Prof. Marek Behr, Ph.D.

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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

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.	ERCOFTAC 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), Linda Gesenhues, Lars Reimer (2020), Max von Danwitz, Violeta Karyofylli, Michel Make, Emre Öngüt, Loïc Wendling (2021), Patrick Antony, Tobias Bongartz, Nico Dirkes, Blanca Ferrer, Stefan Haßler, Anna Ranno, Max Schuster, Thomas Spenke, Veronika Trávniková, Stefan Wittschieber (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), Florian Zwicke (2020), Jan Helmig, Fabian Key, Ajay Rangarajan (2021), Markus Frings, Konstantin Key (2022), Sebastian Eusterholz, Felipe Gonzalez, Daniel Hilger, Jayghosh Rao, Eugen Salzmann, Steffen Tillmann, Daniel Wolff (current)

Publications

Ten Most Important Recent Publications:

1. M. von Danwitz, P. Antony, F. Key, N. Hosters, and M. Behr, “Four-Dimensional Elastically Deformed Simplex Space-Time Meshes for Domains with Time Variant Topology”, *International Journal for Numerical Methods in Fluids* **93** (2021) 3490–3506.

2. F. Guglietta, M. Behr, G. Falcucci, and M. Sbragaglia, “Loading and Relaxation Dynamics of a Red Blood Cell”, accepted to *Soft Matter* (2021).

3. 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.

4. L. Gesenhues and M. Behr, “Simulating Dense Granular Flow Using the $\mu(I)$-Rheology Within a Space-Time Framework”, *International Journal for Numerical Methods in Fluids* **93** (2021) 2889–2904.

5. T. Spenke, N. Hosters, and M. Behr, “A Multi-Vector Interface Quasi-Newton Method with Linear Complexity for Partitioned Fluid-Structure Interaction”, *Computer Methods in Applied Mechanics and Engineering* **361** (2020) 112810.

6. 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.

7. 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.

8. 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).

9. N. Hosters, J. Helmig, A. Stavrev, M. Behr, and S. Elgeti, “Fluid-Structure Interaction with NURBS-Based Coupling”, *Computer Methods in Applied Mechanics and Engineering* **332** (2018) 520–539.

10. B. Keith, P. Knechtges, N.V. Roberts, S. Elgeti, M. Behr, and L. Demkowicz, “An Ultraweak DPG Method for Viscoelastic Fluids”, *Journal of Non-Newtonian Fluid Mechanics* **247** (2017) 107–122.

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