

Title: Combined analysis of AMS-02 secondary-to-primary ratios: universality of cosmic-ray propagation and consistency of nuclear cross-sections

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What is this contribution about?

This contribution is about the propagation of cosmic rays in the galaxy, in view of the precise measurements of the AMS-02 data.

Why is it relevant/interesting?

Secondary-to-primary flux ratios, such as B/C or F/Si, are key observables to constrain the propagation processes in the Galaxy. We test the universality of propagation and the presence of breaks in the diffusion coefficient combining different AMS-02 measurements of Li-Be-B and F/Si.

What have we done?

- We study whether F/Si data recently published by AMS-02 can be reproduced by the same propagation models which give the best fit of lighter secondary-to-primary ratios.
- We investigate whether data allow for primary F component

What is the result?

- Using the propagation parameters which give the best fit of lighter secondary-to-primary ratios, our model overestimates the data by 10% - 15%. However, this difference can be explained by the F production cross-sections uncertainties
- We conclude that all secondary species from Li to F can be explained by the same transport parameters
- Combined analysis of Li/C, Be/C, B/C, and F/Si gives an upper limit on the F source abundance