




Dr. Yu-Cheng QIU

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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

2022.09 –	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
Non-perturbative Physics:	Instanton/Sphaleron Discrete Gauge Symmetry
String Phenomenology:	dS vacua construction Landscape and swampland

Publication

- Gemini dark matter 2407.01099
Andrew Cheek, **Yu-Cheng Qiu**, Liang Tan (Jul 1, 2024)
- Large CP Violation from the Minimum Seesaw Model 2406.16352
Yu-Cheng Qiu, Jin-Wei Wang, Tsutomu T. Yanagida (Jun 24, 2024)
- Ultraheavy Atomic Dark Matter Freeze-Out through Rearrangement 2312.13758
Yu-Cheng Qiu, Jie Sheng, Liang Tan, Chuan-Yang Xing (Dec 21, 2023)
- Can we explain cosmic birefringence without a new light field beyond Standard Model? 2310.09152
Yuichiro Nakai, Ryo Namba, Ippei Obata, **Yu-Cheng Qiu**, Ryo Saito (Oct 16, 2023)
- Baryon number violating rate as a function of the proton-proton collision energy 2309.07410
Yu-Cheng Qiu, S. -H. Henry Tye (Mar 5, 2023)
- Predictions of m_{ee} and neutrino mass from a consistent Froggatt-Nielsen model 2307.16470
Yu-Cheng Qiu, Jin-Wei Wang, Tsutomu T. Yanagida (Jul 31, 2023)
- A model of the quintessence axion 2303.02852
Sudhakantha Girmohanta, **Yu-Cheng Qiu**, Jin-Wei Wang, Tsutomu T. Yanagida (Mar 5, 2023)
- High-quality axions in a class of chiral $U(1)$ gauge theories 2301.02345
Yu-Cheng Qiu, Jin-wei Wang, Tsutomu T. Yanagida (Jan 5, 2023)
- Electroweak Axion as the Fuzzy Dark Matter
– A Proposal for the Mixed Fuzzy and Cold Dark Matters 2211.15967
Yu-Cheng Qiu, Tsutomu T. Yanagida (Nov 29, 2022)

- A Novel Solution to the Gravitino Problem 2207.03144
Yu-Cheng Qiu, S. -H. Henry Tye (Jul 7, 2022)
- Probing The Neutrino Sector via A Statistical Approach 2110.10462
Yu-Cheng Qiu, Hui-Yu Zhu (Oct 22, 2021)
- The Hubble Constant in the Axi-Higgs Universe 2105.01631
Leo WH Fung, Lingfeng Li, Tao Liu, Hoang Nhan Luu, Yu-Cheng Qiu, S. -H. Henry Tye (May 4, 2021)
- Axi-Higgs cosmology 2102.11257
Leo W.H. Fung, Lingfeng Li, Tao Liu, Hoang Nhan Luu, Yu-Cheng Qiu, S. -H. Henry Tye (Feb 22, 2021)
- Standard Model from A Supergravity Model with a Naturally Small Cosmological Constant 2010.10089
Shing Yan Li, Yu-Cheng Qiu, S. -H. Henry Tye (Oct 20, 2020)
- Linking the Supersymmetric Standard Model to the Cosmological Constant 2006.16620
Yu-Cheng Qiu, S. -H. Henry Tye (Jun 30, 2020)
- Role of Bloch Waves in baryon-number violating processes 1812.07181
Yu-Cheng Qiu, S. -H. Henry Tye (Dec 18, 2018)

Award

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

- “Ultraheavy Atomic Dark Matter Freeze-Out through Rearrangement”
Majorana-Raychaudhuri Seminars (online) (June 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 (March 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

- General Physics II | TA, HKUST
- Advanced Quantum Mechanism | TA, HKUST
- Electricity and Magnetism I | TA, HKUST

Peer Review

- Physics Letters A | Reviewer 2024