



Contribution ID: 56

Type: **not specified**

Simulation Chain for Acoustic UHE Neutrino Detectors

Thursday, October 13, 2011 10:30 AM (20 minutes)

Acoustic neutrino detection is a promising approach for large-scale ultra high energy neutrino detectors in water. The presented simulation chain is designed within the SeaTray/IceTray software framework. Its modular architecture is highly flexible and makes it easy to adapt to different detector geometries, environmental conditions or hardware used. The simulation chain covers the generation of the acoustic pulse produced by a neutrino interaction and the propagation to the sensors within the detector. In this phase of the development, ambient and transient noise models for the Mediterranean Sea and data acquisition hardware, which is similar to the one used in ANTARES/AMADEUS, are implemented. A pre-selection scheme for neutrino-like signals based on matched filtering is employed, as it can be used for on-line filtering. To simulate the whole processing chain for experimental data, signal classification and acoustic source reconstruction algorithms are integrated.

In the presentation an overview of the design and capabilities of the simulation chain will be given, as well as some applications and preliminary studies.

Author: NEFF, Max (ECAP)

Presenter: NEFF, Max (ECAP)

Session Classification: Parallel Session 1

Track Classification: Physics, reconstruction and software