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Martin Winkler (NORDITA): Hunting for WIMPs with Charged Cosmic Rays

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Weakly Interacting Massive Particles (WIMPs) have been the target of cosmic ray experiments for decades. AMS-02 is the first experiment which can realistically probe WIMP annihilation signals in the antiproton channel. Due to the tiny experimental errors, uncertainties in the astrophysical background have become the most limiting factor for dark matter detection. I will use the combination of antiproton, boron to carbon and positron data in order to systematically reduce uncertainties related to the propagation of charged cosmic rays. In addition, I will use a wide collection of accelerator data to improve the calculation of the astrophysical antiproton source term. Finally, I will present a spectral search for dark annihilation in the AMS-02 antiproton data.

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