Curriculum Vitae

Personal Information

Name:	Stephan Weiss
Address:	Max Planck Institute for Dynamics and Self-Organisation Am Fassberg 17 D-37077, Göttingen, Germany
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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
Subject: Physics
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 Institute for Dynamics and Self-Organisation, Göttingen, Germany

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

1. 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)

2. P. Prabhakaran, S.Weiss, A. Krekhov, and E. Bodenschatz, "Can hail and rain nucleate cloud droplets?", *Phys. Rev. Lett.*, **119**, 128701 (2017)

3. S. Weiss and R.D. Deegan, "Weakly and strongly coupled Belousov-Zhabotinsky patterns", *Phys. Rev. E*, **95**, 022215 (2017)

4. 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)

5. S. Weiss, P. Wei, and G. Ahlers, "Heat-transport enhancement in rotating turbulent Rayleigh-Bénard convection",*Phys. Rev. E*, **93**, 043102 (2016)

6. M. Weiss, A. Newman, C. Whitmore and S. Weiss, "Experience curves in sprint and distance running", *European Journal of Sport Science*, **16**,393 (2016)

7. S. Weiss and R.D. Deegan, "Quantized orbits in weakly coupled Belousov-Zhabotinsky reactors", *Europhysics Journal Letter*, **110**, 60004 (2015)

8. P. Wei, S. Weiss and G. Ahlers, "Multiple transitions in rotating turbulent Rayleigh-Benard convection", *Phys. Rev. Lett*, **114**, 114506 (2015)

9. S. Weiss, G. Seiden and E. Bodenschatz, "Resonance patterns in spatially forced Rayleigh-Bénard convection", *Journ. Fluid Mech.*, **756**, 293 (2014)

10. S. Weiss and G. Ahlers, "Nematic - isotropic phase transition in turbulent thermal convection", *Journ. Fluid Mech.*, **737**, 308 (2013)

11. S. Weiss and G. Ahlers, "Magnetic-field effect on turbulent thermal convection of a nematic liquid crystal", *Journ. of Fluid Mech.*, **716**, R7 (2013).

12. S. Weiss and G. Ahlers, "Effect of tilting on turbulent Rayleigh-Bénard convection: Cylindrical sample with aspect ratio Γ=0.5", *Journ. of Fluid Mech.*, **715**, 314 (2013)

13. S. Weiss, G. Seiden and E. Bodenschatz, "Pattern Formation in Spatially Forced Thermal convection", *New Journ. of Phys.*, **14**, 053010 (2012)

14. J. Bosbach, S. Weiss and G. Ahlers, "Plume fragmentation by bulk interactions in turbulent Rayleigh-Bénard convection", *Phys. Rev. Lett.*, **108,** 054501 (2012).

15. S. Weiss and G. Ahlers, "Bifurcations in turbulent rotating Rayleigh-Bénard convection: A finite-size effect", *Journal of Physics: Conference Series*, **318**, 082015 (2011).

16. S. Weiss and G. Ahlers, "The large-scale flow structure in turbulent rotating Rayleigh-Bénard convection", *Journ. of Fluid Mech.*, **688**, 461-492, (2011).

17. S. Weiss and G. Ahlers, "Heat transport by turbulent rotating Rayleigh-Bénard convection", *Journ. of Fluid Mech.*, **684**, 407-426 (2011).

18. 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).

19. 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).

20. G. Seiden, S. Weiss, E. Bodenschatz, "Superlattice Patterns in Forced Thermal Convection", *Chaos*, **19**, 041102 (2009)

21. 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 Turbulence*, 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

2018:
- 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

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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

Previously supervised:
- Marcel Wedi - Master student, graduated April 2018
- Lucia Wesenberg - Batchelor student, graduated Sept. 2017

Courses and Seminars

University of Göttingen:

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*, the *International Journal of Thermal Sciences*, *Physical Review Fluids*, and *The European Physical Journal*.
- Organised conferences and workshops:
  - 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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