

Sensitivity of the Cherenkov Telescope Array to a dark matter signal from the Galactic centre

Wednesday 21 July 2021 13:00 (12 minutes)

High-energy gamma rays are promising tools to constrain or reveal the nature of dark matter, in particular Weakly Interacting Massive Particles. Being well into its pre-construction phase, the Cherenkov Telescope Array (CTA) will soon probe the sky in the 20 GeV - 300 TeV energy range. Thanks to its improved energy and angular resolutions as well as significantly larger effective area when compared to the current generation of Cherenkov telescopes, CTA is expected to probe heavier dark matter, with unprecedented sensitivity, reaching the thermal annihilation cross-section at ~ 1 TeV.

This talk will summarise the planned dark matter search strategies with CTA, focusing on the signal from the Galactic centre. As observed with the Fermi LAT at lower energies, this region is rather complex and CTA will be the first ground-based observatory sensitive to the large scale diffuse astrophysical emission from that region. We report on the collaboration effort to study the impact of such extended astrophysical backgrounds on the dark matter search, based on Fermi-LAT data in order to guide our observational strategies, taking into account various sources of systematic uncertainty.

Keywords

Collaboration

CTA

other Collaboration

Subcategory

Future projects

Primary authors: SOKOLENKO, Anastasia (University of Oslo); ECKNER, Christopher (CNRS/LAPTh); ZAHARIJAS, Gabrijela (University of Nova Gorica); YANG, Lili (University of Nova Gorica); BRINGMANN, Torsten (Oslo University)

Co-author: FOR THE CTA CONSORTIUM

Presenter: ECKNER, Christopher (CNRS/LAPTh)

Session Classification: Discussion

Track Classification: Scientific Field: DM | Dark Matter