Contribution ID: **1408** Type: **Talk**

Cosmic-ray isotope measurements with HELIX

Tuesday, July 13, 2021 12:36 PM (12 minutes)

Recent discoveries of new features in Galactic cosmic-ray fluxes emphasize the importance of understanding the propagation of cosmic rays. HELIX (High Energy Light Isotope eXperiment) is designed to improve the measurements of light cosmic-ray isotopes, including the propagation clock isotope ^{10}Be and stable secondary isotope ^{9}Be, which will be essential to study the propagation of the cosmic rays. The magnetic spectrometer of HELIX consists of a 1 Tesla superconducting magnet containing a high-resolution gas drift chamber as a tracking detector and two velocity measuring detectors: a time-of-flight detector and a ring-imaging Cherenkov detector. While the HELIX instrument can measure the fluxes of the light isotopes from protons (Z=1) up to neon (Z=10), it is optimized to study the flux of beryllium isotopes from 0.2 GeV/n to beyond 3 GeV/n with a sufficient mass resolution to discriminate between ^{10}Be and ^{9}Be. In this talk, I will review the scientific goals and the design of the instrument and report its current status and project plans.

Keywords

cosmic-ray; cosmic-ray isotopes; balloon experiment; cosmic-ray propagation; magnetic spectrometer

Collaboration

other (fill field below)

other Collaboration

HELIX Collaboration

Subcategory

Experimental Methods & Instrumentation

Primary authors: PARK, Nahee (Queen's University); FOR THE HELIX COLLABORATION

Presenter: PARK, Nahee (Queen's University)

Session Classification: Discussion

Track Classification: Scientific Field: CRD | Cosmic Ray Direct