

## Teng Liu (刘腾)

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CONTACT INFORMATION  
Technical University of Munich  
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ACADEMIC POSITIONS  
**Postdoctoral Researcher** 2024/04 — present Munich, Germany  
Team member of Prof. Niklas Boers' Research Group  
School of Engineering and Design,  
Technical University of Munich (TUM)

**Research Assistant** 2023/06 — 2024/04 Beijing, China  
Team member of Prof. Xiaosong Chen's Research Group  
School of Systems Science,  
Beijing Normal University

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### EDUCATION Beijing Normal University (BNU)

Ph.D., School of Systems Science, 2020/09 — 2023/06 Beijing, China

- Thesis Topic: *Critical phenomena in complex systems: from fundamental theory to Earth system*
- Supervisor: Prof. Xiaosong Chen
- Area of Study: Complex System & Statistical Physics

### The Hong Kong University of Science and Technology (HKUST)

M.S., Department of Physics, 2018/09 — 2020/09 Hong Kong, China

- Thesis Topic: *Advanced Fluorescence Imaging to Study Biological Processes*
- Supervisor: Prof. Hyokeun Park
- Area of Study: Fluorescent Microscopy Techniques & Biophysics

### University of Chinese Academy of Sciences (UCAS)

B.S., Department of Physics, 2014/09 — 2018/07 Beijing, China

- Thesis Topic: *Critical Phenomena of Potts Model*
  - Supervisor: Prof. Xiaosong Chen
  - Area of Study: Statistical Physics
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### VISITING The University of Western Australia (UWA)

Department of Physics, 2017/06 — 2017/12 Perth, Australia

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PEER-  
REVIEWED  
PUBLICATIONS

### ***Publications as First or Corresponding Author:***

- [1] Data gaps and outliers distort critical-slowing-down-based resilience indicators  
**Liu, T.**, Morr, A., Bathiany, S., Blaschke, L. L., et al.  
*Science Advances*, 12, eaee1916, 2026. DOI: 10.1126/sciadv.aee1916
- [2] Destabilization of Earth system tipping elements  
Boers, N.<sup>†</sup>, **Liu, T.**<sup>†</sup>, Bathiany, S., Ben-Yami, M., et al.  
*Nature Geoscience*, 18, 949-960, 2025. DOI: 10.1038/s41561-025-01787-0
- (COVER STORY) [3] Teleconnections among tipping elements in the Earth system  
**Liu, T.**, Chen, D., Yang, L., Meng, J., et al.  
*Nature Climate Change*, 13, 67-74, 2023. DOI: 10.1038/s41558-022-01558-4
- (EXPRESS LETTER) [4] Renormalization group theory of eigen microstates  
**Liu, T.**, Hu, G. K., Dong, J. Q., Fan, J. F., et al.  
*Chinese Physics Letters*, 39(8): 080503, 2022. DOI: 10.1088/0256-307X/39/8/080503
- [5] Simultaneous Real-Time Three-Dimensional Localization and FRET Measurement of Two Distinct Particles  
Chen, X.<sup>†</sup>, **Liu, T.**<sup>†</sup>, Qin, X., Nguyen, Q. Q., et al.  
*Nano Letters*, 21, 7479-7485, 2021. DOI: 10.1021/acs.nanolett.1c01328

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### ***Co-authored Publications:***

- [1] Self-Organized Criticality in Atmospheric Rivers  
Wang, S., Meng, J., Fang, S., **Liu, T.**, et al.  
*Physical Review Letters*, 136(9), 094201, 2026. DOI: 10.1103/7l2l-g5vn
- [2] Holistic Evolution of the Bohai Sea Complex System: Insights from Interacting Drivers  
Huang, H., Zou, T., **Liu, T.**, Wang, H., et al.  
*Marine Environmental Research*, 216, 107905, 2026. DOI: 10.1016/j.marenvres.2026.107905
- [3] An indicator framework for assessing forest ecosystem productivity resilience and transition risks under climate change  
Lyu, Y., Zheng, X., Wang, H., **Liu, T.**, et al.  
*Ecological Indicators*, 181, 114388, 2025. DOI: 10.1016/j.ecolind.2025.114388
- [4] Ecosystem evolution and drivers across the Tibetan Plateau and surrounding regions  
Xie, Y., Wang X., Qian Y., **Liu, T.**, et al.  
*Journal of Environmental Management*, 380, 124885, 2025. DOI: 10.1016/j.jenvman.2025.124885
- [5] Eigen microstates in self-organized criticality  
Zhang, Y., Liu, M., Hu, G., **Liu, T.**, et al.  
*Physical Review E*, 109(4), p.044130, 2024. DOI: 10.1103/PhysRevE.109.044130

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<sup>†</sup> Equal contribution

<sup>#</sup> Corresponding author

- [6] Universality class of machine learning for critical phenomena  
Hu, G., Sun, Y., **Liu, T.**, Zhang, Y., et al.  
*Science China Physics, Mechanics & Astronomy*, 66(12), 2023. DOI: 10.1007/s11433-023-2221-8
- [7] Increased confinement and polydispersity of STIM1 and Orai1 after Ca<sup>2+</sup> store depletion  
Qin, X., Liu, L., Lee, S. K., Alsina, A., **Liu, T.**, et al.  
*Biophysical Journal*, 118(1), 70-84, 2020. DOI: 10.1016/j.bpj.2019.11.019
- [8] Simultaneous tracking of two motor domains reveals near simultaneous steps and stutter steps of myosin 10 on actin filament bundles  
Qin, X., Yoo, H., Cheng, et al., **Liu, T.**, et al.  
*Biochemical and Biophysical Research Communications*, 525(1), 94-99, 2020. DOI: 10.1016/j.bbrc.2020.02.039
- [9] Condensation of eigen microstate in statistical ensemble and phase transition  
Hu, G., **Liu, T.**, Liu, M., Chen, W., & Chen, X.  
*Science China Physics, Mechanics & Astronomy*, 62(9), 1-8, 2019. DOI: 10.1007/s11433-018-9353-x
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**Preprint:**

- UNDER REVIEW [1] Generative deep learning improves reconstruction of global historical climate records  
Qian, Z., **Liu, T.**<sup>#</sup>, et al.  
*ArXiv*, 2026. DOI: 10.48550/arXiv.2602.16515
- UNDER REVIEW [2] Warming-driven rise in soil moisture entropy signals destabilization of the Asian Water Tower  
Xie, Y., **Liu, T.**<sup>#</sup>, et al.  
*ArXiv*, 2026. DOI: 10.48550/arXiv.2601.01534
- UNDER REVIEW [3] Decadal sink-source shifts of forest aboveground carbon since 1988  
Qian, Z., Bathiany, S., **Liu, T.**, et al.  
*ArXiv*, 2026. DOI: 10.48550/arXiv.2506.11879
- [4] Phase transition revealed by eigen microstate entropy  
**Liu, T.**, Niu, X., Zhang, M., Hu, G., et al.  
*ArXiv*, 2026. DOI: 10.48550/arXiv.2512.23086
- [5] Planetary climate interactions of the Qinghai-Tibetan Plateau  
Wang, Z., **Liu, T.**, Wang, S., Fang, S. et al.  
*ArXiv*, 2026. DOI: 10.48550/arXiv.2604.16924
- [6] A Regime Shift in Atlantic Surface Currents Reveals a Step-like Decline of the Meridional Overturning Circulation  
Huang, H., Tao, N., Wang, H., **Liu, T.**, et al.  
*ArXiv*, 2026. DOI: 10.48550/arXiv.2604.11605
- [7] Regional Greening as a ‘Positive’ Tipping Phenomenon  
Su, Y., **Liu, T.**, Wang, S., Meng, J. et al.  
*ArXiv*, 2023. DOI: 10.48550/arXiv.2312.03963

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FUNDING	<p>(1) <b>Ministry of Science and Technology of China (MOST)</b> <span style="float: right;">2024 — 2027</span>          National Key R&amp;D Program of China          Intergovernmental International S&amp;T Innovation Cooperation (No. 2023YFE0109000)          国家重点研发计划“政府间国际科技创新合作专项”:  <i>Study on Critical Behavior of the Tibetan Plateau based on Complex Systems Theory</i>          基于复杂系统理论的青藏高原临界行为研究          Role: Core Participant (Participating in theoretical framework and data analysis)</p> <p>(2) <b>National Natural Science Foundation of China (NSFC)</b> <span style="float: right;">2022 — 2026</span>          Key Project (No. 12135003)  <i>Critical Phenomena of Phase Transitions in Complex Systems</i>          国家自然科学基金重点项目: 复杂系统相变临界现象          Role: Core Participant (Participating in theoretical framework and data analysis)</p>
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AWARDS	<p> <b>Beijing Municipal Education Commission</b></p> <ul style="list-style-type: none"> <li>• Beijing Outstanding Doctoral Dissertation (Nomination) <span style="float: right;">2025</span> 北京市优秀博士学位论文 (提名)</li> </ul> <p> <b>Beijing Normal University</b></p> <ul style="list-style-type: none"> <li>• Excellent Doctoral Dissertation of Beijing Normal University <span style="float: right;">2025</span> 北京师范大学优秀博士学位论文</li> </ul> <p> <b>Ministry of Education of the People's Republic of China</b></p> <ul style="list-style-type: none"> <li>• National Scholarship <span style="float: right;">2021–2022</span> 国家奖学金 (博士)</li> </ul> <p> <b>Beijing Normal University</b></p> <ul style="list-style-type: none"> <li>• The First Prize Scholarship <span style="float: right;">2020–2021</span></li> <li>• Best Soundbites Award in Beijing Soft Matter Workshop <span style="float: right;">Oct. 2021</span></li> </ul> <p> <b>The Hong Kong University of Science and Technology</b></p> <ul style="list-style-type: none"> <li>• The Postgraduate Fellowship <span style="float: right;">2018–2020</span></li> </ul> <p> <b>University of Chinese Academy of Science</b></p> <ul style="list-style-type: none"> <li>• Second Prize in Mathematical Contest in Modeling <span style="float: right;">Dec. 2016</span></li> <li>• The Third-Class Scholarship <span style="float: right;">2016–2017</span></li> <li>• The Third-Class Scholarship <span style="float: right;">2015–2016</span></li> </ul>
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