

Monday, March 17, 2003
NUCLEOSYNTHESIS
2:15 p.m. Marina Plaza Ballroom

Chairs: M. Gounelle
E. D. Young

Gounelle M. * Shang S. Glassgold A. E. Shu F. H. Rehm E. K. Lee T.

Early Solar System Irradiation and Beryllium-7 Synthesis [#1833]

In the framework of the x-wind model, we have calculated the yields of the extinct short-lived ^7Be (T = 53 days) produced via irradiation by protoSolar Energetic Particles. ^7Be -and other radionuclides- yields are compatible with initial abundances inferred from meteorites.

Marhas K. K. * Goswami J. N.

Be-B Isotope Systematics in CV and CM Hironites: Implications for Solar Energetic Particle Production of Short-lived Nuclides in Early Solar System [#1303]

Presence of radiogenic ^{10}B in HAL hironite with extremely low initial $^{26}\text{Al}/^{27}\text{Al}$ ratio of $\sim 5 \times 10^{-8}$ and in CM hironites devoid of radiogenic ^{26}Mg conclusively establish that the source of ^{10}Be present in early solar system did not contribute significant amount of ^{26}Al , ^{41}Ca and ^{53}Mn .

Robert F. * Chaussidon M.

Boron and Lithium Isotopic Composition in Chondrules from the Mokoia Meteorite [#1344]

The lithium and boron isotopic compositions in the chondrules of the Mokoia meteorite has been determined with the ion microprobe. The results confirm the high heterogeneity of solar system Li and B.

Young E. D. * Lyons J. R.

CO Self Shielding in the Outer Solar Nebula: An Astrochemical Explanation for the Oxygen Isotope Slope-1 Line [#1923]

Calculations show that photodissociation of CO by stellar EUV light high above the midplane in the early solar nebula is an attractive and plausible explanation for the oxygen isotope slope-1 line.

Nuth J. A. III* Ferguson F. T. Johnson N. Martinez D.

Initial Measurement of the Vapor Pressures of Simple Refractory Materials: Cu and Fe [#1598]

Using copper as a standard, we are learning to measure vapor pressures in vacuo at temperatures to 1975K using a Thermogravimetric system. Preliminary measurements of iron indicate that its true vapor pressure is a factor 5 lower than the currently accepted values for the range from 1500K to 2000K.

Dauphas N. * Rouxel O. Davis A. M. Lewis R. S. Wadhwa M. Marty B. Reisberg L.

Janney P. E. Zimmermann C.

Iron and Selenium Isotope Homogeneity in the Protosolar Nebula? [#1807]

The isotopic compositions of iron and selenium in leachates of carbonaceous chondrites is apparently homogeneous.

Tachibana S. * Huss G. R.

Iron-60 in Troilites from an Unequilibrated Ordinary Chondrite and the Initial $^{60}\text{Fe}/^{56}\text{Fe}$ in the Early Solar System [#1737]

Evidence of existence of ^{60}Fe was found by ion microprobe as excess of radiogenic ^{60}Ni in troilites from an unequilibrated ordinary chondrite, Bishunpur. The estimated initial $^{60}\text{Fe}/^{56}\text{Fe}$ ratio in the solar system ranges from 1.1×10^{-7} to 3.5×10^{-7} .

Mostefaoui S. * Lugmair G. W. Hoppe P. El Goresy A.

Evidence for Live Iron-60 in Semarkona and Chervony Kut: A NanoSIMS Study [#1585]

We present an *in situ* NanoSIMS study of the Fe-Ni system in iron sulfides in the Chervony Kut (CK) eucrite and in the Semarkona (LL3.0) ordinary chondrite. Evidence for live ^{60}Fe is found in both meteorites, with an extreme ^{60}Ni excess in CK.

Meyer B. S. * Clayton D. D. The L.-S. El Eid M. F.

Injection of ^{182}Hf into the Early Solar Nebula [#2074]

If ^{41}Ca is injected into the early solar nebula by a nearby supernova, it is likely accompanied by enough ^{182}Hf to explain the amount inferred to have been present in the early solar system. In such a case, the ^{182}Hf is not due to the r-process but rather to nucleosynthesis in massive star shells.