

ARKYA CHATTERJEE

arkyac.github.io

ACADEMIC POSITIONS

C.N.Yang Institute for Theoretical Physics, Stony Brook University 2025 – 2028
Research Assistant Professor

EDUCATION

Massachusetts Institute of Technology (MIT) Aug 2025
Ph.D. in Condensed Matter Theory, Department of Physics
Supervisor: Xiao-Gang Wen

Indian Institute of Technology Bombay (IIT-B) Aug 2019
B.Tech. (with Honors) in Engineering Physics and Minor in Mathematics

SELECTED ACADEMIC HONORS

Kendall Teaching Fellow for exemplary performance as a Teaching Assistant, MIT 2025

C.M.Clay and H.W.Kendall Fellowship, MIT 2019

K.Seshia Research Excellence Award for best undergraduate thesis, IIT-B Physics 2019

DAAD WISE fellowship awarded by DFG for a research internship in Germany 2018

Summer Research Fellowship awarded by the Indian Academies of Science 2017

PUBLICATIONS AND PREPRINTS

The most up-to-date list of my publications can be found on [Google Scholar](#). (* = equal contribution)

- [1] D.-C. Lu*, **A. Chatterjee***, N. Tantivasadakarn, *Generalized Kramers-Wannier Self-Duality in Hopf-Ising Models* [[arXiv:2602.10183](#)]
- [2] S. D. Pace, M. L. Kim, **A. Chatterjee**, S.-H. Shao, *Parity anomaly from LSM: exact valley symmetries on the lattice*, *Phys.Rev.Lett.* 135 (2025) 23, 236501 [[arXiv:2505.04684](#)]
- [3] S. D. Pace, **A. Chatterjee**, S.-H. Shao, *Lattice T-duality from non-invertible symmetries in quantum spin chains*, *SciPost Phys.* 18, 121 (2025) [[arXiv:2412.18606](#)]
- [4] **A. Chatterjee**, S. D. Pace, S.-H. Shao, *Quantized axial charge of staggered fermions and the chiral anomaly*, *Phys. Rev. Lett.* 134, 021601 (2025) [[arXiv:2409.12220](#)]
- [5] Z. D. Shi, **A. Chatterjee**, *Analytic framework for self-dual criticality in \mathbb{Z}_k gauge theory with matter*, *Phys. Rev. B* 112, L081111 (2025) [[arXiv:2407.07941](#)]
- [6] **A. Chatterjee***, Ö. M. Aksoy*, X.-G. Wen, *Gapped phases and phase Transitions in spin chains with noninvertible symmetries*, *SciPost Phys.* 17, 115 (2024) [[arXiv:2405.05331](#)]
- [7] I. T. Rosen, S. Muschinske, C. N. Barrett, **A. Chatterjee**, *et al.*, *A synthetic magnetic vector potential in a 2D superconducting qubit array*, *Nat. Phys.* 20, 1881 (2024) [[arXiv:2405.00873](#)]
- [8] **A. Chatterjee**, W. Ji, X.-G. Wen, *Emergent generalized symmetry and maximal symmetry-topological-order*, *Phys. Rev. B* 112, 115142 (2025) [[arXiv:2212.14432](#)]

- [9] **A. Chatterjee**, X.-G. Wen, *Holographic theory for continuous phase transitions: emergence and symmetry protection of gaplessness*, *Phys. Rev. B* **108**, 075105 (2023) [arXiv:2205.06244]
- [10] **A. Chatterjee**, X.-G. Wen, *Symmetry as a shadow of topological order and a derivation of topological holographic principle*, *Phys. Rev. B* **107**, 155136 (2023) [arXiv:2203.03596]
- [11] M. Chatterjee*, **A. Chatterjee***, A. Nandi, A. Sain, *Dynamics and stability of contractile actomyosin ring in the cell*, *Phys. Rev. Lett.* **128**, 068102 (2022) [arXiv:2007.13441]
- [12] A. Fischer, **A. Chatterjee**, T. Speck, *Aggregation and sedimentation of active Brownian particles at constant affinity*, *J. Chem. Phys.* **150**, 064910 (2019) [arXiv:1811.05746]

TEACHING AND MENTORSHIP

Massachusetts Institute of Technology, Cambridge, MA

- Teaching Assistant for quantum, statistical, and classical mechanics classes at undergraduate & graduate levels; conducted weekly recitations and contributed to setting and grading exams.
- Mentored undergraduate students as part of the Physics Directed Reading Program

Indian Institute of Technology Bombay, Mumbai, India

- Teaching Assistant for first-year undergraduate electromagnetism and calculus classes
- Mentor for the Summer of Science reading projects on advanced physics and math topics

SERVICE AND OUTREACH

YITP seminar, Co-Organizer *2025 – present*

Project SHORT, Mentor *2024 – present*

Responsible for providing 1-on-1 graduate school application assistance to prospective Physics PhD candidates; aimed at shrinking the socioeconomic gap in graduate school outcomes

Phys. Rev. Lett., **Phys. Rev. B**, and **SciPost Phys.**, Referee *2023 – present*

Refereed articles on condensed matter and quantum information physics

MIT Physics Graduate Students Council (PGSC), Webmaster *2020 – 22*

Responsible for maintaining PGSC website and providing web support to Physics Values Committee

Harvard Museum of Natural History, Volunteer *2022*

Gallery facilitator for Glass Flowers, Maya Civilization, and Sharks exhibits

IIT-B Maths & Physics Club, Invited Speaker *2020*

Gave a (virtual) pedagogical talk to an undergraduate audience on the quantum Hall effect

IIT-B Physics Academic Mentorship Program, Co-Lead *2018 – 19*

Led a team of 12 mentors to provide academic support and facilitate outreach to ~ 200 students

CONFERENCES AND WORKSHOPS

Generalised Symmetries and Anomalies in Quantum Phases of Matter: [invited talk](#) *Jan 2026*
International Centre for Theoretical Sciences, Bengaluru

Generalized Symmetries in Quantum Field Theory: [invited talk](#) *May 2025*
Kavli Institute for Theoretical Physics (KITP), Santa Barbara

Paths to Quantum Field Theory 2024: [invited talk](#) *Jul 2024*
University of Sarajevo

Prospects in Theoretical Physics 2024 summer school: poster & gong show Institute for Advanced Study, Princeton	<i>Jul 2024</i>
Summer school on “Symmetries and Anomalies”: poster & gong show Institut des Hautes Études Scientifiques, Bures-sur-Yvette	<i>Jun 2024</i>
Higher Categorical Tools for Quantum Phases of Matter: gong show Perimeter Institute for Theoretical Physics, Waterloo	<i>Mar 2024</i>
Simons Ultra-Quantum Matter collaboration meeting: poster University of Colorado (CU) Boulder	<i>May 2023</i>

INVITED TALKS

GCS Student and Postdoc Colloquium (virtual)	<i>Mar 2026</i>
Physics colloquium, IIT-B	<i>Jan 2026</i>
Condensed Matter Theory (CMT) seminar, Yale University	<i>Nov 2025</i>
Physics journal club, Simons Center for Geometry and Physics (SCGP)	<i>Sep 2025</i>
String Theory seminar, Mathematical Institute, University of Oxford	<i>Dec 2024</i>
CQIF seminar, DAMTP, University of Cambridge	<i>Nov 2024</i>
Condensed Matter seminar (virtual), National University of Singapore	<i>Nov 2024</i>
Quantum Matter in Mathematics & Physics seminar Harvard University Center of Mathematical Sciences and Applications	<i>Jun 2024</i>
Symmetry seminar (virtual), University of Oxford	<i>May 2024</i>
CMT seminar, Indian Institute of Science	<i>Apr 2024</i>
CMT Kids’ seminar, Harvard University	<i>Feb 2024</i>
CMT seminar, Boston University	<i>Nov 2023</i>
Physics colloquium, IIT-B	<i>Jun 2023</i>
CMT seminar (virtual), Pennsylvania State University	<i>Apr 2023</i>
Category and Topological Order seminar (virtual) Beijing Institute of Mathematical Sciences and Applications	<i>Nov 2022</i>