

Detection of high-energy gamma rays from Cygnus X-1 associated with its relativistic jets

Wednesday 14 September 2016 16:20 (15 minutes)

Cygnus X-1 is the prototype black hole high-mass microquasar. As a persistent and bright X-ray source is considered an optimal candidate to study the disk-jet coupling. It displays the typical soft and hard X-ray spectral states of black hole binaries where the emission is dominated by the thermal black body radiation and by non-thermal emission from the inner part of the disk and the relativistic jets, respectively. We report the detection of a 8-sigma excess, above 60 MeV, spatially coincident with Cygnus X-1 by using 7.5 yr of Fermi-LAT data and the latest Pass8 software version. The point-like signal is clearly associated to the microquasar since the emission correlates with the hard X-ray state. In addition, there is a hint of orbital flux variability with most of the emission coming around the superior conjunction. The high energy emission is most likely associated with the jets. We will discuss the possible mechanisms at work and the constraints on the emission regions that can be derived.

Summary

Author: FERNANDEZ BARRAL, Alba (Institut de Fisica d'Altes Energies (IFAE))

Co-author: ZANIN, Roberta (Universitat de Barcelona)

Presenter: FERNANDEZ BARRAL, Alba (Institut de Fisica d'Altes Energies (IFAE))

Session Classification: Poster Session (coffee at 15:00) & CERN Visit

Track Classification: Gamma-ray astrophysics