Vincenzo Vitelli

Curriculum vitæ

Contact information

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Postal Address:
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Professional experience

Professor of Physics, The University of Chicago 2017 – present
James Franck Institute
Data Science Institute
Institute for Biophysical Dynamics
Leinweber Institute for Theoretical Physics

Professor, Chair of Condensed Matter Theory 2015 – 2017
Instituut–Lorentz for Theoretical Physics, Leiden University

Associate Professor 2013 – 2015
Instituut–Lorentz for Theoretical Physics, Leiden University

Assistant Professor 2010 – 2013
Instituut–Lorentz for Theoretical Physics, Leiden University

Post-doctoral Fellow 2006 – 2009
Department of Physics, University of Pennsylvania
Advisors: Andrea Liu, Randall Kamien and Tom Lubensky.

Education

PhD in Physics September 2000 – June 2006
Harvard University
Thesis Advisor: David R. Nelson.
Thesis title: Crystals, Liquid Crystals and Superfluid He on Curved Surfaces.

Visiting Undergraduate Student Fall 1999
Massachusetts Institute of Technology

BSc in Theoretical Physics October 1997 – July 2000
First Class Honours
Imperial College London

Awards and Honors

AAAS Honorary Fellow, American Association for the Avancement of Sciences (AAAS), 2026.

CNRS Fellow Ambassador, Centre National de la Recherche Scientifique (CNRS), 2025.

Invited Professor, Physics Department, École Normale Supérieure Paris, 2025.

Visiting Theorist, Quantitative Living System Center, Duke University, 2025.

Chan-Zuckerberg Biohub Investigator, 2024-.

Niels Bohr Lecture, Niels Bohr Institute, Copenhagen, 2024.

Invited Professor, Physics Department, École Normale Supérieure Paris, 2024.

Chan-Zuckerberg Theory in Biology Investigator, 2023-2025.

Fellow of the American Physical Society, 2018, DSOFT.

Kavli Frontiers of Science Fellow, National Academy of Sciences (NAS), 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

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, University of Pennsylvania, 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

Teaching Experience

Lecturer, **Undergraduate Statistical Physics**, University of Chicago, Fall 2022, 2023, 2024.

Lecturer, **Topics in Many Body Dynamics**, University of Chicago, Spring 2025.

Lecturer, **Graduate Statistical Physics**, University of Chicago, Fall 2021

Lecturer, **Advanced Graduate Statistical Physics**, University of Chicago, Fall 2019, 2020

Lecturer, **Graduate Classical Mechanics**, University of Chicago, Fall 2018

Lecturer, **Graduate Soft Matter Physics**, University of Chicago, Spring 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025.

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**, 7^{th} 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

Leadership and Service roles

Scientific Director, CNRS & UC International Research Center for Fundamental Scientific Discovery (IRC Discovery), 2025-

Member of the Faculty Council of the France Chicago Center (FCC), 2024-

Member of the Advisory Board of Kavli Institue for Theoretical Physics (KITP), 2022-2025

Coordinator of Reaserch Theme, *Learning and Adaptation* , National Institute for Theory and Mathematics in Biology (NITMB), 2023-

Coordinator of MA2, *Morphogenetic Systems* , Center for Living Systems, 2023-

Member of the Editorial Committee Annual Review of Condensed Matter Physics, 2021-

Coordinator of IRG2, *Activated Architectured Materials*, Chicago Material Research Science and Engineering Center (MRSEC), 2019-2026

Member of the APS DSOFT Fellowship Committee, 2020

Member of the search committee for the Lead Editor of PRE, 2020

Member of the Council of the University Senate, University of Chicago, 2020-2023

Member of the Physical Sciences Collegiate Division (PSCD) Governing Committee, University of Chicago, 2020-2022

Chair of the Teaching Activities Committee, University of Chicago, 2020-

Chair of the JFI Appointment Committee, University of Chicago, 2018-

Chair of the Undergraduate Physics Curriculum Committee, University of Chicago, 2018-2020

Colloquium Committee, University of Chicago, 2017-2018

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

Lecturer, *Active Mechanics and Biophysics*, Boulder Summer School, 2024.

Co-organizer, *Learning dynamical models from biophysical data*, Aspen Center for Physics, 2022.

Lecturer, *Out of Equilibrium Dynamics*, Begh Rhou Summer School on Statistical Physics, 2022.

Co-organizer, Workshop on *Dualities from theoretical physics to engineering*, Kadanoff Center for Theoretical Physics, University of Chicago, 2020

Co-organizer, Workshop on *Hydrodynamics across all scales*, Kadanoff Center for Theoretical Physics, University of Chicago, 2019

Co-organizer, Workshop on *Topological Protection in Messy Matter*, GeorgiaTech, 2018

Co-organizer, Lorentz Center Workshop, *Topology in Complex Fluids*, 2018

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*, 7^{th} 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, 21^{st} 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, Nature, Physical Review X, Physical Review Letters, Nature Physics, Nature Materials, Nature Photonics, 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).

Selected Invited Talks and Colloquia

Invited Talk, DPG Annual Meeting (German Physical Society), Regensburg, 20-03-2025.

Invited Talk, APS March Meeting, Anheim, 18-03-2025.

Quantitative Living Systems Colloquium, Duke University, 04-03-2025.

Physics Colloquium, NYU, New York, 10-12-2024.

Invited Talk, KITP Conference, Santa Barbara, 15-10-2024.

Invited Talk, IUPAM Meeting, Kyoto, 12-06-2024

Invited Talk Machine Learning Symposium, Foundation des Treilles, 12-06-2024

Niels Bohr Colloquium, Niels Bohr Institute, Copenaghen, 29-05-2024
Physics Colloquium, École Normale Supérieure, Paris, 21-02-2024
Invited Talk, StatPhys28, Tokyo, 09-08-2023
Invited Talk, StatPhys28 Satellite Meeting, Kyoto, 01-08-2023
Physics Colloquium, MIT, 18-05-2023
Applied Physics Colloquium, Harvard, 20-04-2023
Inaugural Pritker Conference on AI+Science, 29-03-2023
Invited Talk, APS March Meeting, 16-03-2022
International Congress on Artificial Materials for Novel Wave Phenomena, CUNY, 23-09-2021
Keynote talk, Metanano 2021 conference, online, 14-9-2021
Physics Department Colloquium, University of Minnesota, 24-2-2021
Physics Department Colloquium, Drexel University, 28-1-2021
Physics Department Colloquium, CUNY , 7-12-2021
Physics Department Colloquium, UCLA , 3-12-2020
Department Colloquium, George Town University, 7-11-2020
Invited tutorial talk, CLEO, 5-11-2020
Fluid phases of matter: from electron liquids to active matter, CUNY, 11-12-2019
Simons Collaboration on Cracking the Glass Problem Annual Meeting, New York, 7-03-2019
Warren Lecture Series - University of Minnesota, 26-10-2018
Symposium Topology in Condensed Matter Physics 14-03-2018
BIRS workshop, Banff, 12-09-2017
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 Superieure, 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

Group Members

Postdoctoral Fellows: Y. Avni, S. Chen, N. Romeo, M. Scandolo, O. Granek, S. H. Choi, D. E. Gökmen, M. Biroli, L. Touzo, G. G. Lorenzana.

PhD students: M. Schmitt, E. Eren, S. Ni, L. Scharrer, J. Lin, Y. Guan, T. Kanazawa.

Undergraduate students: N. Sodickson, S. Khanna, C. No, N. Bhat.

Former Group Members

PhD Students

Tali Khain, University of Chicago 23-08-2025
Thesis title: Chiral fluids across scales
next *Carrier Fellow, School of Engineering and Applied Sciences, Harvard University*

Jonathan Colen, University of Chicago 23-10-2023
Thesis title: Learning physical models of biological materials
next *Assistant Professor at Jefferson Lab - ODU Joint Institute on Advanced Computing*

Colin Scheibner, University of Chicago 02-06-2023
Thesis title: Odd elasticity
next *postdoctoral fellow at Princeton Center for the Physics of Biological Function and PCTS*

Hamed Abbaszadeh, Leiden University 27-01-2021
Thesis title: Geometric phases in soft materials
currently *Quantitative Analyst at ABN AMRO Bank*

Richard Green, Leiden University 03-07-2018
Thesis title: Geometry and topology in active and driven systems
next *postdoctoral fellow at the University of Amsterdam*

Yujie Zhou, Leiden University 17-10-2017
Thesis title: Wave propagation in mechanical metamaterials
currently *Researcher at Nanjing University*

Benjamin C. van Zuiden, Leiden University 27-09-2017
Thesis title: Topology and Geometry in Chiral Liquids
currently *Researcher at ASML*

Thomas H. Beuman, Leiden University 08-12-2015
Thesis title: The Stochastic Geometry of non-Gaussian Fields
currently *Software Developer at Datadigest*

Vincenz Koning, Leiden University 26-11-2014
Thesis title: On the geometry of fracture and frustration
currently *Assistant Professor, Utrecht University*

Nitin Upadhyaya, Leiden University 04-11-2013
Thesis title: Solitary waves and fluctuations in fragile matter
next *Lecturer in Applied Mathematics, Harvard University*

Postdoctoral Fellows

Peter Lu, currently *Assistant Professor of Electrical and Computer Engineering, Tufts, Boston.*
Daniel Seara, currently *Assistant Professor of Mechanical and Industrial Engineering, UIC, Chicago.*
David Martin, currently *CNRS Permanent Researcher, LPTMC, Sorbonne Université, Paris.*
Rituparno Mandal, currently *Associate Professor of Physics, Raman Research Institute, Bangalore.*
Ming Han, currently *Assistant Professor of Physics, Peking University.*
Michel Fruchart, currently *CNRS Permanent Researcher, ESPCI, Paris.*
Bryan Vansaders, currently *Assistant Professor of Physics, Drexel University.*
Maciej Koch-Janusz, currently *Principal Scientist at Haiqu Inc.*
Anton Souslov, currently *Associate Professor of Physics, Cavendish Laboratory, Cambridge.*
Debarghya Banerjee, currently *CNRS Researcher, Ecole Polytechnique de l'Université de Nantes.*
Jayson Paulose, currently *Associate Professor of Physics, University of Oregon.*
Bryan Chen, currently *Senior Engineer, Mathlib Initiative.*
Nitin Upadhyaya, currently *Applied Math Faculty, Plaksha University, India.*
Stephan Ulrich, currently *Senior Systems Engineer at PMD Technologies.*
Leopoldo R. Gomez, currently *Professor of Physics at Universidad Nacional del Sur, Argentina.*

Undergraduate Students

R. Huang, next *PhD student* in Physics at MIT.
L. Braverman, next *PhD student* in Physics at Harvard.
C. Yao, next *PhD student* in Mathematics at Harvard.
L. Guttieres, next *PhD student* in Physics at Harvard.
S. Ni, next *PhD student* in Physics at the University of Chicago.
H. Timlin, next *Graduate student* in the Harvard School of Design.
M. Fossati next *PhD student* in Physics at SISSA, Trieste.
G. Baardink, next *Master student* at Kyushu University

H. Abbaszadeh, next *PhD student* at the Instituut-Lorentz
A. Meeussen, next *PhD student* at AMOLF, Amsterdam
F. Milan, next *PhD student* in Physics at Rome University
F. M. G. J. Coppens, *PhD student* at IRSAMC Institute, Toulouse
B. C. van Zuiden, next *PhD student* at the Instituut-Lorentz
S. C. F. van Opheusden, next *Phd student* in Neuroscience at New York University
S. Kozhuharov, next *private sector*
V. Koning, next *PhD student* at the Instituut-Lorentz
T. H. Beuman, next *PhD student* at the Instituut-Lorentz
A. Tichler, next *Reservoir Engineer* at Shell

Publications

[136] D. S. Seara and V. Vitelli, *The fourfold way to rupture in active solids*, **Nature Materials**, (2026).

[135] M. S. Schmitt, K. Lee, F. Bunbury, J. A. Landsittel, V. Vitelli, and S. Kuehn, *Learning functional groups in complex microbiomes*, (2026) bioRxiv: 10.64898/2026.03.03.709366v1.

[134] M. Fruchart and V. Vitelli, *Nonreciprocal many-body physics*, (2026) arXiv:2602.11111.

[133] B. VanSaders and V. Vitelli, *Measurement-Induced Phase Transitions in Informational Active Matter*, (2026) arXiv:2303.07402.

[132] C. Weis, M. Fruchart, R. Hanai, K. Kawagoe, P. B. Littlewood, and V. Vitelli, *Generalized exceptional points in nonlinear and stochastic dynamics*, **Physical Review Research** *7*, 043157 (2025), arXiv:2207.11667.

[131] N. Romeo, D. G. Martin, M. Scandolo, M. Fruchart, E. M. Munro, and V. Vitelli, *Information bounds the robustness of self-organized systems*, (2025) arXiv:2511.01682.

[130] M. Han, J. Devany, M. Fruchart, M. L. Gardel, and V. Vitelli, *Learning noisy tissue dynamics across time scales*, (2025) arXiv:2510.19090.

[129] G. Garcia Lorenzana, D. Martin, Y. Avni, D. S. Seara, M. Fruchart, G. Biroli, and V. Vitelli, *When is nonreciprocity relevant?* (2025) arXiv:2509.17972.

[128] J. Berezney, S. Ray, I. Kolvin, F. Brauns, S. Chen, M. Bowick, S. Fraden, V. Vitelli, and Z. Dogic, *Active assembly and non-reciprocal dynamics of elastic membranes*, **Nature Physics** *22*, 604–611 (2026), arXiv:2408.14699.

[127] S. Khanna, D. E. Gökmen, R. Kondor, and V. Vitelli, *Graph contrastive learning versus untrained baselines: the role of dataset size*, (2025) arXiv:2509.01541.

[126] G. Garcia Lorenzana, A. Altieri, G. Biroli, M. Fruchart, and V. Vitelli, *Non-reciprocal spin-glasses: exceptional-points mediated phase transitions and aging*, **Physical Review E** *112*, 044154 (2025).

[125] E. Eren, M. Fruchart, and V. Vitelli, *A collisional model of odd fluids: from boltzmann equation to chiral hydrodynamics*, (2025) arXiv:2508.12944.

[124] A. Tavera-Vázquez, D. Martin, H. Ren, S. Rubin, A. Córdoba, R. Zhang, V. Vitelli, and J. J. de Pablo, *Quorum sensing of light-activated colloids in nematic liquid crystals*, (2025) arXiv:2507.10866.

[123] S. Chen, D. E. Gökmen, M. Fruchart, M. Krumbein, P. Silberzan, V. Yashunsky, and V. Vitelli, *Chirality across scales in tissue dynamics*, (2025) arXiv:2506.12276.

[122] X. M. de Wit, S. Galtier, M. Fruchart, F. Toschi, and V. Vitelli, *Non-hermitian wave turbulence*, (2025) arXiv:2504.15403.

[121] J. Veenstra, C. Scheibner, M. Brandenbourger, J. Binysh, A. Souslov, V. Vitelli, and C. Coulais, *Adaptive locomotion of active solids*, **Nature** *639*, 935 (2025).

[120] S. Guillet, A. Poncet, M. L. Blay, W. Irvine, V. Vitelli, and D. Bartolo, *Melting of non reciprocal solids: how dislocations propel and fission in flowing crystals*, **PNAS** *112*, 15 (2025).

[119] S. Yves, R. Fleury, G. Shmuel, V. Vitelli, M. R. Haberman, and A. Alù, *Symmetry-driven phononic metamaterials*, (2024) arXiv:2411.18556.

[118] Y. Avni, M. Fruchart, D. Martin, D. Seara, and V. Vitelli, *Dynamical phase transitions in the nonreciprocal ising model*, **Physical Review E** *111*, 034124 (2025), arXiv:2409.07481.

[117] G. G. Lorenzana, A. Altieri, G. Biroli, M. Fruchart, and V. Vitelli, *Non-reciprocal spin-glass transition and aging*, **Physical Review Letters** *135*, 187402 (2025).

[116] R. Mandal, R. Huang, M. Fruchart, P. G. Moerman, S. Vaikuntanathan, A. Murugan, and V. Vitelli, *Learning dynamical behaviors in physical systems*, (2024) arXiv:2406.07856.

[115] S. Chen, X. M. de Wit, M. Fruchart, F. Toschi, and V. Vitelli, *Odd viscosity suppresses intermittency in direct turbulent cascades*, **Physical Review Letters** *133*, 144002 (2024), arXiv:2404.18894.

[114] J. Colen, A. Poncet, D. Bartolo, and V. Vitelli, *Interpreting neural operators: how nonlinear waves propagate in non-reciprocal solids*, **Physical Review Letters** *133*, 107301 (2024), arXiv:2404.12918.

[113] W. Van Saarloos, V. Vitelli, and Z. Zeravcic, *Soft matter: concepts, phenomena and applications.* (Princeton University Press, 2023).

[112] D. S. Seara, J. Colen, M. Fruchart, Y. Avni, D. Martin, and V. Vitelli, *Sociohydrodynamics: Data-driven modelling of social behavior*, **Proceedings of the National Academy of Sciences** *122*, e2508692122 (2025), arXiv:22312.17627.

[111] M. F. Lefebvre, J. Colen, N. H. Claussen, F. Brauns, M. K. Raich, N. Mitchell, M. Fruchart, V. Vitelli, and S. J. Streichan, *Learning a conserved mechanism for early neuroectoderm morphogenesis*, (2023) bioRxiv: 10.1101/2023.12.22.573058.

[110] M. S. Schmitt, M. Koch-Janusz, M. Fruchart, D. S. Seara, and V. Vitelli, *Information theory for data-driven model reduction in physics and biology*, (2023) arXiv:2312.06608.

[109] R. Huang, R. Mandal, C. Scheibner, and V. Vitelli, *Odd elasticity in driven granular matter*, (2023) arXiv:2311.18720.

[108] Y. Avni, M. Fruchart, D. Martin, D. Seara, and V. Vitelli, *Nonreciprocal Ising model*, **Physical Review Letters** *134*, 117103 (2025), arXiv:2311.05471.

[107] J. Yu, C. Scheibner, C. Liang, T. A. Witten, V. Vitelli, and J. Park, *Universal wrinkling of freestanding atomically thin films*, (2023) arXiv:2311.05096.

[106] T. Khain, M. Fruchart, C. Scheibner, T. A. Witten, and V. Vitelli, *Trading particle shape with fluid symmetry: on the mobility matrix in 3D chiral fluids*, **Journal of Fluid Mechanics** *992*, A5 (2024), arXiv:2310.17528.

[105] S. A. Redford, J. Colen, J. L. Shivers, S. Zemsky, M. Molaei, C. Floyd, P. V. Ruijgrok, V. Vitelli, Z. Bryant, A. R. Dinner, and M. L. Gardel, *Motor crosslinking augments elasticity in active nematics*, **Soft Matter** (2024), arXiv:2308.16831.

[104] D. Martin, D. Seara, Y. Avni, M. Fruchart, and V. Vitelli, *The transition to collective motion in nonreciprocal active matter: coarse graining agent-based models into fluctuating hydrodynamics*, (2023) arXiv:2307.08251.

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