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Status and Recent Results of the Acoustic Neutrino Detection Test System AMADEUS

vendredi 2 juillet 2010 10:00 (30 minutes)

The AMADEUS system is an integral part of the ANTARES neutrino telescope in the Mediterranean Sea. The project aims at the investigation of techniques for acoustic neutrino detection in the deep sea. Installed at a depth of more than 2000m, the acoustic sensors of AMADEUS are based on piezo-ceramic elements for the broad-band recording of signals with frequencies ranging up to 125kHz.

AMADEUS was completed in May 2008 and comprises six “acoustic clusters”, each one holding six acoustic sensors that are arranged at distances of roughly 1m from each other. The clusters are installed with inter-spacings ranging from 15m to 340m.

Acoustic data are continuously acquired and processed at a computer cluster where online filter algorithms are applied to select a high-purity sample of neutrino-like signals. 1.6 TB of data were recorded in 2008 and 3.2 TB in 2009. In order to assess the background of neutrino-like signals in the deep sea, the characteristics of the ambient noise and transient signals have been investigated.

In the presentation, the AMADEUS system will be described and current results will be presented.

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