

# Chengchao Yuan

POSTDOCTORAL SCHOLAR AT DESY

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## Education

### PENNSYLVANIA STATE UNIVERSITY

PH.D. IN PHYSICS

Sep 2022 University Park, US

Advisors:

Peter Meszaros and Kohta Murase  
Dissertation [pdf]

### NANJING UNIVERSITY

B.SC. IN ASTRONOMY

June 2016 Nanjing, China

Graduated with Distinction

## Links

Google scholar

ORCID

ADS index

iNSPIRE

Github

## Research Interests

### THEORETICAL HIGH-ENERGY ASTROPHYSICS

Gamma-Ray Bursts

Active Galactic Nuclei

SMBH Mergers

NS/Stellar-Mass BH Mergers

Galaxy/Cluster Mergers

### MULTI-MESSENGER ASTROPHYSICS

Neutrinos, EM photons, CRs from astrophysical sources/source populations.

## Skills

### PROGRAMMING

C++ • Python • Mathematica • Shell

### MISCELLANEOUS

CRpropa •  $\text{\LaTeX}$  • Fortran

## Software

### ASTROPHYSICAL MULTIMESSENGER EMISSION SYNTHESIZER (AMES)

UNDER DEVELOPMENT

A time-dependent numerical code for the production and propagation of high-energy cosmic rays, neutrinos, and gamma-rays for various astrophysical environments

## Experience

### POSTDOCTORAL FELLOW (CURRENT POSITION)

DEUTSCHES ELEKTRONEN-SYNCHROTRON DESY

October 2022 – Zeuthen, Germany

- Working on astroparticle physics in the group led by Prof. Walter Winter

### RESEARCH ASSISTANT

DEPT. OF PHYSICS, PENN STATE UNIVERSITY

Apr 2018 – Aug 2022 University Park, US

- Developing models to explain the origins of high-energy neutrino background
- Predicting the EM and neutrino emissions from SMBH mergers and compact binary mergers

### TEACHING ASSISTANT

DEPT. OF PHYSICS, PENN STATE UNIVERSITY

Aug 2016 – May 2022 University Park, US

#### Grader & office hour TA:

- PHYS 561 (Quantum Mechanics), PHYS 525 (Methods of Theoretical Physics), PHYS/MATH 479 (Special and General Relativity), PHYS 400 (Electrodynamics)

**Lab TA:** PHYS 212 (Electromagnetism), PHYS 250 (Introductory Physics)

### UNDERGRADUATE RESEARCH INTERN

DEPT. OF ASTRONOMY AND ASTROPHYSICS, PENN STATE UNIVERSITY

July 2018 – September 2018 University Park, US

- Developing a Monte Carlo code in C++ to solve the time-dependent kinetic equations for relativistic electron in an isotropic photon field.

## Selected Awards

- 2022 TDLI PRIZE POSTDOCTORAL FELLOWSHIP, TSUNG-DAO LEE INSTITUTE (DECLINED)
- 2022, 2021 W. DONALD MILLER GRADUATE FELLOWSHIP, PENNSYLVANIA STATE UNIVERSITY
- 2022, 21, 20, 19 DAVID C. DUNCAN GRADUATE FELLOWSHIP, PENNSYLVANIA STATE UNIVERSITY (4 TIMES)
- 2018 APS GRADUATE STUDENT TRAVEL GRANT, AMERICAN PHYSICAL SOCIETY
- 2017 HOMER F. BRADDOCK SCHOLARSHIP, PENNSYLVANIA STATE UNIVERSITY
- 2016 REU INTERN TRAVEL GRANT (HOST INSTITUTE: PENN STATE), NANJING UNIVERSITY

## Professional/Outreach Experience

- 2022 - DESY internal publication reviewer
- 2021 Abstract Sorting Committee of AAS 239th Annual Meeting
- 2017, 2018, 2022 Guest Lecturer and A Tour of Universe Demonstrator at AstroFest (4-night outreach, 2500+ public visitors)
- 2018 Astropy Demonstrator at K-12 Educators - Bring Cutting-Edge STEM Research into your Classroom (2-day outreach, 100+ high-school teachers)