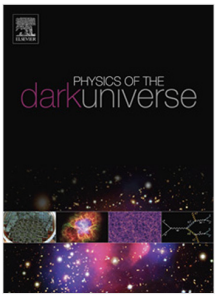

TeV gamma rays from Galactic Center pulsars

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TeV Gamma Rays From Galactic Center Pulsars

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Abstract. Measurements of the nearby pulsars Geminga and B0656+14 by the HAWC and Milagro telescopes have revealed the presence of bright TeV-emitting halos surrounding these objects. If young and middle-aged pulsars near the Galactic Center transfer a similar fraction of their energy into TeV photons, then these sources could plausibly dominate the emission that is observed by HESS and other ground-based telescopes from the innermost $\sim 10^2$ parsecs of the Milky Way. In particular, both the spectral shape and the angular extent of this emission is consistent with TeV halos produced by a population of pulsars, although the reported correlation of this emission with the distribution of molecular gas suggests that diffuse hadronic processes also must contribute. The overall flux of this emission requires a birth rate of $\sim$100-1000 neutron stars per Myr near the Galactic Center, in good agreement with recent estimates.

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