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Predicted Effect of Geomagnetic Field on CALET Measurements[1] BRIAN RAUCH, Department of Physics and McDonnell Center for the Space Sciences, Washington University in St. Louis, FOR THE CALET COLLABORATION — The CALorimetric Electron Telescope (CALET), comprised of the main calorimeter (CAL) and Gamma-ray Burst Monitor (CGBM) subsystem, is under construction for launch to the ISS. CAL consists of a scintillator Charge Detector (CHD), a 3 radiation length (X_0) deep scintillating fiber Imaging Calorimeter (IMC), and a 27 X_0 deep PWO Total Absorption Calorimeter (TASC). The primary objectives of CAL are to measure energy spectra of electrons from 1GeV to 20 TeV and nuclei through iron up to 1,000 TeV, and to detect gamma-rays above 10 GeV. Earth's geomagnetic field in the 51.6° inclination ISS orbit will affect the observed fluxes of charged particles. Rigidity cutoffs based on geomagnetic latitude and East-West angle will introduce structure to the charged particle energy spectra. They can also be exploited to facilitate the measurement of distinct positron and electron fluxes between ∼3-20 GeV, and the relative abundances of the rare ultra-heavy (UH) nuclei ($30 \leq Z \leq 40$) by using the cutoffs to select nuclei near and above the CHD minimum ionization threshold so that they can be identified using the CHD and top IMC layers without requiring energy determination in the TASC. In 5-years CAL would collect ∼2× the UH statistics of TIGER.

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