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Precision Measurement of 3He-to-4He ratio in Cosmic Rays with the Alpha Magnetic Spectrometer on the International Space Station

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Knowledge of the energy dependence of the 3He-to-4He flux ratio (3He/4He) is important in understanding the propagation of cosmic rays. As 3He is assumed to be produced by interactions of heavier nuclei with the interstellar matter, the 3He/4He ratio is a powerful tool for determining the amount of interstellar material traversed by cosmic rays. AMS results are based on 9 million 3He events and 56 million 4He events collected in the first five years of operation onboard the ISS. The precise measurement of the 3He/4He ratio from 0.7 GeV/n to 10GeV/n is presented for the first time. The AMS results are unique and distinct from all the previous data.

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