

Curriculum Vitae

Kunfeng LYU

Address: Room 205-2A, INSCC Building, Department of Physics and Astronomy,
University of Utah
E-mail: kunfeng.lyu@utah.edu
Tel: +1-612-226-9390

Education

2015.9-2021.9	Department of physics, Hong Kong University of Science and Technology	PhD in Physics
2011.9-2015.6	School of Physics and Technology, Wuhan University	B.S. in Physics

Position Held

2024.9-present	University of Utah	Postdoctoral Associate
2021.9-2024.9	University of Minnesota, Twin Cities	Postdoctoral Associate
2020.1-2020.6	Kavli Institute of Theoretical Physics, Santa Barbara	Graduate Fellow
2018.10-2019.3	Enrico Fermi Institute, University of Chicago	Visiting PhD student

Honors and Awards

2018 Sep	HKUST oversea research award
2017 May	The George K. Lee Foundation Scholarships

Publication

A list of my papers can be found at [INSPIERHEP](#)

1. K.-F. Lyu and Y Zhao, *QCD Axion Domain Walls from Super-Cooling First Order Phase Transition*, 2506.19918
2. Y. Fei, P. Li, Z. Liu, K.-F. Lyu and M Pospelov, *W-Boson Exotic Decay into Three Charged Leptons at the LHC*, 2407.15930
3. Y. Ema, T. Gao, W. Ke, Z. Liu, K.-F. Lyu, and I. Mahbub, *Momentum shift and on-shell recursion relation for electroweak theory*, arXiv:2407.14587.
4. R.T. Co, T. Gherghetta, Z. Liu and K.-F. Lyu, *A Light QCD Axion with Hilltop Misalignment*, JHEP 09 (2024) 145 [2407.12930].

5. Y. Ema, T. Gao, W. Ke, Z. Liu, K.-F. Lyu and I. Mahbub, *Momentum shift and on-shell constructible massive amplitude*, 2403.15538
6. P. Li, Z. Liu and K.-F. Lyu, *Higgs Width and Couplings at High Energy Muon Colliders with Forward Muon Detection*, Phys. Rev. D 109(2024) 073009 [2401.08756].
7. Z. Liu, K.-F. Lyu, I. Mahbub and L.-T. Wang, *Top Yukawa Coupling Determination at High Energy Muon Collider*, Phys. Rev. D 109 (2024) 035021 [2308.06323].
8. Y. Ema, Z. Liu, K.-F. Lyu and M. Pospelov, *Heavy Neutral Leptons from Stopped Muons and Pions*, JHEP 08 (2023) 169 [2306.07315].
9. P. Li, Z. Liu and K.-F. Lyu, *Heavy neutral leptons at muon colliders*, JHEP 03 (2023) 231 [2301.07117].
10. Y. Ema, Z. Liu, K.-F. Lyu and M. Pospelov, *Flavor-changing light bosons with accidental longevity*, JHEP 02 (2023) 135 [2211.00664].
11. ArgoNeuT collaboration, *First Constraints on Heavy QCD Axions with a Liquid Argon Time Projection Chamber Using the ArgoNeuT Experiment*, Phys. Rev. Lett. 130 (2023) 221802 [2207.08448].
12. J. Fan, L. Li, T. Liu and K.-F. Lyu, *W-boson mass, electroweak precision tests, and SMEFT*, Phys. Rev. D 106 (2022) 073010 [2204.04805].
13. C. Kouvaris, T. Liu and K.-F. Lyu, *Radio Signals from Axion Star-Neutron Star Binaries*, 2202.11096.
14. H. An, K.-F. Lyu, L.-T. Wang and S. Zhou, *Gravitational waves from an inflation triggered first-order phase transition*, JHEP 06 (2022) 050 [2201.05171].
15. T. Liu and K.-F. Lyu, *The BH-PSR Gravitational Molecule*, 2107.09971.
16. H. An, K.-F. Lyu, L.-T. Wang and S. Zhou, *A unique gravitational wave signal from phase transition during inflation**, Chin. Phys. C 46 (2022) 101001 [2009.12381].
17. K.-F. Lyu, E. Stamou and L.-T. Wang, *Self-interacting neutrinos: Solution to Hubble tension versus experimental constraints*, Phys. Rev. D 103 (2021) 015004 [2004.10868].
18. T. Liu, K.-F. Lyu, J. Ren and H.X. Zhu, *Probing the quartic Higgs boson self-interaction*, Phys. Rev. D 98 (2018) 093004 [1803.04359].
19. W.H. Chiu, S.C. Leung, T. Liu, K.-F. Lyu and L.-T. Wang, *Probing 6D operators at future e-e+ colliders*, JHEP 05 (2018) 081 [1711.0404]

Other Publication (Contributor)

1. T. Bose et al., *Report of the Topical Group on Physics Beyond the Standard Model at Energy Frontier for Snowmass 2021*, 2209.13128.
2. K.M. Black et al., *Muon Collider Forum Report*, 2209.01318.
3. R. Caldwell et al., *Detection of early-universe gravitational-wave signatures and fundamental physics*, Gen. Rel. Grav. 54 (2022) 156 [2203.07972].
4. J.L. Feng et al., *The Forward Physics Facility at the High-Luminosity LHC*, J. Phys. G 50 (2023) 030501. [2203.05090].
5. H. Al Ali et al., *The muon Smasher's guide*, Rept. Prog. Phys. 85 (2022) 084201 [2103.14043].

Professional Talks

1. *Massive momentum shift and on shell recursion relation for electroweak theory*, invited chalk talk at the Aspen Physics Center Summer Program “Collider Physics at the LHC and Beyond”, Aspen, CO, July 2025
2. *QCD Axion Misalignment and Domain Wall*, invited talk at the High Energy Physics Seminar in University of Oklahoma, Norman, OK, April 2025
3. *Minor Kinetic Misalignment and QCD Axion Domain Walls*, invited talk at the No Stone Unturned Workshop 2025, Salt Lake City, UT, March 2025
4. *Probing Heavy Neutral Lepton on Muon Collider and Beamdump Experiments*, invited talk at the CETUP* 2024 Workshop, Lead, SD, July 2024
5. *Higgs Width and Couplings at High Energy Muon Colliders with Forward Muon Detection*, parallel talk at Phenomenology 2024 Symposium, University of Pittsburgh, Pittsburgh, PA, May 2024
6. *Inclusive Higgs Rate and Forward Detection at Muon Collider*, invited talk at Muon Collider Physics Benchmark Workshop, University of Pittsburgh, Pittsburgh, PA, Nov 2023
7. *Heavy Neutral Lepton on Future Muon Collider*, invited (remote) talk at the Muon Collider Study Group, Nov 2023
8. *Accidental Light QCD Axion*, invited talk at the CETUP* 2023 Workshop, Lead, SD, July 2023
9. *Flavor-changing light bosons with accidental longevity*, parallel talk at Phenomenology 2023 Symposium, University of Pittsburgh, Pittsburgh, PA, May 2023
10. *Flavor-changing light bosons with accidental longevity*, parallel talk at APS April Meeting 2023, Minneapolis, MN, April 2023
11. *Heavy Neutral Lepton on Future Muon Collider*, invited talk at Muon Collider Physics and Detector workshop, Fermilab, Batavia, IL, Dec 2022
12. *Gravitational Waves from an Inflation Triggered First-Order Phase Transition*, parallel talk at Phenomenology 2022 Symposium, University of Pittsburgh, Pittsburgh, PA, May 2022
13. *Bremming Enhanced ALP Productions and FPF Sensitivity*, (remote) talk at the 4th Forward Physics Facility Meeting, Jan 2022
14. *Probe 6D Operators at Future $e-e^+$ Colliders*, parallel talk at the High Energy Physics Conference, HKUST Jockey Club Institute for Advanced Study, Hong Kong University of Science and Technology, Hong Kong, Jan 2018

Attended Workshop

1. Aspen 2023 Summer Program, Traversing the Particle Physics Peaks – Phenomenology to Formal, Aspen Center for Physics, Aspen, CO, Aug 2023
2. Muon Collider Workshop, Kavli Institute for Theoretical Physics, University of California, Santa Barbara, Santa Barbara, CA, Feb 2023

Service

Organizer of the Muons in Minneapolis workshop,
referee of Chinese Physics C, Journal of Physics G: Nuclear and Particle Physics, Journal of Cosmology and
Astroparticle Physics