

Advertisement for Admission to Ph.D. Programme

March 2023

Department of Astronomy, Astrophysics and Space Engineering

Indian Institute of Technology Indore, Simrol Campus, Khandwa Road, Indore – 453552

Ph.D. Admissions/2023

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**.

Categories of Admission:

Kindly refer to the main Ph.D. Advertisement of the institute available at <http://academic.iiti.ac.in/phdadvt.php> for details of all categories. We are considering applications for the **FA (including Sponsored Research-Project) categories** only in this round.

Eligibility Criterion (Qualifying Degree and Examination)

Please refer to the main PhD Advertisement of the Institute available at <http://academic.iiti.ac.in/phdadvt.php> for the Minimum Educational Qualification and Qualifying Examination.

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.

Application Procedure: Kindly refer to the main Ph.D. Advertisement of the Institute available <https://academic.iiti.ac.in/phdadvt.php>. Outstanding candidates will be shortlisted and called for a **written test and interview via email**.

Last date submitting online application:	10 March 2023
Written Test Date:	20 March 2023
Interview Date:	20 & 21 March 2023

PhD Admission procedure in DAASE (two-stage): Candidates will be invited for an **In-person written test** at the Department of Astronomy, Astrophysics and Space Engineering, IIT Indore. The shortlisted candidates for In-person interviews will be notified after the written test. The written test and In-person interview will be conducted following the COVID 19 protocols.

Online Application Form (Compulsory): Candidates **MUST** apply **ONLINE** through the portal: <https://academic.iiti.ac.in:8443/nregistration.jsp> All applications received by **10 March 2023 23:59 hours** will be considered for this round of Entrance Examination and Interview. Please note an application with an incomplete or not properly filled application form or lack of self-attested copies of supporting documents (found in any stage) will not be considered for further processing.

Uploading of Supporting Documents (Compulsory): Once you have completed your online application via the above-mentioned portal, you will next have to submit self-attested scanned copies of all of your supporting documents via this Google form – <https://forms.gle/w6Hon8StFucqQEUA> by **10 March 2023**.

This includes the **signed application form, application fee payment receipt, all relevant mark sheets and certificates (starting from class 10 to the highest degree that you have), results/score cards/rank cards of the relevant qualifying exams, category certificate (if applicable), identity proof and any other documents necessary to establish the claims made by you in the application form** as per the main PhD advertisement of the Institute. Please combine all supporting documents **into a single PDF file** (having a size of **less than 25 MB**) and upload them in the Google form. In the same Google Form, you will also need to upload a **high-resolution recent passport photograph of yours (file in jpeg, jpg, or png format having a size less than 5 MB)**. Please keep the same set of scanned copies of supporting documents ready if you are invited for an interview.

For a detailed explanation on the necessary supporting documents please refer to the main Ph.D. Advertisement of the Institute available at <http://academic.iiti.ac.in/phdadvt.php>

A Video Presentation from You (Optional):

If you have done any project during your Bachelor's or Master's please **make a 5 min video presentation (showing your face and slides)** on that project and **upload it** along with a **pdf version of your project report** in the Google form – <https://forms.gle/Wn77J4uVoypFoX7n6> by **10 March 2023**. In case you have not done any project, **choose your favorite topic in science or engineering and make a 5 min video presentation on it and upload** that video file in the above portal.

Recommendation Letters (Compulsory):

The candidates should also 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, dpgc-aase@iiti.ac.in, and aase-office@iiti.ac.in before the application deadline which is **10 March 2023**. 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.** You have to request them to send it to the above email ids before the deadline. Please ask them to use only the format provided with our advertisement and they should add in the letter their scanned signatures with a date.

Application Fee:

Please refer to the main PhD Advertisement of the Institute available at <http://academic.iiti.ac.in/phdadvt.php>

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, Computational Astrophysics, Neutron Stars, Pulsars and Black Holes, Active galactic nuclei, Blazars, Jet launching mechanisms, Gamma-ray Burst, 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, Cosmic Microwave Background.
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, IoT and communication systems

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**, **ESA/JAXA BepiColombo (mission to Mercury)**, **ESA Comet Interceptor mission**, 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/>

For any queries please contact:

Dr. Amit Shukla (Coordinator, PhD Program, DAASE) ;
Department of Astronomy, Astrophysics and Space Engineering
Indian Institute of Technology Indore,
Khandwa Road, Simrol
Indore 453552

Email: pc-phd-aase@iiti.ac.in, dpgc-aase@iiti.ac.in, aase-office@iiti.ac.in,