



ID de Contribution: 2

Type: Non spécifié

Fitting the Fermi-LAT GeV excess: on the importance of the propagation of electrons from dark matter

mercredi 4 juin 2014 14:30 (30 minutes)

An excess of gamma rays at GeV energies has been detected in the Fermi-LAT data. This signal comes from a narrow region around the Galactic Center and has been interpreted as possible evidence for light (30 GeV) dark matter particles. Focussing on the prompt gamma-ray emission, previous work found that the best fit to the data corresponds to annihilations proceeding into b quarks, with a dark matter profile $\sim r^{-1.2}$.

In this talk, I will show that this is not the only possible annihilation set-up. More specifically, I will show how including the contributions to the gamma-ray spectrum from inverse Compton scattering and bremsstrahlung from electrons produced in dark matter annihilations, and undergoing diffusion through the Galactic magnetic field, modifies the spectrum, in particular for leptonic final states.

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Classification de Session: Dark Universe