



Contribution ID: 71

Type: poster

Needles in a haystack at Galactic level: Tracking millisecond pulsars responsible for the Fermi GeV excess

Wednesday, 7 September 2022 18:58 (2 minutes)

More than 10 years ago, an excess of γ -ray photons coming from the Galactic center was discovered in the Fermi-LAT data. First attributed to dark matter, it has since been shown that it should have at least a partial stellar origin. One interesting explanation to the excess is the presence of a population of millisecond pulsars (MSPs) confined in the Galactic bulge. While unresolved in γ -rays, Bertheaud et al. (2021) showed that some of these MSPs could already have been detected in past observations from the Chandra X-ray observatory and selected promising MSP candidates among unidentified Chandra-detected sources. In this poster, I will present our recent progresses in the selection of MSP candidates, unveiling compact objects and promising sources with X-ray and radio emission only. Our project motivated and obtained deep targeted radio observations which are essential for the identification of pulsars in the Galactic bulge.

Summary

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Session Classification: Poster Session