

# SAHAR DORDAEI JOGHAN

M.Sc. Applicant in Physics and Astronomy, A.Y. 2026/27

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## EDUCATION

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### Bachelor of Science, Physics

Jan 2019 – Feb 2023

Shahid Rajaei Teacher Training University, Tehran, Iran

- Final two years GPA: 19.10/20 (4/4)
- Overall GPA: 17.40/20 (3.61/4)
- **Relevant Coursework:** Stellar Structure & Evolution (20/20), Astronomy & Astrophysics (19.5/20), Cosmology (18.5/20), Numerical Computations (19.75/20), Quantum Mechanics (19.5/20), Electromagnetism (17.5/20), Thermodynamics & Statistical Physics (17.5/20), Optics (17.5/20), Spectroscopy (19.5/20), Laser Physics (18.5/20), Mathematical Physics (17.5/20), Analytical Mechanics (16.5/20), Physics Project (20/20)
- **Teacher Preparation Program Coursework:** 30 mandatory credits including 6 Specialized Training Workshops in Teaching Physics, Principles and Methods of Teaching and Learning, Teaching Internship I & II; not listed on transcript but official documentation is available upon request from the university

## RESEARCH INTERESTS

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- Cosmology (early Universe, CMB, large-scale structure, dark matter/energy)
- Formation and evolution of galaxies and stars
- Combining theoretical, computational, and observational approaches

## RESEARCH EXPERIENCE AND PROJECTS

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### Planck CMB Temperature Visualizer

GitHub

- A Python tool to visualize the temperature anisotropies in the Cosmic Microwave Background using the Planck 2018 SMICA map
- Loads temperature data, converts it to microkelvin, and generates a full-sky Mollweide projection

### Celestial Projectile Simulation

GitHub

- Created a VPython simulation of projectile motion on different planetary bodies
- Included interactive controls for gravity, mass, velocity, and launch angle

### Bachelor Physics Project Course, Shahid Rajaei Teacher Training University

Fall 2022

Supervisor: Prof. Fatemeh Ahmadi Kalateh

- Characterized lunar and mercurian craters (primary and secondary) using ImageJ
- Wrote a research-style term paper
- Sole undergraduate in the department to date approved to take and complete the course

## AWARDS AND SCHOLARSHIPS

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- **Merit-Based Admission Offer**, M.Sc. Physics (Exempted from national entrance exam with full tuition waiver)
- **National Scholarship (Full Tuition Waiver + Monthly Stipend)**, Ministry of Education, Iran (B.Sc. Physics, 2019–2023)
- **Graduating Class Academic Award (Top 10%)**, Shahid Rajaei Teacher Training University
- **Astronomy Association Honors**, Shahid Rajaei Teacher Training University

## TEACHING EXPERIENCE

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### High School Physics Teacher (Full-Time), Tehran, Iran

Mar 2023 – present

- Courses: Physics (Grades 10 to 12), with class sizes of 30 to 35 students (24 hours/week)
- Designed and delivered lesson plans aligned with national curriculum standards
- Led and supervised laboratory sessions
- Assessed student performance through exams, assignments, and lab reports

### Teaching Assistant, Shahid Rajaei Teacher Training University

Oct 2022 – Jan 2023

- Course: Electromagnetism II (40 undergraduate students)
- Supported course preparation and administration
- Led problem-solving sessions (class, group, and one-on-one)
- Graded assignments/exams, and provided feedback

### Physics Teaching Intern, Alzahra High School, Tehran, Iran

Oct 2021 – Jun 2022

- Courses: Physics (Grades 10 to 12)
- Part of formal mandatory teacher training curriculum during B.Sc. program
- Contributed to lesson planning and delivery
- Supervised labs, managed classrooms, and conducted small-group and individualized instruction

## LEADERSHIP AND OUTREACH

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### Member, The Astronomical Society of Iran

Jan 2023 – present

### President, Astronomy Association, Shahid Rajaei Teacher Training University

2021 – 2023

- Voluntary Position
- Organized events, on-campus Astronomy Coffee sessions, guest lectures, and eclipse viewing.
- Led editorial and design teams.

### Founding Member, Astronomy Association, Shahid Rajaei Teacher Training University

2021

## SKILLS

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Python (scientific computing, data analysis, visualization), Git/GitHub, Ubuntu, COMSOL Multiphysics, L<sup>A</sup>T<sub>E</sub>X, ImageJ, Origin, Gapher

## CERTIFICATIONS

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| • <b>Data-Driven Astronomy</b> , U. Sydney           | • <b>Data Science in Python</b> , U. Michigan   |
| • <b>From the Big Bang to Dark Energy</b> , U. Tokyo | • <b>Communication Skills</b> , U. Pennsylvania |
| • <b>Celestial Observation</b> , Faradars            | • <b>Leading Teams</b> , U. Michigan            |
| • <b>Research Methods: Thesis Writing</b> , Faradars |   |

## LANGUAGES AND TESTS

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**Persian** (Native)

**English** (C1/C2) — IELTS Academic 8.0 (*R 9.0, L 8.5, W 7.5, S 7.0; valid Oct 2024–Oct 2026*)

## REFERENCES

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All referees are with the Department of Physics, Shahid Rajaei Teacher Training University

### Prof. Yousef Farzan-Nahad

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### Prof. Fatemeh Ahmadi Kalateh

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