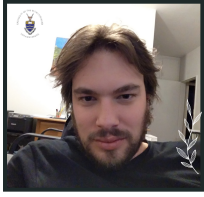


Contributed Talk //

Astro-Particle Physics



Geoff Beck //

University of Witwatersrand (Wits)

Session 9 //

Friday, 8 September @ 15:45 SAST

Dark matter remains one of the most pressing gaps in our modern picture of physics. So far, gamma-ray results from Fermi-LAT have ruled out WIMPs, annihilating into b quarks, with masses below 100 GeV as a dark matter candidate. In this paper we examine the potential of the globular cluster Omega Centauri as a target for indirect detection with Fermi-LAT data as well as CTA, HESS, and MeerKAT sensitivity projections. Globular clusters are usually considered largely devoid of dark matter. However, considerable evidence suggests Omega Centauri may be the relic of satellite dwarf galaxy. Using the latest modelling of its dark matter halo we demonstrate that Omega Centauri has the potential to greatly exceed dwarf spheroidal galaxies in its ability to place limits on dark matter models, due both to its proximity to Earth and suggestions of a dense dark matter core. In particular, limits from the three considered frequency bands are able to rule out b quark annihilation in the thermal relic scenario for masses up to 10 TeV in an optimistic case.