

# 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)

- [12] Gaoxiao Jiang, **Z. You**, Rui Ma, and Chenxu Wu, “Spontaneous stable rotation of flocking flexible active matter”, **arXiv**:2211.05332 (2023).
- [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).
- [1] **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

- 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.

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## Grants

2024-2026 **National Young Talents Program.**

2024-2027 **National Key Research and Development Program of China**, 2024-2028.

2024-2027 **General Program from National Natural Science Foundation of China**, 2024-2027.

2022-2027 **Nanqiang Young Talents A of Xiamen University.**

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## Teaching

2023 Fall *Numerical Analysis* (graduate course), Xiamen University.

2023 Spring *Seminars on Statistical Physics*, Xiamen University.

2023 Spring *College Physics*, Xiamen University.

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## 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".

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## References

M. Cristina Marchetti Department of Physics, University of California Santa Barbara, [cmarchetti@ucsb.edu](mailto:cmarchetti@ucsb.edu).

Luca Giomi Lorentz Institute, Leiden University, [giomi@lorentz.leidenuniv.nl](mailto:giomi@lorentz.leidenuniv.nl).

Daniel Pearce Department of Theoretical Physics, University of Geneva, [daniel.pearce@unige.ch](mailto:daniel.pearce@unige.ch).