

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

Wednesday, July 14, 2021 7:00 PM (12 minutes)

Fast radio bursts (FRBs) are one of the most exciting new mysteries of astrophysics. Their origin is still unknown, but recent observations seems to link them to Soft Gamma Repeaters and, in particular, to magnetar giant flares (MGFs). The recent detection of a MGF at GeV energies by the Fermi Large Area Telescope (LAT) motivated the search for GeV counterparts to the >100 currently known FRBs.

Taking advantage of more than 12 years of Fermi-LAT data, we perform a search for gamma-ray emission from all the reported repeating and non-repeating FRBs. We analyze on different-time scales the Fermi-LAT data of each individual source separately, including a cumulative analysis on the repeating ones. In addition, we perform the first stacking analysis at GeV energies of this class of sources in order to constrain the gamma-ray properties of the FRBs that are undetected at high energies. The stacking analysis is a powerful method that allow a possible detection from below-threshold FRBs providing important information on these objects. In this talk we present the preliminary results of our study and we discuss their implications for the predictions of gamma-ray emission from this class of sources.

Keywords

FRB - magnetars - gamma-rays - Fermi-LAT

Collaboration

Ferrmi-LAT

other Collaboration

Subcategory

Experimental Results

Primary authors: PRINCIPE, Giacomo (INFN / University of Trieste); DI VENERE, Leonardo (INFN Bari); LONGO, Francesco (University and INFN Trieste); OMODEI, Nicola (SLAC Stanford); DI LALLA, Nicolò (SLAC Stanford)

Presenter: PRINCIPE, Giacomo (INFN / University of Trieste)

Session Classification: Discussion

Track Classification: Scientific Field: GAD | Gamma Ray Direct