Abstract Submitted
for the APR20 Meeting of
The American Physical Society

SuperTIGER Abundances of Galactic Cosmic-Rays for the Charge Interval Z=41-56 NATHAN WALSH, Washington University, St. Louis, SUPERTIGER COLLABORATION — On December 8, 2012 the SuperTIGER (Trans-Iron Galactic Element Recorder) instrument was launched from Williams Field, Antarctica on a long-duration balloon flight that lasted 55 days and maintained a mean altitude of 125,000 feet. SuperTIGER measured the relative abundances of Galactic cosmic-ray (GCR) nuclei with high statistical precision and well resolved individual element peaks from $_{10}$Ne to $_{40}$Zr. SuperTIGER also made exploratory measurements of the relative abundances up to $_{56}$Ba. The SuperTIGER data analysis reported in Murphy et al. 2016 was performed before the Antarctic recovery effort in 2015 and only included data transmitted during line-of-site periods and via telemetry. The current analysis includes additional data saved to on-board solid-state drives that were retrieved during recovery. Although the statistics are low for elements heavier than $_{40}$Zr, we show relative abundances of charges Z=41-56 with individual element resolution. The relative abundances of elements $_{40}$Zr through $_{60}$Nd are of particular interest because they are likely formed by both supernova explosions and binary neutron star mergers. A well resolved measurement of this charge range can constrain the contributions to the GCR composition from both these possible sources.

Nathan Walsh
Washington University, St. Louis

Date submitted: 10 Jan 2020 Electronic form version 1.4