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Indirect search for dark matter in the gamma-ray flux with DAMPE

Weakly interacting massive particles (WIMPs) are promising candidates for dark matter. Their annihilation or decay might result in almost monochromatic gamma rays, which the Dark Matter Particle Explorer (DAMPE) could identify over the Galaxy astrophysical gamma-ray emissions. In this contribution, the first steps of the analysis: the selection of the gamma-ray events with the DAMPE satellite is presented. To enhance the photon event selection, two machine-learning algorithms that outperform all the standard methods have been developed and adopted. The gamma-ray spectral energy distribution and the full sky map using eight years of data will be shown, demonstrating the effectiveness of the selection process. The so-obtained clean sample is now being used to search for lines in the gamma-ray flux coming from several regions of interest where the dark-matter signal-to-noise ratio is maximal.

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