



Contribution ID : 878

Type : **Poster**

Improved Cherenkov light propagation methods for the IceCube neutrino telescope.

Monday, 9 July 2007 14:45 (0:00)

Abstract content

In neutrino astronomy, glacial ice or deep ocean water are used as detector media. Typically, neutrinos are recognized by distinguishing charged particles generated in neutrino interactions from atmospheric muons, using in situ detectors recording time distributions and fluxes of faint photon fields of Cherenkov radiation.

The IceCube collaboration has developed an empirical model describing the optical and near UV properties of glacial ice at depths between 1300 and 2300 meters and wavelengths from 300 to 600 nm. A new software package (Photonics) was developed to implement such heterogeneous media descriptions into simulation and reconstruction of charged particle tracks. Photonics has also been used to simulate propagation of light in ocean water giving results which reproduce measurements by the Antares collaboration.

If this papers is presented for a collaboration, please specify the collaboration

IceCube

Summary

Reference

Proceedings of the 30th International Cosmic Ray Conference; Rogelio Caballero, Juan Carlos D'Olivo, Gustavo Medina-Tanco, Lukas Nellen, Federico A. Sánchez, José F. Valdés-Galicia (eds.); Universidad Nacional Autónoma de México, Mexico City, Mexico, 2008; Vol. 5 (HE part 2), pages 1519-1522

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Session Classification : Posters 3 + Coffee

Track Classification : HE.2.4