

Probing Galactic Cosmic Ray Origins with the SuperTIGER Long-Duration Balloon Instrument

Tuesday 27 August 2013 12:00 (30 minutes)

The SuperTIGER (Super Trans-Iron Galactic Element Recorder) long-duration balloon instrument was developed by Washington University in St. Louis, NASA Goddard Space Flight Center, Caltech, Jet Propulsion Laboratory, and the University of Minnesota to measure the abundances of galactic cosmic ray elements from ^{26}Fe to ^{40}Zr with high statistics and single element resolution, and to extend exploratory measurements to about ^{60}Nd . SuperTIGER launched from Williams Field, McMurdo Station, Antarctica, on December 8, 2012 and made over 2.5 revolutions around the continent, flying for a record 55 days and returning data on over 50 million heavy cosmic ray nuclei. The instrument, the methods of charge identification employed, and preliminary results from the SuperTIGER I balloon flight will be presented. SuperTIGER measurements will be discussed in context of their stringent tests of the OB association model for the origin of galactic cosmic rays. The recent Fermi gamma-ray observations, which have shown that protons are accelerated from supernova remnants, will also be discussed in the context of the OB association model. Finally, planned improvements to the SuperTIGER instrument and future flight plans will be described.

Presenter: MITCHELL, John (NASA)

Session Classification: Plenary