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Zhihong You

Professional experience

2023-present Professor, Department of Physics, Xiamen University, China.

- 2022-2023 Associate Professor, Department of Physics, Xiamen University, China.
- 2019–2022 Postdoc, theoretical physics, UC Santa Barbara, USA.

Education

- 2015–2019 **Ph.D.**, theoretical physics, Leiden University, The Netherlands. Advisor: Dr. Luca Giomi
- 2012–2015 **M.S.**, theoretical physics, Beijing Normal University, China. Advisor: Prof. Zhigang Zheng
- 2008–2012 B.S., applied physics, Beijing University of Posts and Telecommunications, China.

Research Interest

Soft active matter and biophysics.

Publications (* equal contribution)

- [14] Paarth Gulati, Fernando Caballero, Itamar Kolvin, Zhihong You, and M. Cristina Marchetti, "Nonreciprocal interactions drive capillary waves in active liquid crystals", arXiv:2407.04196 (2024).
- [13] Yulin Li, Tong Zhou, Yanyu Li, Qi Zhang, and Z. You, "Manipulating liquid-liquid phase separation using patterned flow", arXiv:2407.02792 (2024).
- [12] Gaoxiao Jiang, Z. You, Rui Ma, and Chenxu Wu, "Spontaneous stable rotation of flocking flexible active matter", Soft Matter 20, 5086 (2024).
- [11] F. Caballero*, Z. You*, and M. C. Marchetti, "Vorticity Phase Separation and Defect Lattices in the Isotropic Phase of Active Liquid Crystals", Soft Matter 19, 7828-7835 (2023).
- [10] S. Pokawanvit, Z Chen, Z. You, L. Angheluta, M. C. Marchetti, and M. J. Bowick, "Active nematic defects in compressible and incompressible flows", Phys. Rev. E 106(5), 054610 (2022).
- [9] R. Adkins*, I. Kolvin*, Z. You*, S. Witthaus, M. C. Marchetti, Z. Dogic "Dynamics of active liquid interfaces", Science 377 (6607), 768-772 (2022).
- [8] Z. You, D.J.G. Pearce, and L. Giomi, "Confinement-induced Self-organization in Growing Bacterial Colonies", Sci. Adv. 7(4), eabc8685 (2021).

- [7] Z. You, A. Baskaran, and M. C. Marchetti, "Nonreciprocity as a generic route to traveling states", Proc. Natl. Acad. Sci. U.S.A. 117(33), 19767–19772 (2020).
- [6] Z. You, D.J.G. Pearce, A. Sengupta, and L. Giomi, "Mono- to Multilayer Transition in Growing Bacterial Colonies", Phys. Rev. Lett. 123, 178001 (2019).
- [5] L.M. Lemma, S.J. Decamp, Z. You, L. Giomi, and Z. Dogic, "Statistical Properties of Autonomous Flows in 2D Active Nematics", Soft Matter 15, 3264 (2019).
- [4] Z. You, D.J.G. Pearce, A. Sengupta, and L. Giomi, "Geometry and Mechanics of Microdomains in Growing Bacterial Colonies", Phys. Rev. X 8(3), 031065 (2018).
- [3] Q. Xu, W. Tian, Z. You, and J. Xiao, "Multiple beam interference model for measuring parameters of a capillary", Appl. Opt. 54(22) 6948-6954 (2015).
- [2] Z. You, D. Jiang, J. Stamnes, J. Chen, and J. Xiao, "Characteristics and applications of two-dimensional light scattering by cylindrical tubes based on ray tracing", Appl. Opt. 51(35), 8341-8349 (2012).
- Z. You, D. Jiang, Z. Hou, and J. Xiao, "Analysis of light scattered by a capillary to measure a liquid's index of refraction", Am. J. Phys. 80(8), 688-693 (2012).

Thesis

- Ph.D Growth-induced self-organization in bacterial colonies. Supervisor: Dr. Luca Giomi
- M.S. Study on Collective Behavior of Animal Groups Based on Couzin Model (in Chinese). Supervisor: Prof. Zhigang Zheng
- B.S. Light Scattering from Capillary: Theory and Application (in Chinese).
 Supervisor: Prof. Daya Jiang
 'Outstanding Bachelor Thesis of Beijing University of Posts and Telecommunications'

Invited Talks

- 2024 Manipulating LLPS using patterned flow, Higgs Centre for Theoretical Physics Workshop: 'The Physics of Self-Organising Active Matter', Edinburgh, UK.
- 2024 Liquid-liquid phase separation driven by active flow, Mini-Symposium on Living Fluids & Nonequilibrium Fluids, Shenzhen, China.
- 2024 Liquid-liquid phase separation driven by active flow, CECAM Workshop Active Matter: Interfaces and Boundaries, Beijing, China.
- 2024 Mechanical and geometrical control of active vortex condensation, The 13th National Conference on Soft Matter and Biological Physics, Xian, China.
- 2024 *Mechanical and geometrical control of active vortex condensation*, Advanced coreto-core network for the physics of self-organizing active matter, Wenzhou, China.
- 2023 *Physics of nonreciprocal active systems-A story of violation of Newton's 3rd law*, The 2nd Active Soft Matter Symposium 2023, Hangzhou, China.
- 2023 *Tactus of growing bacterial colonies*, Workshop on Collective Dynamics and Networks, Kunshan, China.

- 2023 Tactus of growing bacterial colonies-A wisdom from mechanics, Workshop on Physics of Living Matter (PhysLM2023), Shantou, China.
- 2022 Dynamics of active liquid-liquid interfaces, CPS Fall Meeting, Shenzhen, China.
- 2022 *Nonreciprocity as a generic route to traveling and oscillatory states*, Collective Dynamics and Networks Workshop (online), China.
- 2022 *Nonreciprocity as a generic route to traveling and oscillatory states*, APS March Meeting invited session, Chicago, USA.
- 2021 Activity-powered liquid-liquid interface, Seminar at Institute of Natural Sciences, Shanghai Jiao Tong University (online), China.
- 2021 *Growth-induced self-organization in bacterial colonies*, Colloquium: Challenges and Opportunities in Complex System and Statistical Physics (online), China.
- 2021 *Nonreciprocity as a generic route to traveling and oscillatory states*, KITP conference: Non-Equilibrium Universality, Santa Barbara, USA.
- 2021 Theory of activity-powered interfaces, SLAAM Seminar at UC Merced, Virtual, USA.
- 2020 *Growth-induced self-organization in bacterial colonies*, Nonlinear Theory and Interdisciplinary Research Colloquium (online), China.

Grants

- 2024-2028 National Key Research and Development Program of China, 2024-2028.
- 2024-2027 General Program from National Natural Science Foundation of China, 2024-2027.
- 2024-2026 National Young Talents Program.
- 2022-2027 Nanqiang Young Talents A of Xiamen University.

Teaching

- 2023 Fall Numerical Analysis (graduate course), Xiamen University.
- 2023-2024 Seminars on Statistical Physics, Xiamen University.
- 2023 Spring College Physics, Xiamen University.

Awards and honors

- 2019 Chinese Government Award for Outstanding Self-financed Students Abroad.
- 2014 First prize, in the "Article Contest on the Education of College Physics Experiment".
- 2013 **First prize**, of the "Award for Outstanding Graduate Students from Beijing Normal University".
- 2012 First prize, in the "Beijing College-Physics-Experiment Contest".

References

- M. Cristina Department of Physics, University of California Santa Barbara, Marchetti *cmarchetti@ucsb.edu*.
- Luca Giomi Lorentz Institute, Leiden University, giomi@lorentz.leidenuniv.nl.

Daniel Pearce Department of Theoretical Physics, University of Geneva, *daniel.pearce@unige.ch*.