# **Curriculum Vitae**

### **Personal Information**

Name:	Stephan Weiss
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#### Education

Jan. 2006 - Oct. 2009: PhD in Physics Max Planck Institute for Dyn. and Self-Org. / University of Göttingen, Germany *Thesis:* On Pattern Formation in thermal convection experiments *Advisor:* Prof. Dr. Eberhard Bodenschatz

Nov. 1999 - Feb. 2005: Diplom in physics (equivalent to Master) University of Bayreuth, Bayreuth, Germany Thesis: Running Droplets in thin Polymer Films Advisor: Prof. Dr. Robert Magerle Areas of Specialisation: Hydrodynamic, Nonlinear Physics and Geophysics

### **Research Appointments**

 Since Aug. 2015: Group leader in the Laboratory for Fluid Physics, Pattern Formation and Biocomplexity at the Max Planck Inst. for Dyn. and Self-Org., Göttingen, Germany
May 2012. July 2015: Postdoctoral recorder at the Univ. of Michigan. Ann Arbor. USA

May 2012 - July 2015: Postdoctoral researcher at the Univ. of Michigan, Ann Arbor, USA Advisor: Dr. Robert Deegan Topic: Pattern Formation in Chemical Systems

- Nov. 2009 April 2012: Postdoctoral researcher at the Univ. of Calif., Santa Barbara, USA Advisor: Dr. Guenter Ahlers Topic: Turbulent thermal convection
- Jan. 2006 Oct. 2009: Research assistant at the Max Planck-Inst. for Dyn. and Self-Org., Germany Advisor: Dr. Eberhard Bodenschatz Topic: Pattern formation in forced thermal convection

Oct. 2005 - Jan. 2006: Research assistant at the Technical Univ. of Chemnitz, Chemnitz, Germany Advisor: Dr. Robert Magerle Topic: Running droplets in thin polymer films

Mar. 2005 - Sept. 2005: Research assistant at The Weizmann Institute of Science, Israel Advisor: Dr. Victor Steinberg Topic: Elastic turbulence in polymer solutions

Jan. 2004 - Feb. 2005: Research assistant at the University of Bayreuth, Bayreuth, Germany Advisor: Dr. Robert Magerle Topic: Running Droplets in thin polymer films

#### Publications in peer-reviewed journals

- P. Prabhakaran, A. Krekhov, E. Bodenschatz, S. Weiss, "Leidenfrost pattern formation and boiling", J. Stat. Phys., (2019) https://doi.org/10.1007/s10955-019-02283-7
- S. Weiss, X. He, G. Ahlers, E.Bodenschatz, O. Shishkina, "Bulk temperature and heat transport in turbulent RayleighBnard convection", *Journ. Fluid Mech.*, 851, 374-390 (2018)
- P. Prabhakaran, S.Weiss, A. Krekhov, and E. Bodenschatz, "Can hail and rain nucleate cloud droplets?", *Phys. Rev. Lett.*, **119**, 128701 (2017)
- S. Weiss and R.D. Deegan, "Weakly and strongly coupled Belousov-Zhabotinsky patterns", *Phys. Rev. E*, 95, 022215 (2017)
- O. Shishkina, S. Weiss, and E. Bodenschatz, "Conductive heat flux in measurements of the Nusselt number in turbulent Rayleigh-Bénard convection", *Phys. Rev. Fluids*, 1(6), 062301(R) (2016)
- S. Weiss, P. Wei, and G. Ahlers, "Heat-transport enhancement in rotating turbulent Rayleigh-Bénard convection", *Phys. Rev. E*, 93, 043102 (2016)
- M. Weiss, A. Newman, C. Whitmore and S. Weiss, "Experience curves in sprint and distance running", *European Journal of Sport Science*, 16,393 (2016)
- 8. S. Weiss and R.D. Deegan, "Quantized orbits in weakly coupled Belousov-Zhabotinsky reactors", Europhysics Journal Letter, **110**, 60004 (2015)
- 9. P. Wei, S. Weiss and G. Ahlers, "Multiple transitions in rotating turbulent Rayleigh-Benard convection", *Phys. Rev. Lett*, **114**, 114506 (2015)
- S. Weiss, G. Seiden and E. Bodenschatz, "Resonance patterns in spatially forced Rayleigh-Bénard convection", Journ. Fluid Mech., 756, 293 (2014)
- 11. S. Weiss and G. Ahlers, "Nematic isotropic phase transition in turbulent thermal convection", *Journ. Fluid Mech.*, **737**, 308 (2013)
- S. Weiss and G. Ahlers, "Magnetic-field effect on turbulent thermal convection of a nematic liquid crystal", *Journ. of Fluid Mech.*, **716**, R7 (2013).
- 13. S. Weiss and G. Ahlers, "Effect of tilting on turbulent Rayleigh-Bénard convection: Cylindrical sample with aspect ratio  $\Gamma=0.5$ ", Journ. of Fluid Mech., **715**, 314 (2013)
- S. Weiss, G. Seiden and E. Bodenschatz, "Pattern Formation in Spatially Forced Thermal convection", New Journ. of Phys., 14, 053010 (2012)
- J. Bosbach, S. Weiss and G. Ahlers, "Plume fragmentation by bulk interactions in turbulent Rayleigh-Bénard convection", *Phys. Rev. Lett.*, **108**, 054501 (2012).
- S. Weiss and G. Ahlers, "Bifurcations in turbulent rotating Rayleigh-Bénard convection: A finite-size effect", *Journal of Physics: Conference Series*, **318**, 082015 (2011).
- 17. S. Weiss and G. Ahlers, "The large-scale flow structure in turbulent rotating Rayleigh-Bénard convection", *Journ. of Fluid Mech.*, 688, 461-492, (2011).
- S. Weiss and G. Ahlers, "Heat transport by turbulent rotating Rayleigh-Bénard convection", Journ. of Fluid Mech., 684, 407-426 (2011).

- 19. S. Weiss and G. Ahlers, "Turbulent Rayleigh-Bénard convection in a cylindrical container with aspect ratio  $\Gamma = 0.50$  and Prandtl number Pr=4.38", Journ. of Fluid Mech., 676, 1-4 (2011).
- S. Weiss, R.J.A.M. Stevens, J.-Q. Zhong, H.J.H. Clercx, D. Lohse, G. Ahlers, "Finite-size effects lead to supercritical bifurcations in turbulent rotating Rayleigh-Bénard convection", *Phys. Rev. Lett.*, **105**, 225401 (2010).
- G. Seiden, S. Weiss, E. Bodenschatz, "Superlattice Patterns in Forced Thermal Convection", Chaos, 19, 041102 (2009)
- 22. G. Seiden, S. Weiss, J. McCoy, W. Pesch, E. Bodenschatz, "Pattern forming system in the presence of different symmetry-breaking mechanisms", *Phys. Rev. Lett.*, **101**, 214503 (2008)

#### **Invited Talks**

2018:	• iCUBE, University Strassbourg, France
	• Harpin Institute of Technology, Shenzhen, China
	• Invited speaker at the International Conference on Rayleigh-Bénard Turbulence,
	University of Twente, The Netherlands
	• Physics Seminar, Laboratoire de Physique, ENS de Lyon, Lyon, France
2017:	• Fluid Seminar, Observatoire de la Cote d'Azur, Nice, France
2015:	• Workshop on "Turbulent and Coherent Convection", Madison, USA
2014:	• Dept. for Chem. Phys., University of Technology Chemnitz, Germany
	• Workshop on Phase Transitions at Low Temperatures, Pattern Formation and Tur-
	bulence, Max Planck-Inst. Dyn. Self-Org., Göttingen, Germany
2013:	• Complex System Seminar, University of Michigan, Ann Arbor, USA
2011:	• KITP program: "The nature of turbulence", Santa Barbara, USA
2008:	• Ludwieg-Liepmann seminar at UCSB, Santa Barbara, USA
2005:	• Department of Chemical Engineering at the Technion, Haifa, Israel
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## **Contributed Talks**

- 2019: DPG-Spring meeting, Regensburg, Germany
- 2018: Wallenberg meeting, Göttingen, Germany
  - APS Division of Fluid Dynamics, Atlanta, USA
  - Lorentz-Center workshop "From the lab to the start", Leiden, The Netherlands
  - DPG-Spring meeting, Berlin, Germany
- 2017: Wallenberg meeting at the Schneefernerhaus, Germany
  - AGU Fall meeting, New Orleans, USA
  - APS Division of Fluid Dynamics, Denver, USA
  - Compressible Convection Conference, Lyon, France
  - ETC15 Conference, Stockholm, Sweden
  - Euromech 586 Seminar ("Turbulent Superstructures"), Erfurt, Germany
  - Spring meeting of the German Physical Society, Dresden, Germany
- 2016: APS Division of Fluid Dynamics, Portland, USA
  - EuHit School, Warszaw, Poland
  - Harz-Seminar on Pattern Formation in Chemistry and Biophysics, Hahnenklee, Germany
  - Helmut Eckelmann Workshop, Göttingen, Germany
- 2015: APS Division of Fluid Dynamics, Boston, USA
  - Emergence in Chemical Systems 4.0, Anchorage, USA
  - International Conference on Turbulent Rayleigh-Bénard Convection, Göttingen, Germany
- 2014: APS Division of Fluid Dynamics San Francisco, USA
- 2013: Rotating thermal convection at low Prandtl numbers APS Division of Fluid Dynamics Meeting, Pittsburgh, USA
- 2011: Bifurcation in turbulent rotating Rayleigh-Bénard convection: A finite-size effect 13 European Turbulence Conference, Warsaw, Poland
- 2010: Supercritical Bifurcations in Turbulent Rotating Rayleigh-Bénard Convection, APS Division of Fluid Dynamics Meeting, Long Beach, USA
- 2009: Supperlattice Patterns in Forced Inclined Layer Convection, Dynamics Days, Göttingen, Germany
- 2008: Forcing in Thermal Convection Experiments, Workshop on Pattern Formation in Chemistry and Biophysics, Hahnenklee, Germany
  - Non-Resonant Forcing in Rayleigh-Bénard Convection, APS Division of Fluid Dynamics Meeting, San Antonio, USA
- 2007: Spatial Forcing in Thermal Convection Experiments, APS Division of Fluid Dynamics Meeting, Salt Lake City, USA

#### **Fellowships and Grants**

- DFG-Research Grant: "Rotating turbulent thermal convection at large Rayleigh-Numbers" (247,000 Euro)
- Grant via the DFG-Priority Program-SPP1881: "Turbulent Super Structures" (247,000 Euro)
- Research Fellowship of the Deutsche Forschungsgemeinschaft (German Research Society)
- Minerva Fellowship of the Max Planck Society
- EuHit project: Experimental investigation of highly turbulent Taylor-Couettte flow

### Teaching

#### Supervising students

Currently supervising:

- Marcel Wedi PhD student, expected to finish June 2021
- Gabriele Nunnari PhD student, expected to finish Jan. 2020
- Hiu-Fai Yik International Master student, expected to finish 2020
- Kim Lambert Master student, expected to finish 2020
- Sascha Lambert Master student, expected to finish 2020

Previously supervised:

- Marcel Wedi Master student, graduated April 2018
- Lucia Wesenberg Bachelor student, graduated Sept. 2017

#### **Courses and Seminars**

University of Göttingen:

Seminar on Current Questions in Turbulent Research, Spring 2019 Seminar on Current Questions in Turbulent Research, Spring 2018 Seminar on Current Questions in Turbulent Research, Spring 2017 Seminar on Current Questions in Turbulent Research, Spring 2016 Physics for medical students (seminar), Spring 2009 Basic Course Physics II (Teaching assistant, Spring 2008) Basic Course Physics I (Teaching assistant, Fall 2007)

University of Bayreuth:

Lab course - Physical Chemistry (Teaching assistant, Spring & Fall 2005)

In addition, I have supervised undergraduate students at the Max Planck Institute for Dynamics and Self-Organization, and at the University of Michigan.

#### Other professional activities

- Referee for Journal of Fluid Mechanics, Physical Review Fluids, New Journal of Physics, the International Journal of Thermal Sciences and The European Physical Journal.
- Organised conferences and workshops:
  - "International Symposium: From Pattern Formation to Turbulence.", to be held in June 2019, Kloster Banz (Germany)
  - Sessions "Convection" and "Fluid physics and turbulence" at the DPG spring meeting, Regensburg (Germany), April 2019
  - Meeting of the Max Planck Center "Complex Fluid Dynamics Fluid Dynamics of Complexity", Göttingen (Germany), January 2019
  - Workshop on "Rotating convection: from the lab to the stars", Lorentz Center in Leiden (The Netherlands) from the May, 28 - June, 1 2018
  - 1st annual meeting of the Max Planck Center "Complex Fluid Dynamics Fluid Dynamics of Complexity", Mainz (Germany), January 2018
  - Kick-off meeting of the Max Planck Center "Complex Fluid Dynamics Fluid Dynamics of Complexity", Göttingen (Germany), May 2017
  - Focus-Sesssion: "Fundamental aspects of turbulent convection in geo- and astrophysical flows" during the spring meeting of the Deutsche Physikalische Gesellschaft, Dresden (Germany) March 2017

#### References

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Dr. Robert Deegan 324 West Hall Center for the Study of Complex Systems University of Michigan Ann Arbor, MI 48109 Phone: +1 734-615-5730 Email: rddeegan@umich.edu Dr. Guenter Ahlers 1419 Broida Hall Dept. of Physics University of California Santa Barbara, CA 93106 Phone: +1 805-893-3795 Email: guenter@physics.ucsb.edu

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