

# LIMITS ON DM PROPERTIES FROM AMS-02 DATA

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Although it is clear from various astronomical observations that the matter content of our Universe is dominated by a component, referred to as dark matter (DM), which differently from ordinary matter, interacts at most very weakly with the Standard Model (SM), still to the day the properties of the DM are still not clear. [1] To constrain these properties, search for both direct and indirect DM signals are ongoing. One method for searching for such signals lies in Cosmic Rays (CR). These are high energy particles, produced in very energetic environments in the universe by astrophysical processes. If DM particles decay or annihilate, they would contribute to the CR flux. Alpha Magnetic Spectrometer (AMS-02) on the International Space Station has measured that the antiproton to proton ratio stays relatively constant from 20 GeV to 450 GeV energy range [2]. This data is difficult to explain in the confines of purely standard production and propagation models of antiprotons, suggesting a new source such as astrophysical accelerators and annihilating or decaying dark matter, although there are still uncertainties in the background modeling [3]. We develop a model of antiproton background from astrophysical processes and determine limits for DM cross section for decays or annihilations into SM particles.

## References

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