Eric Brown - Curriculum Vitae - updated June 12, 2023

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Education

07/2007 Ph. D. Physics, University of California, Santa Barbara (UCSB). Advisor: Guenter Ahlers.
05/2002 B. S. Physics, Harvey Mudd College (HMC). Advisor: Chih-Yung Chen.

Employment

03/2021 - present	Owner and Principal Investigator, Eric Brown Labs, LLC.
01/2021 - present	Lecturer, Southern Connecticut State University.
07/2020 - 06/2021	Research Scientist, School of Engineering and Applied Science, Yale University.
07/2013 - 06/2020	Assistant Professor, School of Engineering and Applied Science, Yale University.
08/2011 - 06/2013	Assistant Professor, School of Natural Sciences, University of California, Merced.
12/2007 - 07/2011	Postdoctoral Scholar, James Franck Institute, University of Chicago.
10/2007 - 11/2007	Postdoctoral Scholar, Department of Physics and IQCD, UCSB.
09/2006 - 06/2007	Teaching Associate, College of Creative Studies, UCSB.
04/2004 - 09/2007	Graduate Student Researcher, Department of Physics and IQCD, UCSB.
09/2002 - 03/2004	Teaching Assistant, Department of Physics, UCSB.
06/2001 - 08/2001	Undergraduate Summer Researcher, Department of Engineering, HMC.

Professional service and outreach

2008 - present	Reviewing of manuscripts for journals and grant proposals.
2008 - present	Mentoring student research.
10/2008 - 12/2009	Organizer for Computations in Science seminar series, University of Chicago.
09/2002 - 03/2004	Organizer for Physics Circus outreach to elementary school students, UCSB.

Awards

NSF CAREER Award, 2013.
Kadanoff-Rice Postdoctoral Fellowship, 2007.
UCSB Physics Circus Award for outreach, 2003, 2004, 2005.
Harvey S. Mudd Merit Award, 2002.

Patents

Gripping and releasing apparatus and method, US 8882165 B2, 9120230 B2

Publications

1. E. Brown, D. Ji. Interactions between two adjacent convection rolls in turbulent Rayleigh Benard convection, Phys. Rev. Fluids 8, 064608 (2023)
2. R. Maharjan, E. O'Reilly, T. Postiglione, N. Klimenko, E.Brown. Relation between dilation and stress fluctuations in discontinuous shear thickening suspensions. Phys. Rev. E 103, 012603-1–15 (2021).
3. D. Ji, K. Bai, E. Brown. Effects of tilt on the orientation dynamics of the large-scale circulation in turbulent Rayleigh-Bénard convection. Physics of Fluids 32 (7), 075118 (2020).
4. D. Ji, E. Brown. Oscillation in the temperature profile of the large-scale circulation of turbulent convection induced by a cubic container. Phys. Rev. Fluids 5, 063501 (2020).
5. D. Ji, E. Brown. Low-dimensional model of the large-scale circulation of turbulent Rayleigh-Bénard convection in a cubic container. Phys. Rev. Fluids 5, 064606 (2020).

6. R. Maharjan, E. Brown. Effective packing fraction for better resolution near the critical point of shear thickening suspensions. Phys. Rev. E 99, 042604-1–8 (2019).
7. O. Ozgen, M. Kallman, E. Brown. An SPH model to simulate the dynamic behavior of shear thickening Fluids. Computer Animation & Virtual Worlds, e1870 (2019).
8. K. Bai, J. Casara, A. Nair-Kanneganti, A. Wahl, F. Carle, E. Brown. Effective magnetic susceptibility of suspensions of ferromagnetic particles. J. Applied Physics 124, 123901-1–12 (2018).
9. S. Mukhopadhyay, B. Allen, E. Brown. Testing constitutive relations by running and walking on cornstarch and water suspensions. Phys. Rev. E 97, 052604-1–11, (2018).
10. B. Allen, B. Sokol, S. Mukhopadhyay, R. Maharjan, E. Brown. Structure of the system-spanning dynamically jammed region in response to impact of cornstarch and water suspensions. Phys. Rev. E 97, 052603-1–9, (2018).
11. R. Maharjan, S. Mukhopadhyay, B. Allen, T. Storz, E. Brown. Constitutive relation of the dynamically jammed region in response to impact of cornstarch and water suspensions. Phys. Rev. E 97, 052602-1–13, (2018).
12. R. Maharjan, E. Brown. Giant deviation of a relaxation time from generalized Newtonian theory in discontinuous shear thickening suspensions. Phys. Rev. Fluids 2, 123301, (2017).
13. F. Carle, K. Bai, J. Casara, K. Vanderlick, E. Brown. Development of magnetic liquid metal suspensions for magnetohydrodynamics. Phys. Rev. Fluids 2, 013301 (2017).
14. K. Bai, D. Ji, E. Brown. Ability of a low-dimensional model to predict geometry-dependent dynamics of large-scale coherent structures in turbulence. Phys. Rev. E 93, 023117 (2016).
15. Q. Xu, S. Majumdar, E. Brown and H. M. Jaeger. Shear thickening in highly viscous granular suspensions. Euro. Phys. Lett., 107, 68004–1-6 (2014).
16. E. Brown, H.M. Jaeger. Shear thickening in concentrated suspensions: phenomenology, mechanisms, and relations to jamming. Reports on Progress in Physics 77, 046602-1–23 (2014).
17. H. Song, R. Hawkins, E. Brown, P. Tong. Dynamics of Large-scale Circulation of Turbulent Thermal Convection in a Horizontal Cylinder. J. Fluid Mech. 740, 136-167 (2014).
18. A. G. Athanassiadis, M. Z. Miskin, P. Kaplan, S. H. Lee, N. Rodenberg, J. Amend, H. Lipson, and H. M. Jaeger. Particle Shape Effects on the Stress Response of Granular Packings. Soft Matter 10(1), 48-59 (2014).
19. Q. Xu, I. R. Peters, S. Wilken, E. Brown, H. M. Jaeger. Fast imaging technique to study drop impact dynamics of non-Newtonian fluids. J. Vis. Exp. 85, e51249-1–11 (2014).
20. E. Brown. Viewpoint: Frictions Role in Shear Thickening. Physics 6, 125 (2013).
21. Q. Xu, E. Brown, H. M. Jaeger. Impact dynamics of oxidized liquid metal drops. *Phys. Rev. E* **87**, 043012-1–10 (2013).
22. E. Brown, H. M. Jaeger. The role of dilation and confining stress in shear thickening of dense suspensions. *J. Rheology* **56** (4), 875-923(2012).
23. Q. Xu, N. Oudalov, Q. Guo, H. M. Jaeger, Eric Brown. Effect of oxidation on the Mechanical Properties of Liquid Gallium and Eutectic Gallium-Indium. *Phys. Fluids* **24**, 063101-1–13 (2012).
24. E. Brown, A. Nasto, A. G. Athanassiadis, H. M. Jaeger. Strain-stiffening in random packings of entangled granular chains. *Phys. Rev. Lett.* **108**, 108302 (2012).

25. J.R. Amend, E. Brown, N. Rodenberg, H.M. Jaeger, H. Lipson, A positive pressure universal gripper based on the jamming of granular material. *IEEE Trans. Robotics* **28** (2), 341-350 (2012).

26. E.Brown, H. Jaeger. Through Thick and Thin. *Science* **333** (6047), 1230-1231 (2011).

27. E. Brown, H. Zhang, N. A. Forman, B. W. Maynor, D. E. Betts, J. M. DeSimone, and H. M. Jaeger. Shear thickening and jamming in densely packed suspensions of different particle shapes. *Phys. Rev. E*, **84**, 031408-1–11 (2011).

28. E. Brown, N. Rodenberg, J. Amend, A. Mozeika, E. Steltz, M. R. Zakin, H. Lipson, H. M. Jaeger. Universal Robotic Gripper based on the Jamming of Granular Material. *Proc. National Academy of Sciences* (Cover) **107**, (44) 18809-18814 (2010).

29. E. Brown, H. Zhang, N. A. Forman, B. W. Maynor, D. E. Betts, J. M. DeSimone, and H. M. Jaeger. Shear thickening in densely packed suspensions of spheres and rods confined to few layers. *J. Rheology* **54**, 1023-1046 (2010).

30. E. Brown, N. A. Forman, C. S. Orellana, H. Zhang, B. W. Maynor, D. E. Betts, J. M. DeSimone, H. M. Jaeger. Generality of shear thickening in dense suspensions. *Nature: Materials* **9** (3) 220-224 (2010).

31. E. Steltz, A. Mozeika, N. Rodenberg, E. Brown, H. M. Jaeger. JSEL: Jamming Skin Enabled Locomotion. *Proceedings of the IEEE International conference on Intelligent Robots and Systems, Oct. 10-15 2009.* 5672-5677 (2009).

32. E. Brown, H. M. Jaeger. Dynamic jamming point for shear thickening suspensions. *Phys. Rev. Lett.* **103**, 086001 (2009).

33. E. Brown, G. Ahlers. The origin of oscillations of the large-scale circulation of turbulent Rayleigh-Bénard convection. *J. Fluid Mech.* **638**, 383-400 (2009).

34. E. Brown, G. Ahlers. Azimuthal asymmetries of the large-scale circulation in turbulent Rayleigh-Bénard convection. *Phys. Fluids* **20** 105105-1–15 (2008).

35. E. Brown, G. Ahlers. A model of diffusion in a potential well for the dynamics of the large-scale circulation in turbulent Rayleigh-Bénard convection. *Phys. Fluids* **20**, 075101-1–16 (2008).

36. D. Funfschilling, E. Brown, G. Ahlers. Torsional oscillations of the large-scale circulation in turbulent Rayleigh-Bénard convection. *J. Fluid Mech.* **607**, 119-139 (2008).

37. E. Brown, D. Funfschilling, G. Ahlers. Anomalous Reynolds-number scaling in turbulent Rayleigh-Bénard convection. *J. Stat. Mech.* P10005 (2007).

38. E. Brown, G. Ahlers. Temperature gradients and search for non-Boussinesq effects in the interior of turbulent Rayleigh-Bénard convection. *Europhysics Letters* **80**, 14001-1–6 (2007).

39. E. Brown, G. Ahlers. Large-scale circulation model for turbulent Rayleigh-Bénard convection. *Phys. Rev. Lett.* **98**, 134501-1–4 (2007).

40. E. Brown, G. Ahlers. Effect of the Earth's Coriolis force on the large-scale circulation of turbulent Rayleigh-Bénard convection. *Phys. Fluids* **18**, 125108-1–15 (2006).

41. G. Ahlers, E. Brown, F. Fontenele-Araujo, D. Funfschilling, S. Grossman, D. Lohse. Non-Oberbeck-Boussinesq effects in strongly turbulent Rayleigh-Bénard convection. *J. Fluid Mech.* **569**, 409–445 (2006).

42. E. Brown, G. Ahlers. Rotations and cessations of the large-scale circulation in turbulent Rayleigh-Bénard convection. *J. Fluid Mech.* **568**, 351–386 (2006).

43. G. Ahlers, E. Brown, A. Nikolaenko. The search for slow transients, and the effect of imperfect vertical alignment, in turbulent Rayleigh-Bénard convection. *J. Fluid Mech.* **557**, 347–367 (2006).

44. E. Brown, A. Nikoleanko, G. Ahlers. Reorientation of the large-scale circulation in turbulent Rayleigh-Bénard convection. *Phys. Rev. Lett.* **95** 084503-1–4 (2005).

45. E. Brown, A. Nikolaenko, D. Funfschilling, G. Ahlers. Heat transport in turbulent Rayleigh-Bénard convection: Effect of finite top- and bottom-plate conductivity. *Phys. Fluids* **17**, 075108-1–10 (2005).

46. D. Funfschilling, E. Brown, A. Nikolaenko, G. Ahlers. Heat transport by turbulent Rayleigh-Bénard Convection in cylindrical samples with aspect ratio one and larger. *J. Fluid Mech.* **536**, 145–154 (2005).

47. A. Nikolaenko, E. Brown, D. Funfschilling, G. Ahlers. Heat transport by turbulent Rayleigh-Bénard Convection in cylindrical cells with aspect ratio one and less. *J. Fluid Mech.* **523**, 251–260 (2005).