

## GRAN SASSO SCIENCE INSTITUTE PHD PROGRAMME IN INNOVATIVE TECHNOLOGIES FOR SPACE MISSIONS AND RADIATION DETECTION – CALL FOR APPLICATIONS 2024 (AY 2024/2025)

The Gran Sasso Science Institute (GSSI), based in L'Aquila, Italy, offers post-graduate training to obtain “**Philosophiae Doctor**” (Ph.D.) degrees in the **Physics** field:

○ “**Innovative Technologies for Space Missions and Radiation Detection**” - 4  
scholarships for the following positions:

1. **One** scholarship co-funded by the Italian Ministry of University and Research (MUR), Ministry Decree n. 630/2024, and **Fondazione Aria - Ente del Terzo Settore** for the following research profile:  
*Large-Scale Production Study of Special Gases and Isotopes ( $^{40}\text{Ar}$ ,  $^{76}\text{Ge}$ ,  $^{nat}\text{Xe}$ ,  $^{136}\text{Xe}$ ) for the detection of Dark Matter and Neutrinoless Double Beta Decay in Experiments at the Gran Sasso National Laboratories.*
2. **One** scholarship co-funded by the Italian Ministry of University and Research (MUR), Ministry Decree n. 630/2024, and **Nuclear Instruments S.r.l.** for the following research profile:  
*Innovative Readout and DAQ electronics for space-based radiation detectors;*
3. **One** scholarship co-funded by the Italian Ministry of University and Research (MUR), Ministry Decree n. 630/2024, and **Fondazione Vitality** for the following research profile:  
*Innovative Techniques for Space based studies of cosmic radiation.*
4. **One** scholarship funded under the project **STRIC\_PNRR**, CUP J17G22000110001, for the following research profile:  
*Earth observation from space for studies and data analysis of seismic phenomena, modeling and simulations.*

The Ph.D. Programme will be activated after approval by the MUR (Italian Ministry of University and Research) according to the **D.M. n. 226/2021**.

### Activities and Duration

The PhD Programmes last **three years**.

**The Academic Year will start on November 1<sup>st</sup> 2024.**

### Scholarships

**The yearly gross amount of the scholarship is € 16.243,00.** An additional 50% on a monthly basis is awarded for authorized research periods abroad (minimum 6 months in case of scholarships funded under PNRR Ministry Decree n. 630/2024).

GSSI awards scholarships until the dissertation defense and for a maximum of three years.

**Official language of the PhD Programmes:** English.

### **Facilities and benefits**

- First-year PhD students normally benefit from free accommodation at the guest house during the first year, except for special organizational needs; starting from the second year, all Ph.D students are provided with a financial substitute of 350,00 Euros gross/month (the contribution will be paid upon the presentation of a rental agreement in L'Aquila or, in case of mandatory stays in different host institutions, as provided by the relevant agreements);
- all PhD students will have free luncheon vouchers (1 per day, working days, except school closures, missions, and other situations contemplated by the GSSI rules);
- all PhD students will have tuition fees waived;
- all PhD students will be covered by insurance against any accident and/or injury that may occur while carrying out their PhD activities;
- all PhD students are entitled to a contribution of up to 1.200,00 euro (net) for the purchase of a laptop for study and research purposes. The contribution will be paid upon the presentation of the fiscal receipt headed to the applicant.

### **Requirements**

English knowledge is compulsory.

Applications are open to candidates in possession of one of the following degrees:

- “Laurea Magistrale” or “Laurea Specialistica” or a four or five years degree.
- a foreign University degree (minimum legal duration of the University course: **four years**). The eligibility of foreign degrees is assessed by the Selection Committee.

Applicants obtaining their degree by no later than **October 31, 2024** may apply (both Italian or foreign degree according to the previous description). Applicants will have to send a copy of their degree certificate at [phd.secretariat@gssi.it](mailto:phd.secretariat@gssi.it) within **November 20, 2024** (for Italian degrees a “self-declaration” can also be accepted).

### **Programme**

The Ph.D. Programme in “Innovative Technologies for Space Missions and Radiation Detection” aims to train PhDs with a high technological profile with a multidisciplinary approach by successfully placing them in the competitive environment of the development of new technologies. It therefore offers in addition to basic scientific and technological training, also on-the-job training for an intense training experience concentrated in the intersection between basic research activities and industrial applications.

The activities of the programme will focus on specific technological topics structured in two general curricula:

**- Innovative Technologies for Space Missions:** This area includes basic and applied research related to the development of small/medium sized space missions, with a focus on the creation of instruments, sensors and architectures, on the integration of satellites, the characterization for space applications (COTS) of commercial components, the development of downstream applications.

**- Innovative Technologies for Radiation Detection:** This area includes basic and applied research in the development of emerging technologies such as quantum, cryogenic, for the observation of particles, radiation and the characterization of materials. Of particular importance

will be the research carried out at important research infrastructures such as Gran Sasso National Laboratories (LNGS), European Gravitational Observatory (EGO), Laboratories of the Einstein Telescope Infrastructure Consortium (ETIC).

Within these areas specific applicative themes will be identified which, in the collaboration with the programme partners, will constitute the topic of the research and technological development work of the individual PhD dissertation assigned to the students. The individual PhD projects will have to be structured by creating a convergence of different technologies and methodologies.

### **Application**

Applicants must fill out the **online application form** ([www.gssi.it/phd](http://www.gssi.it/phd)) where it is possible to find all the necessary information for the submission, and attach the required documents by **July 31, 2024, 3 pm (Italian time zone)**. **No other application method will be accepted.**

**When completing the online application, the candidate must indicate the preference for three profiles out of the four listed in points 1, 2, 3, 4 of this call (article 1 in the Italian call) in order of priority, for the purpose of assigning them in case of useful placement in the final ranking.**

Data and documents entered into the application form are the sole responsibility of the applicant. In the event of false declarations, the applicant will be excluded from the selection procedure.

In order to successfully submit the application form, applicants must insert all the data/information and upload the attachments as listed below. We strongly recommend applicants to review the inserted information and uploaded attachments before submitting the application. **No changes are allowed to submitted data.** Erroneous data and/or attachments will be evaluated as they are submitted.

Please note that applicants are responsible for ensuring that their completed application arrives on time. Applicants are strongly advised to submit their application well in advance of the deadline in order to avoid last-minute congestion in the online application procedure.

### **Mandatory attachments**

Candidates should upload the following documents in pdf format:

- a valid id document, signed and dated;
- curriculum vitae et studiorum;
- a final degree certificate (for EU citizens or NON EU citizens residing in Italy: a copy of the certificate or a self-declaration declaring the possession of a degree indicating: conferral date, issuing University and final grade; for other applicants: certificate declaring the possession of a degree indicating: conferral date, issuing University and final grade). For applicants who expect to complete their degree by October 31 2023: certificate or self-declaration (only for EU citizens and NON EU citizens residing in Italy) indicating the single examinations taken and grades obtained. If the official document released by the University is not available in Italian or English, candidates should also attach a translation of the document under their responsibility;

- academic transcript or diploma supplement (the academic transcript is an official document released by the University detailing the courses/classes taken or subjects studied and related grades);
- motivational letter describing research interests and reasons for having chosen to apply to the GSSI PhD;
- Extended abstract of the Master's Degree thesis (max 2000 words).

Applicants can provide the names and contact information of up to **two referees**. The information provided by the applicants in the online form will be used to send the referees an email with a link to a page where they can upload the reference letter: referees should submit the reference letters in English or Italian through the online application system within **August 7th, 2024**. No reference letter uploaded by the candidates will be admitted.

### Selection Procedure

Candidates will be evaluated by the Selection Committee on the basis of their academic background, skills and scientific value. The Selection Committee will also assess the relevance of any publication, the suitability of the candidates' CV, the reference letters and any additional special qualification, educational activities and/or participation in research groups or projects.

The selection procedure will be carried out in two phases:

- **assessment of all the applications admitted through the online procedure**, ending with the publication on the GSSI website of the shortlist of candidates admitted to the interview.
- **interview**: once shortlisted, the applicants will be required to participate in a comprehensive in-person or remote interview in English, in order to assess their aptitude for research in the curriculum for which they have applied, as well as their English proficiency.  
It is possible to choose a method of interviewing. Please note that GSSI reserves the right to hold the interviews only through video conference in case of particular organizational needs.
- **final ranking**: The list of the candidates admitted to the programme will be published on GSSI website ([www.gssi.it](http://www.gssi.it)).

### Admission

The general ranking lists and evaluation results will be published on the GSSI website: [www.gssi.it](http://www.gssi.it). The admitted candidates will receive a communication to the email address indicated on the application.

In the event of forfeiture or exclusion of a candidate within 45 days from the date of beginning of the Programme, the candidate shall be replaced by the next eligible candidate according to the ranking.

The admitted candidates are required to be at GSSI by the date communicated by the PhD Secretariat. No shows, without adequate justification, will result in the exclusion of the candidate from the PhD Programme.

The admitted candidates are subject to the PhD Courses Regulation of the GSSI.

### Contact and info

[www.gssi.it](http://www.gssi.it); [applications@gssi.it](mailto:applications@gssi.it); +39 0862 4280 431

**Disclaimer**

Please be advised that this is a mere extract of the D.R. 121/2024. In case of doubt, the Italian version is the official document and shall prevail.

L'Aquila, June 18, 2024