

Vincenzo Vitelli

Curriculum vitæ

Contact information

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Professional experience

Professor Department of Physics and James Franck Institute, University of Chicago	2017 – present
Professor, Chair of Condensed Matter Theory Instituut–Lorentz for Theoretical Physics, Leiden University	2015 – 2017
Associate Professor Instituut–Lorentz for Theoretical Physics, Leiden University	2013 – 2015
Assistant Professor Instituut–Lorentz for Theoretical Physics, Leiden University	2010 – 2013
Post-doctoral Fellow University of Pennsylvania	2006 – 2009

Education

PhD in Physics Harvard University <i>Thesis Advisor:</i> David R. Nelson. <i>Thesis title:</i> Crystals, Liquid Crystals and Superfluid He on Curved Surfaces.	September 2000 – June 2006
Visiting Undergraduate Student Massachusetts Institute of Technology	Fall 1999
BSc in Theoretical Physics First Class Honours Imperial College London	October 1997 – July 2000

Visiting Positions and Awards

Kavli Frontiers of Science Fellow selected by the National Academy of Sciences USA, 2015

Invited Professor Laboratoire de Physique Théorique, École Normale Supérieure Paris, 2015

Nomination for *Discoverer of the year* at Leiden University, 2015

Student Nomination for Faculty of Science Award for Education, Leiden University, 2015

Invited Professor Laboratoire de Physico-Chimie Théorique, ESPCI - ParisTech, 2014

Visiting Research Scholar to the Initiative for the Theoretical Sciences, CUNY, 2014

Student Nomination for Faculty of Science Award for Education, Leiden University, 2014

Invited Professor of the Joliot-Curie Chair ESPCI - ParisTech, 2013

NWO Vidi Laureate Netherlands Organization for Scientific Research, 2012

Professeur Invité Université Paris VII, 2009

Feinberg Foundation Fellow Weizmann Institute, 2009

Herbert Callen Prize for "*his insightful work on the interplay between geometry and superfluid order*", 2007

Harold T. White Prize for *Excellence in Teaching*, Harvard Physics Department, 2005

Certificate of Distinction for *Excellence in Teaching*, Harvard Bok Center, 2005

Nuffield Foundation Award for *undergraduate research* carried out at MIT and Imperial College, 1999

Invited Talks and Colloquia

Invited Talk, Dutch Physics Society, Veldhoven, 17-01-2017

Theory Colloquium, ETHZ, Zurich, 12-12-2016

Marvel Seminar, EPFL, 9-12-2016

Center for Soft Matter Research, NYU, 05-12-2016

SISSA and ICTP Colloquium, Trieste, 23-10-2016

Opening Lecture, Third International CMT School, Wurzburg, 03-10-2016

Yukawa Institute for Theoretical Physics, Kyoto University, 28-09-2016

Lorentz Center workshop, 02-09-2016.

Euromech Colloquium, Grenoble, 12-07-2016.

Out of Equilibrium and active matter, Roscoff, 29-06-2016

Plenary Speaker, International Colloquium on Theoretical Methods in Physics, Rio de Janeiro, 24-06-2016

Active and Smart Matter workshop, Syracuse University, 21-06-2016

International Center of Mathematical Sciences, Edinburgh, 03-06-2016

Physics Colloquium, Ecole Normale Supérieure, Lyon, 02-05-2016

Simons Center for geometry and Physics, Stony Brook, 20-04-2016

Center for Nanoscience Colloquium, LMU Munich, 15-04-2016
Chez Pierre Seminar, MIT, 7-04-2016
Applied Physics Colloquium, Cornell, 5-04-2016.
Invited Talk Dutch Physics Society (FOM) Meeting, Focus session on Granular Matter, Veldhoven, 20-1-2016
James Frank Institute Colloquium, University of Chicago, 14-01-2016
Physics Colloquium, University of Bayreuth, 15-12-2015
Physics Colloquium, NYU, 02-12-2015
Physics Colloquium, University of North Carolina, 30-11-2015
Invited Talk Annual Kavli Frontiers of Science Symposium, National Academy of Sciences, Irvine, 07-11-2015
Invited Talk Workshop on Geometry and Quantum Physics, Natal, 26-10-2015
International doctoral training session Frontiers in Condensed Matter, Les Houches, 10-09-2015
Workshop Novel Quantum Materials and Systems, Lorentz Center, Leiden, 11-09-2015
Physics Colloquium École Normale Supérieure, Paris, 04-06-2015
Invited Talk International Congress of Ultrasonics, GeorgiaTech Lorraine, 14-5-2015
Invited Talk APS March Meeting, San Antonio, 3-3-2015
Physics Colloquium University of Chicago, Chicago, 19-02-2015
Physics Colloquium New York University, New York, 13-02-2015
Invited Talk Dutch Physics Society (FOM) Meeting, Focus session on Designer Matter, Veldhoven, 20-1-2015
Topology Workshop Identifying Order in Complex Systems, Philadelphia, 12-11-2014
KITP Conference Complexity in Mechanics, Santa Barbara, 23-10-2014
Amolf Colloquium, Amsterdam, 30-06-2014
Joint SISSA and ICTP Colloquium, Trieste, 16-1-2014
Colloquium Max Planck Institute for Dynamics and Self-Organization, Gottingen, 27-11-2013
Keynote Speaker Geometry and Physics of Spatially Random Structure, Black Forest, Germany, 9-09-2013
Conference From Cooperativity in Supercooled Liquids to Plasticity of Amorphous Solids, ETH, 27-6-2013
Newton Institute Conference The Mathematics of Liquid Crystals, Cambridge, 25-06-2013
GDR Mécanique et Physique des systemes complexes, Paris, 21-06-2013
IUTAM Symposium Materials and interfaces under high strain rate and large deformations, Metz, 17-06-2013
APS March Meeting Tutorial, Baltimore, 17-03-2013
Gordon Research Conference Granular Media, Davidson, 25-7-2012
Invited Talk APS March Meeting, Boston, 06-03-2012
Amolf Colloquium, Amsterdam, 13-02-2012
Granular Days, Twente, 1-02-2012
Unifying Concepts in Glass Physics V, Paris, 16-12-2011
Physics Colloquium, Utrecht, 27-05-2011

Trends in Theory, Dalfsen, 20-05-2011
 Theoretical Physics Colloquium, UvA, Amsterdam, 12-09-2010
 Complexity and Patterns Meeting, Enschede, 16-10-2010
 Colloquium Ehrenfestii, Leiden, 03-10-2010
 Euromech, Lisbon, 09-09-2009
 Physics Colloquium, McGill, Montreal, 03-12-2009
 Physics Colloquium, Brandeis, Waltham, 02-26-2009
 Invited Talk APS March Meeting, New Orleans, 03-10-2008
 Statistical Physics Conference 23, Genoa, 07-13-2007
 Granular physics and colloids conference, Naples, 07-05-2007

Seminars

Condensend Matter Theory Seminar, Universiteit van Amsterdam, 30-09-2015
 Laboratoire d'Acoustique, Université du Maine, Le Mans, 23-06-2015
 Groupe Vitreux, École Normale Supérieure, Paris, 18-06-2015
 Physics Departmen, Weizmann Institute, Rehovot, 28-05-2015
 Aspen Center for Physics, Aspen, 02-02-2015
 Quantum Nanoscience Department, TU Delft, 03-12-2014
 Casimir School, San Sebastien 03-12-2014
 School of Engineering and Applied Sciences, Harvard University, Boston, 03-04-2014
 School of Engineering and Applied Sciences, Harvard University, Boston, 03-04-2014
 Theoretical Physics Initiative, Graduate School, CUNY, New York, 31-03-2014
 Laboratory for Research on the Structure of Matter, University of Pennsylvania, Philadelphia, 28-03-2014
 Physics Department, Umea University, Sweden, 17-01-2014
 Gran Sasso Science Institute, L' Aquila, 13-01-2014
 Mathematics Department, Universita' La Sapienza, Roma, 11-01-2014
 Institut des Matériaux, EPFL, Lausanne, 18-09-2013
 Casimir Research School, Les Houches 03-09-2013
 Institute Curie, Paris, 20-06-2013
 CEA, Saclay, 19-06-2013
 Institute Langevin Ondes et Images, Paris, 04-06-2013
 Gulliver Seminar, ESPCI, Paris, 03-06-2013
 Physique Théorique Seminar, Ecole Normale Supérieure, Paris, 03-06-2013
 Physico-Chimie Théorique Seminar, ESPCI, Paris, 16-05-2013
 Scuola Internazionale Superiore di studi avanzati (SISSA), Trieste, 17-04-2013

German Aerospace Center, Koln, 02-04-2013
University of Massachussets, Ahmerst, 28-03-2013
Institut Charles Sadron, Strasbourg, 12-02-2013
Rudolf Peierls Center, Oxford, 24-01-2013
ESPCI, Paris, 09-07-2012
Cavendish Laboratory, Cambridge, 18-05-2012
James Frank Institute, Chicago, 11-04-2012
Brandeis, Waltham, 09-03-2012
Harvard, Cambridge, 06-03-2012
Georgia Tech, Atlanta, 24-02-2012
Groningen University, 05-12-2011
Forschungszentrum, Juelich, 21-07-2011
Casimir School, Delft, 25-05-2011
University of Pennsylvania, 16-05-2011
University of Chicago, 09-05-2011
New York University, 04-05-2011
California institute of Technology, 26-04-2011
University of California San Diego, 25-04-2011
University of Twente, 11-04-2011
University of Eindhoven, 02-11-2011
University of Twente, 20-08-2010
Soft Matter Day, Wageningen, 14-04-2010
Weizmann Institute, 14-12-2009
Hebrew University of Jerusalem, 25-11-2009
Technion, Haifa, 14-11-2009
Weizmann Institute, 04-11-2009
Tel Aviv University, 02-11-2009
Université Paris VI, 12-10-2009
ESPCI, Paris, 12-10-2009
Université Lyon I, 07-10-2009
University of North Carolina, Chapel Hill, 12-02-2009
MRSEC talk, UPenn, Philadelphia, 06-02-2009
University of California Santa Barbara, Santa Barbara, 29-01-2009
California Institute of Technology, Pasadena, 23-01-2009
University of California Los Angeles, Los Angeles, 12-01-2009

Aspen Center of Physics, 06-25-2008
 Georgia Institute of Technology, Atlanta, 06-03-2008
 Lorentz Institute, Leiden, 05-07-2008
 Condensed Matter Seminar, Syracuse University, 11-17-2006
 MRSEC Chalk Talk, University of Pennsylvania, 06-02-2006
 Material Research Lab Seminars, Santa Barbara, 05-15-2006
 Condensed Matter Theory Group Meeting, Boston University, 01-26-2006
 Widely Applied Math Seminar, DEAS, Harvard, 10-05-2005
 Condensed Matter Seminar, MIT, 04-13-2005
 Condensed Matter Seminar, UPenn, 01-18-2005
 Theoretical Chemistry Seminar, Cornell, 12-05-2004
 Condensed Matter Seminar, Syracuse University, 10-15-2004
 Nanophysics Seminar, Dartmouth College, 04-29-2004

Contributed Talks

APS March Meeting, Baltimore, 15-3-2016
 Nonlinear Response of Soft Matter, Konstanz, 02-29-2011
 American Physical Society Meeting, Pittsburgh, 03-18-2009
 99 Statistical Mechanics Conference, Rutgers University, 05-12-2008
 XI International Workshop on Complex Systems, Andalo, 03-19-2008
 Frontiers in Condensed Matter Physics, Aspen, 02-07-2008
 American Physical Society Meeting, Denver, 03-07-2007
 International Liquid Crystal Conference, Keystone, 07-04-2006
 New England Complex Fluids Work Group, Harvard, 12-15-2005

Poster Presentations

Institute for Mathematics and its Applications, Minneapolis, 07-21-2008
 Frontiers in Condensed Matter Physics, Aspen, 02-06-2008
 Statistical Physics 23, Genoa, 07-2007
 Gordon Conferenc, New London, June 2006
 Frontiers in Materials and Nano science conference, Harvard, 05-20-2005
 Bioengineering and Medicine conference, Harvard, 04-27-2005
 APS Meeting, Montreal, 03-24-2004

Teaching Experience

Lecturer, **Statistical Field Theory**, Leiden University, Autumn 2013, 2014, 2015 and 2016
 Lecturer, **Advanced Statistical Physics**, Leiden University, Autumn 2011, 2012, 2013, 2014, 2015 and 2016
 Lecturer, **Relativistic Electrodynamics**, Leiden University, Spring 2015
 Lecturer, **Topological Mechanics**, ESPCI ParisTech, June 2014
 Lecturer, **Topological Mechanics**, 7th FAPERJ School, Rio de Janeiro, April 2014
 Lecturer, **Topological Methods in Theoretical Physics**, Leiden University - Delta Institute, Spring 2014
 Habilitation to teach in Dutch universities, **BKO Certificate**, January 2011
 Lecturer, **Renormalization Group Methods**, Leiden University - Delta Institute, Spring 2011
 Lecturer, **Fluid Dynamics**, Master in Physics, Leiden University, Fall 2010
 Lecturer, **Elasticity and Geometry**, Dutch Research School of Theoretical Physics, Spring 2010
 Lecturer, **Econophysics** Bachelor in Physics, Leiden University, Winter 2010

I was a non-resident tutor at Elliott House in Harvard in the academic years 2002-2004. I served as a teaching assistant in the following courses taught at Harvard:

Electromagnetism, Summer 2005, Spring 2005, Spring 2001
Quantum Theory of Solids, Fall 2003
Topics in Soft Matter and Biophysics, Spring 2003
Graduate Statistical Physics, Fall 2002, Spring 2001
Applied Mathematics, Spring 2002
Mechanics, Fall 2000

Service

Coordination Team Leiden Institute of Physics, 2014-2015
Teaching Committee Leiden Institute of Physics, 2013-2014
Co-organizer of the Ehrenfest Colloquium Leiden Institute of Physics, 2013-2014
Co-organizer of the Physics Café Leiden Institute of Physics, 2013-2014
Member of faculty search committee for *Soft Condensed Matter Theory and Statistical Physics*, Universiteit van Amsterdam, 2014
Member of faculty search committee for *Condensed Matter Theory*, Delta Institute of Theoretical Physics and Universiteit van Amsterdam, 2013
Member of faculty search committee for *Condensed Matter Theory*, Delta Institute of Theoretical Physics and Utrecht University, 2012

Professional Activities

- Co-organizer**, Topological Metamaterials and Beyond, Aspen Center of Physics, 02-01-2016
- Guest Editor** for *New Journal of Physics* special issue on *Topological Mechanics*, 2016.
- Co-organizer**, Lorentz Center Workshop, *Topological Materials at $\hbar = 0$: optical, mechanical and acoustic analogues of topological insulators*, 2016.
- Organizing committee**, FOM Veldhoven Meeting, Dutch Physics Society, 2016.
- Co-organizer**, Boulder School in Condensed Matter Physics, *Soft matter in and out of equilibrium*, 2015.
- Co-organizer**, Lorentz Center Workshop, *Topological mechanics: from metamaterials to robots*, 2014.
- Participant**, KITP program, *Complexity in mechanics: Intermittency and collective phenomena in disordered solids*, Santa Barbara, 2014.
- Co-organizer**, Statistical Physics and Theoretical Condensed Matter School, Dutch Research School Theoretical Physics, 2012, 2013 and 2014.
- Guest Editor** for *Soft Matter* special issue on *Geometry and Topology of Soft Materials*, 2013.
- Chairperson**, for *Granular Materials and Jamming*, 7th IDMRCS Conference, 2013.
- Co-organizer**, Lorentz Center Workshop, *Modern Perspectives on Thin Sheets*, 03-09-2012.
- Member of user committee**, for *Vici Grant*, awarded to Prof. S. Luding, 2012-2016.
- Co-organizer**, 21st International Materials Research Congress, *Soft Responsive Materials*, Cancun, 13-08-2012.
- Co-organizer**, Aspen Center for Physics, *Condensed Matter Winter Conference*, 03-01-2011.
- Co-organizer**, Lorentz Center Workshop, *Capillary shaping of solutes*, 17-05-2010.
- Member**, Institute of Complex Adaptive Matter, *Fellows Committee*.
- Chair** of session on *Statistical and Soft Condensed Matter Physics*, FOM Meeting, Veldhoven, 20-01-2010.
- Chair** of symposium on *Jamming at nonzero temperature and stress*, APS Meeting, Pittsburgh, 03-17-2009.
- Participant**, Institute for Mathematics and its Applications, *Geometrical Singularities*, July 2008.
- Co-organizer**, University of Pennsylvania, *Mid-Atlantic Soft Matter Workshop*, 06-08-2008.
- Participant**, Aspen Center for Physics, *Interfaces, Topological Defects and Flexible Packings*, June 2008.
- Participant**, Aspen Center for Physics, *Frontiers in Condensed Matter Physics*, February 2008.
- Participant**, Aspen Center for Physics, *Jamming Workshop*, July 2007.
- Participant**, International School of Physics "Enrico Fermi", *The Physics of Complex Systems*, July 2003.
- Participant**, Boulder School in Condensed Matter Physics, *Physics of Soft Condensed Matter*, 2002.
- Participant**, Boulder School in Condensed Matter Physics, *Non-equilibrium Statistical Physics*, 2001.
- Participant**, Summer School in *Biomathematics*, Propriano, 2000.
- Referee** for Science, Physical Review Letters, Nature Physics, Proceedings of the National Academy of Sciences, Reviews of Modern Physics, Physical Review E and B, Europhysics Letters, Nanophysics Letters, Journal of Statistical Physics, Journal of Chemical Physics, Journal of Materials Chemistry, Soft Matter, European Journal Physics E, Philosophical Magazine, Physica A.

Referee of condensed matter physics books for Taylor & Francis, Chapman & Hall and CRC Press.

Grant Reviewer for the Netherlands Foundation for Fundamental Research (FOM), the German Research Foundation (DFG), the Israel Science Foundation (ISF) and the Swiss National Science Foundation (SNSF).

Funding

FOM Project Grant, <i>From soft matter to dark matter: the statistical physics of lensing</i> Awarded by the Netherlands Foundation for Fundamental Research (FOM)	2010
Programma Grant <i>Marginal soft matter: Leveraging the mechanics of responsive networks</i> Awarded by the Netherlands Foundation for Fundamental Research (FOM)	2012
Vidi Grant, <i>From shocks to failure: the physics and geometry of fragility,</i> Awarded by the Netherlands Organization for Scientific Research (NWO)	2012
Huygens PhD Fellowship Awarded by Leiden University to fund Richard Green's doctoral studies	2012
Delta Institute of Theoretical Physics Post-doctoral Fellowship Two years post-doctoral position on topological mechanics (awarded to Jayson Paulose)	2012
Chinese Science Council Phd Fellowship Awarded to fund Yujie Zhou's PhD on topological mechanics	2013
Nano-front Phd Fellowship Awarded to fund research on topological mechanics with A. Akhmerov	2015

Group Members

Postdoctoral Fellows: Dr. D. Banerjee, Dr. A. Souslov, Dr. M. Fruchart

PhD students: R. Green, H. Abbaszadeh

Former Group Members

PhD Students

Yujie Zhou <i>Thesis title: Wave propagation in mechanical metamaterials</i>	17-10-2017
Benjamin C. van Zuiden <i>Thesis title: Topology and Geometry in Chiral Liquids</i>	27-09-2017
Thomas H. Beuman <i>Thesis title: The Stochastic Geometry of non-Gaussian Fields</i> next <i>post-doc Leiden University</i>	08-12-2015
Vincenz Koning <i>Thesis title: On the geometry of fracture and frustration</i> next <i>private sector</i>	26-11-2014

Nitin Upadhyaya

Thesis title: Solitary waves and fluctuations in fragile matter
 next *Lecturer in Applied Mathematics, Harvard University*

04-11-2013

Postdoctoral Fellows

Dr. Leopoldo Gomez, next *faculty member at Universidad Nacional del Sur*

Dr. Stephan Ulrich, next *private sector*

Dr. Nitin Upadhyaya, next *Lecturer in Applied Mathematics, Harvard University*

Dr. Bryan Chen, next *Post doctoral fellow, University of Massachusetts, Amherst*

Dr. Jayson Paulose, next *Post doctoral fellow, University of California, Berkeley*

Master Students

A. Tichler, next *Reservoir Engineer at Shell*

T. H. Beuman, next *PhD student at the Instituut-Lorentz*

V. Koning, next *PhD student at the Instituut-Lorentz*

S. Kozhuharov, next *private sector*

S. C. F. van Opheusden, next *Phd student in Neuroscience at New York University*

B. C. van Zuiden, next *PhD student at the Instituut-Lorentz*

F. M. G. J. Coppens, *PhD student at IRSAMC Institute, Toulouse*

F. Milan, next *PhD student in Physics at Rome University*

A. Meeussen, next *PhD student at AMOLF, Amsterdam*

H. Abbaszadeh, next *PhD student at the Instituut-Lorentz*

G. Baardink

Publications

- [68] M. Fruchart, S.-Y. Jeon, K. Hur, V. Cheianov, U. Wiesner, and V. Vitelli, *Soft self-assembly of weyl materials for light and sound*, (2017)
- [67] K. Bertoldi, V. Vitelli, J. Christensen, and M. van Hecke, *Flexible mechanical metamaterials*, **Nature Reviews Materials** 2, 17066 (2017).
- [66] G. Baardink, A. Souslov, J. Paulose, and V. Vitelli, *Localizing softness and stress along loops in three-dimensional topological metamaterials*, (2017)
- [65] Y. Hadad, V. Vitelli, and A. Alu, *Solitons and propagating domain walls in topological resonator arrays*, **ACS Photonics** (2017).
- [64] A. Souslov, B. C. van Zuiden, D. Bartolo, and V. Vitelli, *Topological sound in active-liquid metamaterials*, **Nature Physics** (2017), See *Metamaterials: Topological order gets active*, by A. Alù, *Nature Physics* (2017).
- [63] D. Banerjee, A. Souslov, A. G. Abanov, and V. Vitelli, *Odd viscosity in chiral active fluids*, **Nature Communications** 8 (2017).

- [62] Y. Zhou, B. G. Chen, N. Upadhyaya, and V. Vitelli, *Kink-antikink asymmetry and impurity interactions in topological mechanical chains*, **Phys. Rev. E** *95*, 022202 (2017).
- [61] N. P. Mitchell, V. Koning, V. Vitelli, and W. T. M. Irvine, *Fracture in sheets draped on curved surfaces*, **Nature Materials** *16*, 89–93 (2017), See also Elastic sheets: Cracks by design, by Ken Kamrin, *Nature Materials* *16*, 8–9 (2017).
- [60] H. Abbaszadeh, A. Souslov, J. Paulose, H. Schomerus, and V. Vitelli, *Sonic Landau levels and synthetic gauge fields in mechanical metamaterials*, **Physical Review Letters** *119* (2017).
- [59] B. C. van Zuiden, J. Paulose, W. T. M. Irvine, D. Bartolo, and V. Vitelli, *Spatiotemporal order and emergent edge currents in active spinner materials*, **Proceedings of the National Academy of Sciences** *113*, 12919–12924 (2016), See Spin City, by A. Klopper, *Nature Physics* *12*, 1090 (2016).
- [58] A. S. Meeussen, J. Paulose, and V. Vitelli, *Geared topological metamaterials with tunable mechanical stability*, **Phys. Rev. X** *6*, 041029 (2016).
- [57] M. Pelliccia, P. Andreozzi, J. Paulose, M. D’Alicarnasso, V. Cagno, M. Donalisio, A. Civra, R. M. Broeckel, N. Haese, P. J. Silva, R. P. Carney, V. Marjomäki, D. N. Streblov, D. Lembo, F. Stellacci, V. Vitelli, and S. Krol, *Additives for vaccine storage to improve thermal stability of adenoviruses from hours to months*, **Nature Communications** *7*, 13520 (2016).
- [56] R. Green, J. Toner, and V. Vitelli, *Geometry of thresholdless active flow in nematic microfluidics*, **Physical Review Fluids** *2* (2017).
- [55] V. Koning and V. Vitelli, *Crystals and liquid crystals confined to curved geometries?*, in *Fluids, colloids and soft materials: an introduction to soft matter physics* (John Wiley & Sons, Inc, Apr. 2016), pp. 369–386.
- [54] M. M. Driscoll, B. G. Chen, T. H. Beuman, S. Ulrich, S. R. Nagel, and V. Vitelli, *The role of rigidity in controlling material failure*, **Proceedings of the National Academy of Sciences** *113*, 10813–10817 (2016).
- [53] V. Koning, T. Lopez-Leon, A. Darmon, A. Fernandez-Nieves, and V. Vitelli, *Spherical nematic shells with a threefold valence*, **Physical Review E** *94*, 012703 (2016).
- [52] M. Ceriotti and V. Vitelli, *Vitrification: machines learn to recognize glasses*, **Nature Physics** *12*, 377–378 (2016).
- [51] D. Z. Rocklin, B. G. Chen, M. Falk, V. Vitelli, and T. C. Lubensky, *Mechanical weyl modes in topological Maxwell lattices*, **Physical review letters** *116*, 135503 (2016), Editors’ Suggestion.
- [50] B. G. Chen, B. Liu, A. A. Evans, J. Paulose, I. Cohen, V. Vitelli, and C. D. Santangelo, *Topological mechanics of origami and kirigami*, **Physical review letters** *116*, 135501 (2016), Synopsis.
- [49] C. Brito, V. Vitelli, and O. Dauchot, *Orientational order at finite temperature on curved surfaces*, **Journal of Statistical Mechanics: Theory and Experiment** *2016*, 033208 (2016).
- [48] J. Paulose, A. S. Meeussen, and V. Vitelli, *Selective buckling via states of self-stress in topological metamaterials*, **Proceedings of the National Academy of Sciences** *112*, 7639–7644 (2015).
- [47] L. M. Nash, D. Kleckner, A. Read, V. Vitelli, A. M. Turner, and W. T. M. Irvine, *Topological mechanics of gyroscopic metamaterials*, **Proceedings of the National Academy of Sciences** *112*, 14495–14500 (2015), See News and Views by P. Ball, *Nature Materials*, (2016).
- [46] A. Ward, F. Hilitski, W. Schwenger, D. Welch, A. W. C. Lau, V. Vitelli, L. Mahadevan, and Z. Dogic, *Solid friction between soft filaments*, **Nature materials** *14*, 583–588 (2015).

- [45] L. R. Gómez, N. A. García, V. Vitelli, J. Lorenzana, and D. A. Vega, *Phase nucleation in curved space*, **Nature communications** 6 (2015).
- [44] J. Paulose, B. G. Chen, and V. Vitelli, *Topological modes bound to dislocations in mechanical metamaterials*, **Nature Physics** 11, 153–156 (2015), Cover, See News and Views by T. Witten, Nature Physics, (2015).
- [43] V. Vitelli, N. Upadhyaya, and B. G. Chen, *Topological mechanisms as classical spinor fields*, **arXiv:1407.2890** (2014).
- [42] B. G. Chen, N. Upadhyaya, and V. Vitelli, *Nonlinear conduction via solitons in a topological mechanical insulator*, **Proceedings of the National Academy of Sciences** 111, 13004–13009 (2014), See Inner workings: Legos in the Lab by S. Ornes, Proc. Natl. Acad. Sci. USA, 112 (42) 12901, (2015), and Edging into the spotlight, by S. Ornes, Physics World, 28, 6 (2015).
- [41] J.-B. Caussin, A. Solon, A. Peshkov, H. Chaté, T. Dauxois, J. Tailleur, V. Vitelli, and D. Bartolo, *Emergent spatial structures in flocking models: a dynamical system insight*, **Phys. Rev. Lett.** 112, 148102 (2014), Highlighted in Physics Synopsis.
- [40] T. H. Beuman, A. M. Turner, and V. Vitelli, *Geometrical detection of weak non-gaussianity upon coarse-graining*, **Journal of Statistical Physics** 157, 571–581 (2014).
- [39] V. Koning, B. C. van Zuiden, R. D. Kamien, and V. Vitelli, *Saddle-splay screening and chiral symmetry breaking in toroidal nematics*, **Soft Matter** (2014).
- [38] V. Vitelli and W. Irvine, *The geometry and topology of soft materials*, **Soft Matter** 9, 8086–8087 (2013).
- [37] S. Ulrich, N. Upadhyaya, B. van Opheusden, and V. Vitelli, *Shear shocks in fragile networks*, **Proceedings of the National Academy of Sciences** 110, 20929–20934 (2013).
- [36] N. Upadhyaya, L. R. Gómez, and V. Vitelli, *Soliton attenuation and emergent hydrodynamics in fragile matter*, **Physical Review X** 4, 011045 (2014).
- [35] N. Upadhyaya, A. M. Turner, and V. Vitelli, *Solitons and thermal fluctuations in strongly nonlinear solids*, **Phys. Rev. E** 88, 052906 (2013).
- [34] A. M. Tichler, L. R. Gómez, N. Upadhyaya, X. Campman, V. F. Nesterenko, and V. Vitelli, *Transmission and reflection of strongly nonlinear solitary waves at granular interfaces*, **Phys. Rev. Lett.** 111, 048001 (2013), Editors' Suggestion and highlighted in Physics Synopsis.
- [33] S. R. Waitukaitis, L. K. Roth, V. Vitelli, and H. M. Jaeger, *Dynamic jamming fronts*, **EPL (Europhysics Letters)** 102, 44001 (2013).
- [32] P. Strack and V. Vitelli, *Soft quantum vibrations of a pt -symmetric nonlinear ion chain*, **Phys. Rev. A** 88, 053408 (2013).
- [31] E. Páram, J. Vallamkonda, V. Koning, B. C. van Zuiden, P. W. Ellis, M. A. Bates, V. Vitelli, and A. Fernandez-Nieves, *Stable nematic droplets with handles*, **Proceedings of the National Academy of Sciences** 110, 9295–9300 (2013).
- [30] A. Amir, J. J. Krich, V. Vitelli, Y. Oreg, and Y. Imry, *Emergent percolation length and localization in random elastic networks*, **Phys. Rev. X** 3, 021017 (2013).
- [29] V. Koning, T. Lopez-Leon, A. Fernandez-Nieves, and V. Vitelli, *Bivalent defect configurations in inhomogeneous nematic shells*, **Soft Matter** 9, 4993–5003 (2013).

- [28] T. H. Beuman, A. M. Turner, and V. Vitelli, *Extrema statistics in the dynamics of a non-gaussian random field*, **Phys. Rev. E** *87*, 022142 (2013).
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