ICRC2015

ICRC
The Astroparticle Physics Conference
34th International Cosmic Ray Conference
July 30 - August 6, 2015
The Hague, The Netherlands

Contribution ID: **341** Type: **Poster contribution**

Searches for neutrinos from Gamma-ray burst with 4 years of the ANTARES data

Saturday 1 August 2015 15:30 (1 hour)

Gamma-ray bursts (GRB) are the most energetic transient sources observed in the Universe. They are supposed to be produced by the emission of an inhomogeneous relativistic jet in which energy dissipation occurs via internal shocks. In these shocks, particles as electrons and protons could be accelerated at very high energies via Fermi acceleration processes. Thus, GRB are promising candidates to be cosmic accelerators of the very high energy cosmic rays. However, since cosmic-rays are deviated by magnetic fields and interact with matter and also because GRBs are mostly located at high redshift, it is impossible to directly observe an association between a GRB and a cosmic ray signal. High-energy neutrinos are proxies commonly used to directly probe such association because they are created by photohadronic interactions in the GRB jets up to very high energies and then propagate straight towards the observer. ANTARES is the largest neutrino telescope in the Northern Hemisphere. In this presentation, the GRB analysis done with four years of ANTARES data to search for a GRB neutrino signal will be presented. An individual study of GRB130427A, one of the most energetic and nearby burst, will also be shown. At last, thanks to the ANTARES results constraints on the physics of GRB jets have been derived for few bursts.

Collaboration

ANTARES

Registration number following "ICRC2015-I/"

681

Author: Mr TURPIN, Damien (ANTARES-CPPM)

Co-authors: BARET, Bruny (CNRS); DORNIC, Damien (CPPM); SCHMID, Julia (ECAP)

Presenter: Mr TURPIN, Damien (ANTARES-CPPM)

Session Classification: Poster 2 DM and NU

Track Classification: NU-EX