

Multi-wavelength probes of the Fermi GeV excess: A multi-wavelength search for bulge millisecond pulsars

What is this contribution about?

This contribution is about the search of millisecond pulsars (MSPs) in the Galactic bulge that could explain the excess of γ -rays detected in the direction of the Galactic Center.

Why is it relevant / interesting?

The origin of the Fermi GeV excess has been debated for more than a decade, it was first attributed to dark matter but an astrophysical explanation like MSPs is now favored but is still to be proven.

What have we done?

We have simulated a population of bulge MSPs having the properties of the GeV excess and by comparing its X-ray emission to the Chandra X-ray telescope sensitivity, we concluded that about a hundred of bulge MSPs could be detectable in X-rays so we looked for them in the data, using multi-wavelength information to select the most promising ones.

What is the result?

We found a large number of MSPs candidates in the data, and selected the 158 most promising candidates for follow-up studies, such as radio observations aiming at detecting a pulsation.