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iaps@GranSasso – Particle & Astroparticle Physics Spring Programme

Introduction

May 2015 will see the International Association of Physics Students (IAPS) organising its first *Particle & Astroparticle Physics Spring Programme*. This event will take place between the 5th and the 9th of May and will consist of scientific visits, lectures and presentations at the Gran Sasso National Laboratory, the Gran Sasso Science Institute and the ENEA Frascati research centre, in Italy.

INFN Laboratori Nazionali del Gran Sasso

GSSI GRAN SASSO SCIENCE INSTITUTE
CENTER FOR ADVANCED STUDIES INFN

ENEA
Italian National Agency for New Technologies, Energy and Sustainable Economic Development

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AISF associazione italiana studenti di fisica

The **Gran Sasso National Laboratory** ***(LNGS)*** is a world-class facility for particle and astroparticle physics. It is located beneath more than a thousand meters of rock, inside the Gran Sasso mountain, which screens it from cosmic rays and other influencing factors. The LNGS host experimental and theoretical researchers whose studies explore the deepest questions of cosmic history. Many universities and institutes across the globe participate in the experiments that take place here.

The **Gran Sasso Science Institute** ***(GSSI)*** is an international PhD school and a centre for advanced studies in physics, mathematics, computer science and social sciences. The Institute has only been recently formed with the purpose of integrating education and research in a lively interdisciplinary environment. Its vicinity with the LNGS offers a unique opportunity to work and collaborate with the international community working on astroparticle physics in the underground laboratory.

The **Italian National agency for new technologies, Energy and sustainable economic development** (**ENEA)** research organisation is one of the largest in Italy. It is a member of the EUROfusion Consortium, which aims at coordinating research on nuclear fusion energy for European countries. ENEA has one of its major centres in Frascati, near Rome, where it hosts facilities focusing on superconductivity, inertial confinement fusion (with the ABC laser) and magnetic confinement fusion (with the Frascati Tokamak Upgrade).

IAPS will bring a group of 40 students to the Gran Sasso facilities as well as to the ENEA Frascati centre. A tour of the tourist attractions of Rome will also be offered at the end of the Programme. In the rest of this document, we describe the programme and the application process for students to take part.

Programme

Participants will be expected to independently arrive in Rome on May 5th and meet the organisers between 15:00 and 18:00 at the Youth Station hostel (http://www.youthstation.it/en/), in the centre of the city. We expect to have dinner in the area surrounding our accommodation, taking the opportunity to walk around some of the tourist attractions of Rome.

In the morning of the 6th, we will visit the ENEA Frascati research centre. We plan on travelling by public transport (with our luggage) to Frascati, which is located just outside of Rome. There, we expect to visit facilities specialised in nuclear fusion, superconductivity and laser physics. Participants will be able to speak to scientists and ask about any aspect of their work. In the late afternoon, we will take a private bus to move to L'Aquila (expected journey duration: 2.5 hours). Our accommodation fort he following nights, kindly offered by the LNGS and the GSSI, will be the Federico II Hotel (http://www.hotelfedericosecondo.it/en/index.html).

On May 7th, we will have breakfast at the hotel and then take a private bus to enter the Gran Sasso Tunnel and the Gran Sasso National Laboratory. During the day, we will visit the centre and hear about the research done by several groups at LNGS. We will also be brought underground to visit the laboratory and talk to physicists and engineers working there. We will have lunch at the LNGS restaurant together with local scientists. At the end of the activities, we will return to the Federico II Hotel and explore the city of L`Aquila. Participants will be able to independently buy their dinner in the city centre.

On May 8th, after breakfast at the hotel, we will visit some more facilities of the LNGS and then move to the Gran Sasso Science Institute. This will complete our overview of the laboratory's activities and its opportunities for students. In the afternoon, a number of (previously selected) participants will present their research projects in the form of talks and posters, not necessarily in

the field of astroparticle physics. LNGS and GSSI scientists will join us for this afternoon and will participate in open discussions which might arise. At the end of talks and poster presentations, we will move back to the hotel, have dinner and spend a last night in L`Aquila.

In the morning of May 9th, we will take a bus from the hotel to Rome. We will first travel to the Leonardo da Vinci Airport (*Roma Fiumicino*) and leave those participants who wish to start their journey back. The rest of the group will then continue with the same bus until arriving at the Termini Train Station (one of the main links in the city) in the middle of the morning, so that students might leave by train at any point in the afternoon/evening, depending on their most convenient journey times. For those wishing to stay a little longer, IAPS and the Italian Association of Physics Students (AISF) will offer a free tour of Rome guided by volunteers. Participants can expect to have a quick view of the Coliseum, the Imperial Roman Forum, the Vatican City and the Pantheon. The tour of the city is expected to end at approximately 17:00.

Student Talks

On May 8th, a set of student talks will take place. **All students are eligible to apply to give a talk**, providing their Curricula Vitae and an abstract of their proposed presentation. These documents will be taken into consideration by the Organising Committee, as well as the LNGS and GSSI scientists. Students of all levels are eligible to apply.

A number of **6 students will be accepted to give talks**. Such talks will provide a unique opportunity for participants to present their research and share their work not only with their peers, but also with the LNGS researchers. A description of the project to be discussed will need to be presented in the form of an abstract, following the guidelines that have been published on the IAPS website. Please notice that students will be able to register for a place even though they do not wish to give a talk; however, we might not be able to offer them a place, depending on the number of abstracts that will be submitted.

Talks should last approximately 15 minutes and are expected to be followed by 5 minutes of questions from the public. Such structure is similar to the one used for the International Conference of Physics Students (ICPS).

IAPS, the LNGS and the GSSI will award prizes for the 3 best student talks. All students wishing to give a talk will need to pay for the standard registration fee.

Student Posters

Students will also be able to submit an abstract for a poster. Presentation of a Curriculum Vitae will *not* be required for these applicants. As for the talks, all students submitting an abstract will

be given preferential access to the 40 places available for this Spring Programme. We expect to award a total of 3 prizes for the best posters.

Students will be able to apply to both give a talk and present a poster. Selection for either of these options does not preclude selection for the other. One single abstract may be submitted for both a talk and a poster, explicitly specifying the purpose of application.

Registration

A first round of registration for the event will be open on the IAPS website (www.iaps.info) between **February 14th (13:00, CET) and February 28th (13:00, CET)**. *All participants will need to fill in the registration form*; they will then be invited by email to send their abstracts (and CVs, if appropriate) to the Organising Committee. **Preference will be given to students presenting abstracts (for either a talk or a poster)**, even though only 6 applicants will eventually be able to give a talk (whilst the number of posters will be larger). *Please notice that applicants do not need to be specialising in the field of nuclear physics, but can be from any discipline of Physics*. Non-selective places, i.e. those for students who choose not to present abstracts (Observers) will be awarded on a first-come-first-served basis if spaces will be left after the presenters' selection.

A second round of registration will be open starting from Sunday 22nd of March. However, during this second round students will be only able to apply to be an Observer, i.e. they will not be able to submit an abstract.

The registration form will become available on the IAPS website and will ask some basic information about students and preferences regarding food, travel etc. After completing the registration form, students can expect to receive an email confirming that their request was sent.

Participation fees are fixed at €90 for each applicant. Such fee will cover the cost of accommodation in both L`Aquila and Rome, breakfast at the Federico II Hotel, 2 lunches at the LNGS, IAPS clothing, travel from Rome to L'Aquila (and viceversa), as well as travel from the Federico II Hotel to the Gran Sasso (and viceversa) during the days of our visits. Please notice that participation fees do not cover the following:

- Journeys to/from Rome at arrival and departure. These will need to be arranged independently.
- Insurance.
- Public transport from Frascati to the centre of Rome and in Rome.

- Meals other than those officially offered in the Programme. In particular, participants will need to pay for all their dinners, their breakfast in Rome, lunch at the ENEA Frascati centre and any extra expenses that they might wish to make. The Organising Committee will always suggest places to eat, according to students` needs.

IAPS and the Organising Committee will not take responsibility over the actions of participants and, by taking part, all students agree to the conditions specified by the Organising Committee during the registration process.

VISA applications to travel to Italy will be supported by the organisers. IAPS will be able to send official invitations to embassies throughout the world to help participants receiving the required documents.

We are able to offer the Particle & Astroparticle Physics Spring Programme for this price only thanks for the wonderful support of the Gran Sasso National Laboratory, the Gran Sasso Science Institute and ENEA. Their interest in this project has been extremely important since the beginning and is a key feature of this event.

Contacts

For further information about the iaps@GranSasso – Particle & Astroparticle Physics Spring Programme, please contact:

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Francesco Sciortino
Lausanne, March 20th 2015