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Measurement of Hydrogen and helium isotopes flux in galactic cosmic rays with the PAMELA experiment

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PAMELA is a satellite borne experiment designed to study with great accuracy cosmic rays of galactic, solar, and trapped nature, with particular focus on the antimatter component.

The detector consists of a permanent magnet spectrometer core to provide rigidity and charge sign information, a Time-of-Flight system for velocity and charge information, a Silicon-Tungsten calorimeter and a Neutron detector for lepton/hadron identification.

The velocity and rigidity information allow the identification of different isotopes for $Z=1$ and $Z=2$ particles in the energy range $100\text{MeV}/n$ to $1\text{GeV}/n$. In this work we will present the PAMELA results on the H and He isotope fluxes based on the data collected during the 23rd solar minimum from 2006 to 2007.

Such fluxes carry relevant information helpful in constraining parameters in galactic cosmic rays propagation models complementary to those obtained from other secondary to primary measurements such as the boron-to-carbon ratio.

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