

Searches for point sources in the Galactic Center region

Thursday, September 15, 2016 3:00 PM (20 minutes)

Several groups have demonstrated the existence of an excess in the gamma-ray emission around the Galactic Center (GC) with respect to the predictions from a variety of Galactic Interstellar Emission Models (GIEMs) and point source catalogs. The origin of this excess, peaked at a few GeV, is still under debate. A possible interpretation is that it comes from a population of unresolved Millisecond Pulsars (MSPs) in the Galactic bulge. We investigate the detection of point sources in the GC region using new tools which the Fermi-LAT Collaboration is developing in the context of searches for Dark Matter (DM) signals.

These new tools perform very fast scans iteratively testing for additional point sources at each of the pixels of the region of interest. We show also how to discriminate between point sources and structural residuals from the GIEM.

We apply these methods to the GC region considering different GIEMs and testing the DM and MSPs interpretations for the GC excess. Additionally, we create a ranked list of MSP candidate targets by probability to detect them at other wavelengths.

Summary

Primary author: DI MAURO, mattia (Stanford University)

Co-authors: CHARLES, Eric (SLAC National Accelerator Laboratory (US)); WOOD, Matthew

Presenter: DI MAURO, mattia (Stanford University)

Session Classification: Dark matter (indirect detection)

Track Classification: Dark matter (indirect detection)