Contribution ID: **677** Type: **Parallel session talk**

Properties of Cosmic Deuterons Measured by the Alpha Magnetic Spectrometer

Saturday 20 July 2024 11:00 (15 minutes)

Precision measurements of the cosmic ray D flux are presented as function of rigidity from 1.9 to 21 GV, based on 21 million D nuclei. We observed that over the entire rigidity range D exhibit nearly identical time variations with p, ^{3}He, and ^{4}He fluxes. Above 4.5 GV, the D/^{4}He flux ratio is time independent and its rigidity dependence is well described by a single power law $\propto R^{\Delta}$ with $\Delta_{D/^4He}$ = −0.108 ± 0.005. This is in contrast with the ^{3}He/^{4}He flux ratio for which we find $\Delta_{^3He/^4He}$
= −0.289 ± 0.003. The significance of $\Delta_{D/^4He} > \Delta_{^3He/^4He}$ exceeds 10 σ. In addition, we found that above ~ 13 GV the rigidity dependence of D and p fluxes is identical with a D/p flux ratio of 0.027 ± 0.001. These unexpected observations show that contrary to expectations, cosmic deuterons have a sizeable primary component.

Alternate track

I read the instructions above

Yes

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