

MSU Postdoctoral Excellence in Research Award (PERA) Awardees, 2020

Dr. Philipp Grete received a B.Sc. in Computer Science in 2008 from the University of Cooperative Education in Stuttgart, Germany, and then worked for Hewlett-Packard before studying Physics (B.Sc.) and Computer Science (M.Sc.) at the University of Göttingen, Germany, from 2010 to 2013. In his Ph.D. thesis (2014-2016, University of Göttingen, Germany) he developed a model for small scale magnetized turbulence that was recognized by the German Astronomical Society with the annual Best Dissertation Award. Since October 2016, he is a postdoctoral research associate at Michigan State University working across the Departments of Physics & Astronomy and Computational Mathematics, Science and Engineering. His current research interests include fundamental processes involving magnetic fields in (astrophysical) fluids, numerical methods in computational fluid dynamics, and high-performance computing with an emphasis on performance portability. His most notable achievements at MSU include the development of a framework to study detailed scale-by-scale energy dynamics in compressible magnetized turbulence (which was featured in the *Physics of Plasma* journal) and the development of the performance portable K-Athena code that he demonstrated to run efficiently using 24576 GPUs in parallel on Summit - currently the fastest supercomputer in the world.

Dr. Grete authored 11 publications (of those 10 as first or second author and 7 during his time at MSU) in various disciplines (astrophysics, plasma physics, and computer science), and he presented his MSU research in 27 talks. As a strong advocate of open science and open scientific software Dr. Grete developed and contributed to multiple open source community software projects. His research is driven by large scale simulations that are enabled by multiple computing time grants he successfully obtained as PI or Co-PI. Most recently he obtained a Leadership Resource Allocation on NSF's latest flagship supercomputer Frontera.

Dr. Grete is also committed to support the next generation of scientists. He has mentored four students of whom two presented their work at international conferences and meetings. Moreover, he developed and implemented two different inquiry-based teaching activities with specific focus on equity and inclusion in STEM as part of a professional development program.

Finally, he is also supporting outreach activities, such as the local Astronomy on Tap chapter, and built an interactive supercomputer model that has been showcased multiple times, for example, at MSU's Science Festival Expo.

Dr. Dafna Groeneveld discovered her passion for blood clotting research during her bachelor internships. She received her bachelor's degree in Clinical Chemistry in 2005 from Saxion Hogeschool (Deventer, The Netherlands). After working as a research technician and obtaining her master's degree in Forensic Science from the University of Amsterdam (The Netherlands), she pursued her PhD in Medicine at the University Medical Center Leiden (The Netherlands). Her PhD studies focused on the blood clotting protein von Willebrand factor (VWF). In 2012, she received an award for scientific excellence from the Dutch Association for Thrombosis and Hemostasis for her work on the clearance mechanisms of VWF.

After obtaining her PhD in 2015, Dr. Groeneveld started her postdoctoral career in laboratory of Dr. Ton Lisman (Groningen, The Netherlands). Her research focused on the interphase between blood clotting and liver disease in a more clinical setting. During her postdoc work, she successfully obtained two research grants as co-applicant. In direct alignment with these research interests, she accepted a position as postdoctoral research associate in the laboratory of Dr. James Luyendyk in fall 2017 after securing a prestigious non-clinical junior research grant from the European Hematology Association. Her work focusses on how the blood clotting system contributes to liver injury and repair using advanced in vivo and in vitro approaches.

Dr. Groeneveld has published 16 peer-reviewed publications, 5 during her time at MSU. Since 2015, her work has been cited over 250 times. During her first two years at MSU, she has presented her work at multiple invited platforms and won several awards including the MSU PDA travel award. Her work on the role of the blood clotting system in liver regeneration is published in the number one hematology journal *Blood* (impact factor 16.6). Her most recent work on the role of VWF in liver injury and repair has been published in number one journal in hepatology *Journal of Hepatology* (impact factor 19). In addition, Dr. Groeneveld has mentored many students during her postdoctoral career and is an active reviewer for several peer-reviewed journals within her field.



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