

# Curriculum Vitae - Prof. Dr. Uwe Thiele (October 2018, brief version)

## Academic degrees

- Habilitation in and *venia legendi* for Theoretical Physics, Universität Augsburg, 2007; Technische Universität Cottbus, 2004.
- PhD (Theoretical Physics), Technische Universität Dresden, Feb 1998.
- Diploma in Physics, Technische Universität Dresden, Nov 1994.
- Imperial College International Diploma (equiv. MSc) in Quantum Fields and Fundamental Forces, London, 1993.

## Academic appointments

- **Professor (W3) and Director**, Institut für Theoretische Physik, Universität Münster, 03/2014- (also **Speaker of Center of Nonlinear Science (CeNoS)**, 02/2015-)
- **Full Professor [Reader]**, Dep. Math. Sci., Loughborough University, 2009-2014 [2007-2009].
- **Professor** (substitute W3), Physics Department, Universität Bayreuth, 2006/07.
- **Junior/Senior Research Associate**, Department of Physics, Universität Augsburg, 2007; Max-Planck Institut für Physik komplexer Systeme, Dresden, 1998, 2002-06; Physics Department, University of California at Berkeley, 2001/02; Instituto Pluridisciplinar, Universidad Complutense Madrid, 1999-2000.
- **Visiting Positions** at Loughborough University (UK), 2014-2020; Isaac Newton Institute Cambridge (UK), May-Aug 2013; Ecole Polytechnique Paris, July 2010; University of Leeds, Mar-Apr 2001; Max-Planck Institut für Physik komplexer Systeme, Dresden, Jan-Feb 2001; Universidad Complutense de Madrid, May 2001.

## Research Interests

- **Main subjects:** Multi-scale description of the nonlinear dynamics of (driven) complex fluids, (soft) condensed matter and active media at interfaces and near structural transitions; Description via continuum methods as mesoscopic hydrodynamics, phase field (crystal) methods, dynamical density functional theory, and particle-based methods; Analysis via bifurcation theory, (non)-equilibrium thermodynamics and statistical physics. Cooperation with experimentalists.
- **Computational approach:** Numerical bifurcation studies; Time stepping and path continuation methods for ODE/PDE; Large-scale computations for microscopic stochastic discrete and mesoscopic deterministic continuous descriptions; Micro-meso hybrid methods (e.g. joining Molecular Dynamics and Mesoscopic Hydrodynamics).
- **Nonlinear science for applications:** Driven nano- and micro-fluidic systems; Nano-structuring via self-organisation and self-assembly; Depinning transitions in soft matter systems as global bifurcations; Biofilms and bacterial carpets; Dynamical wetting and unbinding phase transitions; Statistical Physics and non-equilibrium thermodynamics of surface active materials.

## Teaching

- > 15 years of lecture courses in Theoretical and Computational Physics, Applied Mathematics and Nonlinear Sciences at undergraduate and advanced levels at Universities of Augsburg, Bayreuth, Cottbus, Loughborough, Münster. Frequent invited short courses at Advanced Schools and Universities (incl. Augsburg, Brussels, Cambridge, Darmstadt, Göttingen, Münster, Udine, Volos)

## Publications and presentations

- 115 paper in peer-reviewed journals (beside others 13 PRL, 5 EPL, 2 NJP, 18 PRE, 2 PRF, 6 JFM, 12 PoF, 8 EPJ, 8 Langmuir, 5 JPCM, 5 SM, 6 JCP).
- 20 contributions in proceedings or books, 1 edited book.
- 60 invited contributions at conferences and workshops (220 in total), 92 invited colloquia/seminars at scientific institutions.

## Grants

- **Coordinator**, SPP 2171 *Dynamic wetting of flexible, adaptive and switchable substrates*, 2019-25.
- **Coordinator**, EU ITN *Multiscale complex fluid flows and interfacial phenomena*, 2009-12.
- **PI**, EU RTN *Unifying principles in non-equilibrium pattern formation*, 2004-2008.
- **Workshop grants**: Obtained funding to organise 15 scientific events, e.g., at MIPPKS Dresden (2004,2007,2012), Univ. Göttingen (2011), Newton Institute Cambridge (2013), and Univ. Münster (2014, 2015, 2018), Cecam Lausanne 2016, BIRS Banff 2019
- **(Personal) grants**: DFG 2018-20; GIF 2017-2019; DFG 2001/02; DAAD 1991/92; **Fellow** of the German National Merit Foundation 1992-94.

## Research supervision

- 8 postdocs since 2005, 7 current PhD students, 18 successful PhD students (co-)tutored.

## Professional service

- Member Scientific Committee of Solvay Workshop (Brussels, Oct 2009); EUROTHERM Conference 84 (Namur, May 2009); International Conference on Multiscale Complex Fluid Flows and Interfacial Phenomena (Brussels, Nov 2010); Week of Science, Universidad Complutense Madrid (Sep 2011); Workshop on Nonlinear Waves in Fluids, Loughborough University (Sep 2012).
- Referee/Examiner for about 40 journals and 17 universities / scientific foundations (in Belgium, EU, France, Germany, India, Irland, Israel, Netherlands, Oman, Switzerland, UK, USA).

## Chairing or co-chairing international conferences (past five years)

- Workshop *Modelling of thin liquid films - asymptotic approach vs. gradient dynamics*, BIRS Banff (Canada) Apr 2019 (with N. Balmforth, A. Hazel, C. Liu).
- Workshop *Dynamic wetting of flexible, adaptive and switchable substrates*, Münster May 2018.
- Workshop *Non-equilibrium dynamics of thin films - solids, liquids and bioactive materials*, CECAM-EPFL, Lausanne Sep 2016 (with O. Pierre-Louis, R. Cuerno, A. Seminara).
- Programme *Mathematical Modelling and Analysis of Complex Fluids and Active Media in Evolving Domains*; Isaac Newton Institute for Mathematical Sciences (INI), Cambridge May-Aug 2013 (with D. Holm, K. Kruse, P. Olmsted, L. Pismen).
- Ten more before 2013.

## Ten selected publications of past five years

- M. Wilczek, W. Tewes, S. Engelinkemper, S. V. Gurevich and U. Thiele, Sliding drops ensemble statistics from single drop bifurcations, *Phys. Rev. Lett.* **119**, 204501 (2017).
- S. Trinschek, K. John, S. Lecuyer and U. Thiele, Continuous vs. arrested spreading of biofilms at solid-gas interfaces - the role of surface forces, *Phys. Rev. Lett.* **119**, 078003 (2017).
- A. P. Hughes, U. Thiele and A. J. Archer, Influence of the fluid structure on the binding potential: Comparing liquid drop profiles from density functional theory with results from mesoscopic theory, *J. Chem. Phys.* **146**, 064705 (2017).
- U. Thiele, A. J. Archer and L. M. Pismen Gradient dynamics models for liquid films with soluble surfactant *Phys. Rev. Fluids* **1**, 083903 (2016).
- A. Pototsky, U. Thiele and H. Stark, Mode instabilities and dynamic patterns in a colony of self-propelled surfactant particles covering a thin liquid layer *Eur. Phys. J. E* **39**, 1-19 (2016).
- M. Galvagno, D. Tseluiko, H. Lopez and U. Thiele, Continuous and discontinuous dynamic unbinding transitions in drawn film flow. *Phys. Rev. Lett.* **112**, 137803 (2014).
- M.H. Köpf and U. Thiele, Emergence of the bifurcation structure of a Langmuir-Blodgett transfer model. *Nonlinearity* **27**, 2711-2734 (2014).
- U. Thiele, D. Todorova, H. Lopez, Gradient dynamics description for films of mixtures and suspensions: Dewetting triggered by coupled film height and concentration fluctuations. *Phys. Rev. Lett.* **111**, 117801 (2013).
- U. Thiele, A. J. Archer, M. J. Robbins, H. Gomez and E. Knobloch, Localized states in the conserved Swift-Hohenberg equation with cubic nonlinearity, *Phys. Rev. E* **57**, 042915 (2013).
- N. Tretyakov, M. Müller, D. Todorova and U. Thiele, Parameter passing between Molecular Dynamics and continuum models for droplets on solid substrates: The static case. *J. Chem. Phys.* **138**, 064905 (2013).