Contribution ID: **423** Type: **Parallel**

Origin of Cosmic Positrons and Electrons in the TeV Region

The precision measurements of the cosmic-ray positron and electron fluxes collected by the Alpha Magnetic Spectrometer on the International Space Station are presented. The positron flux exhibits complex energy dependence. It is described by the sum of a term associated with the positrons produced in the collision of cosmic rays, which dominates at low energies, and a new source term, which dominates at high energies and is associated with either dark matter or an astrophysical origin. The positron source term also manifests itself in the measured electron spectrum. This is the first indication of the existence of an identical charge symmetric source term both in the positron and in the electron spectra and, as a consequence, the existence of new physics.

Secondary track

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Session Classification: T01

Track Classification: T01 - Astroparticles, Gravitation and Cosmology