

Biographical Information for L. Mahadevan – August 2018

Fields of Interest

Applied mathematics. Quantitative biology. Macroscopic physics. Engineering science.

I use experiments, theory and computation to study motion and matter at the human scale, where phenomena are robust and easy to observe, yet not always easy to explain. Areas of interest include the patterns of shape and flow of inanimate matter on scales ranging from the supramolecular to the planetary, and the dynamics of sentient living matter that can self-organize, perceive and act. In all cases, the aim is to get at a qualitative understanding using quantitative methods, and get at general principles, if there be such, from answers to specific questions.

Experience

Harvard University Cambridge, MA, USA	England de Valpine Prof. of Applied Mathematics,	2003-present
	Professor of Organismic and Evolutionary Biology,	2009-present
	Professor of Physics	2010-present
Harvard University	Faculty Dean, Mather House	2017-present
Senior Fellow (Neuroscience)	HHMI Janelia Research Campus Ashburn, VA	2018-present
University of Oxford Oxford, UK	Schlumberger Visiting Professor in Applied Mathematics	2004-2014
University of Cambridge, Cambridge, UK	Schlumberger Professor of Complex Physical Systems, Dept of Applied Mathematics and Theoretical Physics	2001-2003
Trinity College Cambridge, UK	Professorial Fellow in Natural Sciences	2001-2003
Massachusetts Institute of Technology, Cambridge MA, USA	Assistant, then (tenured) Tassel Associate Professor Department of Mechanical Engineering	1996-2000

Visiting positions

Woods Hole Oceanographic Institution, Woods Hole, USA	Guest Investigator	2012	present
	Summer faculty	2003	2011
Marine Biological Laboratories Woods Hole, USA	Summer Faculty	2003	present

École Supérieure de Physique et de Chimie Industrielles, Paris, France	Professeur Associé Lab. de Physique et Méc. de Milieux Hétérogènes	June 1998 May 2001	July 1998 June 2001
Université de Provence Marseille, France	Professeur Invité IUSTI	March 1998	March 1998
École Normale Supérieure Paris, France.	Professeur Invité Dept. de Physique	June, 1997 Feb 2001	July, 1997 April 2001
Université de Nice, Nice, France	CNRS Poste Rose, Inst. Non-Linéaire de Nice	July, 1995	Aug., 1995
Univ. of Cambridge, U. K. Appl. Math. & Theor. Phys.	EPSRC Visiting Scientist	July, 1994	Aug., 1994
U. Illinois at Urbana-Champaign Theor. & Appl. Mech.	Visiting Asst. Prof.	Aug., 1993	May, 1995

Education

Indian Inst. of Technology, Madras	B. Tech., Engineering	1986
University of Texas at Austin	M. S., Mechanics	1987
Stanford University	M.S., Mathematics	1992
Stanford University	Ph.D. (advisor: J.B. Keller, Mathematics)	1995
University of Chicago	Postdoctoral Research Associate, Mathematics and Physics (mentor: L. Kadanoff, Mathematics/Physics)	1995-1996

Awards and Honors (selected)

Fellow of the Royal Society (of London) (elected member of the UK National Academy – Mathematics Section)	2016-
MacArthur Fellowship, MacArthur Foundation (amongst the most visible awards for creativity in the arts, humanities, and sciences in the USA)	2009-14
John Simon Guggenheim Memorial Fellowship	2006
Shutzer Fellow, Radcliffe Institute, Harvard University	2014-15
George Ledlie Prize, Harvard University (awarded biennially to someone “who has by research, discovery or otherwise made the most valuable contribution to science, or in any way for the benefit of mankind”)	2006

Edgerton Award, MIT (highest award given to untenured faculty for achievement in teaching and research at MIT)	2000
Inaugural holder of the (endowed) Schlumberger Chair in Complex Physical Systems, Cambridge University, UK	2001-03
Schlumberger Visiting Professor in Mathematics, Oxford University, UK	2004-2014
Chaire Condorcet, Ecole Normale Superieure	Jan-April 2001
Chaire Paris Sciences, Ecole Superieure de Physique et de Chimie, Paris, France	May – Jun 2001
Visiting Miller Professor, Departments of Integrative Biology, Chemistry, and Mathematics, University of California, Berkeley, CA	2007
Distinguished Visiting Professor, National Center for Biological Sciences – TIFR, Bangalore, India	2007-2012
Inaugural SIGEST award – Society for Industrial and Applied Mathematics (for the best paper in SIAM J. Applied Mathematics)	1999
Francois Frenkiel Prize, American Physical Society (for the best paper in Physics of Fluids)	2006
Young Investigator Award in Applied Mechanics American Society for Mechanical Engineering	2005
Young Investigator medal, Society for Engineering Science (inaugural recipient)	1999
Rice Medal, Society for Engineering Science (inaugural recipient)	2016
Distinguished Alumnus Award IIT-Madras, India	2009
Named /Plenary Lectures (selected list)	
Rapporteur, Solvay conference on physics (Biophysics)	2017
Smith Lecture, Beckman Institute, UIUC	2017
Reiss Lectures in Applied Mathematics, Northwestern	2016

Miller Institute 60 th anniversary plenary talk, Berkeley	2016
Clay Senior Scholar, Park City - Institute for Advanced Study Summer Institute	2014
Mathematics for Planet Lecture – Simons Foundation	2013
Plenary Lecture, American Math. Society Meeting Baltimore,	2013
Niven Lecture University of British Columbia and Pacific Institute for Mathematical Sciences	2012
Amick Lectures Mathematics, University of Chicago	2011
Boeing Lecture Applied Mathematics, University of Washington	2011
Glicksman Lecture Brown University Commencement Exercises	2011
Sears Lecture Woods Hole Oceanographic Institution	2011
Laufer Lecturer Engineering, University of Southern California	2010
Combined-plenary Lecture British Mathematics Colloquium and British Applied Mathematics Colloquium	2010
Singleton Lectures Brain and Cognitive Sciences, M.I.T.	2010
Statphys XVI Invited Lecturer, Genoa, Italy	2007
Plenary Lecture Society for Mathematical Biology Annual Meeting	2007
Penner Lecturer Engineering, University of California, San Diego	2008
SIAM Plenary Lecture, SIAM Annual Meeting	2005

G I Taylor Lecturer, Cambridge Philosophical Society
Cambridge, UK 2001

Alan Taylor Lecturer, Smith Institute and Oxford University, UK 2003

Service

Sectional Committee 1 (Mathematics) Member,
Royal Society of London 2016-present

Associate Director, NSF Science and Technology Center
for Brains, Minds and Machines 2013-2015

Area Chair, Applied Mathematics, Harvard University 2016-present

Editorial boards:

Proceedings of the Royal Society of London (A)
Mathematical, Physical and Engineering Sciences 2004 - 2009

Chaos (published by the American Institute of Physics) 2004 – 2009

*Nonlinearity (published jointly by the London Mathematical
Society and the Institute of Physics, UK)* 2008 - 2013

American Journal of Physics 2009 - 2011

Advisory boards:

Schlumberger Private Ltd. Technology Committee 2001 – present

Max Planck Institute for Complex Physical Systems
Dresden, Germany; 2010 – present

OCCAM: Oxford Centre for Collaborative Applied Mathematics 2008 – 2013

NSF Mathematical Biosciences Institute, Columbus, OH 2010 - 2012

Teaching Experience

I have taught over 20 different courses in mathematics, physics, engineering and biology over the last two decades at MIT, Cambridge, Harvard and introduced new courses on Biophysics, Inverse Problems, Data Analysis and Mathematical Modeling at these institutions.

I have been a summer school lecturer at the Mathematical Sciences Research Institute (Berkeley, CA), Les Houches (France), London Mathematical Society (Oxford), Clay Mathematical Institute (Park City,

Utah), Boulder school on condensed matter physics (Boulder, CO), Theoretical Physics Retreat (MIT), Peyresq (Biomechanics), Cargese (Rheology), IUSTI-Marseilles (Granular mechanics), HHMI Janelia Research Campus (Mathematics of behavior) etc.

I was the Founding Co-director (with T. Poggio) of the newest established Summer School at the Marine Biology Laboratory at Woods Hole - on Brains, Minds and Machines, Woods Hole, MA (starting in 2013).

I was the Founding Co-director (with E. Kanso, V. Jayaram, A. Hermunstad) of a new Summer School at the HHMI Janelia Research Campus at Ashburn, VA – on Mathematical Analysis of Behaviour (starting in 2018).

Stanford University

Numerical Analysis

Univ. Of Illinois, Urbana-Champaign

Advanced Dynamics

Asymptotic and Perturbation Methods in Science and Engineering

Massachusetts Institute of Technology

Dynamics (2 years)

Molecular, cell and tissue biomechanics (4 years)

Experimental and theoretical molecular biophysics (graduate seminar)

Mechanics and materials I (2 years)

Applied elasticity (jointly with Harvard's "Solid Mechanics I") (2 years)

Physics of sliding friction (graduate seminar)

Cambridge University

Molecular and cellular biomechanics (2 years)

Introduction to physics (1 year)

Mathematical methods for natural sciences (2 years)

Harvard University

Applied Mathematics

Mathematical methods in the sciences AM21a – undergraduate (2010)

Complex and Fourier analysis AM104– undergraduate (2010)

Mathematical modeling AM115- undergraduate (6 years)

Physical mathematics I AM201– graduate (4 years)

Physical mathematics II AM202– graduate (2012)

Inverse problems AM216 – graduate (2013,2016)

Pattern formation in Soft Matter AM217 – graduate (2017)

Physics

Science of everyday life – freshman seminar (2005)

Physics and physiology of the senses – freshman seminar (2007)

Widely applied physics PHY125 – undergraduate (2014)

Biophysics PHY215 – graduate (2016)

Engineering Sciences/Physics

Fluid dynamics ES220/PHY220 – graduate (5 years)

Sustainable energy and climate change – freshman seminar (2009)

Biology

Biological dynamics PHY215 – graduate (3 years)
Systems cell biology BPS242– graduate

Summer/Winter Schools etc.

Jun 95	Lectures on Classical Mechanics & Elasticity, Institut Non-Linéaire de Nice, France
Jun 97	Lectures on Elasticity – Workshop on Elasticity and Viscoelasticity, Cargese, France
Dec 97	Lectures on Mechanics of Granular Matter Conference on Instabilities and Non equilibrium Systems, Valparaiso, Chile
Mar 98	Lectures on the Mechanics of Granular Materials, Univ. de Provence, France
Jun 99	Director, Summer Graduate Program, Geometry and Dynamics of Low Dimensional Continua , Mathematical Sciences Research Institute, Berkeley, California.
Dec 99	Lectures on Molecular and Cellular Biomechanics University of Santiago, Chile
June 01	Lectures on Fluid-Structure Interaction, Summer School on Nonlinear Physics, Peyresq, France
July 01	Lectures on Structural Elasticity, Workshop on Materials In Motion, MRSEC, University of Chicago
Sep 02	Lectures on biomechanics; from molecules to morphogenesis Peyresq, France.
Mar 04	Lectures on cell mechanics, International winter school, Les Houches, France.
Jul 04	Faculty, Physiology Program, Marine Biological Laboratory, Woods Hole, USA.
Jan 05	Shape, flow and motion. Lectures at MIT's Center for Theoretical Physics Retreat, New Hampshire, USA
Jul 06	Lectures on Elastomers, Boulder School on Condensed Matter Physics, Boulder, Co, USA.
Jul 09	Lecturer, London Mathematical Society School on Mathematics and Materials Science, Oxford, UK.
Jul 12	Lectures on Hydrodynamics, Boulder Summer School on Condensed Matter Physics, Boulder, Co, USA.
Jul 12	Lectures on Soft Wet Interfaces, Summer School on "Soft Interfaces", Les Houches, France.
Jun 14	co-Director, Summer School on Brains, Minds and Machines Marine Biology Laboratories, Woods Hole, MA.
Jun 18	co-Director, Summer School on Mathematics of Behavior HHMI Janelia Research Campus, Ashburn, VA

Outreach activities

- Lectured at various Middle Schools and High Schools in the Boston and Berkeley areas on "Everyday Science"
- Harvard Museum of Natural History Public Lectures – 2006, 2008, 2012 on "Nature of Shape and Shape of Nature"
- Invited Lecturer to Edinburgh Mathematical Society's "Meet the Mathematician Series" for High School Students, 2010.
- More than 60 articles have been covered by the media – including multiple interviews on the BBC, NPR, articles in the NY Times, Times of London, Le Monde, Figaro, Frankfurter Allgemeine etc.

Publications

Statistics: ~275 publications, ~20 patents, H-index ~75, # of Citations ~20000.
Most publications combine experiment, theory and computation and are at the interface of Engineering, Applied Mathematics, Biology, Physics, and Medicine.

About half were published in interdisciplinary journals: *Nature*, *Nature Materials*, *Nature Nanotech.*, *Nature Cell Bio.* - **25**, *Science*- **15**, *Proc. Natl. Acad. Sci. (USA)* - **25**, *Physical Review Letters* - **40**, *Proc. Roy. Soc. (Lond.)A,B*, *Interface* - **40**. Approx ~65 articles have been the subject of perspectives and press coverage.

1. "The shape of a Möbius band," Mahadevan, L., and J.B. Keller, *Proceedings of the Royal Society of London, Series A*, **1440**, no. **409**, pp. 149-162, 1993.
2. Comment on "Behavior of a falling paper," Mahadevan, L., H. Aref, and S.W. Jones, *Physical Review Letters*, **75**, p. 1420, 1995.
3. "Periodic folding of thin sheets," Mahadevan, L., and J.B. Keller, *SIAM Journal on Applied Mathematics*, **55**, no. **6**, pp. 1609-1624, 1995.
See also: *SIAM Review*, 41, no. 1, pp. 113-31, 1999, where this article is reprinted as the inaugural SIGEST article on the basis of "exceptional quality and potential significance to the entire SIAM community.")
4. "Coiling of flexible ropes," Mahadevan, L., and J.B. Keller, *Proceedings of the Royal Society of London, Series A*, **1452**, no. **1950**, pp. 1679-1694, 1996.
5. "Shark-teeth patterns in coating flow inside a horizontally-rotating cylinder," Thoroddsen, S.T., and L. Mahadevan, *Physics of Fluids*, **8**, no. **9**, p. S10, 1996.
6. "Tumbling of a falling card," Mahadevan, L., *Comptes Rendus de l'Academie des Sciences, Paris, Series II*, t. **323**, pp. 729-736, 1996.
7. "Experimental study of instabilities in a partially-filled horizontally-rotating cylinder," Thoroddsen, S.T., and L. Mahadevan, *Experiments in Fluids.*, **23**, pp. 1-13, 1997.
8. "Colliding waves in an excitable medium: preservation, annihilation and bifurcation," Argentina, M., P. Couillet, and L. Mahadevan, *Physical Review Letters.*, **79**, pp. 2803-07, 1997.
9. "Fluid rope trick investigated," Mahadevan, L., W. Ryu, and A.D.T. Samuel, *Nature*, v. **391**, no. **6672**, p. 140, 1998. Corrigendum; *ibid.*, v. 403, p. 502, 2000.
Commentaries and press reports: *The Daily Telegraph*, London, March 12, 1998; *Le Figaro*, Paris, March 24, 1998; *The New York Times*, New York, April 7, 1998; interview on "Sounds Like Science," National Public Radio, March 14, 1998; *Pour la Science*, Paris, September, 1998; CHEMTALK (published by the American Chemical Society), September 1998, etc.
10. "Conical surfaces and crescent singularities in crumpled sheets," Cerda, E., and L. Mahadevan, *Physical Review Letters*, **80**, pp. 2358-61, 1998.

Commentary: *Physics World*, July, 1998, p.19-20.

11. "Tumbling cards," Mahadevan, L., W. Ryu, and A.D.T. Samuel, *Physics of Fluids*, **11**, pp. 1-3, 1999.

Commentary: *Science News*, Oct. 31, 1998, pp. 285-7.

12. "Axial instability of a free-surface front in a partially-filled horizontal rotating cylinder," Hosoi, A.E., and L. Mahadevan, *Physics of Fluids*, **11**, pp. 97-106, 1999.

13. "Propagating fronts on sandpile surfaces," Mahadevan, L. and Y. Pomeau, *Europhysics Letters*, **46**, pp. 595-601, 1999.

14. "Rolling droplets," Mahadevan, L., and Y. Pomeau, *Physics of Fluids*, **11**, pp. 2449-53, 1999.

15. "Conical dislocations in crumpling," Cerda, E., S. Chaieb, F. Melo and L. Mahadevan, *Nature*, **401**, pp. 46-49, 1999.

Commentary and press reports: *Dallas Morning News*, Sep. 6, 1999; *The Daily Telegraph* (London), Sep. 15, 1999; *Bild der Wissenschaft* (Germany), Mar. 2000; *Facts* (Switzerland), Nov. 1999; American Mathematical Society *What's new in mathematics*, Nov. 1999 etc.

16. "Elastic model of a DNA loop in the lac operon," Balaeff, A., L. Mahadevan and K. Schulten, *Physical Review Letters*, **83**, pp. 4900-03, 1999

17. "Rippling instability of a collapsing bubble" da Silveira, R., S. Chaieb and L. Mahadevan, *Science*, **287**, pp. 1468-71, 2000.

Commentary and press reports: *Canadian Discovery Channel*, Feb 25, 2000; *New Scientist*, March 2000; *Physics World*, March 2000.

18. "Motility driven by macromolecular springs and ratchets," Mahadevan, L. and P. Matsudaira, *Science*, **288**, pp. 95-99, 2000.

Commentary and press reports: Featured on "Mysteries of the Universe," MSNBC, May 2000. http://www.msnbc.com/news/myst_front.asp

19. "Chaotic dripping from a faucet," Couillet, P., L. Mahadevan and C. Riera, *Progress in Theoretical Physics Supplement*, **139**, pp. 507-516, 2000.

20. "Folding of viscous filaments and sheets," Skorobogatiy, M., and L. Mahadevan, *Europhysics Letters*, **52**, pp. 532-38, 2000.

21. "Non-stick water," Mahadevan, L., *Nature*, **411**, pp. 895-96, 2001.

22. "Shocks in sand flowing in a silo," Samadani, A., L. Mahadevan and A. Kudrolli, *Journal of Fluid Mechanics*, **452**, pp. 293-301, 2002.

23. "Four-phase merging in compound drops," Mahadevan, L., M. Adda Bedia and Y. Pomeau, *Journal of Fluid Mechanics*, **451**, pp. 411-20, 2002.

24. "How aphids lose their marbles," Pike, N., D. Richard, W. Foster and L. Mahadevan, *Proceedings of the Royal Society of London, Series (B), Biological Sciences*, **269**, pp. 1211-15, 2002.

Commentary and press reports " *Science: random samples*", June 21, 2002, article in *American Natural History magazine*, July 2002.

25. " Wrinkling of a stretched elastic sheet," Cerda, E., K. Ravi-Chandar and L. Mahadevan, *Nature*, **419**, pp. 146-7, 2002.

26. " The viscous catenary," Teichman, J. and L. Mahadevan, *Journal of Fluid Mechanics*, **478**, pp. 71-80, 2003.

27. "Geometry and physics of wrinkling," Cerda, E. and L. Mahadevan, *Physical Review Letters*, **90** (7) 074302, 2003 (Physical Review Focus Article).

Commentary in the following: Perspective article in *Science*, **300**, p. 441, 2003, Nature Physics Online, Science Online, New Scientist, Naturwissenschaft, Frankfurter Allgemeine Zeitung, Discover magazine, Allure magazine, Interview with German radio, Korean Broadcasting Service etc.

28. "The force-velocity relationship for the actin-based motility of *Listeria-Monocytogenes*", McGrath, J., J. Eungdamrong, C. Fisher, F. Peng, L. Mahadevan, T. Mitchison and S. Kuo, *Current Biology*, **13** (1-20), 1-6, 2003.

29. "Rings, rackets and kinks in filamentous assemblies," Cohen, A. and L. Mahadevan, *Proceedings of the National Academy of Sciences (USA)*, **100**, 12141-46, 2003.

30. "Confined elastic developable surfaces: cylinders, cones and the elastica," Cerda, E. and L. Mahadevan, *Proceedings of the Royal Society of London (A)*, **461**, 671-700, 2005.

31. "Stored elastic energy powers the 60-micron extension of the *Limulus polyphemus* sperm actin bundle, " Shin, J., L. Mahadevan, G. Waller, K. Langsmo and P. Matsudaira, *Journal of Cell Biology*, **162(7)**, 1183-88, 2003.

32. "Dynamics of poroelastic filaments," Skotheim, J. and L. Mahadevan, *Proceedings of the Royal Society of London (A)*, **460**, 1995-2020 (2004).

33. "Multiscale methods for modeling protein-DNA complexes," Villa, E. , Balaeff, A., L. Mahadevan and K. Schulten, *SIAM Multiscale Modeling and Simulation*, **2**, 527-553 (2004).

34. "Structural model for cooperative DNA binding by CAP and *Lac* repressor, " L. Mahadevan and K. Schulten, *Structure*, **12**, 123-32, 2004.

35. "Biomimetic ratcheting motion of lubricated hydrogel filaments," Mahadevan, L., S. Daniel and M. Chaudhury, *Proceedings of the National Academy of Sciences (USA)*, **101**, 23-26, 2004.

Commentary in the following: *Science – random samples*, *Science News*, *MIT - Technology Review*, *Technology Research News*, *Frankfurter Allgemeine Zeitung*, *Scientific American* etc.

36. "Popliteal instability of bent multi-walled elastic tubes," Mahadevan, L., J. Bico and G. McKinley, *Europhysics Letters*, **65** (3), 323-29, 2004.
37. "Elements of Draping," Cerda, E., L. Mahadevan and J. Passini, *Proceedings of the National Academy of Sciences (USA)*, **101** (7), 1806-10, 2004.
Commentary in: Nature – physics portal.
38. "Crack street: the cycloidal wake of a cylinder ripping through a thin solid sheet," Ghatak, A. and L. Mahadevan, *Physical Review Letters*. **91**, 215507, 2003. Erratum, 2005.
Commentary in: Nature – physics portal.
39. "Modeling DNA loops using continuum and statistical mechanics," Balaeff, A., C. Koudella, L. Mahadevan and K. Schulten, *Philosophical Transactions of the Royal Society of London (A)*, **362**, 1355-71, 2004.
Invited paper as part of a theme on DNA mechanics.
40. " Bending stiffness of a crystalline actin bundle," Shin, J., L. Mahadevan, P.T. So and P. Matsudaira, *Journal of Molecular Biology*, **337**, 255-61, 2004.
41. "Capillarity-induced zippering of a flexible train floating on an air-water interface," Vella, D., H-Y. Kim and L. Mahadevan, *Journal of Fluid Mechanics*, **502**, 89-98, 2004.
42. "Photo-induced deformation of beams, plates and films," Warner, M. and L. Mahadevan, *Physical Review Letters*, **92**, 134302, 2004.
43. "Elastic behavior of cross-linked and bundled networks," Gardel, M., J. Shin, F. Mackintosh, L. Mahadevan, P. Matsudaira and D. Weitz, *Science*, **304**, 1301-5, 2004.
Commentary in: The Scientist.
44. "Relating microstructure to rheology of a bundled and cross-linked F-actin network in-vitro," Shin, J., M. Gardel, L. Mahadevan, P. Matsudaira and D. Weitz, *Proceedings of the National Academy of Sciences (USA)*, **101** (26), 9636-41, 2004.
45. "Peeling from a patterned thin elastic film," Ghatak, A., L. Mahadevan, J. Yun, M. Chaudhury and V. Shenoy, *Proceedings of the Royal Society of London (A)*, **460**, 2725-35, 2004.
46. "Hydrodynamical models of the dripping faucet," L. Mahadevan and C. Riera, *Journal of Fluid Mechanics*, **526**, 1-17, 2005.
47. "Scaling of F-actin rheology to probe single filament elasticity and dynamics," Gardel, M., J. Shin, F. Mackintosh, L. Mahadevan, P. Matsudaira and D. Weitz, *Physical Review Letters*, **93** (18), 188102, 2004.
Featured and reprinted in *Virtual J. Biological Physics*, 2004.
48. "Fluid-flow induced flutter of a flag," Argentina, M. and L. Mahadevan, *Proceedings of the National Academy of Sciences (USA)*, **102**, 1829-34, 2005.

Press coverage in Guardian (UK), Die Zeit (Germany), ...

49. "Soft lubrication," Skotheim, J. and L. Mahadevan, *Physical Review Letters*, **92** (24), 245509, 2004.

50. "Elasticity of interfacial particle rafts," Vella, D., P. Aussillous and L. Mahadevan, *Europhysics Letters*, **68** (2), 212-18, 2004.

51. "How the Venus flytrap snaps," Forterre, Y., J. Skotheim, J. Dumais and L. Mahadevan, *Nature*, **433**, 421-25, 2005.

Press coverage in : National Public Radio (Morning Edition, Jan 27, 2005), Canadian Broadcasting Corporation (As it happens, Jan 30, 2005), Boston Globe, Guardian (UK), Daily Telegraph (UK), International Herald Tribune

52. "Peeling, healing and bursting in lubricated elastic sheets," Hosoi, A. and L. Mahadevan, *Physical Review Letters*, **93**, 137802, 2004.

Featured and reprinted in *Virtual J. Nanoscale Science and Technology*, **10**(15), Oct. 11, 2004.

53. "Spontaneous folding of planar surfaces into three-dimensional objects by magnetic self-assembly," M. Boncheva, S. Andreev, L. Mahadevan, A. Winkelman, D. Reichman, M. Prentiss, S. Whitesides and G. Whitesides, *Proceedings of the National Academy of Sciences (USA)*, , **102**, 3924-29, 2005.

54. "Self-similar nested wrinkling patterns in skins," K. Efimenko, M. Rackaitis, E. Manias, A. Vaziri, L. Mahadevan and J. Genzer, *Nature-Materials*, **4**, 293-97, 2005.

News and Views in *Nature Materials* by W. Huck. Press coverage in multiple countries.

55. , "Gravitational collapse of colloidal gels," S. Manley, J.M. Skotheim, L. Mahadevan, D. Weitz, *Physical Review Letters* **94**, 218302, 2005.

56. "Using the peel test to measure the work of adhesion in a confined elastic film," A. Ghatak, L. Mahadevan and M. Chaudhury, *Langmuir*, **21**(4), 1277-81, 2005.

57. " Non-equilibration of hydrostatic pressure in blebbing cells," G. Charras, J. Yarrow, M. Horton, L. Mahadevan and T. Mitchison, *Nature*, **435**, 95-99, 2005.

58. "Buckling of drying droplets of colloidal suspensions", N. Tsapis, E. Dufresne, S. Sinha, C. Riera, J. Hutchinson, L. Mahadevan, D. Weitz, *Physical Review Letters*, **94**, 018302, 2005.

59. "Self-organized Origami," L. Mahadevan and S. Rica, *Science*, **307**, 1740, 2005.

Press coverage in : New York Times (22 Mar, 2005), Geoskop, Die Welt, National Geographic...

60. " Physical limits and design principles for plant and fungal movements," J. Skotheim and L. Mahadevan, *Science*, **308**, 1308-11, 2005.

Cover article of *Science*. Press coverage in a variety of sources such as : National Geographic, Christian Science Monitor, Scientific American etc. ...

61. "The 'Cheerios' effect'", D. Vella and L. Mahadevan, *American Journal of Physics* **73**, 817-25, 2005.

Press coverage in: AIP Physics News, MSNBC, Die Zeit, CBS radio ...

62. "Soft lubrication: the elastohydrodynamics of conforming and non-conforming contacts," J. Skotheim and L. Mahadevan, *Physics of Fluids*, **17**, 092101, 2005.

Awarded the 2006 Francois Frenkiel Prize by the American Physical Society.

63. "Solenoids and plectonemes in stretched, twisted elastomeric filaments, " A. Ghatak and L. Mahadevan, *Physical Review Letters*, **95**, 057801, 2005.

64. "Powerful curves," L. Mahadevan and T. Mitchison, *Nature*, **435**, 895-96, 2005.

65. "Non spherical bubbles," A. B. Subramaniam, M. Abkarian, L. Mahadevan and H. Stone, *Nature*, **438**, 930, 2005.

66. "A simple model for the dynamics of adhesive failure," D. Vella and L. Mahadevan, *Langmuir*, **22**, 163-66, 2006.

67. " Capillary rise between elastic sheets," H-Y Kim and L. Mahadevan, *Journal of Fluid Mechanics*, **548**, 141-50, 2006.

68. "Superficial wrinkles in stretched, drying gelatin films," R. Rizzieri, L. Mahadevan, A. Vaziri and A. Donald, *Langmuir*, **22**, 3622-26, 2006.

69. " Transitions to nematic states in homogeneous suspensions of high aspect ratio magnetic rods," A. Gopinath, L. Mahadevan and R.C. Armstrong, *Physics of Fluids*, **18**, 028102, 2006.

70. "Dynamics of surfactant-driven fracture of particle rafts," D. Vella, H-Y Kim, P. Aussillous and L. Mahadevan, *Physical Review Letters*, **96**, 178301, 2006.

71. "Microtubules can bear enhanced compressive loads in cells because of lateral reinforcement," C. Brangwynne, F.C. MacKintosh, S. Kumar, N. Geisse, L. Mahadevan, K. Parker, D. Ingber, D. Weitz, *Journal of Cell Biology*, **173**, 733-41, 2006.

Featured commentary in *Current Biology* by J. McGrath.

72. "Crack-front instability in a confined film," Adda Bedia and L. Mahadevan, *Proceedings of the Royal Society of London, series A*, **462**, 3233-51, 2006.

73. "Dynamics of fracture in drying suspensions," Dufresene, D. Stark, N. Greenblatt, , J. Cheng, J. Hutchinson, L. Mahadevan and D. Weitz, *Langmuir*, **22**, 7144-47, 2006.

74. "Modeling DNA loops using the theory of elasticity," A. Balaeff, L. Mahadevan and K. Schulten, *Physical Review E*, **73**, 031919, 2006.

75. "Fall and rise of a viscoelastic filament," A. Roy, L. Mahadevan and J-L

Thiffeault, *Journal of Fluid Mechanics*, **563**, 283-92, 2006.

76. "A dynamic fate map of the forebrain shows how vertebrate eyes form and explains two causes of cyclopia," S.J. England, G. Blanchard, L. Mahadevan and R. Adams, *Development*, **133**, 4613-17, 2006.

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212. "Exactly isochoric deformations of soft solids," *Europhysics Letters*, **108**, 64001, 2014.
213. "Elastocapillary coalescence of plates and pillars," Z. Wei, T. Schneider, J. Kim, H_y. Kim, J. Aizenberg, and L. Mahadevan, *Proceedings of the Royal Society , Math. Phys. and Engg. Sci (A)*, 470, 20130604, 2015.
214. "Feedback induced phase transitions in active heterogeneous conductors," S. Ocko and L. Mahadevan, *Physical Review Letters*, **114**, 134501, 2015.
215. "Solid friction between soft filaments," A. Ward, F. Hilitski, W. Schwenger, D. Welch, V. Vitelli, L. Mahadevan and Z. Dogic, *Nature Materials*, **14**, 583-88, 2015.

216. "How the velvet worm squirts slime," A. Concha, P. Mellado, B Morera-Brenes, C. Costa, L. Mahadevan, J. Monge-Najera, *Nature Communications*, **6**, 6292, 2015.

Coverage in media including NYTimes, CNN, BBC, etc

217. "Gait and speed selection in slender inertial swimmers," M. Gazzola, M. Argentina and L. Mahadevan, *Proceedings of the National Academy of Sciences(USA)*, **112**, 3874-79, 2015.

218. "Bending gradients: how the intestinal stem cell gets its home," A. Shyer, T. Huycke, C. Lee, L. Mahadevan, and C. Tabin, *Cell*, **161**, 569-80, 2015.

219. "Fluid-driven fingering instability of a confined elastic meniscus," J. Biggins, Z. Wei, L. Mahadevan, *Europhysics Letters*, **110**, 34001, 2015.

220. "Protein-mediated membrane adhesion," A. Carlson, L. Mahadevan, *Physics of Fluids*, **27**, 051901, 2015.

221. "The organization and control of an evolving interdependent population," D. can Vural, A. Isakov, L. Mahadevan, *Proceedings of the Royal Society-Interface*, **12**, 20150044, 2015.

222. "Optimal control of plates using incompatible strains," G. Jones and L. Mahadevan, *Nonlinearity*, **28**, 3153-74, 2015.

223. "Elastohydrodynamics of a sliding, spinning and sedimenting cylinder near a soft wall," T. Salez, L. Mahadevan, *Journal of Fluid Mechanics*, **779**, 181-96, 2015.

224. "Termite mounds harness diurnal temperature oscillations for ventilation," H. King, S. Ocko, L. Mahadevan, *Proceedings of the National Academy of Sciences (USA)*, **112**, 11589-93, 2015.

Coverage in media including BBC, Canadian Radio, Danish, Finnish TV etc

225. "Dynamics of evaporative colloidal patterning," C. Kaplan, N. Wu, S. Mandre, J. Aizenberg, L. Mahadevan, *Physics of Fluids*, **27**, 092105, 2015.

Coverage in media including AIP (American Institute of Physics), Eureka-Alert etc

226. "Evaporation-driven ring and film deposition from colloidal droplets," C. Kaplan, L. Mahadevan, *Journal of Fluid Mechanics*, **781**, R2, doi:10.1017/jfm.2015.496, 2015.

227. "Elastohydrodynamics and kinetics of protein patterning in the immunological synapse," A. Carlson, L. Mahadevan, *PloS Computational Biology*, DOI: 10.1371/journal.pcbi.1004481, 2015.

228. "The Monge-Ampere constraint: matching of isometries, density and regularity, and elastic theories of shallow shells," M. Lewicka, L. Mahadevan, R. Pakzad, *Ann. Inst. Henri Poincare*, **34**, 45-67, 2015.

229. "Pressure-driven occlusive flow of a confined red blood cell," T. Savin, M. Bandi and L. Mahadevan, *Soft Matter*, **12**, 562-73, 2016.

230. "Elastic Cheerios effect: self assembly of cylinders on a soft solid," A. Chakrabarti, L. Ryan, M. Chaudhury and L. Mahadevan, *Europhysics Letters*, **112**, 54001, 2015.

231. "A geometric model for the periodic undulation of a confined adhesive crack," Z. Wei and L. Mahadevan, *Soft Matter*, **12**, 1778-82, 2015.

232. "Directional memory arises from long-lived cytoskeletal asymmetries in polarized chemotactic cells," H. Prentice-Mott, Y. Meroz, A. Carlson, M. Levin, M. Davidson, D. Irimia, G. Charras, L. Mahadevan and J. Shah, *Proceedings of the National Academy of Sciences (USA)*, **113**, 1267-72, 2016.

233. "Similarity and singularity in adhesive elastohydrodynamic touchdown," A. Carlson and L. Mahadevan, *Physics of Fluids*, **28**, 011702, 2016.

234. "On the growth and form of cortical convolutions," T. Tallinen, J-Y. Chung, F. Rosseau, N. Girard, J. Lefevre, L. Mahadevan, *Nature Physics*, **12**, 588-93, 2016.

Subject of various articles and interviews in popular press, e.g. commentary in *Nature Physics*, articles in BBC, LA Times, CNBC, Canadian BC etc.

235. "Biomimetic 4D printing," A. S. Gladman, E. Matsumoto, R. Nuzzo, L. Mahadevan and J. Lewis, *Nature Materials*, **15**, 413-18, 2016.

Subject of various articles and interviews in popular press, e.g. commentary in *Nature Materials*, articles in BBC, LA Times, etc.

236. "Programming curvature using origami tessellations," L. Dudte, E. Vouga, T. Tachi and L. Mahadevan, *Nature Materials*, **15**, 583-88, 2016.

Subject of various articles and interviews in popular press, e.g. *Popular Science*, *Wired* etc.

237. "Buckling of wet paper," M. Lee, S. Kim, H-Y. Kim, L. Mahadevan, *Physics of Fluids*, **28**, 042101, 2016.

238. "Recovery of locomotion after injury in *D. melanogaster* depends on proprioception," A. Isakov, S. Buchanan, B. Sullivan, A. Ramachandran, S. Chapman, L. Mahadevan, B. deBivort, *Journal of Experimental Biology*, **219**, 1760-71, 2016.

239. "Self-sustained lift and low friction via soft lubrication," B. Styves, T. Jules, T. Salez, L. Mahadevan, *Proceedings of the National Academy of Sciences (USA)*, **113**, 5847-49, 2016.

240. "Phototactic guidance of a tissue-engineered soft-robotic ray," S-J Park, M. Gazzola, ..., L. Mahadevan, K.K. Parker, *Science*, **353**, 158-162, 2016.

Subject of various articles and interviews in popular press, e.g. articles in *NYTimes*, BBC, LA Times, etc.

241. "Integrative neuromechanics of crawling in *D. melanogaster* larvae," C. Pehlevan, P. Paoletti, L. Mahadevan, *E-Life*, 2016; 5:e11031.
242. "Elastic instability-mediated actuation by a supramolecular polymer," A. Levian, T. Michaels, L. Adler, T. Mason, T. Mueller, L. Mahadevan, E. Gazit, T. Knowles, *Nature Physics*, **12**, 926-30, 2016.
243. "Optimal switching between geocentric and egocentric strategies in navigation," O. Peleg and L. Mahadevan, *Royal Society Open Science*, **3**, 160128, 2017.
244. "Spontaneous exfoliation of a drying gel, J. Y. Chung, I. Regev and L. Mahadevan," *Soft Matter*, **12**, 7855-62, 2016.
245. "Grasping with a soft glove: intrinsic impedance control in pneumatic actuators," P. Paoletti, G. W. Jones and L. Mahadevan, *Journal of the Royal Society Interface* **14**, 20160867, 2017
246. "BMP signaling controls buckling forces to modulate looping morphogenesis of the gut," N. L. Nerurkar, L. Mahadevan, and C.J. Tabin, *Proceedings of the National Academy of Sciences (USA)*, **114**, 2277-82, 2017.
247. "Controlled growth and form of precipitating microsculptures," C. N. Kaplan, W. L. Noorduin, L. Li, R. Sadza, L. Folkertsma, J. Aizenberg, L. Mahadevan, *Science* **355**, 1395-99, 2017.
248. "On the growth and form of shoots," R. Chelakkot and L. Mahadevan, *Journal of the Royal Society Interface*, **14**, 20170001, 2017.
249. "Avian egg shape: form, function and evolution," M.C. Stoddard, E.H. Yong, D. Akkaynak, C. Sheard, J. Tobias, L. Mahadevan, *Science*, **356**, 1249-54, 2017.
Subject of various articles and interviews in popular press, e.g. articles in NYTimes, BBC, Sci. American, German, Dutch press etc
250. "Wrinkling instability of an inhomogeneously stretched viscous sheet," S. Srinivasan, Z. Wei and L. Mahadevan, *Physical Review Fluids*, **2**, 074103, 2017.
251. "Controllable biomimetic birdsong," *Journal of the Royal Society Interface*, **14**, 20170002, 2017.
252. "Optimal strategies for throwing accurately," *Royal Society Open Science*, **4**, 170136, 2017.
253. "Controlling the roughness of Langmuir-Blodgett Monolayers," G. Silverberg, ..., L. Mahadevan, C. Vecitis, *J. Phys. Chem.*, **121**, 5078-85, 2017.

254. "Rotation of an immersed cylinder sliding near a thin elastic coating," R. Rallbandi, B. Saintyves, T. Jules, T. Salez, C. Schonkecker, L. Mahadevan and H. Stone, *Physical Review Fluids*, **2**, 074102, 2017.
255. "Solar powered ventilation of African termite mounds," S.A. Ocko, H. King, D. Andreen, P. Bardunias, J.S. Turner, R. Soar and L. Mahadevan, *Journal of Experimental Biology*, **220**, 3260-69, 2017.
256. "J.B. Keller (1923-2016)," A. Whittmore, G. Papanicolaou, D. Cohen, L. Mahadevan, B. Matkowsky, *Notices of the American Mathematical Society*, 606-15, June-July, 2017.
257. "Excitable dynamics and Yap-dependent mechanical cues drive the segmentation clock," A. Hubaud, I. Regev, L. Mahadevan and O. Pourquie, *Cell*, **171**, 1-15, 2017.
Subject of various articles and interviews in popular press, e.g. Wired etc.
258. "Growth patterns for shape-shifting elastic bilayers," W. van Rees, E. Vouga and L. Mahadevan, *Proceedings of the National Academy of Sciences (USA)*, doi: 10.1073/pnas.1709025114, 2017.
259. "Active elasto-hydrodynamics of vesicles in narrow, blind constrictions," T.G. Fai, R. Kusters, J. Harting, C.H. Rycroft, and L. Mahadevan, *Physical Review Fluids*, **2**, 113601, 2017.
260. "Morphogenesis one century after On Growth and Form," T. Lecuit and L. Mahadevan, *Development*, **144**, 4197-98, 2017.
261. "Organ size control via hydraulically-gated oscillations," T Ruiz-Herrero, K. Alessandri, B. Gurchenko, P. Nassoy and L. Mahadevan, *Development*, **144**, 4422-27, 2017.
262. "Mechanics and statistics of the worm-like chain," A. Marantan and L. Mahadevan, *American Journal of Physics*, **86 (2)**, 86-94, 2018.
263. "Topology, geometry and mechanics of Z-plasty," E. Matsumoto, H. Liang, and L. Mahadevan, *Physical Review Letters*, **120**, 068101, 2018.
264. "Competing failure modes in finite adhesive pads," T. Cohen, C. U. Chan, L. Mahadevan, *Soft Matter*, DOI:10.1039/c7sm02378b, 2018.
265. "Forward and inverse problems in the mechanics of soft filaments," M. Gazzola, L. Dudte, A. McCormick, L. Mahadevan, *R. Soc. Open Science*, **5**: 171628, 2018.

266. "Photosynthetic artificial organelles sustain and control ATP-dependent reactions in a protocellular system," K-L. Lee, S-J. Park, K-A Lee, ... K. Shin, *Nature Biotechnology*, **36** (6), 530-35, 2018.
267. "Differential activity-driven instabilities in biphasic active matter," C. Weber, C. Rycroft, L. Mahadevan, *Physical Review Letters*, **120**, 248003, 2018.
268. "Microtubules soften due to cross-sectional flattening," E. Memet, F. Hilitiski, M. Morris, W. Schwenger, Z. Dogic, L. Mahadevan, *eLife*, **7**, e34695, 2018.
269. "Reprogrammable Braille on an elastic shell," J-Y. Chung, A. Vaziri, and L. Mahadevan, *Proceedings of the National Academy of Sciences (USA)*, doi: 10.1073/pnas.1722342115, 2018.
270. "Multifunctional ferrofluid-infused surfaces with reconfigurable multiscale topography," W. Wang, J. Timonen, ... L. Mahadevan, J. Aizenberg, *Nature*, **559**, 77-81, 2018.
271. "A tissue-engineered scale model of the heart ventricle," L. MacQueen, ... L. Mahadevan, W. Pu, K.K. Parker, *Nature Biomedical Engineering* doi: 10.1038/s41551-018-0271-5, 2018.
272. "The statistical shape of geometric reasoning," Y. Hart, ... E. Spelke, L. Mahadevan, *Scientific Reports*, doi: 10.1038/s41598-018-30314-y, 2018.
273. "Generalized Erdos numbers for network analysis," G. Morrison, L.H. Dudte, L. Mahadevan, *Royal Society Open Science*, **6**:172281, 2018.
274. "Self-assembly-mediated release of peptide nanoparticles through jets across microdroplet interfaces," A. Levin, ... T.P. Knowles, *ACS Applied Materials and Interfaces*, **10**, 27578-83, 2018.
275. "Collective mechanical adaptation in honeybee swarms," O. Peleg, J. Peters, M. Salcedo, L. Mahadevan, *Nature Physics*, *in press*, 2018.
276. "Planar morphometrics using Teichmüller maps," G.P-T. Choi, L. Mahadevan, *Proceedings of the Royal Society of London (A)*, *in press*, 2018.
277. "Meniscus instabilities in thin elastic layers," J. Biggins, L. Mahadevan, *Soft Matter*, *in press*, 2018.

Selected Invited Lectures (of more than 120 in the last decade)

January 2001, "Buckling phenomena in fluids," G I Taylor Lecture, Cambridge Philosophical Society, Cambridge, UK

May 2002, "A search for structure: from molecules to morphogenesis" Inaugural Lecture of the Schlumberger Professor of Complex Physical Systems, Cambridge University, UK.

February 2003, "Size, shape and structure: mechanics of macromolecular assemblies", Frontiers in Science Seminar, Whitehead Institute for Biomedical Research, Cambridge, USA

May 2003, "Geometry and physics in biology," Inaugural lecture on the opening of the Corfield Institute of Applied Mathematics, Cambridge University, UK.

November 2003, "Physical packing problems: from DNA to origami," Alan Tayler Lecture, Oxford University, UK.

March 2004, 4 lectures on "Physics of the cell," International Winter School, Les Houches, France.

January, 2005, "Shape, flow, motion and locomotion," 3 lectures at the MIT Center for Theoretical Physics Retreat – Common Man Inn, NH

July 2005, "Draping, wrinkling and crumpling: geometry and physics," Plenary Lecture, Society for Industrial and Applied Mathematics Annual Meeting, New Orleans, LA

April 2006, "Mathematics, mechanics and motility," DARPA DSRC Outlook speaker, Washington, D.C.

September 2006 – April 2007, Midwest Mechanics Lecturer. Lectures on 5 different topics at 10 Universities (Illinois, Wisconsin, Iowa, IIT, Northwestern, Purdue, Notre Dame, Michigan, MSU, Minnesota)

February 2007, "Mathematics, mechanics and motility," NIH Director's Lecture Series, National Institutes of Health, Bethesda, MD.

July 2007, "Soft Hydraulics: physics and physiology," Invited Speaker, StatPhys 21, International Conference on Statistical Physics, Genoa, Italy.

December 2007, "Cellular hydraulics," Invited lecture, American Society of Cell Biology Symposium on "Building a cell", Washington, DC

July 2008, "Mechanochemistry and motility," Plenary lecture, Society for Mathematical Biology Annual Meeting, Toronto, CA.

April 2009, "Motility: mathematics, mechanics, mimetics," German-American Frontiers in Engineering Symposium sponsored by the US National Academy of Engineering, Potsdam, Germany.

July 2009, "Extending the material," Inauguration of the Oxford Center for Collaborative Applied Mathematics, Oxford, UK.

April 2010, "Morphogenesis," Plenary Lecture, British Mathematics Colloquium, British Applied Mathematics Colloquium, Edinburgh, UK.

Nov 2010, "Geometry and the brain," Singleton lectures, Department of Brain and Cognitive Sciences, MIT, Cambridge, MA, USA.

May 2011, "Soft interfaces and morphogenesis," Amick Lectures, Department of Mathematics, University of Chicago, IL, USA

April 2012, "Continuum and statistical mechanics of ribbons," Colloquium Ehrenfestii, Institut Lorentz, Leiden, Netherlands.

November 2012, "On growth and form: mathematics, physics and biology," Young Lecture, University of Maryland.

September 2013, "On growth and form: mathematics, physics and biology," Simons Foundation Lecture, Brown University.

July 2014, "Gilding the lily: morphogenesis in plants," Clay Institute Lecture, IAS Summer School, Park City, Utah.

February 2016, "Morphogenesis," Plenary lecture, Swiss Life Sciences Meeting, Lausanne, Switzerland.

March 2016, Reiss Memorial Lectures, "Shape", Applied Mathematics, Northwestern University, Evanston, IL

April 2017, Smith Lecture, "Shape: mathematics, physics and biology," Beckman Institute, Urbana, IL.

August 2018, Inaugural Soo-Ik Oh Lecture, "Programming shape," Seoul National University, Seoul, S. Korea.

August 2018, Distinguished Presidential Lecture, "Origami: art, science and technology," Okinawa Institute of Science and Technology, Okinawa, Japan.

Doctoral and post-doctoral students

My view of applied mathematics is that it is best done in a scientific or engineering context. I have been fortunate to have learnt from and worked with ~30 graduate students, ~60 postdoctoral fellows with this outward-looking view. More than 50 have gone on to faculty positions in a range of STEM departments, including mathematics, physics, biology, chemistry, computer science, geophysics, mechanical engineering, chemical engineering, bioengineering and schools of medicine.

Doctoral theses (at MIT)

1. Teichman, J. "Wrinkling and sagging of viscous sheets," 2002. Currently at Institute for Defense Analysis, Washington D.C.
2. Eungdamrong, J. (jointly with T. Mitchison, Harvard Medical School) "Polymerization-driven force generation in *Listeria*", 2002. Later M.D. Columbia University.

3. Shin, J. (with P. Matsudaira, Biology, MIT) "Statics and dynamics of actin assemblies," 2003. Currently Associate Professor of Mechanical Engineering, KAIST, Korea.

Doctoral theses (at Cambridge)

1. Skotheim, J. "Some poroelasticity problems in biomechanics," 2004. Currently Professor of Biology, Stanford University.
2. Cohen, A. (with M Pepper, Cavendish) "Nanoscale mechanics," 2003. Currently Professor of Chemistry, Harvard University.
3. Vella, D. (with H Huppert, DAMTP) "Interfacial failure," 2007. Currently Professor of Mathematics, Oxford University.

Doctoral theses (at Harvard)

1. Hohlfeld, E. "Creases, point bifurcations and the spontaneous breakdown of scale invariance," 2008. Currently working in private industry (Wall Street).
2. Guo, Z. (with S. Ramanathan, Molecular and Cell Biology) "Some problems in biomechanics and neurobiology," 2010. Currently Assistant Professor of Neurobiology, Tsinghua University, Beijing, China.
3. Mani, M. (with M. Brenner, SEAS) "Dynamics at soft interfaces," 2010. Currently Assistant Professor of Applied Mathematics, Northwestern University.
4. Yong, E-H, "Elasticity and biophysics," 2012. Currently Assistant Professor of Physics, Nanyang Institute of Technology, Singapore.
5. Mukherjee, A. "Studies in elastohydrodynamics: singing and swimming," 2012. Currently postdoc in Physics, Weizmann Institute, Israel.
6. Kolinski, J. "Interfacial dynamics," Dec. 2013. Currently Assistant Professor of Engineering, EPFL, Lausanne, CH.
7. Wei, Z. "Discrete and continuum mechanics," Aug. 2014. Currently at Goldman Sachs, NY.
8. McCormick, A. "Discrete differential geometry and physics of curves," Aug. 2013. Currently at Google.
9. Ocko, S. "Active porous media," Aug. 2015. Currently Duboc postdoc in Physics at Stanford University.

10. Isakov, I. "Studies in collective action," May 2016. Currently postdoc at Yale University.
11. Dudte, L. "Origami mathematics and mechanics," May 2017. Currently in private industry.
12. Salcedo, M. "Morphometrics and dynamics of insect wings," started in 2013.
13. Marantan, A. "Probabilistic learning about the physical world," May 2017. Currently in private industry.
14. Peters, J., "Collective behavior in honey bees," started in 2012.
15. Memet, E. "Geometry and biophysics: from buckling microtubules to posture control" started in 2012.
16. Fronk, D. "Channel formation in active systems," started in 2013.
17. Mishra, S. (with C. Rycroft) "Free surface hydrodynamics," started in 2014.
18. Plumb-Reyes, T. "Experiments on topological mechanics," started in 2015.
19. Heyde, A. "Studies in morphogenesis and dysmorphogenesis," started in 2016.
20. Chen, S. "Statistical mechanics and geometry," started in 2016.
21. Choi, G. (with C. Rycroft) "Morphometrics and morphogenesis," started in 2016.
22. Charles, N. "Topological mechanics," started in 2017.
23. Bryde, P. "Geometry, localization, and acoustics" started in 2017.
24. Niu, L. "Problems in geometry and physics," started in 2017.
25. Yodh, J. "Flow occlusion in nature and technology," started in 2017.

Post-doctoral associates and senior visitors (at MIT)

1. Dr. E. Cerda, Topic: Nonlinear Physics. February, 1997 – June, 1998.
Currently Professor of Physics, U. de Santiago de Chile, Santiago, Chile.
2. Dr. S. Chaieb (with G. McKinley). Topic: Experimental nonlinear physics.
September
1998- December 1999. Currently Assistant Professor of Mechanical Science and Engineering, KAUST, Saudi Arabia.

3. Dr. A. Upadhyaya (with R. Kamm) Topic: Pattern formation in adherent and motile cells. January 2000-December 2001. Currently Assoc. Professor of Physics, University of Maryland.
4. Professor Martine Ben Amar, Universite de Paris VI, sabbatical 1998-99.
5. Professor Yves Pomeau, Ecole Normale Superieure, Paris, April 2000.

Post-doctoral associates and senior visitors (at Cambridge)

1. Dr. D. Richard, Topic: Experimental soft matter physics. Aug. 2001 – June 2002. Dr. Richard is with Vivendi Water, Stockholm.
2. Dr. J. Dumais, Topic: Plant cell morphogenesis. Sep. 2001 – July 2003. Dr Dumais is currently an Associate Professor of Bioengineering, Adolfo Ibanez University, Chile.
3. Dr. E. Cerda, Topic: Elastic instabilities. July 2001 – Dec. 2003. Currently, Professor of Physics, U. Santiago de Chile, Chile.
4. Dr. M. Adda-Bedia. CNRS, LPS, ENS, Paris, France. February 2002 – February 2003. Currently Charge de Recherche, Laboratoire de Physique Statistique, Ecole Normale de Lyon.
6. Dr. Y. Forterre, Topic: Experimental soft matter physics, Aug. 2002 – present. Currently Charge de Recherche, IUSTI, Universite de Provence, Marseilles.

Post-doctoral associates and senior visitors (at Harvard)

1. Dr. C. Riera, Topic: Nonlinear physics. Sep 2002 – Sep 2004. Currently a private entrepreneur.
2. Dr. M. Argentina, Topic: Elastohydrodynamics and animal locomotion, Sep 2002 – Aug. 2004. Currently Prof. of Physics at the Univ. of Nice, France.
3. Dr. A. Ghatak, Topic: Experimental studies on adhesion, March 2002 – May 2004. Currently Professor of Chemical Engineering IIT, Kanpur, India.
4. Dr. C. Koudella, Topic: Computational molecular mechanics, Sep 2002 – Aug 2004. Currently on Wall Street.
5. Dr. M. Das, Topic: Physics of soft membranes, Sep 2004 – Oct 2005. Currently Asst. Prof. of Physics, U. Rochester, NY.

6. Dr H-Y Kim, Topic: Capillarity and elasticity, Sep 2004 – Dec 2004. Currently Prof. of Mechanical Engineering at Seoul National University, Korea.
7. Dr. A. Kabla, Topic: Physical mechanics, Dec 2004 – Jan 2007. Currently Prof. of Engineering, Cambridge University, UK..
8. Dr. A. Gopinath, Topic: Physiology and materials, Jan 2005 – Aug 2007. Currently Asst Prof. of Bioengineering, UC Merced.
9. Dr. D. Cuvelier, Topic: Experimental Biophysics, Sep 2005 – Aug 2007. Currently Maitre d'Conference at the Institut Curie and the University of Paris, France.
10. Dr. M. Wyart (with M. Brenner, D. Fisher, D. Nelson), Aug. 2005- July 2006. Currently Professor of Physics, EPFL, Lausanne, CH.
11. Dr. I. Kulic, Topic: Biophysics, Nov 2006 – April 2008. Currently Charge de recherche at CNRS, Laboratoire de Physiochimie polymeres, Strasbourg, France.
12. Dr. J. Higgins, MD. Topic: Sickle cell disease. Jan. 2006 – Aug. 2009. Currently Asst. Prof. of Systems Biology, Harvard Medical School, Boston, MA.
13. Dr. E. Reyssat, Topic: Elastohydrodynamics, Oct. 2007 – July 2009. Currently Charge de Recherche, Lab. de Physique et Mecanique Milieux Heterogenes, ESPCI, Paris, France.
14. Dr. S. Mandre (with M. Brenner), Topic: Elastohydrodynamics. Aug. 2006 – June 2010. Currently Asst. Prof. of Engineering, Brown University, Providence, RI.
15. Dr. H. Liang, Topic: Surfaces and interfaces, April 2007 – April 2010. Currently Prof. of Mechanics, University of Science and Technology, Hefei, China.
16. Dr. T. Savin, Topic: Soft matter physics, Oct. 2007 – Dec. 2009. Currently Asst. Prof. of Engineering, Cambridge University, UK.
17. Dr. O. Campas (with M. Brenner), Topic: Biophysics of morphogenesis, Oct 2007 –2011. Currently Asst. Prof. of Mechanical Engineering, U C Santa Barbara.
18. Dr. M. Venkadesan (with D. Lieberman), Topic: Human biomechanics, Oct 2008 – Dec 2010. Currently Asst Prof. of Engineering, Yale University, CT.

19. Dr. A. Slim, Topic: Flow in and deformation of porous media, Oct 2009 – Jan 2011. Currently Lecturer in Mathematics and Geosciences, Monash University, Australia.
20. Dr. K. Kamrin, Topic: Plasticity in thin geometries (NSF fellow), Sep 2008-Jan 2010. Currently Asst Prof. of Mech. Engg., MIT.
21. Dr. G. Morrison, Topic: Statistical mechanics of networks, Oct. 2008 – May 2013. Currently Asst. Prof. of Physics, U. Houston, TX.
22. Dr. M. Bandi, Topic: Soft matter physics, Oct. 2009 – Oct. 2011. Currently Asst. Prof. of Physics, Okinawa Institute of Science and Technology, Japan.
23. Dr. L. Giomi, Topic: Geometry and statistical physics, July 2010 – Aug 2012. Currently Asst. Prof. of Physics, Lorentz Institut, Leiden, Amsterdam.
24. Dr. A. Concha (with R. Wood), Topic: Fluid physics and locomotion, Mar 2010 – May, 2012. Currently Asst. Prof. of Physics, U. Adolfo Ibanez, Chile.
25. Dr. P. Paoletti, Topic: Optimization and control in biological systems, July 2010 – July 2012. Currently Asst. Prof. of Engineering, U. Liverpool, UK.
26. Dr. P. Mellado, Topic: Collective dynamics in fluid and spin systems, Aug 2010 – May 2012. Currently Asst. Prof. of Physics, U. Adolfo Ibanez, Chile.
27. Dr. S. Gerbode, Topic: Tendril and flower morphogenesis, Sep 2010 – Nov. 2011. Currently Asst Prof. of Physics, Harvey Mudd College, CA.
28. Dr. T. Tallinen, Topic: Mechanical aspects of morphogenesis, Sep 2010 – April 2012. Currently Asst. Prof. of Physics, Jyvaskyla University, Finland.
29. Dr. G. Wyn Jones, Topic: Inverse problems in soft matter, Jan 2010 – Dec. 2011. Currently Lecturer in Mathematics, U. Manchester, UK.
30. Dr. J. Biggins, Topic: Elasticity and morphogenesis, Oct 2010 – Oct 2012. Currently Research Fellow at Trinity Hall, and Cavendish Lab., Cambridge University, UK.
31. Dr. Dervis can Vural, Topic: Dynamics of and in complex networks, July 2012 – December 2013. Currently Asst. Prof. of Physics, U. Notre Dame, IN.
32. Dr. Eliran Boksenbojm, Topic: Statistical mechanics of nonequilibrium systems, Sep 2012 – Aug 2013. Currently in private industry.
33. Dr. Nadir Kaplan, Topic: Multiphase flow, Oct 2012 – August 2016. Currently, postdoc in Materials Science, Harvard University.

34. Dr. Hunter King, Topic: Collective dynamics of social insects and bristlebots, Oct 2012 – July 2016. Asst. Prof. of Polymer Science and Biology, U. Akron, Ohio.
35. Dr. Jun Chung, Topic: Active soft matter, Oct. 2012 – present.
36. Dr. Etienne Vouga, Topic; Discrete differential geometry and mechanics, Oct 2013 – Aug 2014. Currently Asst. Prof. of Comp. Sci., U-T. Austin, TX
37. Dr. Andreas Carlson, Topic: Interfacial fluid mechanics, Sep 2012 – Aug 2015. Currently Asst. Prof. of Mathematics, U. Oslo, Norway.
38. Dr Renaud Bastien, Topic: Proprioceptive biophysics, Nov. 2012 – Dec 2014. Currently postdoc at Max Planck Institute- Cologne.
39. Dr. Yasmine Meroz, Topic: Statistical mechanics of decision making in cells and organisms, Oct 2013 –Aug 2017. Currently Asst. Prof. of Plant Sciences, Tel Aviv University, Israel.
40. Dr. Raghu Chelakkot, Topic: Physics and dynamics of strings and ropes, Sep 2013 – May 2015. Currently Asst. Prof. of Physics, IIT- Mumbai, India.
41. Dr. Mattia Gazzola, Topic: Neurodynamics of swimming, Oct. 2013 – July 2016. Currently Asst. Prof. of Mech. Engg., U. Illinois, Urbana-Champaign.
42. Dr. Teresa Ruiz, Topic: Cellular biophysics, Oct 2013 – present.
43. Dr. Orit Peleg, Topic: Collective dynamics in biophysics, Jan 2014 – Nov 2017. Currently Asst. Prof. of Computer Science, U. Colorado, Boulder.
44. Dr. Baudouin Styves, Topic: Collective dynamics of robots, Jan 2014 – September 2016. Currently postdoc at MIT.
45. Dr. Ido Regev, Topic: Morphogenesis and pattern formation in biology and physics, Feb 2014 – Jan 2016. Currently Asst. Prof. of Physics, Ben Gurion University, Israel.
46. Dr. Elisabetta Matsumoto (with M. Brenner), Topic: Geometry and mechanics of soft matter, Sep 2014- July 2016. Asst. Prof. of Physics, Georgia Tech.
47. Dr. Siddharth Srinivasan, Topic: Hydrodynamics of thin viscous sheets and biofilms, Jan 2015 – present.
48. Dr. Tal Cohen, Topic: Elastic instabilities, Nov. 2015 – Oct 2016. Currently Asst. Prof. of Mechanical, and Civil and Environmental Engg., MIT, Cambridge, MA

49. Dr. Wim van Rees, Topic: Neuromechanics of locomotion, May 2015 – Oct 2017. Currently Asst. Prof. of Mechanical Engg., MIT, Cambridge, MA
50. Dr Yuval Hart, Topic: Psychophysics, Aug 2015 – present.
51. Dr Chon U Chan, Topic: Chemotaxis of cells, February 2016 – present.
52. Dr. Manasvi Lingam, Topic: Mathematics of active fluids, Nov 2016 – June 2017. Currently postdoc in Astrophysics, Harvard University.
53. Dr. Christoph Weber, Topic: Active matter instabilities, March 2016 – February 2018. Currently group leader, Biophysics, MPI-PKS, Dresden, Germany.
54. Dr. Thomas Michaels, Topic: Self assembly of filamentous structures, Aug. 2016 – present.
55. Dr. Aditi Chakraborti, Topic: Instabilities in soft matter, June 2017 – present.
56. Dr. Vamsi Spandan, Topic: Neuromechanics of locomotion, Aug. 2018 – present.