

Wei-Chih Huang

Education

- Aug. 2019 – *PhD in Physics*
Dec. 2025 **Texas A&M University, US**
Aug. 2015 – *BS in Physics*
Jun. 2019 **National Tsing Hua University, Taiwan**

Fields of Interest

Dark Matter, High Energy Physics (phenomenology), Nuclear Physics, Neutrino Physics

Professional Experience

- Aug. 2019 – **Graudate Research Assistant**
present *Physics & Astronomy department, Texas A&M University, US*
 - Designed and calculated the nuclear structure by FORTRAN, MPI/OpenMP, Python, C++ and Mathematica
 - Construct nuclear scattering models for dark matter and axion
 - Programmed Python/C++ to do data analysis and statistical analysis
- Jun. 2025 – **Data Science PhD Internship**
Aug. 2025 *Capital One*
 - Developed predictive models for future payments and default probability with 99% accuracy
 - Built PyTorch machine learning models (GBM, NN, LSTM) to optimize loss mitigation strategies for auto loans
 - Fetched data from SnowFlake and did statistical data analysis on AWS
 - Collaborated with product managers to translate model outputs into action-based decisions
- Nov. 2017 – **Undergraudate Research Assistant**
Jun. 2019 *Physics department, National Tsing Hua University, Taiwan*
 - Formalized inflation and late-time acceleration (dark energy) by $f(R)$ modified gravity
 - Programmed Mathematica and Python to simulate the evolution of the universe
- Jul. 2018 – **Undergraduate Summer Research**
Aug. 2018 *The University Consortium of ALMA-Taiwan*
 - Studied dark matter in merging galaxies
 - Used CASA to clean, analyze and visualize the data imaging from extragalactic database, and infer the dark matter distribution

Publications

Novel Approach to Investigate ATOMKI Anomaly Using Coherent CAPTAIN-Mills Detectors

inspireHEP

Oct. 2024 Bhaskar Dutta, Bai-Shan Hu, *Wei-Chih Huang*, Richard G. Van de Water

Indirect detection of dark matter absorption in the Galactic Center

inspireHEP

Apr. 2024 Kimberly K. Boddy, Bhaskar Dutta, Addy J. Evans, *Wei-Chih Huang*, Stacie Moltner, Louis E. Strigari

Prospects for Light Dark Matter Searches at Large-Volume Neutrino Detectors

inspireHEP

Feb. 2024 Bhaskar Dutta, *Wei-Chih Huang*, Doojin Kim, Jayden L. Newstead, Jong-Chul Park, Iman Shaukat Ali

Short Baseline Neutrino Anomalies at Stopped Pion Experiments

inspireHEP

Oct. 2023 Iain A. Bisset, Bhaskar Dutta, *Wei-Chih Huang*, Louis E. Strigari

Probing the dark sector with nuclear transition photons

inspireHEP

Feb. 2023 Bhaskar Dutta, *Wei-Chih Huang*, Jayden L. Newstead

Inelastic nuclear scattering from neutrinos and dark matter

inspireHEP

Dec. 2022 Bhaskar Dutta, *Wei-Chih Huang*, Jayden L. Newstead, Vishvas Pandey

Axion-Like Particle Production at Beam Dump Experiments with Distinct Nuclear Excitation Lines

inspireHEP

Aug. 2022 Loyd Waites, Adrian Thompson, Adriana Bungau, Janet M. Conrad, Bhaskar Dutta, *Wei-Chih Huang*, Doojin Kim, Michael Shaevitz, Joshua Spitz

Talks

Apr. 2023 **Interplay of Nuclear, Neutrino and BSM Physics at Low-Energies**

Probing BSM particles using inelastic nuclear scattering

Oct. 2022 **Particle Physics on the Plains**

Inelastic Dark Matter-Nucleus Scattering in Stopped-pion Experiments using Transition Photons

May. 2022 **2022 Phenomenology Symposium**

Inelastic neutrino-nucleus and dark matter-nucleus scattering

Jul. 2021 **2021 Meeting of the Division of Particles and Fields of the American Physical Society (DPF21)**

The calculation of inelastic neutrino-nucleus scattering

Oct. 2021 **2021 Magnificent CEvNS Workshop**

Inelastic neutrino-nucleus and dark matter-nucleus scattering

Teaching Experience

2022 – **TAMU Physics Department**

- 2023 Workshop Lecturer: Data Science in Physics (webpage)
- Fall 2022 **TAMU Physics 207, Electricity and Magnetism for Engineering and Science**
Teaching Assistant
- Summer 2022 **TAMU Physics 207, Electricity and Magnetism for Engineering and Science**
Teaching Assistant (Lab)
- Spring 2022 **TAMU Physics 207, Electricity and Magnetism for Engineering and Science**
Teaching Assistant
- Fall 2021 **TAMU Physics 206, Newtonian Mechanics for Engineering and Science**
Teaching Assistant
- Spring 2021 **TAMU Physics 207, Electricity and Magnetism for Engineering and Science**
Teaching Assistant
- Fall 2020 **TAMU Physics 207, Electricity and Magnetism for Engineering and Science**
Teaching Assistant
- Spring 2020 **TAMU Physics 206, Newtonian Mechanics for Engineering and Science**
Teaching Assistant
- Fall 2019 **TAMU Physics 408, Thermodynamics and Statistical Mechanics**
Teaching Assistant (grader)
- Spring 2016 **Shu Guang Girls' Senior High school**
Teaching Assistant (STEM subjects)

Honors and Awards

Data Science Ambassador Scholarship

Fall 2022 Data Science Ambassador Scholarship Program at Texas A&M Institute of Data Science

Undergraduate Research Scholarship

Fall 2018 Scholarship for the $f(R)$ gravity project

Three Years Tsing Hua University Scholarship

2015 - 2018 Tuition waiver, housing and textbooks

Programming Skills

Python, NumPy, Pandas, Matplotlib, SciPy, PyTorch, TensorFlow
C++ Bash, Git, GitHub, Docker, Mathematica, Javascript, LaTeX