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Search for dark matter TeV spectral lines around the Galactic Centre with the MAGIC telescopes

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In this talk, we will present a status report on the search for dark matter spectral lines around the Galactic centre (GC) with the MAGIC telescope system located on the Canary island of La Palma, Spain. MAGIC is sensitive to gamma rays from 50 GeV to 50 TeV. So far, MAGIC has produced groundbreaking results in the field of indirect DM searches observing a variety of targets, such as the Galactic halo, dwarf spheroidal galaxies and clusters of galaxies. We are now aiming to add the GC region as an observational target to search for line signatures from DM annihilation. MAGIC has observed the GC region for hundreds of hours at high zenith angles, at which the collection area for TeV gamma rays is significantly increased. This allows us to probe promising SUSY models of heavy DM candidates, and to set limits on the DM annihilation cross section competitive to those obtained from observations in the Southern hemisphere. We will also discuss how we exploit the data from a complex sky region to analyse for line-like gamma-ray signatures.

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