

Search for high-energy gamma rays from supernovae

Summary

We present a systematic search for gamma-ray emission from supernovae (SNe) in the Fermi Large Area Telescope (LAT) Pass 8 data. We searched for gamma rays from SNe by means of a variable-size sliding-time-window analysis. Our results confirm the presence of transient gamma-ray emission from some non-AGN classes sources, including transitional pulsars, solar flares, gamma-ray bursts, novae, and the Crab Nebula, which are projected near some of these SN's positions, and also strengthen support to the variable signal in the direction of SN iPTF14hls. The analysis is successful in finding both short (e.g. solar flares) and long (e.g. transitional pulsars) high flux states. Our search reveals new gamma-ray transient signals where their flux increases within 6 months after the dates of SN's discoveries. These signals are bright and their variability is at a higher statistical level than that of iPTF14hls. In addition, we report the results of an all-sky search for gamma-ray transient sources.

Primary authors: PROKHOROV, Dmitry (University of Amsterdam); Dr MORAGHAN, Anthony (Academia Sinica Institute of Astronomy and Astrophysics); VINK, Jacco (University of Amsterdam)

Presenter: PROKHOROV, Dmitry (University of Amsterdam)