

ZHANG, Ce

ce.zhang@liverpool.ac.uk

www.liverpool.ac.uk/people/ce-zhang

EMPLOYMENT

Oct. 2022 – Present **Postdoctoral research associate**
University of Liverpool

EDUCATION

Sep. 2017 – Sep. 2022 **Ph.D. (Natural Science)**
Peking University

Sep. 2013 – Sep. 2017 **Bachelor of Science (Physics)**
Peking University

FUNDING & SCHOLARSHIPS

2026 - 2027 **ROYAL SOCIETY International Exchanges 2025 Cost Share award (UK Co-Investigator, 25%)**

2019 - 2021 **State Scholarship from China Scholarship Council (CSC) (Awardee)**

2019 - 2020 **JSPS KAKENHI Grant-in-Aid for Scientific Research (S) JP19H05606 (Participant, PhD student)**

2018 - 2019 **Visiting Student Grant at KEK (Awardee)**

2015 - 2016 **President's Fund for Undergraduate Research, Peking University (Awardee)**

MAJOR COLLABORATIONS AND ROLES

2022 – Present
Projects

Muon g-2 experiment at Fermilab

- **Led and coordinated data analysis (EU group)** for Runs 4–6 on precession frequency
- **Task Force Convener** on the Residual Slow-Term systematics

MUonE at CERN

- **Analysis framework development** for hadronic α extraction from $\mu - e$ scattering

2017 - 2022
PhD Project

Muon cooling for the J-PARC experiments (Mu1S-2S and g-2)

- **Realised a ultra-cold muon source** using muonium laser ionization in silica aerogel
- **J-PARC Muon-beamline** commissioning and end-to-end simulation, including DAQ, high voltage systems, vacuum systems and control system development
- **Developed the first publicly available muonium diffusion model** with silicon aerogel

2017 - 2022
Undergraduate Projects

Radiative decay of $\psi(3770)$ to pseudo-scalars at BESIII
New physics search $J/\psi \rightarrow p\bar{e}$ at BESIII

SKILLS

Programming languages	C/C++, python
Simulation	Geant4, Opera, CST studio
Analysis	ROOT, MATLAB
Engineering drawing	AutoCAD
Electronics	NIM, PLC, EPICS, FPGA

PUBLICATIONS

- [1] C. Zhang et al., "CANTON- μ Proposal: A Next-Generation Muon $g-2$ Measurement at Sub-0.1 ppm Precision," arXiv:2512.11486 (under journal submission) – First and corresponding author
- [2] Z. Wang et al., "Search for Light Dark Sectors with GeV Muon Beams," arXiv:2511.08950 (under journal submission) – Corresponding author
- [3] F. Fang, K. S. Khaw, C. Zhang et al., "Muonium Spectroscopy as a Quantum Sensor for Ultralight Axion Dark Matter," arXiv:2509.20862 (under journal submission) – Corresponding author
- [4] Muon $g-2$ Collaboration et al., *Measurement of the Positive Muon Anomalous Magnetic Moment to 127 ppb*, Phys. Rev. Lett. **135**, 101802 (2025). - Manuscript preparation
- [5] Muon $g-2$ Collaboration et al., *Detailed Report on the Measurement of the Positive Muon Anomalous Magnetic Moment to 0.20 ppm*, Phys. Rev. D **110**, 032009 (2024). – Manuscript preparation
- [6] The Muon $g-2$ Collaboration et al., *Measurement of the Positive Muon Anomalous Magnetic Moment to 0.20 ppm*, Phys. Rev. Lett. **131**, 161802 (2023). – Manuscript preparation
- [7] C. Zhang et al., *Modeling the Diffusion of Muonium in Silica Aerogel and Its Application to a Novel Design of Multi-Layer Target for Thermal Muon Generation*, Nucl. Instrum. Methods Phys. Res. Sect. Accel. Spectrometers Detect. Assoc. Equip. **1042**, 167443 (2022). – First and corresponding author
- [8] C. Zhang et al., *Simulation Study of Laser Ionization of Muonium by 1S-2S Excitation for the Muon $g - 2$ /EDM Experiment at J-PARC*, in *Proceedings of the 3rd J-PARC Symposium (J-PARC2019)*, Vol. 33 (Journal of the Physical Society of Japan, 2021). – First and corresponding author

SELECTED PRESENTATIONS

Conferences

- 10/2025 [Tau 2025 - The 18th International Workshop on Tau Lepton Physics \(Invited plenary\)](#)
Status of J-PARC Muon $g - 2$ /EDM experiment
- 09/2025 [NuFact 2025 - International Workshop on Neutrinos from Accelerators \(Invited plenary\)](#)
Final result of Fermilab Muon $g - 2$ Experiment
- 09/2024 [PSI Workshop - Exploring BSM physics with muons \(Personally invited, plenary\)](#)
Fermilab Muon $g - 2$ Experiment
- 06/2024 [MITP Tropical Workshop 2024 \(Personally invited, plenary at Mainz\)](#)
J-PARC Muon $g - 2$ /EDM experiment
- 03/2024 [IOP annual meeting](#)
Status of Fermilab Muon $g - 2$ Experiment
- 08/2022 [The 13th International Workshop on e+e- collisions from Phi to Psi \(Plenary at Fudan University\)](#)
Muon $g - 2$ /EDM experiment at J-PARC
- 07/2022 [NuFact 2022 - International Workshop on Neutrinos from Accelerators \(Plenary, online\)](#)
Status of the Muon $g - 2$ /EDM experiment at J-PARC
- 08/2021 [International Workshop on Fundamental Physics Using Atoms \(Plenary, online\)](#)
J-PARC Muon $g - 2$ /EDM experiment
- 03/2021 [JPS 76th Annual meeting \(Plenary, online\)](#)
Project status of the muonium laser-ionization using the 1S-2S transition
- 09/2020 [JPS Autumn meeting \(online\)](#)
Status of laser ionization of muonium via 1S-2S transition at J-PARC
- 01/2020 [International Workshop on Fundamental Physics Using Atoms \(Personally invited at RIKEN, Japan\)](#)
Preparation for experiment of muonium ionization with 1S-2S excitation
- 09/2019 [JPS Autumn meeting \(Yamagata University, Japan\)](#)
Ionization of thermal muonium via 1S-2S transition by pulsed laser

Seminars

03/2026	RAL Particle Physics Department seminar, UK The Muon $g-2$ Experiment in the Post-Fermilab Era: Status and Prospects
05/2025	Seminar at Institute of Modern Physics (IMP), China Introduction to Muon Cooling technology at J-PARC
03/2025	Seminar at Tsung-Dao Lee Institute (TDLI), China The Status of MUonE experiment
12/2024	HEP Seminar, UCL, UK The MUonE experiment: Understanding Muon $g - 2$ Puzzle via $\mu - e$ Scattering
11/2024	HEP Seminar, University of Oxford, UK Recent Status and Challenges of the MUonE Experiment
10/2024	Seminar at Imperial College, UK Status of MUonE experiment
09/2024	HEP seminar, School of Physics, Sun Yat-sen University, China Muon $g-2$: When Experiment Meets Theory
08/2024	Bohr seminar, The University of Manchester, UK Progress and Status of the MUonE Experiment
06/2024	HEP Seminar, University of Cambridge, UK Status of MUonE experiment
10/2023	HEP Seminar, University of Warwick, UK New Results from the Muon $g - 2$ Experiment at Fermilab
09/2023	INPAC seminar, Shanghai Jiaotong University, China Introduction to the MUonE experiment
05/2022	PKU Young Researcher HEP seminar, Peking University, China Introduction to Muon Beam and Cooling
05/2021	Beihang HEP seminar, Beihang University, China J-PARC $g-2$ /EDM experiment
12/2020	KEK S-type project seminar, KEK, Japan Beam optics design at J-PARC S2 and status of the slow muon beam-line

OUTREACH

Co-author, *“Is there new physics beyond the Standard Model of particle physics? Our finding will help settle the question”*, **The Conversation**, 31 July, 2023. – A public-facing article explaining the muon $g-2$ measurements results.