

Global analysis of cosmic-ray propagation in the light of AMS-02 and the impact on indirect detection of dark matter

Monday, September 12, 2016 3:00 PM (20 minutes)

Astroparticle physics of Galactic cosmic rays (CR) has entered a new level of precision with the measurements of AMS-02. On the other hand, uncertainties in CR production in the sources and in their propagation are still large. We thus perform a global analysis of injection and propagation parameters testing how the current diffusion models perform in the light of the new precise data. Using tools like Galprop and MultiNest we derive constraints in the CR parameter space using only the three elements protons, helium and antiprotons. We then compare the results with the ones derived using preliminary AMS-02 measurements of lithium and the boron-to-carbon ratio. Finally, we use the results of this scan to derive new limits on dark matter annihilation from the AMS-02 anti-proton measurements marginalizing over the propagation uncertainties.

Summary

Primary author: KORSMEIER, Michael (RWTH Aachen University)

Co-author: CUOCO, Alessandro (U)

Presenter: KORSMEIER, Michael (RWTH Aachen University)

Session Classification: Cosmic rays

Track Classification: Cosmic rays