

H.E.S.S. observations of the Small Magellanic Cloud

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Abstract content

The Small Magellanic Cloud is the second-nearest star-forming galaxy to our Milky Way at a distance of about 60 kpc with major star-formation episodes at 6 Gyr, 0.7 Gyr and 10 Myr ago. This makes the Small Magellanic Cloud an ideal target to study objects related to young stellar populations over a wide range of age. The Magellanic Clouds are currently the only galaxies for which individual sources and large-scale emission can be resolved by ground-based Cherenkov telescopes. Therefore, they offer the unique possibility to study the connection of the Galactic population of VHE gamma-ray sources and the “integrated” diffuse emission seen from e.g other star-forming galaxies. In the last years extensive surveys of the Magellanic Clouds were performed with the H.E.S.S. telescopes resulting in an energy flux sensitivity comparable to the brightest TeV gamma-ray sources in the Milky Way. This allows us to compare the TeV source populations in the Milky Way, the Large Magellanic Cloud and the Small Magellanic Cloud. In this contribution I will show, for the first time, the results for the H.E.S.S. survey of the Small Magellanic Cloud. I will discuss potential gamma-ray source populations, which include supernova remnants, pulsars, pulsar wind nebulae, high-mass X-ray binaries and star forming regions, and compare them to those of the Milky Way and known sources in the Large Magellanic Cloud. Finally, I will discuss similarities and differences of particle acceleration processes in the three systems and the importance of the environment for the efficiency of gamma-ray production.

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