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Editorial

Neutrino Astronomy was born with the observation of Supernova 1987a by the IMB and Kamioka proton decay experiments and the observation of solar neutrinos by Superkamiokande. In fact the “neutrinograph” of the Sun has become a classic example of how wrong were those who believed that this field was almost science fiction. The excitement was amplified by the fact that the observation of solar neutrinos became a tool for Particle Physics providing strong evidence for physics beyond the Standard Model. However, High Energy Neutrino Astronomy is not here yet. Cosmic Ray calculations and Very High Energy Gamma Ray observations point to the direction that, due to the extremely small neutrino interaction cross section, a telescope with a size of a few cubic kilometres is needed.

This series of biannual workshops is meant to bring together astroparticle physicists, marine technologists, and marine scientists in order to exchange ideas and expertise that will be useful in the design, construction, deployment, data harvesting, and analysis of a deep sea neutrino telescope with an instrumented volume of several cubic kilometers to be located in the Mediterranean. The goal is clearly very challenging but with ICECUBE almost complete, with an instrumented volume of one cubic kilometer, and no indication of strong sources it is clear that what is needed is a telescope several times larger, with significantly improved angular resolution and reduced background. These conditions can be met if the telescope is located in the very deep clear sea. This causes formidable technological challenges and this series of workshops provides a forum where the people involved in the Mediterranean pilot projects NESTOR, ANTARES, and NEMO will share experiences and interact extensively with industry. Such a huge instrumented volume will also provide a multidisciplinary laboratory for Earth/Sea scientists.

The first Very Large Volume neutrino Telescope (VLVnT) Workshop was held in Amsterdam in 2003, the second in Catania in 2005, the third in Toulon in early 2008 and the fourth in Athens in 2009. This workshop was attended by 118 scientists from 11 countries from October 13 to October 15. There were one and a half days of plenary sessions followed by another one and a half days of seven parallel sessions on:

1. Earth/Sea Sciences (conveners: M. Priede/V. Lykousis)
2. Deep Sea Technology and Industry (conveners: R. Papaleo/G. Hallewell)
3. DAQ, Electronics and PMT's (conveners: A. Belias/J. Hogenbirk)
4. Neutrino Sources and Simulation (conveners: G.F. Bignami/F. Aharonian/ P. Lipari)
5. Acoustic, Radio detection (convener: R. Lahmann)
6. Calibration (conveners: M. Circella/J. Hernandez)
7. Data distribution, filtering and analysis (conveners: J. Ernenwein/C. Markou)

There was also a round table discussion by a panel of prominent physicists and two talks by senior science policy makers. Last, there was a public lecture on neutrinos.

The venue was the Eugenides Foundation Planetarium Building. We extend our sincere thanks to the President of the Foundation Mr. Leonidas Demetriades-Eugenides and his staff for their hospitality. Thanks are also due for his help to Dr. Dionisios Simopoulos the director of the Eugenides Planetarium. The programme was decided together with many people but special thanks go to Els De Wolf, Uli Katz and Ion Siotis. We also thank George Grammatikakis for the superb public lecture he gave on “A strange messenger from the universe”; two auditoria were packed with people still queuing outside the building.

The staff of the NESTOR Institute has worked hard for the success of this workshop and we thank them, special thanks go to Antonis Kostoglou for the superb organization and to Dr Ino Agrafioti for her tireless efforts to prepare the proceedings.

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