Abstract Submitted
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Observation of the ^{60}Fe Nucleosynthesis-Clock Isotope in Galactic Cosmic Rays [1] W.R. BINNS, M.H. ISRAEL, Washington University, E.R. CHRISTIAN, Goddard Space Flight Center, A.C. CUMMINGS, California Institute of Technology, G.A. DE NOLFO, Goddard Space Flight Center, K.A. LAVE, Washington University, R.A. LESKE, R.A. MEWALDT, E.C. STONE, California Institute of Technology, T.T. VON ROSENVINGE, Goddard Space Flight Center, M.E. WIEDENBECK, Jet Propulsion Laboratory, California Institute of Technology — We have measured the abundance of ^{60}Fe, a radioactive isotope in cosmic rays that serves as a clock to infer an upper limit on the time between nucleosynthesis in supernovae and cosmic ray acceleration. The ACE-CRIS instrument has collected 3.55 10^5 iron nuclei from which we have resolved 15 ^{60}Fe nuclei. From this a ^{60}Fe/^{56}Fe source ratio of (7.5 2.9) 10^{-5} is obtained. The detection of supernova-produced ^{60}Fe in cosmic rays implies that the time required for acceleration and transport to Earth does not greatly exceed the ^{60}Fe half-life of 2.6 Myr and that the ^{60}Fe source distance does not greatly exceed the distance cosmic rays can diffuse over this time, $<\tilde{}$1 kpc. A natural place for ^{60}Fe origin is in nearby clusters of massive stars.

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