Friday, March 19, 2004
EARLY SOLAR SYSTEM CHRONOLOGY
8:30 a.m. Salon C

Chairs: M. Wadhwa
D. A. Papanastassiou

8:30 a.m. Wadhwa M. * Foley C. N. Janney P. E. Spivak-Birndorf L.
Mg Isotopic Systematics in Eucrites: Implications for the ^{26}Al-^{26}Mg Chronometer **[#1843]**
We present high precision Mg isotopic analyses of several eucrites. Based on these results, and comparisons with Mn-Cr and Pb-Pb systematics in these meteorites, we present the implications for the viability of the ^{26}Al-^{26}Mg system as a chronometer.

8:45 a.m. Ito M. * Ganguly J. Stimpfl M.
Diffusion Kinetics of Cr in Olivine and ^{53}Mn-^{53}Cr Thermo-Chronology of Early Solar System Objects **[#1324]**
We have determined the Cr diffusivity in olivine as a function of temperature at controlled fO_2 condition, and applied these data to evaluate the thermochronology (closure temperature, age and cooling rate) of olivine in pallasite.

9:00 a.m. Kleine T. Mezger K. Palme H. * Münker C.
The W Isotope Composition of Eucrite Metals: Constraints on Timing and Cause of the Thermal Metamorphism of Eucrites **[#1230]**
We present new W isotope data for eucrite metals that for the first time allow precise dating of the thermal metamorphism of eucrites.

9:15 a.m. Srinivasan G. * Whitehouse M. J. Weber I. Yamaguchi A.
U-Pb and Hf-W Chronometry of Zircons from Eucrite A881467 **[#1709]**
Measurement of ^{182}Hf abundance in zircons whose age has been determined using U-Pb system. This study presents the first result in which a mineral isochron for Hf-W is reported.

9:30 a.m. Huss G. R. * Tachibana S.
Clear Evidence for ^{60}Fe in Silicate from a Semarkona Chondrule **[#1811]**
A radiating-pyroxene chondrule from Semarkona shows clear excesses of ^{60}Ni correlated with Fe/Ni, implying the presence of live ^{60}Fe when it formed. An initial ^{60}Fe/^{56}Fe ratio of ~2.4×10^{-7} implies $(^{60}Fe/^{56}Fe)_0$ for the solar system of ~5×10^{-7}.

9:45 a.m. Moynier F. * Télouk P. Blichert-Toft J. Albarède F.
The Isotope Geochemistry of Nickel in Chondrites and Iron Meteorites **[#1286]**
Ni in ordinary chondrites becomes isotopically heavier in the order LL, L, H. This trend reflects mass-dependent fractionation during vaporisation. No strong ^{60}Ni anomaly is detected. Segregation of the Earth's core started after the decay of ^{60}Fe.

10:00 a.m. BREAK

10:15 a.m. Mostefaoui S. * Lugmair G. W. Hoppe P.
In-Situ Evidence for Live Iron-60 in the Early Solar System: A Potential Heat Source for Planetary Differentiation from a Nearby Supernova Explosion **[#1271]**
We report in-situ ^{60}Ni-excesses in two minerals in Bishunpur. The inferred ^{60}Fe abundance is the highest measured in a meteorite. It gives the first evidence for a supernova origin of ^{60}Fe, which served as a heat source for planetary differentiation.

10:30 a.m. Chen J. H. * Papanastassiou D. A. Wasserburg G. J. Ngo H. H.
Endemic Mo Isotopic Anomalies in Iron and Carbonaceous Meteorites **[#1431]**
Iron meteorites, carbonaceous meteorites and Ca-Al-rich inclusions show endemic isotope anomalies in molybdenum which correlate also with ruthenium effects.

10:45 a.m. Dauphas N. * Foley N. Wadhwa M. Davis A. M. Göpel C. Birck J.-L. Janney P. E. Gallino R.
Testing the Homogeneity of the Solar System for Iron (54, 56, 57, and 58) and Tungsten (182, 183, 184, and 186) Isotope Abundances **[#1498]**
The solar nebula was homogenized at a planetary scale at the 0.2 and 0.5 level for ^{56}Fe and ^{58}Fe, respectively. Preliminary results seem to indicate the presence of a s-process tungsten component in leaching experiments of primitive meteorites.

11:00 a.m. Chaussidon M. * Robert F. McKeegan K. D.
Li and B Isotopic Variations in Allende Type B1 CAI 3529-41: Traces of Incorporation of Short-lived ^{7}Be and ^{10}Be **[#1568]**
Allende CAI 3529-41 contains Li and B isotopic variations due to the in-situ decay of short-lived ^{7}Be and ^{10}Be. Thus CAI precursors were irradiated by the early Sun and no presolar component is required to explain ^{10}Be in CAIs.

11:15 a.m. Gounelle M. * Shu F. H. Shang H. Glassgold A. E. Rehm K. E. Lee T.
The Origin of Short-lived Radionuclides and Early Solar System Irradiation **[#1829]**
Using the irradiation model developed by Gounelle et al. (2001), we can reproduce the abundance of ^{7}Be measured by Chaussidon et al. (2004, this conference). We also provide a tentative explanation for the hibonite grains that show a decoupling betwen ^{26}Al and ^{10}Be (Marhas et al. 2002).

11:30 a.m. Papanastassiou D. A. * Chen J. H. Wasserburg G. J.
More on Ru Endemic Isotope Anomalies in Meteorites **[#1828]**
We present evidence for well-defined and resolved endemic isotope anomalies in Ru, consistent with an s-process deficit. Primitive meteorites, CAIs, and planetary differentiates (irons) show these effects and evidence of preserved isotope heterogeneities.

11:45 a.m. Lin Y. Guan Y. * Leshin L. A. Ouyang Z. Wang D.
Evidence for Live ^{36}Cl in Ca-Al-rich Inclusions from the Ningqiang Carbonaceous Chondrite **[#2084]**
From the observed ^{36}S excesses in sodalite in calcium-aluminum-rich inclusions, we report the first direct evidence of the presence of ^{36}Cl in primitive meteorites. The inferred $(^{36}Cl/^{35}Cl)_o$ ratios range from $\sim 5 \times 10^{-6}$ to $\sim 1 \times 10^{-5}$.