

Advertisement for Admission to Ph.D. Programme
Department of Astronomy, Astrophysics and Space Engineering
Indian Institute of Technology Indore, Simrol Campus, Khandwa Road, Indore – 453552

Ph.D. Admissions/2023/ September

Applications are invited from highly motivated and research-oriented candidates for admission to Ph.D. Program in the **Department of Astronomy, Astrophysics and Space Engineering (DAASE), IIT Indore.**

Applications are invited only for **FA categories** in this round.

Fellowship Awardee (FA) Candidates Only

Who is a FA candidate:

- 1) Fellowship Awardees from the funding agencies such as CSIR, UGC, NBHM, DST etc.
- 2) INSPIRE fellowship awardee
- 3) Project staff working in a sponsored research project under a faculty member, PI of the project, of IIT Indore.

Minimum Educational Qualifications:

- a) Masters' degree in the relevant Department of Engineering/ Technology (with first division as defined by the awarding Institute/ University)

OR

- b) Four-year Bachelors' degree OR five-year integrated degree in the relevant Department of engineering/ science (with first division as defined by the awarding Institute/ University)

OR

- c) Masters' degree in the relevant Department of Science (with first division as defined by the awarding Institute/ University)

Qualifying Examinations: UGC/CSIR LS or UGC/CSIR JRF or GATE**

** GATE should be VALID for MEQ with (b) and (c)

Application Procedure: Kindly refer to the main Ph.D. Advertisement of the Institute available <https://academic.iiti.ac.in/phdadvt.php>.

- Online Application Form (Compulsory):** Candidates **MUST** apply **ONLINE** through the portal: <https://academic.iiti.ac.in:8443/nregistration.jsp> Incomplete or improperly filled applications or lack of supporting documents (found in any stage) will not be considered for further processing.
- Recommendation Letters (Compulsory):** The candidates should arrange to send **TWO** letters of recommendation (in the specified format available **in the application portal**) from the referees listed in the application form. These letters should be **sent** by the referees directly to the email ids: pc-phd-aase@iiti.ac.in and aase-office@iiti.ac.in **before the application deadline. Please make sure that one of the referees is a faculty/scientist from the last institution/university that you have attended. Please note your referees will not receive any automatic email notification for the recommendation letter.**
- Application Fee:** Please refer to the main PhD Advertisement of the Institute available at <http://academic.iiti.ac.in/phdadvt.php>

Relevant Discipline: Physics, Applied Physics, Astronomy, Astrophysics, Space Science and Engineering, Mathematics, Applied Mathematics, Statistics, Applied Statistics, Earth and Atmospheric Science and Engineering, Remote Sensing, Software Engineering, Information Technology, Data Science, Data Analytics, Engineering Physics, Aerospace Engineering, Aeronautics, Electronics and Communications Engineering, Electrical Engineering, Computer Science and Engineering, Civil Engineering, Mechanical Engineering, Metallurgy Engineering and Materials Science, Biophysics, Biotechnology, Bioinformatics, Chemistry, Chemical Engineering.

Research Areas

The Department of Astronomy, Astrophysics and Space Engineering (DAASE) at IIT Indore is a unique department among all IITs. It offers a dedicated platform to pursue research in astronomy, astrophysics and space science and engineering, and related areas. The DAASE is seeking applications for Ph.D. positions under the following four broad areas of research:

S.No	Area of Research	Topics
1.	Astronomy and Astrophysics	Observational and Computational Cosmology with Statistical Inference, Galaxy Clusters and Large Scale Structures, Cosmological Simulations, Circum-Galactic Medium, Cosmic Microwave Background, Cluster Cosmology, Computational Astrophysics, Neutron Stars, Pulsars and Black Holes, Transients, Radio and X-ray Observations, Galaxy and Interstellar Medium, Dark matter distribution in galaxies, Alternative theories to dark matter, Star and Planet Formation, Exoplanets, High Energy Astrophysics, Gamma-ray Astronomy, Multi-wavelength & Multi-messenger Astronomy, Machine Learning and Big Data applications.
2.	Space Sciences and Engineering	Ionosphere & Satellite Communication/Navigation, Spacecraft & Payload Control, Space Weather and Payload Design
3.	Earth and Atmospheric Sciences	Climate change, Atmosphere and Cloud Physics, Atmospheric Remote Sensing, Remote Sensing and Radar, Multi-sensor approaches for ecosystem change detection, Fusion of SAR and Lidar for Earth Observation, Remote Sensing Technologies and Applications, Ionospheric Research with ML applications.
4.	Instrumentation in Astronomy, Atmospheric and Space Sciences	Signal and Image Processing, Instrumentation related to Radio Astronomy and Space Payloads, Antenna Design, Simulation and Fabrication with Machine Learning applications. Development of ground-based radar and SAR system

Our faculty members are actively involved in the international mega-science project the **Square Kilometre Array (SKA)**, **PLUTO code**, **Navigation with Indian Constellation (NavIC)**, **SEAMS**, **TianLai** and related research. Our faculty members and students are extensively using national/international facilities like the **ASTROSAT**, **uGMRT**, **VLA**, **ATCA**, **SWIFT**, **NuStar**, **FACT**, **MAGIC**, **NICER**, **XMM-Newton**, **Chandra X-ray Observatory**, **Fermi-LAT**, **LOFAR**, **IceCube Neutrino Observatory**, **Himalayan Chandra Telescope**, **ESA Rosetta**, **NASA spacecraft observations (e.g. ACE, WIND, Van Allen Probes, GOES, THEMIS etc.)** and will be actively involved in upcoming projects e.g. the **Thirty Meter Telescope**, the **James Webb Space Telescope (JWST)**, **EUCLID**, **MACE**, **Aditya-L1 mission**, **Large Synoptic Survey Telescope**, and **CONCERTO-APEX**.

Applicants are strongly advised to visit the departmental website (<https://aase.iiti.ac.in/>), faculty (https://aase.iiti.ac.in/?page_id=17) and PhD student profiles (https://aase.iiti.ac.in/?page_id=21) and homepages of individual faculty members before applying for the Ph.D. programme:

- **Dr. Manoneeta Chakraborty:** <http://www.iiti.ac.in/people/~manoneeta/>
- **Dr. Saurabh Das:** <http://www.iiti.ac.in/people/~saurabh.das/>
- **Prof. Abhirup Datta:** <http://iiti.ac.in/people/~abhirup.datta/>
- **Dr. Unmesh Khati:** <http://people.iiti.ac.in/~unmesh.khati>
- **Dr. Suman Majumdar:** <http://www.iiti.ac.in/people/~sumanm/>
- **Dr. Savyasachi Malu:** <http://www.iiti.ac.in/people/~siddharth/>
- **Dr. Narendra Nath Patra:** <http://people.iiti.ac.in/~naren>
- **Dr. Amit Shukla:** <https://sites.google.com/iiti.ac.in/welcome/home>
- **Dr. Bhargav Vaidya:** <http://www.iiti.ac.in/people/~bvaidya/>
- **Dr. Priyanka Singh:** <https://psingh220.github.io/pswebpage/home.html>