Contribution ID: **56** Type: **not specified**

The WIMP-Induced Gamma Ray Spectrum of Active Galactic Nuclei

Tuesday 7 May 2013 16:45 (15 minutes)

As direct and indirect dark matter detection experiments continue to place stringent constraints on WIMP masses and couplings, it becomes imperative to expand the scope of the search for particle dark matter by looking in new and exotic places. One such place may be the core of active galactic nuclei where the density of dark matter is expected to be extremely high. Recently, several groups have explored the possibility of observing signals of dark matter from its interactions with the high-energy jets emanating from these galaxies. In this work, we build upon these analyses by including the other components of the WIMP-induced gamma ray spectrum of active galactic nuclei; namely, (1) the continuum from WIMP annihilation into light standard model states which subsequently radiate and/or decay into photons and (2) the direct (loop-induced) decay into photons. We work in the context of models of universal extra dimensions (with either one or two extra dimensions) and compute all three components of the gamma ray spectrum and compare with current data and reach of future experiments. The model with two extra dimensions, in particular, exhibits several interesting features which may be observable with the Fermi gamma ray telescope.

Author: JACKSON, Chris (University of Texas at Arlington)

Presenter: JACKSON, Chris (University of Texas at Arlington)

Session Classification: DM III