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## Astrophysical and Dark Matter Models for the Galactic Center Gamma-Ray Excess

*Tuesday, 30 August 2016 14:00 (30 minutes)*

Fermi-LAT observations have discovered a gamma-ray excess emanating from the Galactic center of the Milky Way. While the existence of this excess is now certain, its origin is not. Three distinct classes of models have been posited to explain its key features: dark matter annihilation, a population of sub-threshold gamma-ray pulsars, and diffuse emission from the intense Galactic center environment. In this talk, I will describe the successes and failures of each model as an explanation for the Galactic center excess —outlining several significant advances in modeling pulsars and diffuse emission properties near the Galactic center. Finally, I will describe smoking gun tests of each scenario which may rule out, or lend credence to each model within the next five years.

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