

Abstract Submitted
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Ultra-Heavy Galactic Cosmic Ray Abundances from the Super-TIGER Instrument: evidence for an OB association origin of GCR RYAN MURPHY¹, Washington University , SUPERTIGER COLLABORATION — We report Galactic Cosmic Ray (GCR) abundances of elements from ${}_{26}\text{Fe}$ to ${}_{40}\text{Zr}$ measured by the SuperTIGER (Trans-Iron Galactic Element Recorder) instrument during 55 days of exposure on a long-duration balloon flight over Antarctica. SuperTIGER measures charge (Z) and energy (E) using a combination of three scintillator and two Cherenkov detectors, and employs a scintillating fiber hodoscope for event trajectory determination. These observations resolve elemental abundances in this charge range with single-element resolution and good statistics. We also derived GCR source abundances, which support a model of cosmic-ray origin in which the source material consists of a mixture of $19_{-6}^{+11}\%$ material from massive stars and $\sim 81\%$ normal interstellar medium (ISM) material with solar system abundances. The results also show a preferential acceleration, ordered by atomic mass (A), of refractory elements over volatile elements by a factor of ~ 4 . Both the refractory and volatile elements show a mass-dependent enhancement with similar mass dependence.

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