Scott Russell Waitukaitis

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EDUCATION

Ph.D. in Physics, The University of Chicago, Chicago (USA) **2007-2013**
- Advisor: Heinrich Jaeger
- Committee: Tom Witten, Wendy Zhang and Henry Frisch
- Thesis: *Impact-activated solidification of cornstarch and water suspensions*
- Winner of the Springer Thesis Award

B.S. in Physics, The University of Arizona, Tucson (USA) **2004-2007**
- Thesis: *Resonant Faraday rotation in a hot lithium vapor*
- *Summa cum laude*, with Honors
- *Sigma Pi Sigma* and *Phi Beta Kappa* societies

RESEARCH APPOINTMENTS

NWO Institute AMOLF, Veni scholar and postdoctoral fellow with Martin van Hecke **2016-present**
- Experiments in strongly coupled fluid-solid systems and simulations of origami-based mechanical metamaterials
- Joint guest appointment at Leiden University

The Leiden Institute of Physics at Leiden University, Postdoctoral fellow with Martin van Hecke **2013-2016**
- Simulations of origami-based mechanical metamaterials

The James Franck Institute at the University of Chicago, Graduate research assistant with Heinrich Jaeger **2008-2013**
- Experiments and simulations involving non-Newtonian fluids and complex systems

The James Franck Institute at the University of Chicago, Graduate research assistant with Cheng Chin **2007-2008**
- Experimental design and construction of ultra-high vacuum system, Zeeman slower, and magneto-optical trap for lithium atoms

The Department of Physics at the University of Arizona, Undergraduate research assistant with Alex Cronin **2005-2007**
- Experiments on quantum Faraday rotation with lithium atoms

The Department of Physics at the Montana State University, Research experience for undergraduates summer internship with Angela des Jardins and Richard Canfield **2005**
- Computational analysis of magnetic and X-ray solar flare data

EXTENDED STAYS

The Department of Physics at the University of Chile, Visiting scholar in the lab of Nicolas Mújica **2009**
- Experiments on universality in liquid-to-solid phase transition in vibrated granular media

HONORS

Winner of Fysica Young Speakers Contest, *NNV Fysica Congress*, Utrecht (NL) **2018**
Block Prize for Outstanding Young Researcher, *Aspen Center for Physics* **2018**
C.J. Kok 'Discoverer of the Year' Prize *(2nd place)*, Leiden University **2017**
Veni Research Grant, The Netherlands Organization for Scientific Research **2016-present**
- **€250,000 individual research grant**
- Proposal: *The active dynamics of the elastic Leidenfrost effect*

The Springer Thesis Award, Springer Publishing **2014**
- Thesis published as book by Springer

The Arts | Science Initiative Graduate Fellowship Grant, The University of Chicago **2012-2013**
- $2000 shared grant with artist Jen Smoose for sculptural project *Wishful Permutation*
- Exhibition at the Logan Center for the Arts, Chicago (USA)

The Bruce Winstein Prize for Instrumentation, The Department of Physics at the University of Chicago **2012**
- $1000 award for development of new technique to measure electrostatic charging

Outstanding Oral Presentation Award, The Electrostatics Society of America **2011**
- Talk title: *Direct measurement of size-dependent charging in chemically identical grains*

The Robert A. Millikan Fellowship, The Department of Physics at the University of Chicago **2010-2013**
- Full tuition and research scholarship for 3 years of study

The Robert G. Sachs Fellowship, The Department of Physics at the University of Chicago **2007-2009**
Outstanding Senior Award, The Department of Physics at the University of Arizona **2007**
Outstanding Research Presentation Award, The Department of Physics at the University of Arizona **2007**
Honors Transfer Scholarship, The University of Arizona **2004-2007**

SYNERGISTIC ACTIVITIES

EUSMI Transnational Access Colaboration, Edinburgh (SL) **2018**
- With Dr. Jochen Arlt and Dr. Aidan Brown

Chair, *The Granular Gordon Research Seminar 2018*, Easton (USA) **2018**
- With co-chair Cacey Bester and GRC chairs Deveraj van der Meer and Aparna Baskaran

Organizer, *The World in a Grain of Sand: A Symposium on the Collective Behavior of Particles*, Chicago (USA) **2017**
- a.k.a. *Jaegerfest: A celebration of Heinrich Jaeger's 60th birthday*
- With co-organizers Eric Corwin, Xiao-Min Lin, Raghuveer Parthasarathy, Xiang Cheng Leah Roth and Kieran Murphy

Co-researcher, Experimental **A**strophysical **R**esearch into **T**errestrial Growt**h** (**EARTh**) **2016-presen**t
- Winner of the Chilean QUIMAL prize (**$315,000 research grant**)
- With lead investigator Nicolas Mújica and co-researchers Rodrigo Soto, Simon Casassus, Devin Schrader and Marcos Flores

Organizer, Soft Matter Seminar at the Leiden Institute of Physics **2013-2014**
- With co-organizers Jayson Paulose and Bryan Chen

Congress Assistant, *MarchCOM Meeting on Complexity*, Havana (CU) **2012**
- With direction from organizers Ernesto Altshuler and Jon Otto Fossum

Workshop Assistant, *Fluidity, adaptability, rigidity: Frontiers in pure and applied jamming*, Chicago (USA) **2012**
- With direction from organizers Heinrich Jaeger, Sidney Nagel and Sean Keller

Review activity for *Nature Physics, Physical Review Letters, Physical Review Materiasls, Soft Matter, Physical Review E, Review of Scientific Instruments* **2009-present**,

Tour guide and volunteer, *Physics with a bang!* at the University of Chicago **2009-2013**

Spanish translator and volunteer, *Arte no es fácil* MacArthur funded art exchange program **2009-2011**
Volunteer, SMART outreach program at the University of Chicago **2007**
President, The Society of Physics Students at the University of Arizona **2006-2007**

LIST OF PUBLICATIONS

(*high impact)

In final stages or in review

21. **Combinatorial crease patterns for multi-shape origami metamaterials**
Peter Dieleman, Niek Vasmel, Scott Waitukaitis, and Martin van Hecke
in final stages of preparation

20. **Multistable mechanics of non-Euclidean four vertex origami**
Scott Waitukaitis, Pieter Dieleman, and Martin van Hecke
in final stages of preparation

Published

19. **From bouncing to floating: the Leidenfrost effect with hydrogel spheres**
Scott Waitukaitis, Kirsten Harth Martin van Hecke
Physical Review Letters 121, 048001 (2018).

18. **Collisional charging of individual sub-millimeter particles: using ultrasonic levitation to initiate and track charge transfer**
Victor Lee, Nicole M. James, Scott Waitukaitis, and Heinrich Jaeger
Physical Review Materials **2,** 035602 (2018).

17. **A high-speed tracking algorithm for dense granular media**
Cristobal Navarro, Juan Silva, Scott Waitukaitis, Nicolas Mújica, Nancy Hitschfeld-Kahler and Mauricio Cerda
Computer Physics Communications **227**, 8-16 (2018).

16. **The retention of dust in protoplanetary disks: evidence from agglomeratic olivine chondrules from the outer Solar System**
Devin Schrader, Kazuhide Nagashima, Scott Waitukaitis, Jemma Davidson, Timothy McCoy, Harold Connoly and Dante Lauretta
Geochimica et Cosmochimica Acta **223**, 405-421 (2018).

15. ***Coupling the Leidenfrost effect and elastic deformations to power sustained bouncing** (*Cover*)
Scott Waitukaitis, Antal Zuiderwijk, Anton Souslov, Corentin Coulais and Martin van Hecke
Nature Physics **13**, 1095-1099 (2017).

14. **Origami building blocks: generic and special four-vertices**
Scott Waitukaitis and Martin van Hecke
Physical Review E **93**, 023003 (2016).

13. ***Direct observation of particle interactions and clustering in charged granular streams**
Victor Lee, Scott Waitukaitis, Marc Miskin and Heinrich Jaeger
Nature Physics **11**, 733-737 (2015).

12. ***Origami multistability: from single vertices to metasheets**
Scott Waitukaitis, Rémi Menaut, Bryan Chen and Martin van Hecke
Physical Review Letters **114,** 055503 (2015).

11. **Size-dependent, same-material tribocharging in insulating grains**
Scott Waitukaitis, Victor Lee, James Pierson, Steve Forman and Heinrich Jaeger
Physical Review Letters **112,** 218001 (2014).

10. **Settling into dry granular media in different gravities**
Ernesto Altshuler, Harol Torres, Gustavo Sánchez-Colina, Carlos Pérez-Penichet, Scott Waitukaitis and Raul Hidalgo
Geophysical Review Letters **41,** 3032-3037 (2014).

9. **From nanoscale cohesion to macroscale entanglement: opportunities for designing granular aggregate behavior by tailoring grain shape and interactions**
Heinrich Jaeger, Marc Miskin, and Scott Waitukaitis
Powders and Grains **1542,** 3-6 (2013).

8. **Dynamic Jamming Fronts**
Scott Waitukaitis, Leah Roth, Vincenzo Vitelli, and Heinrich Jaeger
Europhysics Letters **102**, 44001 (2013).

7. ***In situ* granular charge measurement by free-fall videography**
Scott Waitukaitis and Heinrich Jaeger
Review of Scientific Instruments **84,** 025104 (2013).

6. **Solidificación de una suspensión de maicena y agua**
Scott Waitukaitis and Heinrich Jaeger
Revista Cubana de Física **29**, (2012).

5. *__Impact-activated solidification of dense suspensions via dynamic jamming fronts__
Scott Waitukaitis and Heinrich Jaeger
Nature **487**, 205-209 (2012).

4. **Droplet and cluster formation in freely-falling granular streams**
Scott Waitukaitis, Helge Grütjen, John Royer and Heinrich Jaeger
Physical Review E **83**, 051302 (2011).

3. *__High-speed tracking of rupture and clustering in freely-falling granular streams__
John Royer, D.J. Evans, Loreto Oyarte, Qiti Guo, Matthias Möbius, Scott Waitukaitis and Heinrich Jaeger
Nature **459,** 1110-1113 (2009).

2. **Reconnection in three dimensions: the role of spines in three eruptive flares**
Angela des Jardins, Richard Canfield, Dana Longcope, C. Fordyce and Scott Waitukaitis
Astrophysical Journal **693**, 1628-1636 (2009).

1. **Cover slip external cavity diode laser**
Victoria Carr, Yancey Sechrest, Scott Waitukaitis, John Perrault, Vincent Lonij and Alex Cronin
Review of Scientific Instruments **78**, 106108 (2007).

INVITED TALKS AND SEMINARS

(*high visibility)

51. **Invited Seminar (planned)**, ESPCI, Paris (FR) **Feb 4 2018**
The Leidenfrost effect with hydrogels
50. **Invited Talk (planned),** Southern Workshop on Granular Materials, Puerto Varas (CL) **Dec 2018**
The elastic Leidenfrost effect

49. **Invited Seminar (planned)**, The School of Physics at the University of Edinburgh, Edinburgh (UK) **Oct 1, 2018**
Rabbits, dust devils, volcanoes, planets: The surprising physics of granular tribocharging

48. **Invited Seminar,** Physics Department at the University of Chile, Santiago (CL) **Aug 16, 2018**
The elastic Leidenfrost effect: coupling vapor release and elastic deformations to power sustained bouncing

47. **Invited Talk**, Bessensap, Amsterdam (NL) **June 15, 2018**

46. **Invited Talk,** Amsterdam Science Now!, Amsterdam (NL) **May 31, 2018**

45. **Invited Seminar,** MIT Mechanical Engineering, Cambridge (US) **Mar 15, 2018**
Granular tribocharging: from fundamental mysteries to macroscale self-assembly

44. **Invited Seminar**, UCSD, San Diego (US) **Mar 12, 2018**
Granular tribocharging: from fundamental mysteries to macroscale self-assembly

43. **Invited Seminar,** IST Austria, Klosterneuburg (AT) **Feb 28, 2018**
Rabbits, Planets, Volcanoes, Dust Devils: The Surprising Physics of Granular Tribocharging

42. **Invited Seminar,** UMass Amherst Physics Department, Amherst (US) **Feb 16, 2018**
The elastic Leidenfrost effect: Coupling vapor release and elastic deformations to power sustained bouncing

41. **Invited Colloquium,** Brandeis University Department of Physics, Waltham (US) **Feb 14, 2018**
The elastic Leidenfrost effect: Coupling vapor release and elastic deformations to power sustained bouncing

40. **Invited Seminar,** Boston University Mechanical Engineering, Boston (US) **Feb 7, 2018**
Transforming soft materials into engines by coupling the Leidenfrost effect to elastic deformations

39. **Invited Seminar,** Opening Act Van der Waals Colloquium, Leiden University, Leiden (NL) **Jan 26, 2018**
Out of the lab and into the frying pan: hacking hydrogels to create active matter

38. **Invited Seminar,** Centre de Recherche Paul Pascal, Bordeaux (FR) **Dec 7, 2017**
Using the Leidenfrost effect and hot hydrogels to make better bouncy balls

37. **Invited Seminar,** Laboratoire Ondes et Matière d'Aquitaine, Bordeaux (FR) **Dec 5, 2017**
Using the Leidenfrost effect and hot hydrogels to make better bouncy balls

36. **Invited Seminar,** Faculty of Science at the University of Liège, Liège (BE) **Nov 13, 2017**
Coupling the Leidenfrost effect and elastic deformations to power sustained bouncing

35. **Invited Seminar,** Science Meets Business, Leiden (NL) **Nov 9, 2017**
YouTube Science: How good ideas can come from anywhere

34. **Invited Seminar,** École Normale Supérieure de Lyon, Lyon (FR) **Oct 31 2017**
Using a phase transition and the Leidenfrost effect to harness mechanical energy from vaporizable soft solids

33. **Invited Seminar**, The School of Physics at the University of Edinburgh, Edinburgh (UK) **Oct 23, 2017**
Transforming soft materials into engines by coupling the Leidenfrost effect to elastic deformations

32. **Invited Seminar,** The Lumière Institute at the Claude Bernard University Lyon, Lyon (FR) **Oct 13, 2017**
Using the Leidenfrost effect and hot hydrogels to make better bouncy balls

31. **Invited Seminar,** The Institute for Physics at the University of Amsterdam, Amsterdam (NL) **June 9, 2017**
A soft engine powered by a single object and made from a single material

30. **Invited Seminar,** The University of Chicago, Chicago (USA) **Mar 8, 2017**
A soft engine powered by a single object and made from a single material

29. **Invited Seminar,** Saint-Gobain Recherche, Paris (FR) **Dec 15, 2016**
Rabbits, Planets, Volcanoes, Dust Devils: The Surprising Physics of Granular Tribocharging

28. **Invited Seminar,** The MSI at the University of Oregon, Eugene (USA) **Nov 18, 2016**
Rabbits, Planets, Volcanoes, Dust Devils: The Surprising Physics of Granular Tribocharging

27. *__Invited Colloquium,__ Deutsches Zentrum für Luft und Raumfahrt, Cologne (DE) **Nov 8, 2016**
Rabbits, Planets, Volcanoes, Dust Devils: The Surprising Physics of Granular Tribocharging

26. **Invited Talk,** This week's discoveries, Leiden University, Leiden (NL) **Oct 25, 2016**
Rabbits, Planets, Volcanoes, Dust Devils: The Surprising Physics of Granular Tribocharging

25. *__Invited Short Talk,__ The Granular Matter Gordon Research Conference, Easton (USA) **Jul 27, 2016**
Animating granular matter with the elastic Leidenfrost effect

24. **Invited Seminar,** PMMH Laboratory at the ESPCI, Paris (FR) **June 25, 2016**
Rabbits, Planets, Volcanoes, Dust Devils: The Surprising Physics of Granular Tribocharging

23. **Invited Seminar,** Department of Physics at the Université Paris Diderot, Paris (FR) **June 21, 2016**
Rabbits, Planets, Volcanoes, Dust Devils: The Surprising Physics of Granular Tribocharging

22. **Invited Seminar,** Physics Department at Wageningen University, Wageningen (NL) **Apr 14, 2016**
Rabbits, Planets, Volcanoes, Dust Devils: The Surprising Physics of Granular Tribocharging
21. **Invited Seminar,** Max Planck Institute, Göttingen (DE) **Jan 15, 2016**
Rabbits, Planets, Volcanoes, Dust Devils: The Surprising Physics of Granular Tribocharging
20. **Invited Seminar,** Leiden University Department of Physics, Leiden (NL) **Oct 29, 2015**
Rabbits, Planets, Volcanoes, Dust Devils: The Surprising Physics of Granular Tribocharging
19. *__Keynote Talk,__ SB9 Planetary Rings, European Planetary Science Congress, Nantes (FR) **Oct 1, 2015**
Tribocharging and charged interaction in same-material, microscopic grains
18. *__Invited Talk,__ European Solid Mechanics Conference, Madrid (ES) **Jul 7, 2015**
Multishape Origami Metasheets
17. *__Invited Talk,__ The Southern Granular Matter Workshop, Santiago (CL) **Nov 25, 2015**
Tribocharging and charged interactions in same-material, microscopic grains
16. *__Invited Talk,__ The 18th Dutch Soft Matter Meeting, Eindhoven (NL) **June 3, 2015**
Multishape Origami Metasheets
15. **Invited Seminar,** The Otto-von-Guericke-Universität Magdeburg, Magdeburg (DE) **June 1, 2015**
How to walk on water (and cornstarch)
14. **Invited Seminar**, The Physics Department at UMass Amherst, Amherst (USA) **Mar 11, 2015**
The delicate dance of charged grains in zero gravity
13. **Invited Seminar**, The Department of Physics at Cornell University, Ithaca (USA) **Mar 9, 2015**
The delicate dance of charged grains in zero gravity
12. **Invited Seminar,** Leiden University Department of Physics, Leiden (NL) **Sept 25, 2014**
Multishape Origami Metasheets
11. **Invited Seminar,** The Institute for Physics at the University of Amsterdam, Amsterdam (NL) **June 9, 2014**
How to walk on water (and cornstarch)
10. **Invited Seminar,** The Physics of Fluids Group at the University of Twente, Enschede (NL) **Jan 8, 2014**
How to walk (run) on water (and cornstarch)
9. **Invited Seminar**, École Normal Supérieure, Paris (FR) **Mar 19, 2014**
Why you can walk (run) on water (and cornstarch)
8. **Invited Seminar,** The Soft Matter Seminar, Leiden University, Leiden (NL) **Oct 30, 2013**
Impact-activated solidification of cornstarch and water suspensions
7. **Invited Colloquium,** The Department of Physics at St. Olaf's College, Northfield (USA) **Sept 18, 2013**
Why you can run on water (and cornstarch)
6. *__Invited Talk,__ 64th Annual Starch Meeting, Detmold (DE) **Apr 24, 2013**
Impact-activated solidification of a dense cornstarch suspension
5. **Panelist,** *Cabinet on Narrative*, The Arts-Science Initiative, Chicago (USA) **Apr 12, 2013**
4. **Invited Seminar,** The Soft Matter Seminar, Leiden University, Leiden (NL) **Apr 2, 2013**
Why you can run on water (and cornstarch)
3. **Invited Seminar,** PMMH Laboratory at ESPCI, Paris(FR) **Mar 29, 2013**
Impact-activated solidification of dense suspensions
2. *__Invited Talk,__ March Meeting, Baltimore (USA) **Mar 22, 2013**
Impact-activated solidification of dense suspensions
1. **Invited Seminar**, The University of Chicago, Chicago (USA) **Mar 6, 2012**
Same material tribocharging in insulating grains

CONFERENCES, WORKSHOPS & SCHOOLS

(*invited)

Gordon Granular Matter Research Seminar, Easton (USA) **Jul 2018**
Conference co-chair with Cacey Bester
European Solid Mechanics Congress, Bologna (IT) **Jul 2018**
Contributed talk: *Bouncing, screaming, floating: motion control with vaporizable solids*
APS March Meeting, Los Angeles (USA) **Mar 2018**
Contributed talk: *Why won't thes balls stop jumping and screeching?*
Fundamental Problems in Active Matter, Aspen Center for Physics, Aspen (USA) **Jan 2018**
Awarded Block Prize for Outstanding Young Researcher

Form and Deformation in Solid and Fluid Mechanics, Cambridge (UK) **Sep 2017**
Contributed talk: *Coupling the Leidenfrost effect and elastic deformations to power sustained bouncing*

Programmable Matter Workshop, ESPCI Paris (FR) **June 2017**
Contributed talk: *A soft engine embedded into a single object made from a single material*

22nd Dutch Soft Matter Meeting, Delft (NL) **May 2017**

APS March Meeting, New Orleans (USA) **Mar 2017**
Contributed talk: *Animating soft matter with the elastic Leidenfrost effect*
Chair of Focus Session C16: *Mechanical Singularities in Soft Matter*

Physics at Veldhoven, Veldhoven (NL) **Jan 2017**
Contributed talk: *Animating soft matter with the elastic Leidenfrost effect*

APS DFD Meeting, Portland (USA) **Nov 2016**
Contributed talk: *Animating impacting spheres with the elastic Leidenfrost effect*

Society of Engineering Science 53 Annual Technical Meeting, College Park (USA) **Oct 2016**
Contributed talk: *Animating soft matter with the elastic Leidenfrost effect*
Contributed talk: *Geometry driven design of multistable origami metamaterials*

*__The Granular Matter Gordon Research Conference,__ Easton (USA) **Aug 2016**
Invited talk: *Animating granular matter with the elastic Leidenfrost effect*

The Granular Matter Gordon Research Seminar, Easton (USA) **Aug 2016**
Discussion leader and keynote session chair: *Soft granular matter*

20th Dutch Soft Matter Meeting, Amsterdam (NL) **May 2016**

APS March Meeting, Baltimore (USA) **Mar 2016**
Contributed talk: *The role of geometry in 4-vertex origami mechanics*

Physics at Veldhoven, Veldhoven (NL) **Jan 2016**

*__Southern Granular Matter Workshop,__ Santiago (CL) **Dec 2015**
Invited talk: *Tribocharging and charged interactions in same-material, microscopic grains*

19th Dutch Soft Matter Meeting, Utrecht (NL) **Oct 2015**

*__European Planetary Science Congress__, Nantes (FR) **Oct 2015**
Keynote talk: *Tribocharging and charged interaction in same-material, microscopic grains*

Metamorphose: Metamaterials 2015, Oxford (UK) **Sept 2015**
Contributed talk: *Multishape origami metasheets*

*__European Solid Mechanics Conference__, Madrid (ES) **Jul 2015**
Invited talk: *Multishape origami metasheets*

Designer Matter Workshop, Amsterdam (NL) **June 2015**
Contributed talk: *Multistable origami metamaterials*

18th Dutch Soft Matter Meeting, Eindhoven (NL) **June 2015**

MRS Spring Meeting, San Francisco (USA) **Apr 2015**
Contributed talk: *Multistable origami metamaterials*

APS March Meeting, San Antonio (USA) **Mar 2015**
Contributed talk: *Multistable origami metamaterials*

Granular Matter in Low Gravity, Erlangen (DE) **Mar 2015**
Contributed talk: *Freely-falling granular streams: a zero-g playground for charged grain interactions*

Physics at Veldhoven, Veldhoven (NL) **Jan 2015**
Contributed talk: *Origami multistability: from single vertices to metasheets*

17th Dutch Soft Matter Meeting, Leiden (NL) **Nov 2014**
Soundbyte: *Crumpled paper is a metamaterial*

Society of Engineering Science 51st Annual Technical Meeting, Purdue (USA) **Nov 2014**
Contributed talk: *Designing the energy landscape of folded structures*

The 6th International Meeting on Origami in Science, Mathematics, and Education, Tokyo (JP) **Aug 2014**
Guerilla talk: *Designing the energy landscape of folded structures*

16th Dutch Soft Matter Meeting, Amsterdam (NL) **May 2014**
Soundbyte: *Multistability in origami 4-vertices*

Casimir Spring School, Arnemuiden (NL) **May 2014**
Contributed talk: *Designing the energy landscape of folded structures*

APS March Meeting, Denver (USA) **Mar 2014**
Contributed talk: *Bad origami*

Physics at Veldhoven, Veldhoven (NL) **Jan 2014**

*64th Annual Starch Meeting, Dortmund (DE) **Apr 2013**
Invited talk: *Impact-activated solidification of a dense cornstarch suspension*

*APS March Meeting, Baltimore (USA) **Mar 2013**
Invited talk: *Impact-activated solidification of dense suspensions*

MarchCOM Workshop on Complex Media, Havana (CU) **Mar 2012**
Contributed talk: *Why you can walk on a suspension of cornstarch and water*

Electrostatics Society of America Annual Conference, Cleveland (USA) **June 2011**
Contributed talk: *Direct measurement of size-dependent charging in chemically identical grains*

APS March Meeting, Dallas (USA) **Mar 2011**
Contributed talk: *Granular electrophoresis: in situ measurement of charge and size in freely-falling grains*

The Granular Matter Gordon Research Conference, Colby College (USA) **June 2010**
Poster: *Granular electrophoresis:* in situ *measurement of charge and size in freely-falling grains*

APS DFD Meeting, Minneapolis (USA) **Nov 2009**
Contributed talk: *Temperature fluctuations in a freely-falling granular stream*

APS March Meeting, Pittsburgh (USA) **Mar 2009**
Contributed talk: *Clustering in a dense, freely-falling granular streams*

APS DAMOP Meeting, State College (USA) **May 2008**
Poster: *Combined experimental approach for magneto-optical trapping of Li and Cs atoms*

Midwest Cold Atom Workshop, Madison (USA) **Nov 2007**
Poster: *Combined experimental approach for magneto-optical trapping of Li and Cs atoms*

IN THE NEWS

(a selection, high visibility*)

Een ongewoon Leidenfrosteffect, Nederlandse Tijdschrift voor Natuurkunde, June (2018)
Pancake Science, Amsterdam Science, May (2018)
Physicist saw a video on IFLScience and ended up writing a scientific study about it, *IFLS*, October 3 (2017)
***Dancing balls lead to a physics discovery,** *Discover*, July 26 (2017)
Springende gelballetjes piepen in de koekepan, *NRC Handelsblad*, July 26 (2017)
Waarom balletjes op een hete plaat piepen en springen, *Engineers Online,* July 26 (2017)
Hüpfendes hydrogel als mikroantrieb, *pro-physik.de,* July 26 (2017)
Waarom deze balletjes gillen en stuiteren in een hete pan, *Kijk Magazine*, July 25 (2017)
***These bouncing balls on a hot pan led to a new physics discovery**, *The Washington Post*, July 24 (2017)
Leidenfrost-Effekt lässt weiche Kügelchen hüpfen, *Welt der Physik*, July 24 (2017)
Elastic Leidenfrost enables soft engines, *Phys.org*, July 24 (2017)
***Van grap en YouTube-hit tot Nature-publicatie: waarom hydrogelballetjes stuiteren in een pan, *De Volkskrant*,** July 24 (2017)
Screaming gel balls reveal a way to power soft but noisy robots, *New Scientist*, July 24 (2017)
Let's power robots with shrieking balls, *Inverse*, July 24 (2017).
***Doorbraak in de aandrijving van zachte robots,** *RTL4 Nieuws Holland*, July 24 (2017)
Físicos y astrónomos ganan fondo para estudiar la formación de planetas, *Noticias de la Universidad de Chile,* December 22 (2016)
Leidenfrost effect puts perpetual bounce into Hydrogel Beads, *Physics Central*, March 29 (2016)
Hydrogel beads key recipe for sustained bouncing, *Inside Science News*, March 24 (2016)
***Granular matter: charges dropped**, Frank Spahn and Martin Seiβ, *Nature Physics* 11, 709-710 (2015)
Simulan en laboratorio como empiezan a formarse los planetas, *Tendencias Científicas*, August 19 (2015)
Creating 'Planets' in a laboratory: How particles clump together to create new worlds observed for the first time, *Daily Mail*, August 6 (2015)
Lab experiment mimics early-stage planet formation process, *UChicago News*, August 3 (2015)
Watch: Clumps of particles mimic how planets form, *Futurity*, August 3 (2015)
Focus: Electrons not the cause of charged grains, *APS Focus*, May 30 (2014)
We still don't know how static electricity works, *Gizmodo*, May 21 (2014)
Static electricity defies simple explanation, *Science News*, May 15 (2014)
Viral video shows people walking and dancing on liquid, *Business Insider*, January 11 (2014)

Review of Scientific Instruments Podcast, June 1 (2013)
Clearing up the oobleck physics mystery, *Scientific Computing*, July 23 (2012)
*__Geek party! How to run across a pool of goo,__ *Time*, July 18 (2012)
*__Running on Physics: Why you can walk on Water and Cornstarch,__ *Discover*, July 17 (2012)
How to walk on water, *Science News*, July 16 (2012)
Mystery solved: why impact turns liquid solid, *Futurity*, July 13 (2012)
Why can we walk on custard?, *Chemistry World*, July 12 (2012)
*__Cornflour's gooey trick revealed__, *BBC*, July 12 (2012)
Messy experiment cleans up physics mystery of cornstarch, *UChicago News*, July 12 (2012)
*__How to walk on custard,__ *Nature Podcast*, July 12 (2012)
Über Wasser(-Stärke-Gemisch) gehen…, *pro-physik.de*, July 11 (2012)
*__Cornstarch physics is shear nonsense__, *Science News*, July 11 (2012)
Defying gravity: when strange liquids act like solids, *Wired*, July 11 (2012)
How to walk on water with help from Dr. Seuss's ooblek, *Live Science*, July 11 (2012)
A striking experiment shows how you can run on quicksand, *Ars Technica*, July 11 (2012)
*__The reason you can walk on water (and cornstarch)__, *Popular Mechanics*, July 11 (2012)
*__Soft matter: running on cornflour,__ Martin van Hecke, *Nature* **487**, 174-175 (2012)
Clever Apes: Uncanny Slime, *WBEZ Chicago Clever Apes Blog*, November 3 (2011)
Sand found to flow like water, *Live Science*, July 1 (2009)
Granular media: structures in sand streams, Detlef Lohse and Deveraj van der Meer, *Nature* **459**, 1064-1065 (2009)

STUDENTS MENTORED

Bas Diphoorn, Eindhoven University of Technology Bachelor's Student — **Summer 2017**
Thesis: *Synthesis of hydrogel bouncing balls*

Hans Frijters, Leiden University Master's Student — **Summer 2017**
Thesis: *Metagels*

Antal Zuiderwijk, Leiden University Master's Student — **Spring 2017**
Thesis: *The Leidenfrost effect in soft solids*

Agustín Iniguez Rabago, Delft University Master's Student — **Summer 2016**
Project: *Hydrogel fabrication and molding*

Jasper van der Vaart, Leiden University Master's Student — **Winter 2016**
Thesis: *Determining the effect of bending on origami structures*

Bert Visscher, Leiden University Bachelor's Student — **Spring 2015**
Thesis: *Auxetic draping*

Rémi Menaut, École Normale Supérieure de Lyon Master's Student — **Fall 2013**
Thesis: *Multistable metasheet based on origami*

Leah K. Roth, University of Chicago REU student — **Summer 2012**
Project: *Dynamic jamming in 2D*

Elena Ruyter, Summer high school student — **Summer 2011**
Project: *Granular streams mini tutorial*

Gustavo Castillo, University of Chile exchange student — **Winter 2011**
Project: *Granular tribocharging experiments*

Estefania Vidal, University of Chile exchange student — **Winter 2011**
Project: *Granular tribocharging simulations*

Alison Patteson (Koser), University of Chicago REU student — **Summer 2010**
Project: *Granular breakup experiments*

Suomi Ponce Heredia, University of Chile exchange student — **Winter 2009**
Project: *Granular breakup experiments*

TEACHING EXPERIENCE

Teaching Assistant with Henry Frisch, The University of Chicago, Honors E&M	**Winter 2012**
Teaching Assistant with Henry Frisch, The University of Chicago, Honors Waves	**Spring 2011**
Teaching Assistant with Mark Oreglia, The University of Chicago, Honors Waves	**Spring 2010**
Teaching Assistant with Ed Blucher, The University of Chicago, Mechanics	**Fall 2007**
Teaching Assistant with Doug Toussaint, The University of Arizona, Advanced E&M	**Winter 2007**
Tutor, Math and Science Center at The University of Arizona	**2006-2007**

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