# SEPIDEH SEPEHRI

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## EDUCATION

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|---|---|
| **MSc in Astrophysics and Cosmology** | Oct 2022 – July 2025 |
| University of Padova, Padova, Italy | |
| **BSc in Physics** | Sept 2015 – Sept 2020 |
| Tehran Polytechnic (Amirkabir University of Technology), Tehran, Iran | |

## RESEARCH PROJECTS AND SCIENTIFIC EXPERIENCES

**Master's Thesis** — Oct 2024 – July 2025
- University of Padova, Evolution of Galaxies and AGN Group — Padova - Italy
Supervisor: Prof. Giulia Rodighiero

**"The Role of Galaxy Mergers in the High Redshift Universe with Deep JWST Extragalactic Fields"**
Analyzed $\sim$500,000 galaxies from ASTRODEEP-JWST catalog to trace the redshift evolution of major mergers ($\geq$1:4) across seven deep fields. Compute pair fractions with bootstrap errors, using F160W$-$F444W color to classify red and blue populations. Results show a notable increase at $z \sim 8$–9, suggesting early merger activity or redshift uncertainties.

**Gravitational Waves – Boltzmann Approach and Observational** — Mar 2024 – Jul 2024
- University of Padova, Theoretical Cosmology — Padova - Italy
Supervisor: Prof. Sabino Matarrese

Reviewed GW generation via Boltzmann equations. Assessed LISA and Einstein Telescope detection prospects. Linked GWs to structure formation and inflation

**Photometric Transit Analysis of WASP-12b** — Oct 2023 – Jan 2024
- University of Padova, Astrophysics Laboratory II — Padova - Italy
Supervisor: Prof. Luca Malavolta

Analyzed TESS photometry of WASP-12b in a team project. Produced transit light curve and estimated system parameters. Contributed to scientific report using TASTE/TESS tools

**CubeSats: Fly Your Satellite! (ESA Program)** — Feb 2023 – Sept 2023
- University of Padova, Ground Station Team — Padova - Italy
Ground Station team member in ESA-supported CubeSat project. Studied orbit theory, tracking, and communications. Gained experience with control software, link budgets, and VHF/UHF systems

**Observing Nights at Asiago Observatory** — Feb 2023 & Jan 2024
- University of Padova, Astrophysics Laboratory I and II — Asiago - Italy
Participated in MSc observing sessions (67/92 cm and 1.82 m telescopes). Gained experience in photometry, spectroscopy, and telescope control.

## SCHOLARSHIPS AND AWARDS

- **Veneto Regional Government Scholarship (ESU)**, University of Padova
  Awarded for MSc studies.
  *Academic years: 2022–2023, 2023–2024, and first semester 2024–2025*

## CONFERENCES AND SEMINARS

**Quantifying Galaxy Mergers' impact on dusty SF with JWST and Euclid**　　July – 2025
- European Astronomical Society Annual Meeting (EAS) 2025
Presented by: Dr. Giovanni Gandolfi.
Included results from my MSc thesis on JWST-based merger pair statistics.　　Cork - Ireland

**"The Rise of the Galactic Empire" – Pablo Pérez-González**　　Apr – 2025
- Attended to INAF Seminar　　Padova - Italy

**"Searching for Passive Galaxies in the JWST Era" – Emiliano Merlin**　　Jan – 2025
- Attended to INAF Seminar　　Padova - Italy

**"Surprises from the Expansion of the Universe" – Adam Riess**　　Nov – 2022
- Attended to DFA Colloquium Seminar　　Padova - Italy

## CERTIFICATIONS AND WORKSHOPS

**JWST Summer School: High Redshift Transients with JWST**　　Aug – 2025
- Space Telescope Science Institute (STScI)　　Baltimore, MD, USA

**Statistical Analysis of Cosmic Fields**　　Oct – Nov 2021
- K. N. Toosi University of Technology　　Tehran - Iran

**Fundamental Issues in Gravity and Cosmology**　　Feb – May 2021
- Sharif University of Technology　　Tehran - Iran

**Workshop on General Relativity in Mathematica**　　Jan – Feb 2021
- Sharif University of Technology　　Tehran - Iran

**Advanced Cosmology Course**　　Feb – July 2020
- Institute for Research in Fundamental Sciences (IPM)　　Tehran - Iran

**Summer School: Introduction to Cosmology**　　June – Sept 2019
- Sharif University of Technology　　Tehran - Iran

## PUBLICATIONS

**Quantifying Galaxy Mergers' impact on Dusty Galaxies with JWST and Euclid**　　2026
Journal Name: Astronomy & Astrophysics (A&A)　　Publisher: EDP Sciences
Authors: Sepideh Sepehri, Beatrice Facciolli, Giovanni Gandolfi, Laura Bisigello, Giulia Rodighiero, Andrea Grazian, Giorgia Girardi

Sepehri, S., Facciolli, B., Gandolfi, G., Bisigello, L., Rodighiero, G., Grazian, A., Girardi, G. (2026), Quantifying Galaxy Mergers' Impact on Dusty Galaxies with JWST Euclid, AA, in preparation.

## SKILLS

**Programming**: Python (Astropy, Numpy, Matplotlib, Scipy, Pandas, SkyCoord, Colossus), LaTeX
**Astronomy Tools**: Topcat, SAOImage DS9
**Other Software**: Microsoft Office, Adobe Photoshop
**Languages**: Persian (Native), English (C1), Italian (A2), Arabic (A2), Turkish (A2), German (A1)
**Soft Skills**: Team collaboration, Time management, Office organization, Problem-solving, Adaptability, Communication