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Astroparticle Physics with H.E.S.S.: past and future

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H.E.S.S. is an array of five Imaging Atmospheric Cherenkov Telescopes located in Namibia. It is designed for observations of astrophysical sources emitting very-high energy (VHE) gamma rays in the energy range from a few ten GeVs to several ten TeVs. The H.E.S.S. array consists of four identical 12 m diameter telescopes with a 28 m diameter telescope placed at the center of the array. An ambitious Astroparticle Physics program is being carried out by the H.E.S.S. collaboration searching for New Physics in the VHE gamma-ray sky. This Astroparticle Physics program includes the search for dark matter signals and axion-like particles, and tests of Lorentz invariance. I will present the latest results on dark matter from observations of the Galactic Centre region and nearby dwarf galaxies, the search for Lorentz invariance violation with 2014 Mrk 501 flare observations, and the first measurement of the cosmic-ray electron spectrum up to 20 TeV. The future of the H.E.S.S. Astroparticle Physics program will be discussed.

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