

# SAHAR DORDAEI JOGHAN

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

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## EDUCATION

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Jan 2019 – Feb 2023     **Bachelor of Science in Physics**, Shahid Rajaee 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), Cosmology (18.5/20), Astronomy & Astrophysics (19.5/20), Numerical Computations (19.75/20), Physics Project (20/20), Quantum Mechanics (19.5/20), Electromagnetism (17.5/20), Analytical Mechanics (16.5/20), Thermodynamics & Statistical Physics (17.5/20), Optics (17.5/20), Spectroscopy (19.5/20), Laser Physics (18.5/20), Mathematical Physics (17.5/20)
- **Teacher Preparation Programme Coursework:** 30 mandatory credits including six 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
- Completed several course presentations and literature reviews in physics and astrophysics

## RESEARCH INTERESTS

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

## RESEARCH EXPERIENCE AND PROJECTS

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GitHub     **Planck CMB Temperature Visualizer**

- 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

GitHub     **Celestial Projectile Simulation**

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

Fall 2022     **Bachelor Physics Project Course**, Shahid Rajaee Teacher Training University  
Supervisor: Prof. Fatemeh Ahmadi Kalateh

- Conducted comparative analysis and characterization of lunar and Mercurian impact craters (primary and secondary) using image-processing techniques
- Wrote a research-style term paper and delivered an oral defense
- Selected by exception to undertake this advanced research course

## AWARDS AND SCHOLARSHIPS

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2023     **Fully Funded Merit-Based Admission Offer**, M.Sc. Physics (Exempted from national entrance exam; full tuition waiver awarded based on academic excellence)

2023     **Graduating Class Award (Top 10%)**, Shahid Rajaee Teacher Training University

2023     **Astronomy Association Honors**, Shahid Rajaee Teacher Training University

Jan 2019 – Feb 2023     **National Scholarship (Full Tuition Waiver + Monthly Stipend)**, Ministry of Education, Iran (B.Sc. Physics)

## TEACHING EXPERIENCE

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- Mar 2023 – Present      **High School Physics Teacher (Full-Time)**, Tehran, Iran  
Courses: Physics (Grades 10 to 12), with class sizes of 30–35 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
- Spring 2022 – Fall 2022      **Teaching Assistant**, Shahid Rajaei Teacher Training University  
Courses: Electromagnetism I & II (two semesters; ~40 students per term)
- Assisted with course preparation and administration
  - Led problem-solving sessions (lectures, group activities, and one-on-one tutoring)
  - Graded assignments/exams, and provided feedback
- Oct 2021 – Jun 2022      **Physics Teaching Intern**, Alzahra High School, Tehran, Iran  
Courses: Physics (Grades 10 to 12)
- Part of the formal, mandatory teacher-training curriculum within the B.Sc. programme
  - Contributed to lesson planning and delivery
  - Supervised labs, managed classrooms, and conducted individualized instruction

## LEADERSHIP AND OUTREACH

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- Jan 2023 – Present      **Member**, The Astronomical Society of Iran
- May 2021 – Feb 2023      **President**, Astronomy Association, Shahid Rajaei Teacher Training University
- Organized events, including on-campus Astronomy Coffee sessions, guest lectures, and eclipse viewing; led editorial and design teams (voluntary role)
- 2021      **Founding Member**, Astronomy Association, Shahid Rajaei Teacher Training University

## SKILLS

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Python (scientific computing, data analysis, visualization), Git/GitHub, Ubuntu, ImageJ,  $\text{\LaTeX}$ , COMSOL Multiphysics, Origin, Grapher

## CERTIFICATIONS

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- 2025      **Research Methods: Thesis Writing** — FaraDars
- 2025      **Celestial Observation and Astronomy Essentials** — FaraDars
- 2023      **Data-Driven Astronomy** — University of Sydney
- 2023      **From the Big Bang to Dark Energy** — University of Tokyo
- 2023      **Introduction to Data Science in Python** — University of Michigan
- 2023      **Leading Teams** — University of Michigan
- 2023      **Improving Communication Skills** — University of Pennsylvania

## LANGUAGES AND TESTS

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- Languages      Persian (Native); English (C1/C2)
- IELTS Academic      Overall 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

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