

Jens Harting (*09.01.1974, PhD in 2001)

112 publications (49 since 2013), h-index 30 (SCOPUS, ID 7007091173); 34 (Google Scholar)

The research of Jens Harting focuses on the development and application of computer simulation methods in fluid dynamics and soft matter physics, with special emphasis on the dynamics of systems involving multiple fluid and solid phases, interfaces, and complex interactions due to e.g. capillary forces, external fields, or confinement. His research ranges from fundamental questions on the rheology and phase behavior of complex fluids in general to applications in microfluidics, coating, printing, transport in porous media, or colloidal self-assembly. Jens Harting contributed to the development of state-of-the-art hybrid simulation methodologies for particle-laden flows involving colloidal suspensions, particle-stabilized emulsions and even biological fluids including blood cells and vesicles. These methods combine a solver for the hydrodynamics (e.g. the lattice Boltzmann method, multi particle collision dynamics, or the discrete simulation Monte Carlo method) with a solver for the dynamics of the suspended objects (e.g. the discrete element method, molecular dynamics, finite element and immersed boundary methods). In order to be able to closely link the computer simulations with experiments and to reach experimentally relevant time and length scales, care is taken to assure that the newly developed methods and codes are able to harness the power of current high-end supercomputers.



Professional Career

Since 2015	Full professor (W2) at the Friedrich-Alexander-University Erlangen-Nuremberg, Germany. On leave to head the research unit "Dynamics of Complex Fluids and Interfaces", Helmholtz Institute Erlangen-Nürnberg for Renewable Energy ("Jülicher Modell")
Since 2013	Full professor (Hoogleraar, part-time), Faculty of Science and Technology, University of Twente, The Netherlands
Since 2011	Associate professor (UHD), Department of Applied Physics, TU Eindhoven, The Netherlands
2009-2011	Assistant professor (UD), Department of Applied Physics, TU Eindhoven, The Netherlands
2008-2013	Privatdozent for Theoretical Physics, University of Stuttgart, Germany
2008	Habilitation: Mesoscopic Simulations of Multiphase Flow, University of Stuttgart, Germany
2004-2009	Scientific Assistant (C1, assistant professor level), Institute for Computational Physics, University of Stuttgart, Germany
2003-2004	Postdoctoral researcher, Centre for Computational Science, University College London, UK
2002-2003	Postdoctoral researcher, Center for Computational Science, Queen Mary, University of London, UK
2001	PhD thesis: Path integral Monte Carlo simulations and their relation to recent advances in nanophysics
1999-2001	Research assistant at the Faculty of Physics, Carl von Ossietzky University Oldenburg, Germany, advisor Dr. P. Borrmann
1993-1999	Study of Physics, Carl von Ossietzky University Oldenburg, Germany

Professional activities, awards and honors

- Member of editorial boards of various journals (Springer Nature “Scientific Reports”, MDPI “Colloids and Interfaces”, World Scientific “International Journal of Modern Physics C”)
 - Member of the Scientific Committee of the international conference series “Discrete simulation of Fluid Dynamics”
 - Organizer of international workshops and conferences:
 - “Multiscale Fluid Dynamics with the Lattice Boltzmann method”, Leiden, The Netherlands (2011)
 - “Hybrid Methods in Fluid Dynamics”, Munich, Germany, 2016
 - “Dynamics of Complex Fluids and Interfaces”, Erlangen, Germany, 2017
 - “Discrete Simulation of Fluid Dynamics (DSFD)”, Erlangen, Germany, 2017
 - Referee to leading national and international institutions
 - Referee for some 20 international journals (The European Physics Journal E: Distinguished Referee, 2016)
 - Post-graduate scholarship, Heinz-Neumüller Foundation, 2001
 - Golden Spike Award of the High-Performance Computing Centre Stuttgart, 2006
 - Fellow of the Landesstiftung Baden-Württemberg, 2006-2009
 - VIDI Scholarship, Stichting voor de Technische Wetenschappen (STW) / Nederlands Organisatie voor Wetenschappelijk Onderzoek (NWO), 2010-2015
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1. Q. Xie, G.B. Davies, J. Harting, *Direct assembly of magnetic Janus particles at a sessile droplet interface*, **ACS Nano** 11 (2017) 11232-11239. DOI: [10.1021/acsnano.7b05550](https://doi.org/10.1021/acsnano.7b05550)
 2. Q. Xie, G.B. Davies, J. Harting, *Controlled capillary assembly of magnetic Janus particles at fluid-fluid interfaces*, **Soft Matter** 12 (2016) 6566-6574. DOI: [10.1039/c6sm01201a](https://doi.org/10.1039/c6sm01201a)
 3. G.B. Davies, T. Krüger, P.V. Coveney, J. Harting, F. Bresme, *Assembling ellipsoidal particles at fluid interfaces using switchable dipolar capillary interactions*, **Adv. Mater.** 26 (2014) 6715-6719. DOI: [10.1002/adma.201402419](https://doi.org/10.1002/adma.201402419)
 4. M. Thiebaud, Z. Shen, J. Harting, C. Misbah, *Prediction of anomalous blood viscosity in confined shear flow*, **Phys. Rev. Lett.** 112 (2014) 238304. DOI: [10.1103/physrevlett.112.238304](https://doi.org/10.1103/physrevlett.112.238304)
 5. T. Krüger, B. Kaoui, J. Harting, *Interplay of inertia and deformability on rheological properties of a suspension of capsules*, **J. Fluid Mech.** 751 (2014) 725-745. DOI: [10.1017/jfm.2014.315](https://doi.org/10.1017/jfm.2014.315)
 6. S. Frijters, F. Günther, J. Harting, *Effects of nanoparticles and surfactant on droplets in shear flow*, **Soft Matter** 8 (2012) 6542-6556. DOI: [10.1039/C2SM25209K](https://doi.org/10.1039/C2SM25209K)
 7. F. Jansen, J. Harting, *From Bijels to Pickering emulsions: A lattice Boltzmann study*, **Phys. Rev. E** 83 (2011) 046707. DOI: [10.1103/PhysRevE.83.046707](https://doi.org/10.1103/PhysRevE.83.046707)
 8. C. Kunert, J. Harting, O.I. Vinogradova, *Random-roughness hydrodynamic boundary conditions*, **Phys. Rev. Lett.** 105 (2010) 016001. DOI: [10.1103/physrevlett.105.016001](https://doi.org/10.1103/physrevlett.105.016001)
 9. J. Hyväluoma, J. Harting, *Slip flow over structured surfaces with entrapped microbubbles*, **Phys. Rev. Lett.** 100 (2008) 246001. DOI: [10.1103/physrevlett.100.246001](https://doi.org/10.1103/physrevlett.100.246001)
 10. C. Kunert, J. Harting, *Roughness induced boundary slip in microchannel flows*, **Phys. Rev. Lett.** 99 (2007) 176001. DOI: [10.1103/physrevlett.99.176001](https://doi.org/10.1103/physrevlett.99.176001)