ICRC2015

ICRC
The Astroparticle Physics Conference
34th International Cosmic Ray Conference
July 30 - August 6, 2015
The Hague, The Netherlands

Contribution ID: **1290** Type: **Oral contribution**

Prospects for High Energy Light Isotope Measurements on Balloons

Wednesday 5 August 2015 14:30 (15 minutes)

Recent high-profile 'anomalies'detected in the cosmic-ray flux have underscored the importance of improving our understanding of cosmic-ray source and propagation processes. To this end, one of the key observational tasks is obtaining measurements of the relative abundances of the light cosmic-ray isotopes at relativistic energies (above ˜1 GeV/n) where existing information is extremely scarce. In particular, measurements of the clock isotope ^{10}Be for a range of relativistic time dilations are urgently needed. However, such measurements present a severe experimental challenge. The required mass resolution can only be reached if magnetic spectrometers with strong magnetic fields are equipped with state-of-the-art high-resolution trackers, and combined with devices such as ring-imaging Cherenkov counters for precise velocity measurements. Additionally, large exposure factors are needed for good statistical accuracy. In this presentation, we will briefly review the goals and challenges of such measurements, and describe a new proposed instrument, HELIX (the High-Energy Light Isotope eXperiment), that is designed to meet these challenges on a long-duration Antarctic balloon flight.

Collaboration

– not specified –

Registration number following "ICRC2015-I/"

647

Author: Prof. WAKELY, Scott (University of Chicago)

Co-authors: MULLER, Dietrich (University of Chicago); TARLE, Gregory (University of Michigan); MUSSER, Jim (Indiana University); SCHUBNELL, Michael (University of Michigan); PARK, Nahee (University of Chicago); NUTTER, Scott (Northern Kentucky University); COUTU, Stephane (Penn State University)

Presenter: Prof. WAKELY, Scott (University of Chicago)

Session Classification: Parallel CR21 Future IN

Track Classification: CR-IN