



Contribution ID: 11

Type: **not specified**

Dark Matter Interpretations of Extended Gamma Ray Emission towards the Galactic Center

Tuesday 15 April 2014 15:20 (20 minutes)

We construct empirical models of the diffuse gamma-ray background towards the Galactic Center. Including all known point sources and a template of emission associated with interactions of cosmic rays with molecular gas, we show that the extended emission observed by the Fermi Gamma Ray Telescope toward the Galactic Center is detected at high significance for all permutations of the diffuse model components. However, we find that the spectra of the sources in our model change significantly with the inclusion of new background models. We discuss implications for the central Sgr A* source as well as dark matter annihilation. If the extended emission is interpreted to be astrophysical in origin, we obtain strong bounds on dark matter annihilation, although systematic uncertainties due to the dependence on the background models are significant.

Primary author: Dr HORIUCHI, Shunsaku (UC Irvine)

Presenter: Dr HORIUCHI, Shunsaku (UC Irvine)

Session Classification: Afternoon session