

DESY Postdoctoral Fellow
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Appointments

2022 -	Postdoctoral Fellow , Deutsches Elektronen-Synchrotron DESY, Germany
2018 - 2022	Research Assistant , Dept. of Physics, Penn State, USA
2016 - 2022	Teaching Assistant , Dept. of Physics, Penn State, USA
Summer 2015	REU Intern , Dept. of Astronomy and Astrophysics, Penn State, USA

Education

08/2022	Ph.D. in Physics, Pennsylvania State University, USA Supervised by Prof. Péter Mészáros and Prof. Kohta Murase Thesis: <i>Neutrino and Electromagnetic Counterparts of Galaxy and Black Hole Mergers</i>
06/2016	B.Sc. in Astronomy, Nanjing University, China

Research Interests

- Astroparticle physics (CR acceleration, transport and radiation processes): theoretical & numerical
- Multimessenger astrophysics: gamma rays, neutrinos and cosmic rays from TDEs, compact objects (e.g., GRBs and FRBs), AGNs, and SMBH mergers

Fellowships & Awards

2024	DAAD (German Academic Exchange Service) Award , as a junior researcher w. Dr. Walter Winter & Dr. Maria Petropoulou
2023, 2024	DESY Postdoctoral Research Award (x2) , DESY
2022	TDLI Prize Postdoctoral Fellowship , Tsung-Dao Lee Institute (declined)
2021-2022	W. Donald Miller Graduate Fellowship (x2) , Pennsylvania State University
2019-2022	David C. Duncan Graduate Fellowship (x4) , Pennsylvania State University
2018	APS Graduate Student Travel Grant , American Physical Society
2017	Homer F. Braddock Scholarship , Pennsylvania State University
2016	School of Astronomy and Space Science Dean's Scholarship , Nanjing Univ.
2016	Merit Student , Education Department of Jiangsu Province, China
2015	REU Intern Travel Grant (host institution: Penn State), Nanjing University
2015	Duxia Scholarship , Nanjing University

Conferences and Scientific Talks

15 invited seminars and colloquia; 8 invited conference talks and lectures; 9 contributed conference talks and posters.

A full list is available at [Talks and Events](#)

Selected recent talks

12/2024	Invited talk, DESY "Matter and the Universe" Days, Hamburg
11/2024	Invited seminar, University of Athens, Greece
09/2024	Roma International Conference on AstroParticle Physics (RICAP-24), Italy
09/2024	NCfA Astrophysics Forum, UNLV, USA
08/2024	TeVPA 2024, Chicago, USA
02/2024	Paris Numerical Lepto-Hadronic Modeling Workshop
09/2023	TeVPA 2023, Napoli, Italy
08/2023	Panelist of HE Transients, NEMMA Workshop, Penn State University, USA

Software

Astrophysical Multi-Messenger Modeling (AM³)

An open-source tool for time-dependent lepto-hadronic modelling of astrophysical sources

- **Documentation** - <https://am3.readthedocs.io/>
- **Developers:** Marc Klinger, Annika Rudolph, Xavier Rodrigues, Chengchao Yuan, Gaëtan Fichet de Clairfontaine, Anatoli Fedynitch, Walter Winter, Martin Pohl, Shan Gao
- **Contribution:** core developer; radiating blob expansion implementation; TDE examples; code tests; C++ documentation.

Programming Skills

- Programming languages: C++, Python, Mathematica
- Extensive experience in using AM³ and `CRpropa`

Mentoring

PhD Students

2023 - **Karlijn Kruiswijk**, Université catholique de Louvain '22, "GeV neutrinos from GRBs", co-mentored with Dr. Walter Winter and Prof. Gwenhaël de Wasseige

Master and Undergraduate Students

2024 - **Andre Neubauer**, Humboldt-Universität zu Berlin (MSc, '23)
2023 **Federico Testagrossa**, University of Padova (MSc, '22), DESY Summer School
2023 **David Raudales**, National Autonomous University of Honduras (BSc, '20), DESY Summer School

Teaching Experience

Oxford-Berlin Neutrino Physics Lecturer (Berlin, Germany, 2024)

Lecture Course on Neutrino Physics between Oxford University and Humboldt University Berlin

- Gave a lecture on time-dependent multi-messenger modeling using AM³ software

DESY Summer School Lecturer (Zeuthen, Germany, 2023)

DESY Summer School on Astroparticle Physics for Undergraduate and Master Students

- Gave a lecture on the physics of GRBs and on the radiation processes in astroparticle physics

- Guided students to complete the analytical/numerical modeling of GRB afterglow emissions

Penn State Graduate Teaching Assistant (State College, PA, USA, 2016–2022)

Coordinating experiments/labs, grading assignments, offering office hours, and proctoring exams for graduate (G) and undergraduate (UG) courses in the Physics Department

- Laboratory coordinator and lecturer: Electromagnetism (UG), Introductory Physics (UG)
- Grader and office hour leader: Quantum Mechanics (G), Special and General Relativity (UG), Methods of Theoretical Physics (G)

Professional and Outreach Activities

Referee	MNRAS, MNRAS Letters (since 2023); ApJ, ApJL (since 2024)
2024	Organizing Committee Member for the 3rd Numerical Lepto-Hadronic Modeling Workshop
2023	Organizing Committee Member for the DESY Astroparticle Division Retreat
2022 -	DESY Theoretical Astroparticle Seminar Organizer
2021	Abstract Sorting Committee of AAS 239th Annual Meeting
2021	Journal Club Organizer for the Center of Multimessenger Astrophysics
2017 - 2022	Guest Lecturer and co-organizer for the AstroFest (4-night outreach, 2500+ visitors)
2018	Astropy Demonstrator at K-12 Educators - Bring Cutting-Edge STEM Research into Classroom (2-day outreach, 100+ high-school teachers)

References

Dr. Walter Winter (walter.winter@desy.de)

Group leader theoret. astroparticle physics
Deutsches Elektronen-Synchrotron (DESY), Zeuthen

Dr. Kohta Murase (murase@psu.edu)

Professor, Physics and Astronomy & Astrophysics
Pennsylvania State University, USA

Dr. Cecilia Lunardini (cecilia.lunardini@asu.edu)

Professor, Department of Physics
Arizona State University, USA

Dr. Péter Mészáros (nnp@psu.edu)

Eberly Chair Professor Emeritus, Astronomy & Astrophysics and Physics
Pennsylvania State University, USA