

Gran Sasso Summer Institute 2014

Hands-on experimental underground physics at LNGS

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The aim of the Gran Sasso Summer Institute was to get a limited number of PhD students directly involved into the current research projects on astroparticle physics and nuclear astrophysics of Laboratori Nazionali del Gran Sasso (LNGS) of INFN, Italy. Research activities were carried out in small groups of 2-3 students to promote discussion and interactions in a very informal and constructive way. A series of lectures provided the background needed for the proposed activities. Students reported their results at the end of the Institute. The contributions by the students and the lecturers taking part to the Gran Sasso Summer Institute are presented here.

Gran Sasso Summer Institute 2014 Hands-On Experimental Underground Physics at LNGS

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INFN - Laboratori Nazionali del Gran Sasso, Assergi, Italy

*Local Organizing Committee

The Gran Sasso Summer Institute was held at the Gran Sasso Laboratory from September 22nd to October 3rd, 2014¹. The Summer Institute is different from other summer schools; the aim was, indeed, to get PhD students from all over the world directly involved into the research activities of the LNGS. The driving idea was to have young PhD students, interested in experimental astroparticle physics, getting their hands dirty and working in small groups on a real research project, rather than merely and passively take classes on a specific subject. A typical project had a data taking phase followed by data analysis; at the end the school each group presented their results in a common session.

A number of lectures were devised by leading experts, to provide the background needed to get students involved in the experimental activities ongoing at LNGS in the general framework of astroparticle physics. Lectures were scheduled in the first three days to allow the students to work on the research activities afterwards. The program was reviewed by the local organizing committee together with an international advisor committee. An introduction to safety and general rules at the Gran Sasso Laboratory was given for the students who were supposed to enter the underground facility.

Researches at Gran Sasso Laboratory got involved proposing experimental activities. In total 17 proposals were made available for the students. Three students at most were allowed to work on the same activity. Tutors were assigned by the local organizing committee to supervise the activities and to help in writing up the final report.

A number of 81 applications from all over the world were received. In the participants selection process the local organizing committee took into account the CV, reference letters and publications. At the end, 26 students (7 females and 19 males) were selected based on the number of proposed activities and available financial support.

Excursions and social events were organized to give the participants the opportunity to discover the surrounding of the Gran Sasso Laboratory. Participants had also the chance to attend the Researchers' Night in the near city of L'Aquila.

At the end of the Summer Institute, students gave a 15 minutes presentation on their work. They were also committed to write a short summary on their results. These Proceedings contains contributions from both the students and the lecturers.

In our opinion the Summer Institute was very successful and the feedback from the students was extremely positive. We are proud of the talented students we have hosted at Gran Sasso for this event!

We report here a few comments from some students:

“Gran Sasso Summer Institute 2014 was a great experience for me. It gave opportunity to know more about neutrino physics, the field in which I am working. The lectures covered topics about fields as interesting and exciting as neutrino oscillations, dark matter searches, nuclear astrophysics, neutrinoless double beta decay and general relativity.

The visit to the underground lab was very interesting since we got a chance to see all the famous experiments. It was quite exciting to do a summer project in a very prestigious institute like LNGS. The hands-on session was very good. Our group worked on ICARUS data analysis which

¹ Available at the Gran Sasso Summer Institute Indico page: <https://agenda.infn.it/conferenceDisplay.py?confId=7524>

was very interesting. We got great encouragement and support from our tutors Maddalena and Iza who guided us very well.

Not only did we learn about our own hands on experiment, but in the student presentations, we got to know about what the other students did too, which was really great. We were given great hospitality and help by the organizers. I am grateful to the organizers for selecting me to be a part of this prestigious school. It was a great experience. ”

Finally, we wish to thank the lecturers for their enthusiasm and commitment, the tutors and all the research staff of LNGS for their support and invaluable help.

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The Local Organizing Committee