

# Department of Physics Colloquium



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## Dark Matter Annihilation in the Gamma-Ray Sky

In many models, dark matter particles can undergo self-annihilation, generating gamma-rays and other high-energy particles. One of the missions of the Fermi Gamma-Ray Space Telescope is to search for these annihilation products. Over the past several years, Fermi's data has been shown to contain a spatially extended excess of  $\sim 1\text{-}3$  GeV gamma rays from the region surrounding the Galactic Center, consistent with the signal expected from annihilating dark matter. Recent improvements in the analysis techniques have found this excess to be robust and highly statistically significant, with a spectrum, angular distribution, and overall normalization that is in good agreement with that predicted by simple annihilating dark matter models. I will discuss the characteristics of this signal, and ways to test its origin. In particular, the dwarf galaxies recently discovered by DES provide a potentially important tool to test a dark matter origin of the Galactic Center excess.



WISCONSIN

**Friday, November 20, 2015**

3:30 pm | 2241 Chamberlin Hall

Coffee & Cookies at 3:15pm

Please Post