

Chia-Yi Ju (朱家誼)



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RESEARCH INTEREST Non-Hermitian Quantum Mechanics, Quantum Information, Quantum Optics, String Theory, and Supersymmetry.

EDUCATION C.N. Yang Institute for Theoretical Physics
&
Department of Physics and Astronomy,
Stony Brook University (2010 - 2016)
Ph.D. in Physics (2016)
Advisor: Warren Siegel

Department of Physics,
National Chung Hsing University (2003 - 2007)
B.Sc. in Physics (2007)

EXPERIENCE Assistant Professor, National Sun Yat-sen University (2022 -)
Adjunct Assistant Professor, National Chung Hsing University (2020 - 2021)
Postdoctoral Fellow, National Chung Hsing University (2016 - 2022)
Research Assistant, Tunghai University (2009 - 2010)
Lab Instructor, Tunghai University (2008 - 2009)
Assistant Squad Leader, Republic of China Marine Corps (2007 - 2008)

PUBLICATIONS

- Chia-Yi Ju, Adam Miranowicz, Yueh-Nan Chen, Guang-Yin Chen, Franco Nori, “Emergent Parallel Transports and Curvatures in Non-Hermitian Quantum Mechanics”, arXiv:2204.05657 [quant-ph] (2022).
- Chia-Yi Ju, Adam Miranowicz, Fabrizio Minganti, Chuan-Tsung Chan, Guang-Yin Chen, Franco Nori, “Flattening the Curve with Einstein’s Quantum Elevator: Hermitization of Non-Hermitian Hamiltonians via a Generalized Vielbein Formalism”, Phys. Rev. Research **4**, 023070 (2022).
- Yu-Chin Tzeng, Chia-Yi Ju, Guang-Yin Chen, Wen-Min Huang, “Hunting for the non-Hermitian exceptional points with fidelity susceptibility”, Phy. Rev. Research **3**, 013015 (2021).

- Dharmesh Jain, Chia-Yi Ju, Warren Siegel, “*Simplifying 4d $\mathcal{N} = 3$ Harmonic Superspace*”, Phys. Rev. D **102**, 066007 (2020).
- Chia-Yi Ju, Ming-Hsun Chou, Guang-Yin Chen, Yueh-Nan Chen, “*Optical quantum frequency filter based on generalized eigenstates*”, Opt Express **28**, 17868 (2020).
- Chia-Yi Ju, Adam Miranowicz, Guang-Yin Chen, Franco Nori, “*Non-Hermitian Hamiltonians and no-go theorems in quantum information*”, Phys. Rev. A **100**, 062118 (2019).
- Chia-Yi Ju, Warren Siegel, “*Gauging Unbroken Symmetries in F-theory*”, Phys. Rev. D **94**, 106004 (2016).
- Chia-Yi Ju, Warren Siegel, “*Systematizing semishortening conditions*”, Phys. Rev. D **90**, 125004 (2014).
- Fei Fang Chung, Sy-Sang Liaw, Chia-Yi Ju, “*Brazil nut effect in a rectangular plate under horizontal vibration*”, Granul. Matter **11**(2), 79 (2009).
- Fei Fang Chung, Chia-Yi Ju, Sy-Sang Liaw, “*Spiral trajectory in the horizontal Brazil nut effect*”, Phys. Rev. E **77**(6), 061304 (2008).

TALKS

Conferences

- 2022 Young Researchers Forum on Quantum Information Science (Invited Speaker), “*The Geometry of Quantum States*”, Feb. 11, 2022.
- 2021 Non-Hermitian Physics (Online) ICTS, Bengaluru, India, “*The Geometry of Quantum States*”, Mar. 24, 2021.
- 2020 AMO Summer School (Invited Speaker), “*The Dynamics and Deformations of Hilbert Spaces*”, Sep. 1, 2020.
- Workshop NH2019TD | IIS-Chiba | The University of Tokyo (Invited Speaker), “*The Geometries of Quantum States and the No-Go Theorems*”, Nov. 28, 2019.
- Workshop NH2019 | IIS-Chiba | The University of Tokyo (Invited Speaker), “*From Geometry of NHQM to No-Go Theorems*”, Aug. 8, 2019.
- 2018 Workshop on Quantum Science and Technology, “*A Possible Quantum Filter*”, Sep. 4, 2018.
- 2018 Young Researchers Forum on Quantum Information Science, “*Quantum Resonators*”, Jun. 30, 2018.

Colloquiums

- National Sun Yat-sen University, “*The Geometry of Quantum States*”, Sep 30, 2021
- National Cheng Kung University, “*The Geometry of Quantum States*”, May 6, 2021
- National Cheng Kung University, “*A Geometrical Phase Transition*”, Mar 22, 2021
- National Cheng Kung University, “*The Dynamics and Deformations of Hilbert Spaces*”, May 11, 2020
- Tunghai University, “*The Geometry of (Non-)Hermitian Quantum Mechanics*”, Mar 13, 2020

- National Taiwan University, “*A Geometric Approach to Quantum Mechanics*”, Jun 14, 2019
- National Cheng Kung University, “*A Geometric Approach to Quantum Mechanics*”, Apr 8, 2019
- National Changhua University of Education, “*Geometric Approach to Quantum Mechanics*”, May 1, 2019
- National National Tsing Hua University, “*A Possible Quantum Filter*”, Oct 23, 2018
- National Kaohsiung Normal University, “*A Possible Quantum Filter*”, Oct 17, 2018
- National Cheng Kung University, “*A Possible Quantum Filter*”, Sep 17, 2018
- National Kaohsiung Normal University, “*To String, or Not to String – Beyond Standard Model*”, Apr 11, 2018
- National Chung Hsing University, “*To String, or Not to String – Beyond Standard Model*”, Jan 12, 2018