

Questions and Answers

The Formation of Stars and Planetary Systems, 2010, September 6-9, Särö, Sweden

Section & Talk by Mark Morris

Name/Question Sarah Maddison

if ejecta of SN spread over entire
MC (rather than SN cloud core) then
other stars in the local solar n'hood
(or moving group) should have similar
 $\delta^{18}\text{O}/\delta^{17}\text{O}$ anomaly?

Name/Answer Mark Morris

Yes, this is an important prediction of the model.

If the ~~comparisons~~ members of the moving group to which
the Sun belongs ~~could~~ be identified, AND if a

from its formation

means of measuring the oxygen isotope ratios could
be found (without a gas disk or a physical sample, this
may be quite difficult), then these stars should share
the solar system anomaly. be found to

We also predict that some fraction of all stars share
this fate, because the sequence of events should not be uncommon.
Further measurements of oxygen isotope ratios in YSO environments
should eventually reveal further examples.

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Section & Talk by M. Morris

Name/Question I. Pascucci

Your model of SN triggering a second generation ~~plan~~ of star/disk formation can explain some of the short lived radioactive nuclei but not the ^{26}Al . What are other ideas you are exploring to explain the ^{26}Al ?

Name/Answer Mark Morris

If we mix 1% by mass of B-star supernova debris with the pristine parent cloud material, we ^{unavoidably} get a certain amount of short-lived radionuclides ^{60}Fe , ^{46}Ca & ^{26}Al . By waiting $\sim 10\text{ Myr}$, we can arrange to incorporate the right amount of ^{60}Fe , but ^{60}Fe has the longest half-life, ~~so~~ we to be consistent with meteoritic measurements of its decay products

cannot then explain the other two SLRs. So another mechanism would be needed for those, such as Spallation by solar cosmic rays from a hyperactive, early sun (e.g., $^{26}\text{Mg}(p,n)^{26}\text{Al}$). ~~or some~~ Other hypotheses (^{26}Al production by explosive He ~~and~~ burning in a nearby nova) are more contrived.