Contribution ID: **465** Type: **Poster Presentation**

Properties of Elementary Particle Fluxes in Primary Cosmic Rays Measured with AMS on the Space Station

Precision measurements by AMS of fluxes and flux ratios of charged elementary particles in cosmic rays are presented. In the absolute rigidity range ~60 to ~500 GV, the antiproton, proton, and positron fluxes are found to have nearly identical rigidity dependence while the electron flux exhibits a different rigidity dependence. Below 60 GV, the antiproton-to-proton, antiproton-to-positron, and proton-to-positron flux ratios each reach a maximum. From ~60 to ~500 GV, these flux ratios show no rigidity dependence. These are new and unexpected observations of the properties of elementary particles in the cosmos. These observations cannot be explained by known models.

Experimental Collaboration

AMS

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Session Classification: Poster session

Track Classification: Astroparticle Physics