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Dark Matter searches with AMS

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Abstract content

The Alpha Magnetic Spectrometer (AMS), to be installed on the International Space Station, will provide data on cosmic radiations in a large range of rigidity from 0.5 GV up to 2 TV. 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 Interacting 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.

If this paper is presented for a collaboration, please specify the collaboration

AMS collaboration

Summary

Reference

Proceedings of the 30th International Cosmic Ray Conference; Rogelio Caballero, Juan Carlos D'Olivo, Gustavo Medina-Tanco, Lukas Nellen, Federico A. Sánchez, José F. Valdés-Galicia (eds.); Universidad Nacional Autónoma de México, Mexico City, Mexico, 2008; Vol. 4 (HE part 1), pages 729-732

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