Hunting the gamma-ray emission from Fast Radio Burst with Fermi-LAT

G. Principe[1,2,3] ,

N. Omodei[4], N. Di Lalla[4], L. Di Venere[5] and F. Longo[1,2]; on behalf of the *Fermi* Large Area Telescope Collaboration.

[1]University of Trieste, Department of Physics, Trieste, Italy; [2]INFN-Trieste, Trieste, Italy; [3]IRA-INAF, Bologna, Italy; [4]HEPL, KIPAC, Department of Physics and SLAC, Stanford University, Stanford, USA; [5]INFN-Bari and Politecnico-Bari, Bari, Italy

Executive Summary

Motivation

Discovered just over a decade ago, fast radio bursts (FRBs) are one of the newest astrophysical enigmas.

Last year, for the first time, an FRB-like event was associated with a Soft Gamma Repeaters (SGR 1935+2154) and, in particular, to a Galactic magnetar giant flare (MGF).

The recent detection of high energy emission, at GeV energies, from a magnetar giant flare in the Sculptor galaxy (z=0.000811) motivated the search for gamma-ray counterparts to the known FRBs.

Method

Thanks to:

- over 12 years of data collected by the Fermi Large Area Telescope (LAT),
- more than 1000 published FRBs,

we perform the largest and deepest systematic search for gamma-ray emission from over 1000 repeating and non-repeating bursts.

Outlook

We present here the preliminary results on the search for high-energy emission from the periodic FRB 180916 (z=0.0337) with Fermi-LAT

Our results provide crucial information on constraining the origin of FRBs and modelling their emission mechanisms.