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## Properties of Cosmic Deuterons Measured by the Alpha Magnetic Spectrometer

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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,  $^3\text{He}$ , and  $^4\text{He}$  fluxes. Above 4.5 GV, the D/ $^4\text{He}$  flux ratio is time independent and its rigidity dependence is well described by a single power law  $\propto R^\Delta$  with  $\Delta_{D/He} = -0.108 \pm 0.005$ . This is in contrast with the  $^3\text{He}/^4\text{He}$  flux ratio for which we find  $\Delta_{^3He/He} = -0.289 \pm 0.003$ . The significance of  $\Delta_{D/He} > \Delta_{^3He/He}$  exceeds  $10\sigma$ . In addition, we found that above  $\sim 13$  GV the rigidity dependence of D and p fluxes is identical with a D/p flux ratio of  $0.027 \pm 0.001$ . These unexpected observations show that contrary to expectations, cosmic deuterons have a sizeable primary-like component.

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