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He isotopes spectra: a GALPROP-HelMod perspective

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The Alpha Magnetic Spectrometer-02 (AMS-02) has provided high-quality measurements of cosmic-ray (CR) spectra both for nuclei and for isotopes. The interpretation of such high-quality data is challenging because of the temporal variations in solar activity, impacting CR intensity assessments. Using the GALPROP-HelMod joint effort we created a unique analysis framework combining physical interpretation in terms of CR galaxy source and propagation (performed by GALPROP), with a comprehensive description of solar modulation effect on CR intensities (addressed by HelMod-4). In this work, we present our latest results. Alongside the main improvements introduced by the last version of HelMod-4, we investigated the origin and features of He isotopes fluxes and the $3\text{He}/4\text{He}$ flux ratio measured by AMS-02. In fact, an observed excess of 3He at higher energies might suggest the existence of primary 3He or indicate alterations in propagation parameters across the vast Galactic volume measured by the $3\text{He}/4\text{He}$ ratio.

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