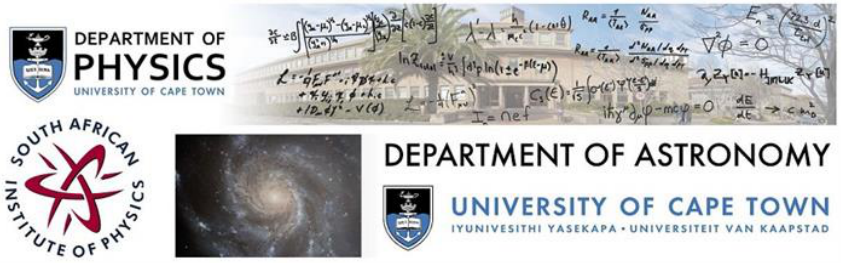

Contribution ID: **2** Type: **Oral Presentation**

A Multi-frequency analysis of dark matter annihilation interpretations of recent anti-particle and gamma-ray excesses in cosmic structures.

Tuesday, 5 July 2016 10:00 (20 minutes)

Abstract content
   (Max 300 words)
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Annihilation of the supersymmetric neutralino dark matter has consequences across the frequency spectrum, from radio to gamma-rays. Using the sensitivity projections for the Square Kilometre Array (SKA), Cherenkov Telescope Array (CTA) and ASTRO-H Satellite, we determine the detection prospects for neutralino models compatible with FERMI observations of the galactic centre as well as those consistent with the AMS-2/Pamela anti-proton excess. We also examine the consequences of recent gamma-ray excesses observed in the Reticulum 2 dwarf galaxy which throw a dark matter interpretation of the excess into doubt. We demonstrate that both the SKA and ASTRO-H have great potential to probe the radio/X-ray emissions from neutralino annihilation, identifying spectral characteristics containing information about the neutralino mass and annihilation channel. Thus, multi-frequency observation with the next generation of experiments will allow for unprecedented sensitivity to the neutralino parameter space as well as offsetting the individual weaknesses of each observation mode.

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