




Dr. Yu-Cheng (Ethan) QIU

 [qiuyucheng-hep.github.io](https://github.com/qiuyucheng-hep) |  ethanqiu@sjtu.edu.cn |  0000-0002-9008-4564

Education

2017.06 – 2022.08	The Hong Kong University of Science and Technology , Hong Kong Supervisor: Prof. S. -H. Henry Tye	Ph.D in Physics
2013.09 – 2017.06	Soochow University , Suzhou	Bachelor in Science

Experience

2025.08 –	City University of Hong Kong , Hong Kong	Postdoc
2022.09 – 2025.09	Tsung-Dao Lee Institute , Shanghai	Postdoc
2023.07 – 2023.07	Kavli IPMU , Tokyo	Visiting Scholar
2022.09 – 2022.10	The HKUST Jockey Club IAS , Hong Kong	Visiting Scholar

Research Interest

Particle Theory and Cosmology:	Axion Dark matter Dark energy Yukawa hierarchy
Non-perturbative Physics:	Instanton/Sphaleron Discrete gauge symmetry
String Phenomenology:	dS vacua construction Landscape and swampland

Publication

- The Lifespan of our Universe 2506.24011
Hoang Nhan Luu, **Y. -C. Qiu**, S. -H. Henry Tye (Jun 30, 2025)
- Quest for a phenomenologically consistent low cutoff theory 2505.10233
Sudhakantha Girmohanta, **Y. -C. Qiu** (May 15, 2025)
- Interpreting Cosmic Birefringence and DESI Data with Evolving Axion in Λ CDM 2503.18924
Shota Nakagawa, Yuichiro Nakai, **Y. -C. Qiu**, Masaki Yamada (Mar 24, 2025)
- Dynamical dark energy from an ultralight axion 2503.18120
Hoang Nhan Luu, **Y. -C. Qiu**, S. -H. Henry Tye (Mar 23, 2025)
- Wiggly dilaton: a landscape of spontaneously broken scale invariance
Sudhakantha Girmohanta, Yuichiro Nakai, **Y. -C. Qiu**, Zhihao Zhang
[2411.16304] *Phys.Lett.B* 866 (2025) 139534 (Nov 25, 2024)
- Gemini dark matter
Andrew Cheek, **Y. -C. Qiu**, Liang Tan
[2407.01099] *Phys.Rev.D* 110 (2024) 7, 075021 (Jul 1, 2024)
- Large CP Violation from the Minimum Seesaw Model
Y. -C. Qiu, Jin-Wei Wang, Tsutomu T. Yanagida
[2406.16352] *Phys.Rev.D* 110 (2024) 7, 075013 (Jun 24, 2024)
- Ultraheavy Atomic Dark Matter Freeze-Out through Rearrangement
Y. -C. Qiu, Jie Sheng, Liang Tan, Chuan-Yang Xing
[2312.13758] *Phys.Rev.D* 109 (2024) 9, 095007 (Dec 21, 2023)

- Can we explain cosmic birefringence without a new light field beyond Standard Model?
Yuichiro Nakai, Ryo Namba, Ippei Obata, **Y. -C. Qiu**, Ryo Saito
[2310.09152] *JHEP* 01 (2024) 057 (Oct 16, 2023)
- Baryon number violating rate as a function of the proton-proton collision energy
Y. -C. Qiu, S. -H. Henry Tye
[2309.07410] *Phys.Rev.D* 108 (2023) 11, 113004 (Mar 5, 2023)
- Predictions of m_{ee} and neutrino mass from a consistent Froggatt-Nielsen model
Y. -C. Qiu, Jin-Wei Wang, Tsutomu T. Yanagida
[2307.16470] *Phys.Rev.D* 108 (2023) 11, 115021 (Jul 31, 2023)
- A model of the quintessence axion
Sudhakantha Girmohanta, **Y. -C. Qiu**, Jin-Wei Wang, Tsutomu T. Yanagida
[2303.02852] *Phys.Rev.D* 108 (2023) 1, 015028 (Mar 5, 2023)
- High-quality axions in a class of chiral $U(1)$ gauge theories
Y. -C. Qiu, Jin-wei Wang, Tsutomu T. Yanagida
[2301.02345] *Phys.Rev.Lett.* 131 (2023) 7, 071802 (Jan 5, 2023)
- Electroweak Axion as the Fuzzy Dark Matter
– A Proposal for the Mixed Fuzzy and Cold Dark Matters 2211.15967
Y. -C. Qiu, Tsutomu T. Yanagida (Nov 29, 2022)
- A Novel Solution to the Gravitino Problem
Y. -C. Qiu, S. -H. Henry Tye
[2207.03144] *JHEP* 02 (2023) 006 (Jul 7, 2022)
- Probing The Neutrino Sector via A Statistical Approach
Y. -C. Qiu, Hui-Yu Zhu
[2110.10462] *Int.J.Mod.Phys.A* 37 (2022) 10, 2250055 (Oct 22, 2021)
- The Hubble Constant in the Axi-Higgs Universe
Leo WH Fung, Lingfeng Li, Tao Liu, Hoang Nhan Luu, **Y. -C. Qiu**, S. -H. Henry Tye
[2105.01631] *Phys.Rev.Res.* 5 (2023) 2, L022059 (May 4, 2021)
- Axi-Higgs cosmology
Leo W.H. Fung, Lingfeng Li, Tao Liu, Hoang Nhan Luu, **Y. -C. Qiu**, S. -H. Henry Tye
[2102.11257] *JCAP* 08 (2021) 057 (Feb 22, 2021)
- Standard Model from A Supergravity Model with a Naturally Small Cosmological Constant
Shing Yan Li, **Y. -C. Qiu**, S. -H. Henry Tye
[2010.10089] *JHEP* 05 (2021) 181 (Oct 20, 2020)
- Linking the Supersymmetric Standard Model to the Cosmological Constant
Y. -C. Qiu, S. -H. Henry Tye
[2006.16620] *JHEP* 01 (2021) 117 (Jun 30, 2020)
- Role of Bloch Waves in baryon-number violating processes
Y. -C. Qiu, S. -H. Henry Tye
[1812.07181] *Phys.Rev.D* 100 (2019) 3, 033006 (Dec 18, 2018)

Award

- TDLI Postdoctoral Fellowship 2024 TDLI
- 2022 Postdoctoral International Exchange Program Introduction Project 2022 TDLI
- Best TA Honorable Mention 2018-2019 HKUST
- Outstanding Graduates 2017 Soochow U.
- Hui-Chun Chin and Tsung-Dao Lee Chinese Undergraduate Research Endowment (CURE) 2015 Soochow U.

Conference/Public Presentation

- “ $a\Lambda$ CDM”
Purple Mountain Observatory (July 1, 2025)
- “ $a\Lambda$ CDM”
Jiangsu University of Science and Technology (Jun 28, 2025)
- “ $a\Lambda$ CDM”
3rd Topics of Particle, Astro and Cosmo Frontiers (TOPAC 2025) (Jun 8, 2025)
- “Wiggly dilaton”
KEK Theory Meeting on Particle Physics Phenomenology (KEK-PH2025winter) (Feb 18, 2025)
- “Wiggly dilaton”
IAS Program on Fundamental Physics (FP 2025), HKUST (Jan 15, 2025)
- “Gemini dark matter”
The 4th Asian-European-Institutes Workshop for BSM (Oct 08, 2024)
- “Ultraheavy Atomic Dark Matter Freeze-Out through Rearrangement”
Majorana-Raychaudhuri Seminars (online) (Jun 14, 2024)
- “Ultraheavy Atomic Dark Matter Freeze-Out through Rearrangement”
University of Electronic Science and Technology of China (May 10, 2024)
- “Ultraheavy Atomic Dark Matter Freeze-Out through Rearrangement”
City University of Hong Kong (Mar 14, 2024)
- “Can We Explain Cosmic Birefringence Without a New Light Field beyond the Standard Model?”
2024 IAS program on HEP, HKUST (Jan 16, 2024)
- “Can We Explain Cosmic Birefringence Without a New Light Field beyond the Standard Model?”
Jagiellonian University (Nov 23, 2023)
- “Can We Explain Cosmic Birefringence Without a New Light Field beyond the Standard Model?”
OKC & Nordita Theoretical Cosmology journal club, Stockholm University (Nov 16, 2023)
- “High-quality Axions in a Class of Chiral $U(1)$ Gauge Theories”
Tsinghua University (Oct 19, 2023)
- “Axi-Higgs Cosmology”
Purple Mountain Observatory, Chinese Academy of Sciences (May 25, 2023)
- “High-quality Axions in a Class of Chiral $U(1)$ Gauge Theories”
IAS program on Particle Theory, HKUST (Mar 07, 2023)
- “Axi-Higgs Cosmology”
SYSU-PKU Collider physics forum For Young scientists (SPeCial4Young) (Online) (Nov 02, 2022)
- “Linking the Supersymmetric Standard Model to the Cosmological Constant”
The XXVIII International Conference on Supersymmetry and Unification of Fundamental Interactions
SUSY 2021 (Online) (Aug 23, 2021)
- “Linking the Supersymmetric Standard Model to the Cosmological Constant”
Phenomenology 2021 Symposium (Online) (May 24, 2021)

Teaching Experience

- PHYS 5260 Advanced Quantum Mechanism | TA, HKUST Fall 2019
- PHYS 5260 Advanced Quantum Mechanism | TA, HKUST Spring 2019
- PHYS 3033 Electricity and Magnetism I | TA, HKUST Fall 2018
- PHYS 1114 General Physics II | TA, HKUST Spring 2018
- PHYS 3126 Optics | TA, Soochow U. Fall 2015

Services

- Physical Review D | Reviewer 2025
- Physics Letters A | Reviewer 2024