

UPPER LIMITS ON THE WIMP ANNIHILATION CROSS SECTION FROM A JOINT ANALYSIS OF DWARF SPHEROIDAL SATELLITE GALAXY OBSERVATIONS WITH THE MAGIC TELESCOPES

We present the results obtained from searches for WIMP annihilation in dwarf spheroidal galaxy (dSph) data acquired with the MAGIC telescopes. Since no signal was detected in the gamma regime, we derived upper limits on the velocity-averaged cross-section of WIMPs, at different masses, for individual dSphs and for a combined sample of dSphs corresponding to 354.4 hours of observation.

The data combination was performed to improve the results obtained with individual dSph data samples and to reduce the systematic uncertainties associated to the dark matter (DM) content of each target.

Thanks to this approach, we were able to achieve significant robustness of results and derive the most constraining upper limits on the WIMP velocity-averaged annihilation cross-section from dSphs at the TeV DM masses, compared to results obtained from other experiments.