

Douglas J. Durian

CURRICULUM VITÆ

DOUGLAS J. DURIAN

Soft Matter Physics, Experiment

Home Phone: 610-543-1535

Birthdate: 29 June 1962

Birthplace: Kalamazoo, MI

Citizenship: USA

University of Pennsylvania

Department of Physics and Astronomy

209 South 33rd Street

Philadelphia, PA 19104-6396

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EDUCATION

Ph.D. Physics, Cornell University (1989); thesis: "The influence of temperature & surface chemistry on the wetting behavior of binary-liquid mixtures"; advisor: C.P. Franck

M.S. Physics, Cornell University (1987)

A.B. Physics, with honors, The University of Chicago (1984)

A.B. Applied Mathematics, fulfilled, The University of Chicago (1984)

POSITIONS

2004 – present	Professor of Physics	University of Pennsylvania
2002 – 2004	Professor of Physics	University of California, Los Angeles
1998 – 2002	Associate Professor of Physics	University of California, Los Angeles
1991 – 1998	Assistant Professor of Physics	University of California, Los Angeles
1989 – 1991	Postdoctoral Fellow	Exxon Res. & Eng. Co.; advisor: D.A. Weitz

VISITING POSITIONS

July 2014 Professeur Invité, chair Total, ESPCI – Paris. France
host: Eric Clément

June 2005 Member, Kavli Institute for Theoretical Physics, University of California – Santa Barbara
program: Granular Physics

July 2002 Member, Isaac Newton Institute for Mathematical Sciences, Cambridge UK
program: Foams and Minimal Surfaces

April-July 2001 Visiting Scientist at Université Louis Pasteur, Inst. de Physique, Strasbourg France
host: Carlos Marques

Dec. 1997 Member, Institute for Theoretical Physics, University of California – Santa Barbara
program: Jamming and Rheology

June 1997 Visiting Scientist at joint Elf-Aquitaine/CNRS laboratory, Paris France
host: Ludwik Liebler

PROFESSIONAL ACTIVITIES

- Vice-chair elect, Vice-chair / Chair / Past Chair, APS Topical Group on Soft Matter (2017-2021)
- Lead Organizer – 18th Mid-Atlantic Soft Matter Meeting (May 2017)
- Editorial Board, NPJ Microgravity (2014-present)
- Editorial Board, Journal of Statistical Mechanics: Theory and Experiment (2007-present)
- Associate Editor, Research Letters in Physics (2007-2017)

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- Vice-chair / Chair – Gordon Research Conference on Granular Physics (2014/2016)
- Organizer –session on emulsions and foams at 88th ACS Colloids Symposium (June 2014)
- Lead Organizer – 12th Mid-Atlantic Soft Matter Meeting (January 2014)
- Lecturer, Cargese Summer School on Soft Matter Physics (2010)
- Lecturer, Princeton Summer School on Condensed Matter Physics (2009)
- Founder and co-organizer, Penn-NYU Soft Matter Workshop (2006-2012)
- Member at Large, APS Topical Group on Statistical and Nonlinear Physics (2005-8)
- Co-organizer, EuroFoam (Noordwijk, 2008)
- Co-organizer, Dynamics Days (2005 at UCI and 2006 at UMD)
- Co-organizer, EuroFoam (Paris, 2004)
- Panelist, NSF Europe (Condensed Matter Physics) proposal evaluation Virtual Panel (2003)
- Lecturer, Boulder School for Condensed Matter and Materials Physics, 2002 School: Physics of Soft Matter
- Lecturer, International Center for Theoretical Physics (Trieste, Italy), Spring College on “The statistical mechanics of and dynamics of soft condensed matter” (1998)
- Panelist, Round Table Session on “Bubble Rafts and Foams”, Rutgers Statistical Mechanics Conference (1997)
- Co-organizer, UCLA-UCSB Workshops on Complex Fluids (1995-8)
- Co-organizer, Materials Research Society Symposium “Disordered Materials and Interfaces” (1995)
- Panelist, NASA review committee for grants in “Low temperature and Fundamental Physics” (1993)

CONSULTING ACTIVITIES

review proposals for: National Science Foundation (NSF), National Aeronautics and Space Administration (NASA), American Chemical Society – Petroleum Research Fund (ACS-PRF), NATO-ASI, Netherland’s Foundation for Fundamental Research on Matter (FOM), Research Grant Council of Hong Kong, Swiss National Foundation, Kansas NSF EPSCoR, Israel Science Foundation, France’s Agence Nationale de la Recherche

review papers for: Physical Review Letters, Physical Review E, Science, Nature, Nature Physics, PNAS, Europhysics Letters, European Physical Journal B, Optics Letters, Journal of the Optical Society of America A, Optics Express, Journal of Physics C: Condensed Matter, Journal of Applied Physics, Philosophical Magazine B, American Journal of Physics, Journal of Chemical Physics, Langmuir, Journal of Colloid and Interface Science, AIChE Journal, Canadian Journal of Chemical Engineering, Fluid Dynamics Research, Physics of Fluids, Chemical Physics Letters, Journal of the American Chemical Society, Granular Matter, Soft Matter

HONORS

- NSF/NATO Postdoctoral Fellowship, declined (1989)
- UCLA Academic Senate Faculty Career Development Award (1994/5)
- UCLA Outstanding Teaching Award, Physics 6A (1995/6)
- Sigma Xi Distinguished Lecturer (2003/5)
- Fellow, American Physical Society (2005)
- Elected as Member at Large, APS Topical Group on Statistical and Nonlinear Physics (2005/8)
- Editorial Board, Journal of Statistical Mechanics: Theory and Experiment (2007-present)
- Associate Editor, Research Letters in Physics (2007-present)
- Editorial Board, Nature Publishing Group “Microgravity” (2014-present)
- Elected to chair line, APS Topical Group on Soft Matter Physics (2017/20)

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EXTRAMURAL FUNDING

- Exxon Education Fund, “Structure and internal dynamics of foams,” \$10K (1991-2)
- Exxon Education Fund, “Structure dynamics and time evolution of foams,” \$10K (1992-3)
- American Chemical Society – Petroleum Research Fund, Type G grant for fundamental research (26967-G9), “Study of foam structure and stability by diffuse light transmission,” \$20K (1993-5)
- NASA (NAG3-1419), “Microgravity foam structure and rheology,” \$300K (1992-6)
- NSF (DMR-9623567), “Foam structure and rheology,” \$188K (1996-9)
- NASA (NAG3-1894), “The melting of aqueous foams,” \$640K (1996-2000)
- NSF (DMR-0070329), “Dynamics of slow granular flow,” \$375K, (2000-3)
- NSF (DMR-0305106) “Granular fluctuation and dissipation”, \$360K (2003-6)
- NASA (NAG3-2481), “Foam Optics And Mechanics,” \$1000K (2000-5)
- NSF (DMR-0514705 transfer of DMR-0305106) “Granular fluctuation and dissipation”, \$260K (2004-6)
- NASA (NNC04GB61G, supplement 1) “Foam Optics and Mechanics”, \$150K (2005-6)
- NASA (NNC04GB61G, supplement 2) “Foam Optics and Mechanics, \$150K (2006-7)
- NSF (MRSEC) “Microfluidics Seed”, \$40K/yr (2005-9)
- Japanese Society for the Promotion of Science: postdoctoral support of Dr. Hiroaki Katsuragi (2005-7)
- Swiss National Science Foundation: postdoctoral support of Dr. Patrick Mayor (2007-8)
- Rhodia Inc.: postdoctoral support of Dr. Emilie Verneuil (2007-9)
- NASA (NNC04GB61G, supplements 3,4) “Foam Optics and Mechanics, \$150K/yr (2007-10)
- NSF (DMR-0704147) “Experiments on granular fluctuation and dissipation” \$500K (2007-11)
- NSF (MRSEC) “Mechanics of disordered cohesive granular solids”, \$40K/yr (2009-11)
- Rhodia Inc.: postdoctoral support of Dr. Yuli Wei (2009-2012)
- NASA (NNX07AP20G, supplement 5) “Foam Optics and Mechanics”, \$230K (2010-13)
- NSF (MRSEC/DMR-1120901) “IRG-3: Mechanical Failure in Disordered Packings” \$360K (2011-17)

current:

- NSF (DMR-1305199) “Jamming transitions and kinetic phenomena” \$390K (2013-16)
- NSF creativity extension to DMR-1305199, \$300K (2016-18)
- NASA (NNX14AM99G) “Foam Optics and Mechanics”, \$400K (2014-18)
- NSF (MRSEC/DMR) “IRG-1: Rearrangements and softness in disordered solids” \$540K (2017-23)

pending:

POSTDOCTORAL SCHOLARS

1995-1997	Narayanan Menon (now at U.-Mass. Amherst)
1997-1999	Arnaud Saint-Jalmes (now at Université Rennes)
1999-2000	Loïc Vanel (now at Ecole Normale Supérieure, Lyon)
2001-2003	Ranjini Bandyopadhyay (now at Raman Research Institute)
2003-2005	Pamela Korda (now at Arrayx Corp.)
2004-2007	Klebert Feitosa (now at James Madison University)
2005-2007	Paulo Arratia (now at University of Pennsylvania)

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2005-2007	Hiroaki Katsuragi (now at Nagoya University)
2007-2009	Patrick Mayor (now at Nano-Terra / Swiss National Science Foundation)
2007-2009	Emilie Verneuil (ESPCI)
2007-2009	Christopher Jones, PhD University of Colorado – Boulder
2009-2012	Yuli Wei, PhD Carnegie Mellon University
2014-2016	Juha Kovisto, PhD Aalto University (former Helsinki University of Technology)
2014-2017	Carlos Ruiz, PhD North Carolina State University (co-advised with D. Jerolmack)
2015-present	Matt Harrington, PhD University of Maryland
2016-present	Seyyed Salili, PhD Kent State

GRADUATE STUDENTS

Anthony Gopal, PhD 2000, “The bubble-scale origins of the macroscopic rheology of aqueous foams”
Moin Vera, PhD 2000, “Diffuse-transmission spectroscopy and the optics, structure, and evolution of foams”
Pierre-Anthony Lemieux, PhD 2001, “ n^{th} -Order dynamic light scattering: From a general approach to the intermittency transition in granular flows”
Rajesh Ojha, PhD 2003, "Granular behavior in gas-fluidized beds"
Adam Abate, PhD 2007, “Effective temperatures in granular systems”
Alex Gittings, PhD 2009, “Bubble rearrangement dynamics and light transport in aqueous foams”
Lynn Daniels, PhD 2010, “Air-fluidized grains as a model system: Self-propelling and jamming”
Kerstin Nordstrom, PhD 2010, “Jamming and flow of soft particle suspension”
Ted Brzinski, PhD 2013, “Granular drag and the kinetics of jamming”
Adam Roth, PhD 2013, “Structure and coarsening of foams: Beyond von Neumann’s law”
Charles Thomas, PhD 2015, “Clogging of granular hopper flows”
Jennifer Rieser, PhD 2015, “Deformation of two-dimensional amorphous packings”
Anthony Chieco, joined Summer 2012
Jesse Hanlan, joined Summer 2017

UNDERGRADUATE STUDENTS

Sidney Park, F92-W93; "Viscous & elastic fingering instabilities in foam" Phys.Rev.Lett. **72**, 3347-50 (1994).
Daryl Neher, W93
Albert Kao, W94-S94
Michael A. Johnson, F94-W95–S95
Grace H. Min, F94 - W95-S95
Alex Oppold, F94-S95
Wayne Yakura, S96
Brian Mercurio, S00
Aubrey A. Cox, W00-S00; “Spatial sampling by diffuse photons”, Applied Optics **40**, 4228-35 (2001).
Jun Uehara, F01-S02; "Low-speed impact cratering in loose granular media", Physical Review Letters **90**, 194301/1-4 (2003).
Michael Ambroso, S02-S04; “Penetration depth for shallow impact cratering” Physical Review E **71**, 051305/1-7 (2005) and “Dynamics of shallow impact cratering” Physical Review E **72**, 041305/1-4 (2005).

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Aaron Streets, F02-S03 (winner of 2002-3 Undergraduate Research Scholars Program fellowship)

Katie Newhall, 2003 NSF-REU student from RPI; "Projectile-shape dependence of impact craters in loose granular media", *Physical Review E* **68**, 060301(R) (2003).

Chris Santore, W04-S04

Adam Roth, S05-S07 (winner of 2005 Roy and Diana Vagelos Science Challenge Award)

Raul David Colon Moreno, 2006 NSF-REU student from UPRC-Humacao

Ben Polock, S06-S07

Matthew Berck, S07

Elliot Nelson, 2007 NSF-REU student from Wheaton College; "Projectile interactions in granular impact cratering" *Physical Review Letters* **101**, 068001 (2008).

Hannah Sheldon, S07-S08

Tim Huber, S08 summer intern on exchange from Konstanz University

Nicholas Fernandez, S09 summer intern on exchange from Ecole Polytechnique

Victor Sebag, S10 summer intern on exchange from Ecole Polytechnique, "Distribution of bubble length after coarsening of an aqueous foam in a horizontal cylinder" *Philosophical Magazine* **91**, 4357-4366 (2011).

Jean-Eudes le Douget, S11 summer intern on exchange from Ecole Polytechnique

Mentor to University of Pennsylvania team "Granular Impact Cratering in Microgravity and Hypergravity", selected to participate in NASA's 2011 Grant Us Space Reduced Gravity Education Flight Program [Meredith Perry (Penn), Parker Winchester (Penn), Guy Chriqui (Rose-Hulman), Olivia Lenz (PSU), Dane Bennington (Rose-Hulman)], University of Pennsylvania team

Taiyo Wilson, S11 NSF-REU student from Illinois Wesleyan University, "Granular discharge rate for submerged hoppers", *Papers in Physics* **6**, 060009 (2014).

Charlotte Pfeifer, S12 NSF-REU student from Carleton College (winner of E.W. Plummer Award for best paper)

Mathilde Laplagne, S13 summer intern on exchange from Ecole Polytechnique

Justin Aird (URM), S15 NSF-REU student from Virginia Tech

Sergio Machaca (URM), S15 NSF-REU student from Drexel

Megan Hayes, S14-S15

Cody Schimming, S15-S17

Stanley Davis (URM), S16 NSF-REU student from Hampton University

Bryan O. Torres Maldonado (URM), S16 NSF-REU student from University of Puerto Rico, Mayaguez

Sébastien Rondard, S17 summer intern on exchange from Ecole Polytechnique

HIGH-SCHOOL STUDENTS

Jorin Schug, Summer 2010

Kelly Mao, Summer 2011

Nico Mesyngier, Summer 2012

Gianni Mangineli, Summer 2015

Sylvia Durian, Summer 2016 & Summer 2017

OTHER VISITING RESEARCHERS

Prof. Paul K. Dixon, Cal State San Bernardino, 2001/2002

Prof. Kaya Kobayashi, Aoyama Gakuin University, 2009/2010

Mr. David Frankel, NSF-RET high school teacher, Summer 2012

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Ms. Yuka Takehara, PhD student at Ochanomizu University, on scholarship for 2012/2013.

Mr. Alan Siegal, NSF-RET high school teacher, Summer 2013

Mr. Youjie Sheng, PhD student at University of Science and Technology of China, supported by China Scholarship Council for 2016/2017

Mr. Yunhua Zhao, PhD student at Zhejiang University of Technology, supported by China Scholarship Council for 2016/2017

PRESS COVERAGE

- Ivars Peterson, “A light look at foam”, Science News **139**, 207 (1991).
- David A. Weitz, “Foams flow by stick and slip,” Nature **381**, 475 (1996).
- Sidney Perkowitz, *Universal Foam: From cappuccino to the cosmos* (Walker & Co., New York, 2000).
- Richard Gaughan, “Spectroscopy probes behavior of granular flows,” Photonics Spectra, (March 2001).
- Jennifer Ouellette, “The Physics of ... Foam Bubble, Bubble,” Discover Magazine (June 2002).
- Patrick Barry, “Strange Physics of Foam”, http://science.nasa.gov/headlines/y2003/09jun_foam.html (2003).
- Philip Ball, “Physicists find inspiration in sand pit,” Nature Science Update (21 May 2003).
- Jan Lublinski, “Report on impact craters”, German National Radio program "Forschung Aktuell" (7 July 2003).
- Kim Krieger, “Craters in a sandbox”, Physical Review Focus (12 Sept 2003).
- Philip Ball, “What is in a pebble shape? Scientists head to the beach to find out”, News at Nature.com doi:10.1038/news060710-15 (14 July 2006).
- Belle Dume, “Physicists solve pebble mystery” PhysicsWeb News (19 July 2006).
- Jean-luc Nothias, “Pourquoi les galets sont-ils ronds ?” Le Figaro (19 July 2006).
- Roger Highfield “Big theories from little pebbles grow” Telegraph (1 August 2006).
- Giulio Biroli, “Jamming: A new kind of phase transition?” Nature Physics **3**, 222 (2007).
- Tom Avril, “A sandy discovery has impact” Philadelphia Inquirer (14 May 2007).
- Debbie Elliot, “The nitty-gritty on the physics of sand”, interview on National Public Radio – Weekend All Things Considered (19 May 2007).
- Neil Cantor, “The impact of force on granular matter”, Tribology and Lubrication Technology (pp.12-13 Nov. 2007)
- Cover photograph featured on book by Committee on CMMP 2010, “Condensed-Matter and Materials Physics: The Science of the World Around Us” (National Academies Press, Washington DC, 2007).
- Article by D. J. Durian and S. R. Raghavan, “Making a frothy shampoo or beer” Physics Today **63**, 62-63 (2010), was selected by editors for translation and inclusion in Japanese magazine: Parity **8**, 52-54 (2011).
- Figure 1 of A.E. Roth, C.D. Jones, and D. J. Durian, “Coarsening of two-dimensional foam on a dome”, Physical Review E **86**, 021402 (2012), was selected for the August 2012 edition of the on-line “Kaleidoscope of Images” (<http://pre.aps.org/kaleidoscope/pre/86/2/021402>).
- Katherine Kornei “Synopsis: Optimizing Crop Irrigation” October 15, 2014 highlight for APS Features in Physics (<http://physics.aps.org/synopsis-for/10.1103/PhysRevApplied.2.044004>).
- David Larousserie, “Les voies de l’eau sont pénétrables”, Le Monde November 4, 2014.

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PUBLICATIONS

1. D. J. Durian and C. Franck, "Wetting phenomena of binary liquid mixtures on chemically altered substrates", *Physical Review Letters* **59**, 555-8 (1987).
2. D. J. Durian and C. Franck, "Continued exploration of the wetting phase diagram", *Physical Review B* **36**, 7307-10 (1987).
3. D. J. Durian and C. Franck, "Temperature-driven motion of a wetting layer", *Physical Review A* **40**, 5220-3 (1989).
4. D. J. Durian, K. Abeysuriya, S. K. Watson, and C. Franck, "Capillary behavior of binary liquid mixtures near criticality: Rise and kinetics", *Physical Review A* **42** 4724-34 (1990).
5. A. J. Liu, D. J. Durian, E. Herbolzheimer, and S. A. Safran, "Wetting transitions in cylindrical pores", *Physical Review Letters* **65**, 1897-1900 (1990).
6. D. J. Durian, D. A. Weitz, and D. J. Pine, "Dynamics and coarsening in three-dimensional foams", *J. Phys. : Condens. Matter* **2**, SA433-6 (1990).
7. D. J. Durian, D. A. Weitz, and D. J. Pine, "Multiple light-scattering probes of foam structure and dynamics", *Science* **252**, 686-9 & *cover photograph* (1991). Press coverage: Ivars Peterson, "A light look at foam", *Science News* **139**, 207 (1991).
8. D. J. Durian, D. A. Weitz, and D. J. Pine, "Scaling behavior in shaving cream", *Physical Review A* **44**, R7902-5 (1991).
9. J. X. Zhu, D. J. Durian, J. Müller, D. A. Weitz, and D. J. Pine, "Scaling of transient hydrodynamic interactions in concentrated suspension", *Physical Review Letters* **68**, 2559-62 (1992).
10. D. A. Weitz, J. X. Zhu, D. J. Durian, and D. J. Pine, "Principles and applications of diffusing-wave spectroscopy", in *Structure and Dynamics of Strongly Interacting Colloids and Supramolecular Aggregates in Solution*, S.-H. Chen et al., eds., 731-48 (Kluwer, Amsterdam, 1992).
11. D. A. Weitz, J. X. Zhu, D. J. Durian, H. Gang, and D. J. Pine, "Diffusing-wave spectroscopy: The technique and some applications", *Physica Scripta* **49B**, 610-26 (1993).
12. S. S. Park and D. J. Durian, "Viscous and elastic fingering instabilities in foam", *Physical Review Letters* **72**, 3347-50 (1994).
13. D. J. Durian, "The influence of boundary reflection and refraction on diffusive photon transport", *Physical Review E* **50**, 857-66 (1994).
14. D. J. Durian and D. A. Weitz, "Foams", in *Kirk-Othmer Encyclopedia of Chemical Technology*, 4th edition, J.I. Kroschwitz, ed., Vol. **11**, 783-805 (1994).
15. D. J. Durian, "Relaxation in aqueous foams," *Bulletin of the Materials Research Society* **19**, 20-3 (1994).
16. D. J. Durian, "Accuracy of diffusing-wave spectroscopy theories", *Physical Review E* **51**, 3350-8 (1995).
17. D. J. Durian, "Penetration depth for diffusing-wave spectroscopy", *Applied Optics* **34**, 7100-5 (1995).
18. H. Z. Cummins, D. J. Durian, D. L. Johnson, H. E. Stanley, eds., *Disordered Materials and Interfaces*, *Mat. Res. Soc. Symp. Proc.* **407** (1995).
19. A. D. Gopal and D. J. Durian, "Nonlinear bubble dynamics in a slowly driven foam", *Physical Review Letters* **75**, 2610-3 (1995). Press coverage: D.A. Weitz, "Foams flow by stick and slip," *Nature* **381**, 475 (1996).
20. D. J. Durian, "Foam mechanics at the bubble scale", *Physical Review Letters* **75**, 4780-3 (1995).
21. D. J. Durian, "The importance of boundary reflections in the theory of diffusive light scattering", *Optical Engineering* **34**, 3344-5 (1995).
22. M. U. Vera and D. J. Durian, "The angular distribution of diffusely transmitted light", *Physical Review E* **53**, 3215-24 (1996).
23. D. J. Durian, "Two-stream theory of diffusing-light spectroscopies", *Physica A* **229**, 218-35 (1996).
24. A.D. Gopal and D. J. Durian, "Fast thermal dynamics in aqueous foams", *J. Opt. Soc. Am. A* **14**, 150-5 (1997).
25. D. J. Durian and J. Rudnick, "Photon migration at short times and distances and in cases of strong absorption", *J. Opt. Soc. Am. A* **14**, 235-45 (1997).
26. N. Menon and D. J. Durian, "The dynamics of grains in flowing sand", *Science* **275**, 1920-2 (1997).
27. D. J. Durian, "Bubble-scale model of foam mechanics: melting, nonlinear behavior, and avalanches" *Physical*

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- Review E **55**, 1739-51 (1997).
28. M.U. Vera, P.-A. Lemieux, D. J. Durian, "The angular dependence of diffusely backscattered light", *J. Opt. Soc. Am. A* **14**, 2800-8 (1997).
 29. N. Menon and D. J. Durian, "Particle motions in a gas-fluidized bed of sand", *Physical Review Letters* **79**, 3407-10 (1997)
 30. D. J. Durian, "Fast, non-evolutionary dynamics in foam dynamics," *Current Opinion in Colloid and Interface Science* **2**, 615-21 (1997).
 31. P.-A. Lemieux, M. U. Vera, and D. J. Durian, "Diffusing-light spectroscopies outside the diffusive limit: the role of ballistic transport and anisotropic scattering," *Physical Review E* **57**, 4498-15 (1998).
 32. D. J. Durian, "The diffusion coefficient depends on absorption", *Optics Letters* **23**, 1502-4 (1998).
 33. D. J. Durian and J. Rudnick, "Spatially-resolved backscattering: implementation of extrapolation boundary conditions and exponential source," *J. Opt. Soc. Am. A* **16**, 837-44 (1998).
 34. M. Tabor, J. J. Chae, G. D. Burnett, and D. J. Durian, "The structure and dynamics of foams", *Nonlinear Science Today*, PII: S09389008(97)00012-0 (March 1998). NB: This peer-reviewed electronic journal is available at <http://www.springer-ny.com/nst/>.
 35. A. D. Gopal and D. J. Durian, "Shear-induced 'melting' of an aqueous foam," *J. Coll. I. Sci.* **213**, 169-78 (1999).
 36. P.-A. Lemieux and D. J. Durian, "Investigating non-Gaussian scattering processes using n^{th} -order intensity correlation functions," *J. Opt. Soc. Am A* **16**, 1651-64 (1999).
 37. A. Saint-Jalmes, M. U. Vera, and D. J. Durian, "Uniform foam production by turbulent mixing: new results on free drainage," *European Physical Journal B* , **12**, 67-73 (1999).
 38. A. Saint-Jalmes and D. J. Durian, "Vanishing elasticity for wet foams: Equivalence with emulsions and role of polydispersity," *J. Rheology* **43**, 1411-22 (1999).
 39. S. Tewari, D. Schiemann, D. J. Durian, C. M. Knobler, S. A. Langer, and A. J. Liu, "Statistics of Shear-induced Rearrangements in a Model Foam", *Physical Review E* **60**, 4385-96 (1999).
 40. D. J. Durian, "Collisions and Intermittency in Granular Flow", *J. Phys.: Cond. Matt.* **12**, A507-12 (2000).
 41. A. Saint-Jalmes, M. U. Vera, and D. J. Durian, "Free-drainage of aqueous foams: container shape effects on capillarity and vertical gradients", *Europhysics Letters* **50**, 695-701 (2000).
 42. M. U. Vera, A. Saint-Jalmes, and D. J. Durian, "Instabilities in a liquid-fluidized bed of gas bubbles", *Physical Review Letters* **84**, 3001-4 (2000).
 43. A. Saint-Jalmes, A. D. Gopal, M. U. Vera, and D. J. Durian, "Unjamming and fluidization of gas-liquid foams", in *Foams, Emulsions, and their Applications*, P. Zitha, J. Banhart, G. Verbist, eds. 65-71 (Verlag MIT, Bremen, 2000).
 44. P.-A. Lemieux and D. J. Durian, "From avalanches to fluid flow: a continuous picture of grain dynamics down a heap," *Physical Review Letters* **85**, 4273-6 (2000). Press coverage: Richard Gaughan, "Spectroscopy probes behavior of granular flows," *Photonics Spectra*, (March 2001).
 45. R. Ojha, N. Menon, and D. J. Durian, "Hysteresis and packing in gas-fluidized beds," *Physical Review E* **62**, 4442-5 (2000).
 46. A. Saint-Jalmes and D. J. Durian, "Reply to the Comment by S. J. Cox and D. Weaire on "Free drainage of aqueous foams: Container shape effects on capillarity and vertical gradients"," *Europhysics Letters* **55**, 447-8 (2001).
 47. P.-A. Lemieux and D. J. Durian, "Quasi-elastic light scattering for intermittent dynamics", *Applied Optics* **40**, 3984-94 (2001).
 48. L. Vanel, P.-A. Lemieux, and D. J. Durian, "Diffusing-wave spectroscopy for arbitrary geometries: Numerical analysis by a boundary element method", *Applied Optics* **40**, 4179-86 (2001)
 49. M. U. Vera, A. Saint-Jalmes, D. J. Durian, "Scattering optics of foam", *Applied Optics* **40**, 4210-4 (2001).
 50. A. Cox and D. J. Durian, "Spatial sampling by diffuse photons", *Applied Optics* **40**, 4228-35 (2001).
 51. D. J. Durian and A. J. Liu, "Jamming in colloidal dispersions: hard-sphere suspensions, emulsions and foams", in *Jamming and Rheology*, A.J. Liu and S.R. Nagel, eds., 39-49 (Taylor and Francis, NY, 2001).
 52. D. J. Durian and H. Diamant, "In search of soft solutions," *Nature* **412**, 391-2 (2001).

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53. M. U. Vera and D. J. Durian, "Enhanced drainage and coarsening in aqueous foams" *Physical Review Letters* **88**, 088304/1-4 (2002).
54. I. K. Ono, C. S. O'Hern, D. J. Durian, S. A. Langer, A. J. Liu, and S. R. Nagel, "Effective temperatures of a driven system near jamming," *Physical Review Letters* **89**, 095703/1-4 (2002).
55. F. Morin, R. Borrega, M. Cloitre, and D. J. Durian, "Static and dynamic properties of highly turbid media determined by spatially resolved diffusive-wave spectroscopy," *Applied Optics* **41**, 7294-9 (2002).
56. J. S. Uehara, M. A. Ambroso, R. P. Ojha, and D. J. Durian, "Low-speed impact craters in loose granular media" *Physical Review Letters* **90**, 194301 (2003) and erratum *Physical Review Letters* **90**, 149902 (2003).
57. P. K. Dixon and D. J. Durian, "Speckle-visibility spectroscopy and variable granular fluidization" *Physical Review Letters* **90**, 184302/1-4 (2003).
58. A. D. Gopal and D. J. Durian, "Relaxing in foam" *Physical Review Letters* **91**, 188303/1-4 (2003)
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