

RECONSTRUCTION METHODS IN THE ANTARES NEUTRINO TELESCOPE

E. Carmona for the ANTARES Collaboration

IFIC- Instituto de Fisica Corpuscular, U. of Valencia-CSIC, Spain.

carmona@ific.uv.es/Fax: (+3496) 398 3488

The ANTARES collaboration aims to deploy a 0.1 km^2 neutrino telescope in the Mediterranean sea by 2004. Neutrinos will be detected through the muons produced in their interaction with the surrounding matter. The muon trajectory in turn can be reconstructed from the arrival time of the emitted Cherenkov photons at the detector's photomultipliers. The reconstruction software should be highly efficient and able to provide the best possible angular resolution for astronomy. In this talk the various reconstruction concepts and methods developed within the ANTARES collaboration will be reviewed. We will mainly focus on muon reconstruction, but dedicated techniques for neutrino oscillations and electromagnetic cascade reconstruction will be briefly presented as well. The performances of the different reconstruction algorithms estimated using Monte Carlo simulated events will be given. Finally, the method used to reconstruct real atmospheric muons recorded with a first prototype string will be shown.