

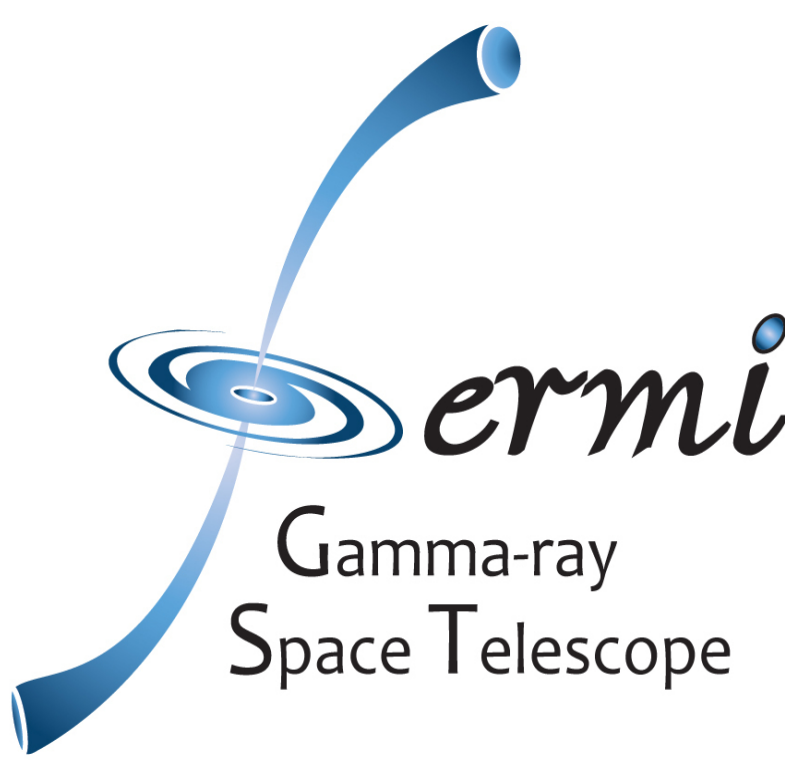


Gamma-ray emission from young radio galaxies and quasars

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Executive Summary

Motivation

According to radiative models, radio galaxies are predicted to produce gamma rays from the earliest stages of their evolution onwards.

The study of the high-energy emission from young radio sources is crucial for providing information on the most energetic processes associated with these sources, the actual region responsible for this emission, as well as the structure of the newly born radio jets.

Method

Taking advantage of more than 11 years of Fermi-LAT data:

- we perform the largest and deepest systematic search of gamma-ray emission from young radio galaxies and quasars using a sample of 162 sources and 11.3 years of Fermi-LAT data,
- we perform for the first time a stacking analysis on a sample of (undetected) young radio sources.

Outlook

We report the detection of significant gamma-ray emission from 11 young radio sources, including the discovery of significant gamma-ray emission from the compact radio galaxy PKS 1007+142.

Although the stacking analysis of below-threshold young radio sources does not result in a significant detection, it provides stringent upper limits to constrain the gamma-ray emission from these objects.