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Galactic Cosmic Ray Energy Spectra for Ne to Zn from 0.8 to 10 GeV/nuc with SuperTIGER ALLAN LABRADOR, California Institute of Technology, SUPERTIGER COLLABORATION — SuperTIGER (Trans-Iron Galactic Element Recorder) is a large-area balloon-borne instrument built to measure the galactic cosmic-ray (GCR) abundances of elements from Z=10 (Ne) through Z=56 (Ba) at energies from 0.8 to ∼10 GeV/nuc. SuperTIGER flew over Antarctica for a record-breaking 55 days, from December 8, 2012 to February 1, 2013. We will report updated calculations of galactic cosmic ray spectra for abundant elements between Ne and Zn from the SuperTIGER flight data. The energy spectra calculations will incorporate refinements to the energy calibrations for the acrylic and aerogel Cherenkov detectors in the instrument, as well as new corrections for interactions derived from a new GEANT4 simulation of the instrument. Heinz and Sunyaev (2002) suggested that microquasar jets like those observed in GRS 1915+105 and GRO J1655-40 may be observable as near-monoenergetic peaks in heavy ion spectra from 3 to 10 GeV/nuc. We will compare SuperTIGER spectra with ACE/CRIS and HEAO-3 spectra and with model GCR spectra solar modulated for the time period of the flight, to search for peaks that may arise from microquasar jets. Finally, we may report on early spectrum results of SuperTIGER-2, which launched over Antarctica on December 15, 2019 and flew into January 2020.

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