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Zhihong You

Professional experience

2022–present **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)

[11] F. Caballero*, **Z. You***, and M. C. Marchetti, "Vorticity phase separation and defect lattices in isotropic active liquid crystals", **under review**.

[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.

Grants

2024.01-2027.12 *Vortex condensation in active liquid crystals: mechanism, control, and applications*, **General Program from National Natural Science Foundation of China**.

Teaching

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

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

2023 Spring *College Physics*, Xiamen University.

2022 Fall *College Physics*, as teaching assistance, Xiamen University.

2016-2018 *Soft and Bio-matter Theory*, as teaching assistance, Leiden University.

2013-2014 *Elementary Physics*, as teaching assistance, Beijing Normal University.

Awards and honors

2022 **Nanqiang Young Talents of Xiamen University B (2022).**

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 Marchetti — Department of Physics, University of California Santa Barbara, *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*.