

# Curriculum Vitae

**Luca Giomi**,  
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## Professional Experience

- 2019-present Associate professor at the Instituut-Lorentz, Universiteit Leiden.
- 2014-2019 Assistant professor at the Instituut-Lorentz, Universiteit Leiden.
- 2012-present Postdoctoral fellow at SISSA mathLab.
- 2009-2012 Postdoctoral fellow at the School of Engineering and Applied Sciences, Harvard University.
- 2009-2010 Postdoctoral fellow at Martin Fisher School of Physics, Brandies University (jointly with Harvard).
- 2004-2009 Teaching/Research assistant in Physics at Syracuse University.

## Education

- 2009 PhD in Physics, *Syracuse University*, Syracuse (NY).
- 2004 MS Degree in Physics, *Università La Sapienza*, Rome, Italy.

## Group Members

### Current

- **Postdoc:** L. N. Carenza.
- **PhD students:** I. García-Aguilar, L. Hoffman, J. M. Armengol-Collado, D. Krommydas.
- **MSc students:** A. Olashyn, C. Mense.

### Former

- **Postdocs:** D. Pearce, P. Fonda, N. Sarkar, R. Green.
- **PhD students:** Z. You, M. Rinaldin, K. Schakenraad.
- **MSc students:** M. Teunisse, S. Zwaan, A. van Delft, L. Ravazzano, L. Talman, A. Vromans, J. Ernst.
- **Internship students:** M. Varga, L. Hoogerbrugge, G. Boosten.

## Funding

8. **NWO Groot grant**  
Awarded to fund the research program: *Strength in numbers: the active matter physics of cancer metastasis*, 2020.
7. **ERC Consolidator grant**  
Awarded to fund the research program: *Hexatic hydrodynamics: from driven soft matter to biological tissues*, 2019.
6. **D-ITP postdoctoral fellowship**  
Awarded to fund R. Green, 2019.
5. **D-ITP diversity grant**  
Awarded to fund I. García-Aguilar doctoral studies, 2016.
4. **NWO Vidi Scheme**  
Awarded to fund the research program: *From active matter to artificial cells: a mechanical insight into the fabric of life*, 2016.
3. **Della Riccia Fellowship**  
Awarded to fund P. Fonda, postdoctoral appointment, 2016.
2. **NanoFront PhD Fellowship**  
Awarded to fund M. Rinaldin doctoral studies, 2015.
1. **Huygens PhD Fellowship**  
Awarded by Leiden University to fund K. Schakenraad's doctoral studies, 2015.

## Research Publications

### Book chapters

- L. Giomi, *Contour models of cellular adhesion*, to be published in the book “Cell migrations, causes and functions”, Eds. S. Zapperi and C. La Porta (Advances in Experimental Medicine and Biology, Springer-Nature, 2018).


### Research articles

#### Under review


72. L. A. Hoffmann, L. N. Carenza, L. Giomi, *Tuneable defect-curvature coupling and topological transitions in active shells*, [arXiv:2205.06805](https://arxiv.org/abs/2205.06805). Under review on Nat. Commun.
71. K. Schakenraad, G. I. Martorana, B. H. Bakker, L. Giomi, R. M. H. Merks, *Stress fibers orient traction forces on micropatterns: A hybrid cellular Potts model study*, [bioRxiv 2022.04.18.488715](https://doi.org/10.1101/2022.04.18.488715). Under review on PLOS Comput. Biol.
70. D. Krommydas, N. C. Carenza, L. Giomi, *Passive self-propulsion and enhanced annihilation of p-atic defects*, [arXiv:2203.06170](https://arxiv.org/abs/2203.06170). Under review on Phys. Rev. Lett.
69. J.-M. Armengol-Collado, N. C. Carenza, L. Giomi, *Hydrodynamics and multiscale order in confluent epithelia*, [arXiv:2202.00651](https://arxiv.org/abs/2202.00651). Under review in Phys. Rev. Lett.
68. J.-M. Armengol-Collado, N. C. Carenza, J. Eckert, L. Giomi, *Epithelia are multiscale active liquid crystals*, [arXiv:2202.00668](https://arxiv.org/abs/2202.00668). Under review in Nat. Phys.
67. M. Serra, L. Lemma, L. Giomi, Z. Dogic, L. Mahadevan, *Defect-mediated dynamics of coherent structures in active nematics*, [arXiv:2104.02196](https://arxiv.org/abs/2104.02196). Under review in Nat. Phys.

66. M. Rinaldin, S. L. D. ten Haaf, E. J. Vegter, C. van der Wel, P. Fonda, L. Giomi, D. J. Kraft, *Supported lipid membranes with designed geometry*, [arXiv:2102.08635](https://arxiv.org/abs/2102.08635). Under review on Adv. Mater.
65. P. Fonda, L. Giomi, *Metastability of lipid necks via geometric triality*, [arXiv:2101.01161](https://arxiv.org/abs/2101.01161). Under review on Phys. Rev. Lett.
64. R. Green, J. Armas, J. de Boer, L. Giomi, *Topological waves in passive and active fluids on curved surfaces: a unified picture*, [arXiv:2011.12271](https://arxiv.org/abs/2011.12271). Under review on Phys. Rev. X.
63. R. Capozza, L. Giomi, C. A. Gonano, F. De Angelis, *How to puncture a biomembrane: elastic versus entropic rupture*, Phys. Rev. Lett. *under review*, [arXiv:1911.05557](https://arxiv.org/abs/1911.05557). Under review on Phys. Rev. Lett.

### Peer reviewed

62. V. Yashunsky, D. J. G. Pearce, C. Blanch-Mercader, F. Ascione, P. Silberzan, L. Giomi, *Chiral edge currents in confined fibrosarcoma cells*, [arXiv:2010.15555](https://arxiv.org/abs/2010.15555). In press on Phys. Rev. X.
61. E. H. Yong, F. Dary, L. Giomi, L. Mahadevan, *Statistics and topology of fluctuating ribbons*, *Proc. Natl. Acad. Sci. U.S.A.* **119**, e2122907119 (2022).
60. L. Giomi, J. Toner, N. Sarkar, *Long-ranged order and flow alignment in sheared  $p$ -atic liquid crystals*, *Phys. Rev. Lett.* **129**, 067801 (2022).
59. L. Giomi, J. Toner, N. Sarkar, *Hydrodynamic theory of  $p$ -atic liquid crystals*, *Phys. Rev. E* **106**, 024701 (2022).
58. J. Dhar, A. L. P. Thai, A. Ghoshal, L. Giomi, A. Sengupta, *Self-regulation of phenotypic noise synchronizes emergent organization and active transport in confluent microbial environments*, *Nat. Phys.* **18**, 945 (2022).
57. L. A. Hoffmann, L. Nicola Carenza, J. Eckert, L. Giomi, *Theory of defect-mediated morphogenesis*, *Sci. Adv.* **8**, eabk2712 (2022).
56. D. J. G. Pearce, J. Nambisan, P. W. Ellis, A. Fernandez-Nieves, L. Giomi, *Orientational correlations in passive and active nematics*, *Phys. Rev. Lett.* **127**, 197801 (2021).
55. A. Chardac, L. A. Hoffmann, Y. Poupart, L. Giomi, D. Bartolo, *Topology-driven ordering of flocking matter*, *Phys. Rev. X* **11**, 031069 (2021). Featured in [PRX highlights](#) in experimental statistical, biological, and soft-matter physics.
54. I. García-Aguilar, P. Fonda, E. Sloutskin, L. Giomi, *Reply to Comment on “Faceting and flattening of emulsion droplets: a mechanical model” by Haas et al.* *Phys. Rev. Lett.* **126**, 259802 (2021).
53. I. Chakraborty, D. J. G. Pearce, R. W. Verweij, S. C. Matysik, L. Giomi, and D. J. Kraft, *Self-assembly dynamics of reconfigurable colloidal molecules*, *ACS Nano* **16**, 2471 (2022).
52. I. García-Aguilar, P. Fonda, E. Sloutskin, L. Giomi, *Faceting and flattening of emulsion droplets*, *Phys. Rev. Lett.* **126**, 038001 (2021). Featured in *Physics Magazine*. Editor’s suggestion .
51. Z. You, D. J. G. Pearce, L. Giomi, *Confinement-induced self-organization in growing bacterial colonies*, *Sci. Adv.* **7**, eabc8685 (2021).
50. P. Fonda, S. C. Al-Izzi, L. Giomi, M. S. Turner, *Measuring Gaussian rigidity using curved substrates*, *Phys. Rev. Lett.* **125**, 188002 (2020).
49. I. García-Aguilar, P. Fonda, L. Giomi, *Dislocation screening in crystals with spherical topology*, *Phys. Rev. E* **101**, 063005 (2020).
48. K. Schakenraad, J. Ernst, W. Pomp, E. H. J. Danen, R. M. H. Merks, T. Schmidt, L. Giomi, *Mechanical interplay between cell shape and actin cytoskeleton organization*, *Soft Matter* **16**, 6328 (2020).

47. M. Rinaldin, P. Fonda, L. Giomi, D. J. Kraft, *Lipid exchange enhances geometric pinning in multi-component membranes on patterned substrates*, [Soft Matter](#) **16**, 4932 (2020).
46. M. Rinaldin, P. Fonda, D. J. Kraft, L. Giomi, *Geometric pinning and antimixing in scaffolded lipid vesicles* [Nat. Commun.](#) **11**, 4314 (2020).
45. K. Schakenraad, L. Ravazzano, N. Sarkar, J. A. J. Wondergem, R. M. H. Merks, L. Giomi, *Topotaxis of active Brownian particles*, [Phys. Rev. E](#) **101**, 032602 (2020).
44. L. A. Hoffmann, K. Schakenraad, R. M. H. Merks, L. Giomi, *Chiral stresses in nematic cell monolayers*, [Soft Matter](#) **16**, 764 (2020).
43. Z. You, D. J. G. Pearce, A. Sengupta, L. Giomi, *Mono-to-multilayer transition in growing bacterial colonies*, [Phys. Rev. Lett.](#) **123**, 178001 (2019).
42. P. Fonda, M. Rinaldin, D. J. Kraft, L. Giomi, *Thermodynamic equilibrium of binary mixtures on curved surfaces*, [Phys. Rev. E](#) **100**, 032604 (2019).
41. D. J. G. Pearce, P. W. Ellis, A. Fernandez-Nieves, L. Giomi, *Geometrical control of active turbulence in curved topographies*, [Phys. Rev. Lett.](#) **122**, 168002 (2019).
40. L. M. Lemma, S. J. Decamp, Z. You, L. Giomi, Z. Dogic, *Statistical properties of autonomous flows in 2D active nematics*, [Soft Matter](#) **15**, 3264 (2019).
39. D. J. G. Pearce, L. A. Hoogerbrugge, K. A. Hook, H. S. Fisher, L. Giomi, *Cellular geometry control the efficiency of motile sperm aggregates*, [J. R. Soc. Interface](#) **15**, 20180702 (2018).
38. P. Fonda, M. Rinaldin, D. J. Kraft, L. Giomi, *Interface geometry of binary mixtures on curved substrates*, [Phys. Rev. E](#) **98**, 032801 (2018).
37. C. Blanch-Mercader, V. Yashunsky, S. Garcia, L. Giomi, P. Silberzan, *Turbulent dynamics of epithelial cell cultures*, [Phys. Rev. Lett.](#) **120**, 208101 (2018).
36. W. Pomp, K. Schakenraad, H. E. Balcioğlu, H. van Hoorn, E. H. J. Danen, R. M. H. Merks, T. Schmidt, L. Giomi, *Cytoskeletal anisotropy controls geometry and forces of adherent cells*, [Phys. Rev. Lett.](#) **121**, 178101 (2018).
35. Z. You, D. J. G. Pearce, A. Sengupta, L. Giomi, *Geometry and mechanics of micro-domains in growing bacterial colonies*, [Phys. Rev. X](#) **8**, 031065 (2018).
34. P. W. Ellis, D. J. G. Pearce, Y.-W. Change, G. Goldsztein, L. Giomi, A. Fernandez-Nieves, *Curvature-induced defect unbinding and dynamics in active nematic toroids*, [Nat. Phys.](#) **14**, 85 (2018).
33. L. Giomi, Z. Kos, M. Ravnik, A. Sengupta, *Cross-talk between topological defects in different fields revealed by nematic microfluidics*, [Proc. Nat. Acad. Sci.](#) **114**, E5771 (2017).
32. L. Giomi, *One ring to rule them all: tuning bacteria collective motion via geometric confinement*, [New J. Phys.](#) **18**, 081001 (2016).
31. D. J. G. Pearce, L. Giomi, *Linear response to leadership, effective temperature and decision making in flocks*, [Phys. Rev. E](#) **94**, 02261 (2016).
30. A. J. Vromans, L. Giomi, *Orientalional properties of nematic disclinations*, [Soft Matter](#) **12**, 6490 (2016).
29. L. Giomi, *The geometry and topology of turbulence in active nematics*, [Phys. Rev. X](#) **5**, 031003 (2015).
28. P. Fonda, L. Giomi, A. Salvio, E. Tonni, *On shape dependence of holographic mutual information in AdS<sub>4</sub>*, [JHEP](#) **1502**:005 (2015).
27. F. C. Keber, E. Loiseau, T. Sanchez, S. J. DeCamp, L. Giomi, M. J. Bowick, M. C. Marchetti, Z. Dogic, A. R. Bausch, *Topology and dynamics of active nematic vesicles*, [Science](#) **345**, 1135 (2014).

26. L. Giomi, M. J. Bowick, P. Mishra, R. Sknepnek and M. C. Marchetti, *Defect dynamics in active nematics*, [Phil. Trans. R. Soc. A \*\*372\*\*, 20130365 \(2014\)](#).
25. H. S. Fisher, L. Giomi, H. E. Hoekstra and L. Mahadevan, *The dynamics of sperm cooperation in a competitive environment*. [Proc. R. Soc. B. \*\*281\*\*, 20140296 \(2014\)](#).
24. L. Giomi and A. DeSimone, *Spontaneous division and motility in active nematic droplets*, [Phys. Rev. Lett. \*\*112\*\*, 147802 \(2014\)](#).
23. L. Giomi, M. J. Bowick, X. Ma and M. C. Marchetti, *Defect annihilation and proliferation in active nematics*, [Phys. Rev. Lett. \*\*110\*\*, 228101 \(2013\)](#).
22. L. Giomi, *Softly constrained films*, [Soft Matter \*\*9\*\*, 8121 \(2013\)](#).
21. S. Banerjee and L. Giomi, *Polymorphism and bistability in adherent cells*, [Soft Matter \*\*9\*\*, 5251 \(2013\)](#).
20. L. Giomi, N. Hawley-Weld and L. Mahadevan, *Swarming, swirling and stasis in sequestered Bristle-Bots*, [Proc. R. Soc. A \*\*469\*\*, 20120637 \(2013\)](#).
19. L. Giomi, *Hyperbolic Interfaces*, [Phys. Rev. Lett. \*\*109\*\*, 136101 \(2012\)](#). Editor's suggestion .
18. L. Giomi, L. Mahadevan, B. Chakraborty and M. F. Hagan, *Banding, excitability and chaos in active nematics suspensions*, [Nonlinearity \*\*25\*\*, 2245 \(2012\)](#). *Editor suggestion* and reprinted for special issue on mathematical biology.
17. L. Giomi, M. J. Bowick, X. Ma and A. Majumdar, *Molecular tilt on monolayer-protected nanoparticles*, [Europhys. Lett. \*\*97\*\*, 36007 \(2012\)](#).
16. L. Giomi and L. Mahadevan, *Minimal surfaces bounded by elastic lines*, [Proc. R. Soc. A \*\*468\*\*, 1851 \(2012\)](#).
15. L. Giomi and M. C. Marchetti, *Polar patterns in active fluids*, [Soft Matter \*\*8\*\*, 129 \(2012\)](#).
14. L. Giomi and L. Mahadevan, *Multistability of spontaneously curved anisotropic strips*, [Proc. R. Soc. A \*\*468\*\*, 2138 \(2012\)](#).
13. L. Giomi and L. Mahadevan, *Reply to Comment on "Statistical mechanics of developable ribbons"*, [Phys. Rev. Lett. \*\*107\*\*, 239802 \(2011\)](#).
12. L. Giomi, L. Mahadevan, B. Chakraborty and M. F. Hagan, *Excitable patterns in active nematics*, [Phys. Rev. Lett. \*\*106\*\*, 218101 \(2011\)](#).
11. L. Giomi and L. Mahadevan, *Statistical mechanics of developable ribbons*, [Phys. Rev. Lett. \*\*104\*\*, 238104 \(2010\)](#).
10. L. Giomi, T. B. Liverpool and M. C. Marchetti, *Sheared active fluids: thickening, thinning and vanishing viscosity*, [Phys. Rev. E \*\*81\*\*, 051908 \(2010\)](#).
9. M. J. Bowick and L. Giomi, *Two-dimensional matter: order, curvature and defects*, [Adv. Phys. \*\*58\*\*, 449 \(2009\)](#).
8. Y. Asano, A. Jimnez-Dalmaroni, T. B. Liverpool, M. C. Marchetti, L. Giomi, A. Kiger, T. Duke and B. Baum, *Pak3 inhibits local actin filament formation to regulate global cell polarity*, [HFSP J. \*\*3\*\*, 194 \(2009\)](#).
7. L. Giomi and M. J. Bowick, *Elastic theory of defects in toroidal crystals*, [Eur. Phys. J. E \*\*27\*\*, 275 \(2008\)](#).
6. L. Giomi, M. C. Marchetti and T. B. Liverpool, *Complex spontaneous flows and concentration banding in active polar films*, [Phys. Rev. Lett. \*\*101\*\*, 198101 \(2008\)](#).
5. L. Giomi and M. J. Bowick, *Defective ground states of toroidal crystals*, [Phys. Rev. E \*\*78\*\*, 010601\(R\) \(2008\)](#).

4. M. J. Bowick, L. Giomi, C. K. Thomas and H. Shin, *Bubble raft model for a paraboloidal crystal*, *Phys. Rev. E* **77**, 021602 (2008).
3. L. Giomi and M. J. Bowick, *Paraboloidal Crystals*, *Chaos* **17**, 1 (2007).
2. L. Giomi and M. J. Bowick, *Crystalline order on Riemannian manifolds with variable Gaussian curvature and boundary*, *Phys. Rev. B* **76**, 054106 (2007).
1. A. Billoire, L. Giomi and E. Marinari, *The mean field infinite range  $p = 3$  spin glass: equilibrium landscape and correlation time scales*, *Europhys. Lett.* **71**, 824 (2005).

## Invited Talks

70. *Cosmology in biology: the expanding physics of bacterial colonies*, Conference “The 4th information universe”, Groningen (Netherlands), 23 Jun. 2022.
69. *Hydrodynamics and multiscale order in confluent epithelia*, University of Oslo, Oslo (Norway), 28 Apr. 2022.
68. *Hydrodynamics and multiscale order in confluent epithelia*, Massachusetts Institute of Technology, Cambridge (MA, USA), 5 Apr. 2022.
67. *Hydrodynamics and multiscale order in confluent epithelia*, University of Amsterdam, Amsterdam (Netherlands), 29 Mar. 2022.
66. *Confinement-induced self-organisation in growing bacterial colonies*, APS March meeting, Chicago (IL, USA), 14 Mar. 2022.
65. *Hydrodynamics and multiscale order in confluent epithelia*, Harvard University, Cambridge (MA, USA), 2 Dec. 2021.
64. *The geometry of colonization*, Workshop “Fundamentals of growing active matter”, Higgs Center for theoretical physics, Edinburgh, 25 Mar. 2021.
63. *Hydrodynamics of collective cell migration: the good, the bad and the chiral*, This Week Discoveries, Leiden (Netherlands), 28 Feb. 2020.
62. *Hydrodynamics of collective cell migration: the good, the bad and the chiral*, Physics@Veldhoven, Veldhoven (Netherlands), 21 Jan. 2020.
61. *Geometry and topology of turbulence in active nematics*, Flatiron Institute, New York (NY, USA), 4 Dec. 2019.
60. *Geometry, defects and motion in active matter*, University of Utrecht, Utrecht (Netherlands), 20 Nov. 2019.
59. *Geometry, defects and motion in active matter*, Weizmann Institute of Science, Rehovot (Israel), 31 Mar. 2019.
58. *Defect ordering and geometrical control in passive and active nematic liquid crystals*, APS March Meeting, Boston (MA, USA), 8 Mar. 2019.
57. *The geometry of colonization*, University of Edinburgh, Edinburgh (UK), 14 Feb. 2019.
56. *The geometry of colonization*, Dundee University, Dundee (UK), 13 Feb. 2019.
55. *The geometry of colonization*, ESPCI, Paris (France), 14 Jan. 2019.
54. *Geometry, defects and motion in active matter*, Warwick Centre for Complexity Science, Warwick (UK), 20 Jun. 2018.

53. *Geometry, defects and motion in active matter*, MRS Spring meeting, Phoenix (AZ, USA), 4 Apr. 2018.
52. *Geometry and mechanics of micro-domains in growing bacterial colonies*, Tel Aviv University, Tel Aviv (Israel), 1 Feb. 2018.
51. *Geometry and topology of turbulence in active nematics*, Hebrew University, Jerusalem (Israel), 31 Jan. 2018.
50. *Active fluids: from liquid crystals to living systems*, Mathematics department “La Sapienza”, Rome (Italy), 24 Nov. 2017.
49. *The dynamics of sperm aggregation in a competitive environment*, Aberdeen (UK), 20 Sep. 2017.
48. *Geometry, defects and motion in active matter*, Edinburgh (UK), 19 Sep. 2017.
47. *Geometry, defects and motion in active matter*, Workshop “Material theories”, Mathematisches Forschungsinstitut Oberwolfach, Oberwolfach (Germany), 2 Jul. 2017.
46. *Geometry, defects and motion in active matter*, 9th International Conference Engineering of Chemical Complexity, Vilanova i la Geltru (Spain), 21 Jun. 2017.
45. *Geometry, defects and motion in active matter*, Workshop “Fluid and Structures: Interaction and Modelling”, Naples (Italy), 23 May 2017.
44. *Biological materials and active matter*, NanoFront winter retreat, Courchevel (France), 31 Mar. 2017.
43. *Geometry, defects and motion in active matter*, Physics@Veldhoven, Veldhoven (Netherlands), 17 Jan. 2017.
42. *Geometry, defects and motion in active matter*, CECAM Workshop “Biomimetic and living materials: active matter at high densities”, Lausanne (Switzerland), 2 Dec. 2016.
41. *The geometry and topology of turbulence in active nematics*, STATPHYS satellite meeting on “Out-of-Equilibrium & Active Soft Matter”, Roscoff (France), 30 Jun. 2016.
40. *Low Reynolds number turbulence in active matter*, 4<sup>th</sup> ICMS Soft Matter meeting, TU Eindhoven, Eindhoven, 15 Jun. 2016.
39. *From active matter to artificial cells: a mechanical insight into the fabric of life*, This week discovery, Leiden University, Leiden 7 Jun. 2016.
38. *The geometry and topology of turbulence in active nematics*, SIAM conference of “Mathematical Aspects of Material Science”, Philadelphia (PA, USA) 9 May 2016.
37. *The geometry and topology of turbulence in active nematics*, IPAM Workshop “Partial Order: Mathematics, Simulations and Applications”, Los Angeles (CA, USA), 28 Jan. 2016.
36. *The geometry and topology of turbulence in active nematics*, 8<sup>th</sup> International Liquid Crystal Elastomer Conference, Erice (Italy), 3 Oct. 2015.
35. *Active fluids: from liquid crystals to living systems*, Colloquium, AMOLF, Amsterdam (Netherlands), 7 Sep. 2015.
34. *Active fluids: from liquid crystals to living systems*, Soft Condensed Matter and Biophysics Seminar, Georgia Tech. (GA, USA), 2 Jul. 2015.
33. *Polymorphism and bistability in adherent cells*, Society for Mathematical Biology (SMB) Annual Meeting, Atlanta (GA, USA), 1 Jul. 2015.
32. *The geometry and topology of turbulence in active nematics*, GDR PHENIX Workshop “Active Fluids”, ENS Lyon (France), 23 Jul. 2015.

31. *The dynamics of sperm cooperation in a competitive environment*, DRSTP Symposium “Trends in Theory”, Dalfsen (Netherlands) 28 May 2014.
30. *Active fluids: from liquid crystals to living systems*, Biophysics and Soft Matter Seminar, Simon Fraser University, Vancouver (Canada) 22 Jan. 2015.
29. *Cell mimicry in active liquid crystals*, This week discovery, Leiden University, Leiden (Netherlands) 1 Dec. 2014.
28. *The dynamics of sperm cooperation in a competitive environment*, Van der Waals Colloquium, Leiden University, Leiden (Netherlands) 14 Nov. 2014.
27. *Cell mimicry in active liquid crystals*, Dutch Soft Matter Meeting, Leiden University, Leiden (Netherlands) 11 Nov. 2014.
26. *Polymorphism and bistability in adherent cells*, Soft and Biological Matter Seminar, Leiden University, Leiden (Netherlands) 30 Oct. 2014.
25. *Defects and topological in active nematics*, SIAM Conference on Nonlinear Waves and Coherent Structure, Cambridge (UK) 12 Aug. 2014.
24. *Topological active matter*, FYSICA 2014, Leiden University, Leiden (Netherlands) 10 Apr. 2014.
23. *Active fluids: from liquid crystals to living systems*, Soft Matter Colloquium, Oxford University, Oxford (UK) 25 Feb. 2014.
22. *Hyperbolic geometry in liquid crystalline interfaces*, Department of Mathematical Science, University of Bath, Bath (UK) 27 Nov. 2013.
21. *Hyperbolic geometry in liquid crystalline interfaces*, Workshop on “Liquid Crystal Defects and their Geometry, Active and Solid Liquid Crystals, and Related Systems”, Isaac Newton Institute for Mathematical Science, Cambridge (UK) 26 Jun. 2013.
20. *Excitability and chaos in active nematics*, SIAM conference of “Mathematical Aspects of Material Science”, Philadelphia (PA, USA) 11 Jun. 2013.
19. *Active fluids: from liquid crystals to living systems*, Department of Physics, University of Bristol, Bristol (UK) 23 Jan. 2013.
18. *Active fluids: from liquid crystals to living systems*, Kavli Institute of Nanoscience, Delft University of Technology, Delft (Netherlands) 18 Dec. 2012.
17. *Active fluids: from liquid crystals to living systems*, Department of Physics, Leiden University, Leiden (Netherlands) 17 Dec. 2012.
16. *Shape and motion in soft and bio materials*, Oxford Centre for Collaborative and Applied Mathematics, Oxford (UK) 27 Apr. 2012.
15. *Active fluids: from liquid crystals to living systems*, Department of Physics, Innsbruck University, Innsbruck (Austria) 19 Mar. 2012.
14. *Active fluids: from liquid crystals to living systems*, Cavendish Laboratory, University of Cambridge (UK) 23 Feb. 2012.
13. *Active fluids: from liquid crystals to living systems*, Condensed Matter Kid’s Seminar, Physics Department, Harvard University, Cambridge (MA, USA) 14 Feb. 2012.
12. *Active fluids: from liquid crystals to living systems*, Institute of Science and Technology Austria, Klosterneuburg (Austria) 09 Jan. 2012.
11. *Active fluids: from liquid crystals to living systems*, Department of Physics, Utrecht University, Utrecht (Netherlands) 02 Dec. 2011.



10. *Active matter: from liquid crystals to living systems*, Joint Physics and Math Seminar, Northeastern University, Boston (MA, USA) 28 Oct. 2011.
9. *Soap films with a twist: the Euler-Plateau problem*, Gordon Research Conference on “Soft matter far from equilibrium”, Colby-Sawyer College, New London (NH, USA) 18 Aug. 2011.
8. *Active matter: from liquid crystals to living systems*, Oxford Centre for Collaborative and Applied Mathematics, Oxford (UK) 8 Jun. 2011.
7. *Active Systems: past and future*, Department of Physics, Brandeis University, Waltham (MA, USA) 10 Dec. 2009.
6. *Elastic theory of defects in toroidal crystals*, Department of Physics, Brandeis University, Waltham (MA, USA) 13 Feb. 2009.
5. *Elastic theory of defects in toroidal crystals*, School of Engineering and Applied Sciences, Harvard University, Cambridge (MA, USA) 10 Feb. 2009.
4. *Elastic theory of defects in toroidal crystals*, Department of Mechanical Engineering, Yale University, New Haven (CT, USA) 6 Feb. 2009.
3. *Elastic theory of defects in toroidal crystals*, Department of Physics, Università La Sapienza, Rome (Italy) 22 Apr. 2008.
2. *Elastic theory of defects in toroidal crystals*, TU München Biophysik Winterschule, Anterselva (Italy) 9 Mar. 2008.
1. *Crystalline order on Riemannian surfaces*, Department of Mathematics, Syracuse University, Syracuse (NY) 15 Feb. 2007.

## Teaching

- *Statistical physics* (Lecturer), Leiden, Fall 2017-2022.
- *Hydrodynamics of liquid crystals* (Lecturer), D-ITP lecture series “Advanced topics in theoretical physics”, Leiden, Spring 2019.
- *Active liquid crystals* (Lecturer), TAU-ESPCI winter school on active matter, Tel Aviv (Israel), Spring 2018.
- *Soft and bio-mechanics* (Lecturer), Leiden, Fall 2016.
- *Non-equilibrium mechanics in active systems* (Lecturer), DRSTP AIO/OIO School on “Statistical physics and theory of condensed matter (SPTCM)”, Dalfsen, March 2016.
- *Topics in theoretical physics* (Lecturer), Leiden, Fall 2015.
- *Modern physics research* (Lecturer), Leiden, Spring 2015-17.
- *Non-equilibrium mechanics of active systems* (Lecturer), D-ITP lecture series “Advanced topics in theoretical physics”, Utrecht, Fall 2014.
- *Topics in the mechanics of soft and bio-materials* (Lecturer), SISSA (Italy), Spring 2014.
- *General physics II lab: electricity, magnetism, and light* (Instructor), Syracuse (NY, USA), Spring 2007-06.
- *Introduction to modern physics* (Teaching assistant), Syracuse (NY, USA), Fall 2007.
- *Astronomy 104* (Teaching assistant), Syracuse (NY, USA), Spring 2005-06.
- *Science and computers* (Teaching assistant), Syracuse (NY, USA), Fall 2004-05.

## Workshops and conferences (as organizer)

- “Active matter: the next 25 years” (with C. Marchetti, C. Cottin-Bizonne, A. Sengupta), Lorentz Center, Leiden, Aug. 22-26 2022.
- “Hydrodynamics at all length scales: from high-energy to hard and soft matter” (with J. Armas, E. van Heumen, A. Yarom), Lorentz Center, Leiden, Nov. 18-22 2019.
- “Topology in complex fluids” (with T. Lubensky, V. Vitelli), Lorentz Center, Leiden, May 22-25 2018.
- “Cell and tissue motility” (with J. Yeomans, B. Ladoux), CECAM, Lausanne (Switzerland), May 3-5 2017.
- “Anisotropy and shape in biological materials: from structure to functionality” (with A. Sengupta, L. Hirst, S. Höhn), Lorentz Center, Leiden, May 23-27 2016.

## Awards and certificates

- Basiskwalificatie onderwijs (BKO) certificate, 2017.