

Ultra-Heavy Cosmic Ray Analysis with CALET on the International Space Station: Established and Developing Procedures

Friday 16 July 2021 19:18 (12 minutes)

The CALorimetric Electron Telescope (CALET) has collected over 60 months of uninterrupted data on the flux and spectrum of the Ultra-Heavy (UH) cosmic rays from $Z=30$ to 40. Using the latest data provided from CALET's UH trigger, we present a newly developed UH analysis complementary to the ongoing analysis presented at this conference by Zober et al. This work introduces a new Ultra-Heavy Analysis (UHA) dataset produced from CALET production data allowing for more streamlined analysis. We detail temporal and spatial correction algorithms using both the ^{26}Fe and ^{14}Si peaks to improve charge resolution in the $Z > 26$ region. Additionally, this work presents a new method for removing the contributions from low- Z nuclei using the McIlwain L-shell parameter in place of the previously used vertical rigidity cutoff. We show that parameterization of the data with L-shell, calculated from the IGRF13 and T05 (Tsyganenko 05) geomagnetic field models, leads to fewer events being removed from the dataset, while maintaining improved charge resolution for $Z > 26$. Furthermore, we introduce Tarle function peak fitting to perform charge corrections needed as a result of any quenching effects. We show the most recent CALET UH results showing the effect of these improvements in the analysis.

Keywords

Collaboration

CALET

other Collaboration

Subcategory

Experimental Methods & Instrumentation

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Session Classification: Discussion

Track Classification: Scientific Field: CRD | Cosmic Ray Direct