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Cosmic-Ray Lithium and Beryllium Isotopes with the Alpha Magnetic Spectrometer

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Lithium and Beryllium nuclei in cosmic rays are expected to be secondaries produced by the fragmentation of primary cosmic rays during their propagation in the Galaxy. Therefore, their fluxes contain essential information on cosmic ray propagation and sources. Secondary-to-primary flux ratios provide measurements of the material traversed by cosmic rays in their journey through the Galaxy. The Li and Be isotopic compositions provide crucial complementary information. In particular, the 10Be/9Be ratio measures the cosmic ray propagation volume in the Galaxy, and the 6Li/7Li ratio tests the existence of primordial lithium. Current measurements of the 6Li/7Li and 10Be/9Be ratios are limited to energies below 1 GeV/n and 2 GeV/n, respectively, and are affected by large uncertainties. Individual fluxes of 6Li and 7Li, and of 7Be, 9Be and 10Be, have only been measured below 0.3 GeV/n and 0.4 GeV/n, respectively. In this contribution, we present the measurement of the 6Li and 7Li fluxes and their ratio, and of the 7Be, 9Be, 10Be fluxes and their ratios, in the uncharted energy region ranging from 0.4 GeV/n to 12 GeV/n based on data collected by AMS during its first 10 years of operation on the International Space Station.

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