci. Comput. 84: No.25. Doi: <https://doi.org/10.1007/s10915-020-01278-x>
- 2019 E. Feireisl, M. Lukáčová-Medvid'ová, H. Mizerová, and **B. She**.
Convergence of a finite volume scheme for the compressible Navier-Stokes system.
ESAIM: M2AN. 53(6):1957–1979. Doi: <https://doi.org/10.1051/m2an/2019043>
- 2019 R. Hošek and **B. She**.
Convergent numerical method for the compressible Navier-Stokes-Fourier system: a stabilized scheme.
IMA J. Numer. Anal. 39(4): 2045–2068. 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

- 2020 S. Schwarzacher, and **B. She**:
On numerical approximations to fluid-structure interactions involving compressible fluids.
Preprint: <https://arxiv.org/abs/2002.04636>
- 2020 M. Lukáčová-Medvid'ová, H. Mizerová, and **B. She**:
New invariant domain preserving finite volume schemes for compressible flows.
Preprint: www.math.cas.cz/fichier/preprints/IM_20200115092406_15.pdf
- 2019 E. Feireisl, M. Lukáčová-Medvid'ová, **B. She**, and Y. Wang:
Computing oscillatory solutions of the Euler system via \mathcal{K} -convergence.
Preprint: <http://arxiv.org/abs/1910.03161>