
Search for Supernova ^{60}Fe in Biologically Produced Magnetofossils: A New Discovery

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Abstract

Between 2 and 3 Myr before the present, the Earth was subjected to the debris of a supernova explosion. First evidence for this was the presence of a concentration spike of live atoms of ^{60}Fe in a Pacific ocean ferromanganese crust. This signal was found using accelerator mass spectrometry (AMS). The known cosmic site for the production of ^{60}Fe is core collapse supernova. Subsequent searches in marine sediments for this signal failed. We now report on a new detection of live ^{60}Fe found in a new terrestrial reservoir; namely, biogenically produced magnetite crystals, that are now fossilized – so-called magnetofossils. The occurrence in the geological record is ~ 2.5 Myr before the present. This contribution will explain the motivation to search in magnetofossils for this signature, and show our preliminary results of the ^{60}Fe signal.

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