Yi-Ting Tu (涂懿庭)

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EDUCATION

University of Maryland, College Park, MD, USA   Aug. 2021 – Present

PhD student in Physics

National Tsing Hua University, Hsinchu, Taiwan   Sep. 2015 – Jun. 2020

Bachelor of Science

- Double Major: Physics and Mathematics
- Graduated with Honor in Physics
- GPA: 4.2/4.3
- Ranking: 1/58

RESEARCH EXPERIENCE

Condensed Matter Theory Group   Jul. 2020 – Aug. 2021
National Tsing Hua University, Hsinchu, Taiwan

- Developing a generalized version of the gauging procedure, using it to construct non-Abelian fractons, and exploring their algebraic properties.
- Generalizing the entanglement entropy to non-Hermitian quantum systems such that the scaling properties of conformal field theories is retained at critical points.

Quantum Optics Group   Feb. 2018 – Jun. 2020
National Tsing Hua University, Hsinchu, Taiwan

- Using the mathematical language of symplectic geometry to reformulate the positive partial transpose criterion in phase space.

AWARDS & SCHOLARSHIPS

Academic Achievement Award, seven semesters (top 5% in class)   2016 – 2019

2019 NTHU College of Science Elite Student Award   Spring 2019

- Awarded for showing high motivation and exceptional academic performance

Undergraduate Research Scholarship, Ministry of Science and Technology, Taiwan   Fall 2018

The Zhu Shun Yi He Qin Scholarship   Spring 2018

- NT$100,000 awarded to top one junior student in College of Science, NTHU for outstanding performance in research and coursework

SCIENTIFIC ACTIVITIES

[1] The NCTS international summer school and workshop on emergent   Jul. 2021
     quantum many-body phenomena, online
     "Non-Abelian fracton order from gauging a mixture of subsystem and
     global symmetries" (Oral)

[2] APS March Meeting, online   Mar. 2021
     "Gauge Theories and Stabilizer Codes: From Abelian to non-Abelian
     models" (Oral)

[3] Young Researchers Forum on Quantum Information Science, Taiwan   Aug. 2019
     "Positive Partial Transpose Criterion in Symplectic geometry" (Oral)

[4] Annual Meeting of the Physical Society, Taiwan   Jan. 2019
     "Positive Partial Transpose Criterion in Symplectic geometry" (Oral)

[5] Asian Quantum Information Science Conference, Japan   Sep. 2018
     "Positive Partial Transpose Criterion in Symplectic geometry" (Poster)

PUBLICATIONS & PREPRINTS

[1] Yi-Ting Tu, Yu-Chin Tzeng, and Po-Yao Chang, "Rényi entropies and negative central charges in non-Hermitian quantum systems," (2021), arXiv:2107.13006 [cond-mat.str-el].

[2] Yi-Ting Tu and Po-Yao Chang, "Non-Abelian fracton order from gauging a mixture of subsystem and global symmetries," Phys. Rev. Research **3**, 043084 (2021).

TEACHING EXPERIENCE

Teaching Assistant of Graduate Course in

- Condensed Matter Physics(II)   Feb. 2021 – Jun. 2021
- Special Topic: Quantum Information   Sep. 2020 – Jan. 2021

Teaching Assistant of Undergraduate Course in

- Experimental Physics II: Electricity and Magnetism   Aug. 2021 – Dec. 2021
- Linear Algebra (College of EECS)   Sep. 2019 – Jan. 2020
- Quantum Physics   Sep. 2018 – Jun. 2019

PROGRAMMING LANGUAGES & SOFTWARE

- Mathematica (Advanced)
- LaTeX (Advanced)
- C (Intermediate)
- Python (Intermediate)
- MATLAB (Basic)