

Dr. Zheng, Xiong

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Education

- 2021 – now **Ph.D. Student, Institute of High Energy Physics, Nuclear & Particle Physics LHAASO Experiment(Large High Altitude Air Shower Observatory)**
Main Work: Cosmic-ray electron measurement.
Thesis title: The Constraint on Lorentz Violation and the Measurement of Cosmic-Ray Electron Spectrum based on the LHAASO Experiment([Archived link](#))
Advisor: Prof. Huihai He | **Co-advisor:** Assoc. Prof. Sha Wu
- 2019 – 2021 **M.Sc. Institute of High Energy Physics, Nuclear & Particle Physics Cosmic Ray Physics | GPA: 3.83/5.0 (M1 & D1)**
Main Work: Set Lorentz violation constraint based on $1/2$ LHAASO-KM2A observation data on Ultra-High-Energy Photons.
Advisor: Prof. Huihai He
- 2015 – 2019 **B.Eng, Wuhan University of Technology, Material Science and Engineering Material Physics and Computational Physics | GPA: 3.9/5.0**
Thesis title: *The first principle calculation on the optical property on Barium-based complex perovskite (Ba(B'B'')O₃) ceramic.*([Archived link](#))
Advisor: Prof. Wen Chen | **Co-advisor:** Prof. Jie Shen

Research Publications

Journal Articles

- 1 **Xiong, Zheng***, S. Wu, and L. C. He Hui Hai, “Method to measure muon content of extensive air showers with LHAASO KM2A-WCDA synergy,” *Nuclear Instruments and Methods in Physics Research Section A*, vol. 1059, p. 168 958, 2024, ISSN: 0168-9002. [DOI](#): <https://doi.org/10.1016/j.nima.2023.168958>.
- 2 L. Chen, **Xiong, Zheng***, C. Li, S. Chen, and H. He, “Strong constraints on Lorentz violation using new γ -ray observations around PeV,” *Chinese Physics C*, vol. 45, no. 10, p. 105, 2021. [DOI](#): <https://doi.org/10.1088/1674-1137/ac1166>.

Conference Proceedings

- 1 **Xiong, Zheng***, S. Wu, and H. H. He, “Measurement of cosmic-ray electrons with LHAASO KM2A-WCDA synergy,” PoS(ICRC2023)315, vol. CRI7-03, Nagoya, Japan, 2023. [URL](#): <https://pos.sissa.it/444/315/pdf>.
- 2 **Xiong, Zheng***, S. Wu, and H. H. He, “Method to measure muon content of extensive air showers with LHAASO KM2A-WCDA synergy,” PoS(ICRC2023)314, vol. PCRI1-13, Nagoya, Japan, 2023. [URL](#): <https://pos.sissa.it/444/314/pdf>.

Popular Science Writing / Translation

Articles and Blogs

- 1 **Xiong, Zheng*** and X. Q. Dong, “在校园捕捉来自宇宙的信息——2021年“国际宇宙日”活动概览(to capture the information from universe at campus - digest on 2021 cosmic day),” *Modern Physics*, vol. 34, no. 02, pp. 47–53, 2022, ISSN: 1001-0610. [DOI: 10.13405/j.cnki.xdwz.2022.02.017](https://doi.org/10.13405/j.cnki.xdwz.2022.02.017).
- 2 **Xiong, Zheng*** and J. Liu, “空气电离之谜(mystery of the spontaneous discharge of an electrometer),” *Modern Physics*, vol. 34, no. 03, pp. 54–58, 2022, ISSN: 1001-0610. [DOI: 10.13405/j.cnki.xdwz.2022.03.007](https://doi.org/10.13405/j.cnki.xdwz.2022.03.007).
- 3 ParadoX, “超越费米悖论(Beyond Fermi Paradox),” in ser. Beyond Fermi Paradox 8/16, Mar. 2021. [URL: https://mp.weixin.qq.com/s/9EqbGyC7wJtVuMysE7N1sA](https://mp.weixin.qq.com/s/9EqbGyC7wJtVuMysE7N1sA).
- 4 ParadoX, “天文学家如愿以偿得到了想要的的数据,却发现“哈勃常数危机”加剧了(Astronomers Get Their Wish, and a Cosmic Crisis Gets Worse),” in ser. IHEP Doctorial Scope 1/3, Dec. 2020. [URL: https://mp.weixin.qq.com/s/hPDKQVW60trVTOAw8Mrp_A](https://mp.weixin.qq.com/s/hPDKQVW60trVTOAw8Mrp_A).
- 5 ParadoX, “天文学家的备忘手册(Astronomer’s Toolbox),” in ser. Astronomer’s Toolbox, 2020. [URL: https://mp.weixin.qq.com/s/10kYWIsxJZn-FotJNb-BAA](https://mp.weixin.qq.com/s/10kYWIsxJZn-FotJNb-BAA).

Campus Service

2020.04 – 2021.11

Institute of High Energy Physics Official Account Intern Assistant Editor (Pseudonym: ParadoX)

Key Contributions:

- Managed routine operations for the Popular Science Press.
- Authored 20 popular science articles, garnering over 80,000 reads across three columns.
- Edited and uploaded 5 videos, including VLOGs, interviews, and lecture records with refined subtitles.

2022.05 – now

Campus Cosmic-ray Observation Collaboration (CCOC), IHEP Intern Lecturer / Technician

Key Contributions: (link)

- Led lectures at CCOC Summer School (2022, 2023) enhancing students’ understanding of cosmic-ray observation.
- Installed Detector Array at Jiangyan High School, contributing to the expansion of cosmic-ray observation into high school.
- Volunteered during IHEP Open Day (2021-2023) and China’s National Science Popularization Day (2022), fostering public awareness and interest in cosmic-ray research.

LHAASO Collaboration Service

2020.10 – 2020.11

2021.04 – 2022.05

Intern Technician.

Shandong University / On-site service at the Large High Altitude Air Shower Observatory (LHAASO)

Installed and verified over 200 KM₂A-MD detectors and 20 KM₂A-ED detectors after the 1/2 KM₂A operation stage.

Internship

- 2023.03 – 2024.03 **CubeVi Technology- Intern MLE.**
Main Work:
- Stayed updated on **Neural Radiance Fields (NeRF)** advancements, incorporating improvements into 3D scene reconstruction strategies.
- Balanced algorithm speed and quality by training on 30+ datasets covering various scenes and categories.
- Implemented a simple AIGC application, resulting in **the creation of one technical patent.**

Skills

- Languages **Strong reading, writing, and speaking competencies in English, and Mandarin Chinese. Fluent in Japanese speaking and reading.**
- Coding **C, C++, Python, cuda, \LaTeX , ...**
- Misc. **Academic research, teaching, training, consultation, \LaTeX typesetting and publishing.**

Miscellaneous Experience

Awards and Achievements

- 2016 - 2019 **WHUT Prize for Outstanding Student Performance**, Wuhan University of Technology. Top 30% of grades.
- 2021 - 2022 **Department Prize for Outstanding Student Performance**, Institute of High Energy Physics. Top 30% of grades.
- 2023 **Commendation Award for Completing Pre-dissertation degree requirements**, Institute of High Energy Physics. Top 30% of Ph.D. candidates.

Certifications

- 2018 **Certified Advanced Students Training.** Awarded by XLAB Göttinger Experimentallabor in Georg-August-Universität Göttingen.
- 2022 **Certified Data Analysis Skill.** Awarded by LHAASO Collaboration 2022 Summer School.

References

Prof. Huihai He

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