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Anti-nuclei predictions from antiproton-motivated models

The creation of anti-nuclei in the Galaxy has been discussed as a possible signal of exotic production mechanisms such as primordial black hole evaporation or dark matter decay/annihilation in addition to the more conventional production from cosmic-ray (CR) interactions with the gas in the interstellar medium. Excitingly, other astrophysical excesses that have been correlated with dark matter (e.g., GCE, DAMA, etc.), predict an antinuclei flux that is within the sensitivity range reached by detectors such as AMS-02 and GAPS in the coming years. In addition, the detection of anti-nuclei produced from CR interactions can also be achievable in a mid-to-short term.

In this talk, we present a study of the anti-nuclei production expected from a global analysis of CRs involving antiprotons and considering dark matter. We compare those predictions with the sensitivity expected from CR experiments in the next years and discuss the uncertainties related to current nuclear models of anti-nuclei production and astrophysics.

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