The Gran Sasso Science Institute (GSSI), based in l’Aquila, Italy, offers post-graduate training to obtain “Philosophiae Doctor” (Ph.D) degrees in the following fields:

• **Physics (10 positions)**
  - PhD in Astroparticle Physics: 7 scholarships;
  - PhD in Astroparticle Physics – *Center for Urban Informatics and Modeling* (CUIM) project “Study of terrestrial gravity fluctuations and their impact on gravitational-wave detectors”: 1 scholarship;
  - PhD in Astroparticle Physics – Istituto Nazionale di Fisica Nucleare (INFN), DarkSide project “Direct research for dark matter with liquid Argon detectors”: 2 scholarships.

The research and PhD in physics at the GSSI is focused on astroparticle physics. Astroparticle physics is an interdisciplinary and young research field, grown at the intersection of particle physics, nuclear physics, astrophysics and cosmology. It addresses some of the most pressing and fundamental questions in science today: the origin and the evolution of our universe, the nature of dark matter and dark energy, the study of neutrinos and of the ultimate constituents of matter, the search for gravitational waves, the investigation and explanation of the cosmic rays.

• **Mathematics (8 positions)**
  - PhD in Mathematics in Natural, Social and Life Sciences: 7 scholarships;
  - PhD in Mathematics in Natural, Social and Life Sciences - *Center for Urban Informatics and Modeling* (CUIM) project “Mathematical modeling and numerical simulations of seismic wave propagation”: 1 scholarship;

The PhD degree in Mathematics will guide graduate students to deal not only with the more traditional aspects of this discipline, such as Pure Mathematics, Partial Differential Equations and Mathematical Physics, but also with entirely new challenges, which require the development of the most appropriate tools to deal with the complexity, such as Stochastic Analysis and Computational Mathematics.

• **Computer Science (8 positions)**
  - PhD in Computer Science: 7 scholarships;
- PhD in Computer Science - Center for Urban Informatics and Modeling (CUIM) project “Innovative solutions for software systems and services in smart cities”: 1 scholarship;

The PhD program in Computer Science of the GSSI aims to provide students with the main results, theories, techniques and methodologies regarding algorithms, models, languages, software and services to cope successfully with the challenges of the present and future Information and Communication Technology.

- **Social Sciences (8 positions)**
  - PhD in Urban Studies and Regional Science: 7 scholarships;
  - PhD in Urban Studies and Regional Science – Center for Urban Informatics and Modeling (CUIM) project “Spatial, social and economic issues in post-disaster cities and regions”: 1 scholarship;

The aim of the PhD in Urban Studies and Regional Science is to address issues related to local and regional development. The methodological perspective of research and teaching is multidisciplinary, combining regional and urban economics, economic and human geography, spatial planning and sociology.

The PhD programs will be activated after approval by the MIUR.

**Activities and Duration**
The PhD programs last **four years**.
**The Academic Year will start on November 1st 2018.**

**Scholarships**
GSSI awards scholarships until the thesis dissertation and for a maximum of four years.
**The yearly amount of the scholarship is of € 16.159,91** gross. An additional 50% on monthly basis may be awarded for research period aboard if approved by the GSSI.

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

**Facilities and benefits**
- all PhD students will have free accommodation at the GSSI guest house and, starting from the second year, another accommodation or a financial substitute of 350,00 Euros gross/month (to obtain the contribution, the students would have to present a rental agreement in L’Aquila);
- all PhD students will have free luncheon vouchers (1 per day, working days, except school closures, missions, 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.

Requirements
English knowledge is compulsory. Applications are opened 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, 2018** 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 within **November 20, 2018** (for Italian degrees a “self declaration” can also be accepted).

Application
Applicants must fill out the online application form ([www.gssi.it/phd/](http://www.gssi.it/phd/)) and attach the required documents by **June 20, 2018, 6 pm (Italian time zone)**. No other application method will be accepted.

Data and documents entered into the application form are the sole responsibility of the applicant. In the events 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. We strongly suggest that applicants submit their application well in advance of the deadline in order to avoid last-minute congestion in the online application procedure.

It is possible to apply to more than one curriculum.

Candidates should upload the following documents in pdf format:
- 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 2018: 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.
- a valid id document, signed and dated;
- 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).

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 reference letters in English or Italian through the online application system within June 27 2018. No reference letter uploaded by the candidates will be admitted.

Candidates should upload additional documents or give additional information:

- **Astroparticle Physics:**
  - motivational letter describing research interests and reasons for having chosen to apply to the GSSI PhD;
  - extended abstract of the thesis (max 2000 words).

- **Mathematics in Natural, Social and Life Sciences:**
  - a synthetic report of the core courses followed on the following topics:
    1. Partial Differential Equations
    2. Probability/stochastic processes
    3. Functional Analysis
    4. Numerical Analysis
    5. Physics/continuum mechanics/fluid dynamics
  For each course in this area, students should provide a short syllabus (no more than 10 lines) main textbooks, name of the instructors and possibly the link to the course home page.

- **Computer Science:**
  - motivational letter describing expertise and general research interests together with future plans and reasons for having chosen GSSI for PhD studies.

- **Urban Studies and Regional Science:**
  - motivational letter describing research interests and reasons for having chosen to apply to the GSSI PhD;
  - extended abstract of the thesis (max 2000 words);
  - GRE scores (Verbal and Quantitative) are preferred but optional (please include them in the application package).

In the event that any of the documents downloaded during the application procedure do not correspond those submitted during enrollment due to deliberate false declaration, the applicant will automatically forfeit his/her place in the program.
Selection Procedure
Candidates will be evaluated by the Selection Committee on the basis of their academic background, skills and scientific value with reference to the subjects of the interdisciplinary program, and their general aptitudes to research. The Selection Committee will also assess the relevance of any publication, the suitability of the candidates CV, the reference letters and any additional special qualifications, educational activities and/or participation in research groups or projects.
There will be one Selection Committee for each Scientific Area (Physics, Mathematics, Computer Science, Social Sciences).

The selection procedure will be carried out in two phases:
- assessment of all application admitted through the online procedure, ending with the publication on the GSSI web site of the shortlist of the candidates admitted to the interview.
- interview: once short-listed, applicants will be required to participate in a comprehensive interview in English in order to assess their aptitude for research in the track/curricula for which they have applied, as well as their English proficiency.

The shortlist publication and the interviews calendar is scheduled as follows:

<table>
<thead>
<tr>
<th>Astroparticle Physics</th>
<th>Shortlist</th>
<th>Interviews</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mathematics in Natural, Social and Life Sciences</td>
<td>Within June 30</td>
<td>From July 2 to July 16</td>
</tr>
<tr>
<td>Computer Science</td>
<td>Within June 30</td>
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</tr>
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<td>Urban Studies and Regional Science</td>
<td>Within June 30</td>
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</tr>
</tbody>
</table>

Admission
General ranking list and evaluation results will be published on the GSSI web site: www.gssi.it. The list will indicate the names of the applicants who have been admitted to the different PhD Programs.
In the event of forfeiture or exclusion of a candidate within 45 days from the date of beginning of the program, the candidate shall be replaced by the next suitable candidate according to the ranking.

Contact and info
www.gssi.it; info@gssi.it; +39 0862 4280262