

Dark Matter Searches with AMS-02

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The Alpha Magnetic Spectrometer (AMS), to be installed on ISS, will provide data on cosmic radiations in a large range of energy from 0.5 GeV to 3 TeV. The main physics goals in the astroparticle domain are the anti-matter and the dark matter searches. Observations and cosmology indicate that the Universe may include a large amount of unknown Dark Matter. It should be composed of non baryonic Weakly Interactive Massive Particles (WIMP). A good WIMP candidate being the Lightest Susy Particle in R-Parity conserving models. AMS offers a unique opportunity to study simultaneously SUSY dark matter in three decay channels from the neutralino annihilation: e^+ , antiproton and gamma. The supersymmetric theory frame is considered together with alternative scenarios (extra dimensions). The expected flux sensitivities in 3 year exposure for the e^+/e^- ratio, antiproton and gamma yields as a function of energy are presented and compared to other direct and indirect searches.

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