

Prof. Marek Behr, Ph.D.

Chair for Computational Analysis of Technical Systems
RWTH Aachen University, 52056 Aachen, Germany

Tel: +49 241 80 999 00

Fax: +49 241 80 999 10

E-mail: behr@cats.rwth-aachen.de

Web: <http://www.cats.rwth-aachen.de>



Biography

Education

- 1983–1986 undergraduate studies in Physics at the Warsaw University
- 1986–1988 B.Sc. in Aerospace Engrg and Mechanics, University of Minnesota, USA
- 1988–1992 Ph.D. in Aerospace Engrg and Mechanics, University of Minnesota, USA

Professional History

- 1992–1999 Research Associate, Research Asst Professor, University of Minnesota
- 1999–2003 Assistant Professor, Mechanical Engineering, Rice University
- 2003–2004 Deputy Head, Chair for Computational Mechanics, TU Munich
- since 2004 Professor and Head, Chair for Computational Analysis of Technical Systems, Faculty of Mechanical Engineering, RWTH Aachen University
- since 2005 Adjunct Professor, Chemical and Biomolecular Engineering, Rice University
- since 2018 Founding Director, Center for Simulation and Data Science, Jülich-Aachen Research Alliance
- since 2018 Speaker, International Research Training Group 2379 “Modern Inverse Problems” with University of Texas at Austin

Honors and Awards

- 2014 Fellow of the International Association for Computational Mechanics
- 2016 Plenary at 12th World Congress on Computational Mechanics, Seoul
- 2021 Semi-plenary at 14th World Congress on Computational Mechanics, Paris
- 2022 Chuo University (Tokyo) Guest Professorship

Service

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|-------------------|---------------------------------------------------------------|
| Past President | German Association for Computational Mechanics (GACM) |
| Executive Council | International Association for Computational Mechanics (IACM) |
| Managing Board | European Community on Comp. Meth. in Appl. Sci. (ECCOMAS) |
| Advisory Board | International Journal for Numerical Methods in Fluids (Wiley) |
| Editorial Board | Computers and Mathematics with Applications (Elsevier) |
| Editorial Board | Lecture Notes in Applied Mathematics and Mechanics (Springer) |
| Steering Comm. | ERCOTAC SIG37 Biomedical Fluid Mechanics |
| Scientific Board | Sano Centre for Computational Medicine, Krakow, Poland |
| Selection Panel | REWIRE Reinforcing Women in Research, University of Vienna |

Doctoral Advising

Feby Abraham (Rice 2004), Dhruv Arora (Rice 2005), Mehdi Behbahani, Stefanie Elgeti, Marcus Hormes, Dimitrios Papadopoulos (2011), Mike Nicolai (2012), Gero Schieffer, Marcus Probst (2013), Bae-Hong Chen, Georg Wellmer (2014), Eva Schlauch (2015), Eric Borrmann, Lutz Pauli (2016), Norbert Hosters (2018), Manuel Brüderlin (2019), Lars Reimer (2020), Max von Danwitz, Violeta Karyofylli, Michel Make, Emre Öngüt, Loïc Wendling (2021), Stefan Wittschieber (2023), Thomas Spenke (2024), Stefan Haßler (2025), Patrick Antony, Moritz Billen, Tobias Bongartz, Nico Dirkes, Blanca Ferrer Fabón, Lukas Jilke, Gereon Kornmaier, Jegor Kravchenko, Anna Maria Ranno, Max Schuster, Veronika Trávníková, Oliver Wege, Xiang Xu (current)

Doctoral Co-Advising with Junior Researchers

Oscar Coronado (Rice 2008), Martin Krause (2010), Arianna Bosco, Kwok-Wah Chen, Tue Nguyen (2011), Safdar Abbas, Alaskar Alizada (2012), Henning Sauerland (2013), Malak Baydoun, Andreas Püttmann, Christian Windisch (2014), Sarah Frauholz (2015), Atanas Stavrev, Niko Weber (2016), Philipp Knechtges, Roland Siegbert (2018), Linda Gesenhues, Florian Zwicke (2020), Jan Helmig, Fabian Key, Ajay Rangarajan (2021), Markus Frings, Fabio Guglietta, Konstantin Key (2022), Sebastian Eusterholz Hube, Felipe Gonzalez, Daniel Wolff (2023), Daniel Hilger (2024), Nicolas Espinoza, Jayghosh Rao, Mark Riegler, Eugen Salzmann, Steffen Tillmann (current)

Selected Publications

Ten Most Important Recent Publications:

1. V. Trávníková, D. Wolff, N. Dirkes, S. Elgeti, E. von Lieres and M. Behr, “A Model Hierarchy for Predicting the Flow in Stirred Tanks with Physics-Informed Neural Networks”, *Advances in Computational Science and Engineering*, **2** (2024) 91–129.
2. A.M. Ranno, K. Manjunatha, A. Glitz, N. Schaaps, S. Reese, F. Vogt, M. Behr, “In-silico Analysis of Hemodynamic Indicators in Idealized Stented Coronary Arteries for Varying Stent Indentation”, *Computer Methods in Biomechanics and Biomedical Engineering*, (2024) DOI:10.1080/10255842.2024.2382819.
3. N. Dirkes, F. Key and M. Behr, “Eulerian Formulation of the Tensor-Based Morphology Equations for Strain-Based Blood Damage Modeling”, *Computer Methods in Applied Mechanics and Engineering* **426** (2024) 116979.
4. F. Gonzalez, S. Elgeti, M. Behr, and F. Auricchio, “A Deforming-Mesh Finite-Element Approach Applied to the Large-Translation and Free-Surface Scenario of Fused Deposition Modeling”, *International Journal for Numerical Methods in Fluids*, **95** (2023) 334–351.
5. S. Wittschieber, L. Demkowicz, and M. Behr, “Stabilized Finite Element Method for a Fully-Implicit Logarithmic Reformulation of the Oldroyd-B Constitutive Law”, *Journal of Non-Newtonian Fluid Mechanics*, **306** (2022) 104838.
6. M. Make, T. Spenke, N. Hosters, and M. Behr, “Spline-Based Space-Time Finite Element Approach for Fluid-Structure Interaction Problems With a Focus on Fully Enclosed Domains”, *Computers and Mathematics with Applications*, **114** (2022) 210–224.
7. F. Guglietta, M. Behr, L. Biferale, G. Falcucci, and M. Sbragaglia, “Lattice Boltzmann Simulations on the Tumbling to Tank-Treading Transition: Effects of Membrane Viscosity”, *Philosophical Transactions A* **379** (2021) 20200395.
8. M. von Danwitz, V. Karyofylli, N. Hosters, and M. Behr, “Simplex Space-Time Meshes in Compressible Flow Simulations”, *International Journal for Numerical Methods in Fluids* **91** (2019) 29–48.
9. V. Karyofylli, L. Wendling, M. Make, N. Hosters, and M. Behr, “Simplex Space-Time Meshes in Thermally Coupled Two-Phase Flow Simulations of Mold Filling”, *Computers & Fluids* **192** (2019) 104261.
10. M. Schäfer, M. Behr, M. Mehl, and B. Wohlmuth, editors, “Recent Advances in Computational Engineering”, *Proceedings of the 4th International Conference on Computational Engineering ICCE 2017*, Springer, (2018).

See also Google Scholar: <https://scholar.google.com/citations?user=zL17ZtMAAAAJ>