Synergistic Activities

- For various historical and programmatic reasons, the Theoretical Astrophysics Group at Fermilab is exceptionally focused on questions of "fundamental physics" and connections with particle physics, and closely connected with the experimental astrophysics program
- Regular interactions between particle theory and astro theory groups, and between astro theory and experimental groups — has produced many papers with mixed authorship
- Mutual attendance at astrophysics and particle theory seminars, journal clubs (including the recent "Axion club", involving theorists and experimentalists)



Theory/Experiment/Particle/Astro Synergy

(Galactic Center Case Example)

Early Theory Work: **Extracting the Gamma Ray Signal from Dark Matter** Annihilation in the Galactic Center Region (2007) [Dodelson, Hooper, Serpico]

Early Data Analysis:

Possible Evidence For Dark Matter Annihilation In The Inner Milky Way From The Fermi Gamma Ray Space Telescope (2009) Dark Matter Annihilation in The Galactic Center As Seen by the Fermi Gamma Ray Space Telescope (2010) On The Origin Of The Gamma Rays From The Galactic Center (2011)

[Hooper, Goodenough, Linden]

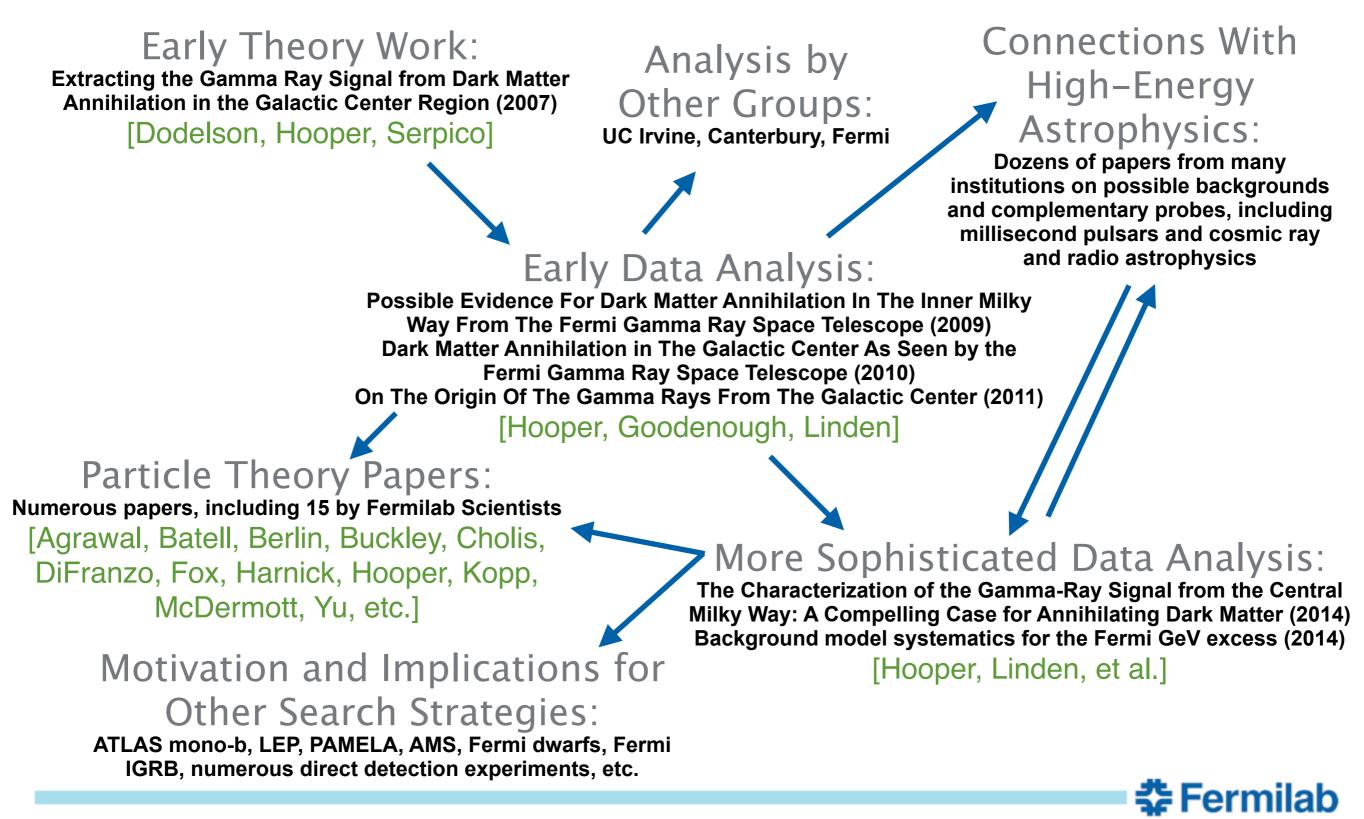
More Sophisticated Data Analysis:

The Characterization of the Gamma-Ray Signal from the Central Milky Way: A Compelling Case for Annihilating Dark Matter (2014) Background model systematics for the Fermi GeV excess (2014)

[Hooper, Linden, et al.]



Theory/Experiment/Particle/Astro Synergy (Case Example)



Theory/Experiment/Particle/Astro Synergy (Case Example)

