

# Rui Wen

## Curriculum Vitae

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## RESEARCH INTERESTS

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Topological quantum phases with generalized symmetries. Application of higher category theory to condensed matter and high energy physics. Symmetry topological field theory in higher dimensions. Fault-tolerant quantum gates from topology and (generalized) symmetry.

## EDUCATION

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- University of British Columbia Sept 2020 – Nov 2025
  - Ph.D. in Physics
  - Advisor: Andrew C. Potter
- University of Science and Technology of China Sept 2016 – May 2020
  - B.A. in Physics
  - Advisor: Yang Zhang

## PUBLICATIONS

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1. Rui Wen, “String condensation and topological holography for 2+1D gapless SPT,” arXiv:2408.05801.
2. Rui Wen, Andrew C. Potter, “Cheshire qudits from fractional quantum spin Hall states in twisted MoTe<sub>2</sub>,” arXiv:2407/03401.
3. Rui Wen, Weicheng Ye, Andrew C. Potter, “Topological holography for fermions,” arXiv:2404.19004.
4. Zihan Cheng, Rui Wen, Sarang Gopalakrishnan, Romain Vasseur, Andrew C. Potter, “Universal structure of measurement-induced information in many-body ground states,” Phys. Rev. B 109 (2024) 19, 195128.
5. Rui Wen, Andrew C. Potter, “Classification of 1+1D gapless symmetry protected phases via topological holography,” Phys. Rev. B 111, 115161.
6. Joseph Sullivan, Rui Wen, Andrew C. Potter, “Floquet codes and phases in twist-defect networks,” Phys. Rev. B 108 (2023) 19, 195134.
7. Rui Wen, Andrew C. Potter, “Bulk-boundary correspondence for intrinsically gapless symmetry-protected topological phases from group cohomology,” Phys. Rev. B 107 (2023) 24, 245127.
8. Yunfeng Jiang, Rui Wen, Yang Zhang, “Exact quench dynamics from algebraic geometry,” Phys. Rev. E 108 (2023) 2, 024128.
9. H. Lü, Rui Wen, “Holographic  $(a, c)$  charges and their universal relation in  $d = 6$  from massless higher-order gravities,” Phys. Rev. D 99 (2019) 12, 126003.

## RESEARCH PRESENTATIONS

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### Oral Presentation

- September 2025, CJQS seminar, Tianjin University, “Generalized Symmetry, Topological Holography and Gapless Phases”.
- September 2025, CHEP seminar, Peking University, “Generalized Symmetry, Topological Holography and Gapless Phases”.
- November 2024, TQFT and Higher Symmetries Seminar, Beijing Institute of Mathematical Sciences and Applications  
“String Condensation and Applications to Topological Holography”
- November 2024, Quantum Matter Seminar, Fuzhou University  
“A Holographic View on Symmetry, Duality and Quantum Criticality”
- October 2024, Condensed Matter Seminar, Perimeter Institute  
“Condensation in topological orders and topological holography”
- September 2024, Condensed Matter Seminar, National University of Singapore  
“Topological quantum memory from gapped boundaries in twisted  $\text{MoTe}_2$ ”

### Poster Presentation

- October 2022, Quantum Matter Workshop, Perimeter Institute  
“Bulk-edge correspondence for gapless SPTs from group cohomology”

## TEACHING EXPERIENCE

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- UBC Undergraduate Teaching Assistant
  - PHYS 118: Electricity, Light and Radiation Spring 2022
  - PHYS 304: Quantum Mechanics Fall 2022
  - PHYS 403: Statistical Mechanics Spring 2023

## ACADEMIC SERVICES

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- Physical Review referee
- Physics Reports referee
- SciPost referee