

# Pevatron at the Galactic Center: Multi-Wavelength Signatures from Millisecond Pulsars

*Wednesday, 29 August 2018 16:35 (15 minutes)*

Diffuse TeV emission has been observed by H.E.S.S. in the Galactic Center region, in addition to the GeV gamma rays observed by Fermi. We propose that a population of unresolved millisecond pulsars located around the Galactic Center, suggested as possible candidates for the diffuse Galactic Center excess observed by Fermi, accelerate cosmic rays up to very high energies, and are thus also responsible for the TeV excess.

We model analytically the diffusion of these accelerated protons and their interaction with the molecular clouds, producing gamma rays. The spatial and spectral dependences of the gamma rays produced can reproduce the H.E.S.S. observations, for a population of  $\sim 10^4 - 10^5$  millisecond pulsars above the cosmic-ray luminosity  $10^{34} \text{ erg s}^{-1}$ , with moderate acceleration efficiency. More precise measurements at the highest energies would allow us to constrain the properties of the pulsar population, such as the magnetic field or initial spin distributions.

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**Session Classification:** Gamma Rays

**Track Classification:** Gamma-rays