

Search for Dark Matter with IACTs and CTA

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Search for Dark Matter with Imaging Atmospheric Cherenkov Telescopes and the Cherenkov Telescope Array

The annihilation or decay of dark matter particles may lead to the production of gamma rays. For dark matter particles with masses above ~ 100 GeV, these final state gamma rays can be detected by ground-based imaging atmospheric Cherenkov telescope arrays. By observing dark-matter-rich astrophysical targets, the current generation instruments H.E.S.S., MAGIC and VERITAS search for signals of dark matter annihilation or decay. These instruments have collected deep exposures on dark matter targets and set constraints on the velocity-weighted cross section for dark matter self-annihilation, as well as limits on the lifetime of a decaying dark matter particle. The next generation instrument, the Cherenkov Telescope Array, will have an order of magnitude better flux sensitivity than the current generation instruments, allowing it to probe below the thermal relic cross section over a broad dark matter mass range.

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