

The role of cross sections in the evaluation of GCR propagation

Friday, 29 October 2021 17:00 (20 minutes)

The propagation of Galactic cosmic rays (CRs) is commonly studied as a diffusive movement which can be evaluated from the spectra of secondary CRs. While the accuracy of current CR data allows us to precisely test our propagation models, the precision of cross sections data for the production of secondary CRs is very poor (>20%), considerably limiting these tests.

In this talk we explore the consequences of the spallation cross sections uncertainties in the evaluation of the spectra of secondary CRs B, Be, Li and F, discussing possible hints of primary production of Li and F. Then, we also examine the so-called “antiproton excess” from different models of propagation obtained from combined analyses of the secondary CRs B, Be, Li and antiprotons. We show that different modifications of the cross sections involved in the production of these nuclei lead to different predictions of the propagation parameters and how this affects our limits of dark matter detection from antinuclei.

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Cosmic rays

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Session Classification: Session 3