



Contribution ID: 241

Type: **Oral**

## Multi-wavelength Approach to Indirect Dark Matter Searches with RX-DMFIT

*Friday 11 August 2017 15:00 (15 minutes)*

Well motivated dark matter particle models predict self-annihilating dark matter to yield Standard Model particles that can potentially be detected by astrophysical observations in systems such as dwarf galaxies, normal galaxies, and galaxy clusters. The potential emission from the charged particle byproducts of dark matter annihilation includes radio emission due to synchrotron radiation as well as X-rays from inverse Compton scattering of CMB and starlight photons. These secondary emissions provide a method of probing the nature of dark matter that is complementary to previous gamma-ray searches and can place competitive constraints on dark matter properties. To facilitate multi-wavelength dark matter searches we have developed RX-DMFIT (Radio and X-ray - DMFIT), a tool for calculating the the expected radio and X-ray signals from dark matter annihilation. In this talk I will present RX-DMFIT and discuss the relevant particle and astrophysical components of the multi-wavelength approach including diffusion effects, radiative energy loss processes, and magnetic field modeling.

**Author:** MCDANIEL, Alex

**Presenter:** MCDANIEL, Alex

**Session Classification:** Dark matter

**Track Classification:** Dark matter (direct detection, indirect detection, theory, etc.)