Abstract Submitted
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Measurement by ACE-CRIS of the ^{60}Fe/Fe ratio in Galactic Cosmic Rays[1] W.R. BINNS, M.H. ISRAEL, K.A. LAVE, Washington University, St. Louis MO 63146, E.R. CHRISTIAN, G.A. DE NOLFO, T.T. VON ROSENVINGE, NASA/Goddard Space Flight Center, Greenbelt, MD 20771, A.C. CUMMINGS, R.A. LESKE, R.A. MEWALDT, E.C. STONE, California Institute of Technology, Pasadena, CA 91125, M.E. WIEDENBECK, Jet Propulaion Laboratory, California Institute of Technology, Pasadena, CA 91109 — We have measured the abundance of the radioactive isotope ^{60}Fe (2.6 Myr half-life) relative to Fe in the galactic cosmic rays using the Cosmic Ray Isotope Spectrometer (CRIS) on NASA's Advanced Composition Explorer (ACE) satellite. The data correspond to 5802 days of data collection beginning December 4, 1997. The excellent resolution in mass that we obtain results in essentially complete separation of ^{60}Fe from the much more abundant stable isotopes of Fe. For the data set selected, we detected a total of fifteen ^{60}Fe nuclei and obtain a preliminary source abundance ratio for ^{60}Fe/Fe of (4$\pm$1) $\times$ 10^{-5}. Of the fifteen ^{60}Fe nuclei we estimate that less than 1 event could have resulted from interactions of heavier nuclei during propagation from the source, or misidentification from unrecognized interactions in the instrument. This ratio can be used to constrain the nucleosynthesis processes that contribute to the observed cosmic rays and to set an upper limit to the time between nucleosynthesis and acceleration. It will also be discussed in the light of observations of gamma-rays from decay of ^{60}Fe ejected by supernovae.

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