Thursday, March 17, 2005
POSTER SESSION II: EARLY SOLAR SYSTEM PROCESSES AND PLANET FORMATION
7:00 p.m. Fitness Center

Bureau H. Menez B. Malavergne V. Simogyi A. Munoz M. Simionovici A. Massare D. Burchard M. Kubsky S. Shaw C.
In Situ Determination of the Partitioning of Lead, Strontium and Rubidium Between Hydrous Melts and Aqueous Fluids at High Pressure and Temperature **[#1847]**
We have performed *in situ* high pressure and high temperature experiments in order to determine the partition coefficients of Pb, Sr, Rb between magmas and aqueous fluids.

Zhang L. Fei Y.
The Effect of Ni on Fe-FeS Phase Relations: Implications for the Chemistry of the Martian Core **[#2049]**
We have determined the solubility of Ni in the Fe_3S phase and the effect of Ni on the melting relations. The data will be used to understand the distribution of Ni and S in the Martian core if the core solidifies through the history.

Keshav S. Corgne A. McDonough W. F. Fei Y.
Potassium-bearing Iron-Nickel Sulfides in Nature and High-Pressure Experiments: Geochemical Consequences of Potassium in the Earth's Core **[#2016]**
In this contribution, we assess the effect of sequestering K in the core, as it is perhaps an element that is a key to reconciling geochemistry, paleomagnetism, accretion, and thermal evolution models for the planet.

Singletary S. J. Domanik K. J. Drake M. J.
Influence of Silicate Melt Composition on Metal/Silicate Partitioning of W, Ge, Ga and Ni **[#1945]**
We present new data for W, Ge, Ga and Ni that provide insight on the control of silicate melt composition on the partitioning of these elements between metal and silicate.

Malavergne V. Tarrida M. Combes R. Bureau H.
Uranium and Lead in the Early Planetary Core Formation: New Insights Given by High Pressure and Temperature Experiments **[#1823]**
We have performed high pressure (up to 15 GPa) and high temperature (1900°C) experiments in order to quantify possible fractionation of U and Pb into a metallic core during the first stage of planetary accretion.

Roskosz M. Mysen B. O.
Spectroscopic Study of Interactions Between Nitrogen and Silicate Melts Under High Pressure and Temperature: Insights into the Evolution of Geochemical Reservoirs **[#1965]**
Preliminary results on the possible interactions between nitrogen and silicate liquids under high-pressure and temperature.

Roskosz M. Luais B. Toplis M. J.
Experimental Determination of Iron Isotope Fractionation During High Temperature Segregation of Metal from Silicate Liquids: Evaporation or Diffusion? **[#1959]**
We present preliminary experimental results of iron isotopes fractionation during the segregation of metal iron from a silicate melt at high-temperature and 1-bar pressure.

Gardner K. G. Ferguson F. T. Nuth J. A.
The Vapor Pressure of Palladium at Temperatures up to 1973K **[#2240]**
Work includes measurement of Pd at high temperatures to confirm the accuracy of the Thermo-Cahn Thermogravimetric system up to 1973K and validation of two correction factors concerning the Knudsen effusion cell used in the experiments.

Marrocchi Y. Robert F. Binet L. Marty B.
Trapping of Xenon Upon Evaporation-Condensation of Organic Matter Under UV Irradiation: Isotopic Fractionation and Electron Paramagnetic Resonance Analysis **[#1792]**
Condensation experiment performed under UV irradiation reproduces Xe-P1 isotopic fractionation observed relative to solar end-member. In contrast, this process cannot account for the electron paramagnetic resonance signal observed in primitive meteorites.

Thomen A. Pack A.
Simulating Micro-Gravity in the Laboratory **[#1666]**
We present preliminary results from our high-T aerodynamic levitation experiments. We will discuss application of this method (containerless melting of liquds) to chondrule formation and partitioning experiments.

Mostefaoui S. Lugmair G. W. Hoppe P.
The Search for Extinct Iron-60 in Iron Meteorites **[#1611]**
We report NanoSIMS study of the Fe-Ni system in troilite from two iron meteorites. No ^{60}Ni excesses are found suggesting no evidence for life ^{60}Fe in these meteorites. We suggest a time span of ~6 Mys between core formation and troilite closure.

Moynier F. Blichert-Toft J. Telouk P. Albarède F. A.
Excesses of ^{60}Ni in Chondrites and Iron Meteorites **[#1593]**
Initial ^{60}Fe /^{56}Fe of 3×10^{-6} in metal and 7×10^{-6} in silicate are inferred from ^{60}Ni excesses in meteorites. These values indicate that ^{60}Fe was the major heat source in planetesimals.The time interval between silicate and metal condensation is ~5 My.

Cook D. L. Wadhwa M. Clayton R. N. Janney P. E. Dauphas N. David A. M.
Nickel Isotopic Composition of Fe-Ni Metal from Iron Meteorites and the Brenham Pallasite **[#1779]**
Measurement of the Ni isotopic composition of Fe-Ni metal from 8 iron meteorites and the Brenham pallasite revealed no resolvable excesses of radiogenic ^{60}Ni. Furthermore, no anomalies were found in ^{61}Ni or ^{64}Ni within the analytical uncertainties.

Pack A. Schönbeck T. Shelley J. M. Deloule É. Rollin-Bard C.
Experimental Study of Fe-, Co- and Ni-partitioning Between Forsterite and low-Co Fe,Ni-Alloys: Implications for Formation of Olivine Condensates in Equilibrium with Primitive Metal **[#1782]**
We combine experimental results with condensation calculations to model the composition (Fe, Co, Ni) of olivine condensates; results are compared with forsterite compositions from chondrites.

Dauphas N. Foley C. N. Wadhwa M. Davis A. M. Janney P. E. Qin L. Göpel C. Birck J.-L.
Protracted Core Differentiation in Asteroids from ^{182}Hf-^{182}W Systematics in the Eagle Station Pallasite **[#1100]**
The presence of radiogenic ^{182}W in the Eagle Station pallasite indicates that the metal in this meteorite differentiated late, possibly 10 My after Vesta.

Markowski A. Quitté G. Kleine T. Halliday A. N.
Tungsten Isotopic Constraints on the Formation and Evolution of Iron Meteorite Parent Bodies **[#1308]**
High-precision W isotope data measured in this study reveal small but resolvable differences within and between iron meteorite groups. We will discuss the possible explanations and implications for the formation and evolution of their parent bodies.

Kleine T. Mezger K. Palme H. Scherer E.
Tungsten Isotopes Provide Evidence That Core Formation in Some Asteroids Predates the Accretion of Chondrite Parent Bodies **[#1431]**
W isotope data for CAIs and iron meteorites show that core formation in some asteroids predates the formation of chondrules. We conclude that magmatic irons derive from the oldest (i.e., first-generation) planetesimals and that chondrites derive from second-generation asteroids.

Chen J. H. Papanastassiou D. A.
The Palladium Isotopic Composition in Iron Meteorites **[#1495]**
We report on the Pd isotope composition in iron meteorites and in a pallasite, and provide correlations with Ru and Mo endemic isotope effects.

Trinquier A. Birck J.-L. Allègre C. J.
Reevaluation of the ^{53}Mn-^{53}Cr Systematic in the Basaltic Achondrites **[#1946]**
The ^{53}Mn-^{53}Cr isotopic evolution of basaltic achondrites is reevaluated. The initial ^{53}Cr/^{52}Cr is lower than previously thought. It follows that the source of the HED meteorites is volatile depleted with lower than solar Mn/Cr ratio.

Trinquier A. Birck J.-L. Allègre C. J.
^{54}Cr Anomalies in the Solar System: Their Extent and Origin **[#1259]**
High precision ^{54}Cr runs (12 ppm) show a systematic and common deficit in basaltic achondrites the reverse to the excess in C-chondrites. It is the first ^{54}Cr deficit at the planetary scale. ^{54}Cr is an isotopic tool to constrain planetary formation.

Bouvier A. Blichert-Toft J. Vervoort J. D. Albarède F. A.
Pb-Pb Isotope Dating of Ordinary Chondrites **[#2028]**
Pb-Pb ages of whole-rocks and chondrule separates from ordinary chondrites yield precise cooling ages. Type H closed earlier and shows also a faster cooling rate than types LL and L.

Busfield A. Gilmour J. D.
I-Xe Dating of Mineral Separates and Integration with the Mn-Cr Timescale **[#1752]**
Mineral separates from four enstatite meteorites and a eucrite have been dated by the I-Xe technique. The data are incorporated into a combined I-Xe and Mn-Cr timescale.

Edwards S. Ballentine C. J. Gilmour J.
Constraints on the Role of Curium 247 as a Source of Fission Xenon in the Early Solar System **[#1739]**
Curium 247 as a source of fission xenon in the early solar system — a review of fission branching ratio and abundance constraints.

Djouadi Z. d'Hendecourt L. Leroux H. Borg J. Jones A. P. Deboffle D. Chauvin N.
Laboratory Study of the Irradiation and Thermal Processing of Silicate Dust Analogs **[#1185]**
Laboratory study of irradiation and thermal processing of silicate dust analogs has shown that crystallization is independent of the history of dust and other processes are needed to explain the presence of crystalline silicates in cold environments.

Dalla Stella A. Marzari F. Barbieri M. Vanzani V. Ortolani S.
Dynamical Evolution of Planets in Open Clusters **[#1253]**
We will show preliminary statistical results of a numerical investigation of planetary evolution in open clusters due to stellar encounters.

Genda H. Abe Y.
Effects of Oceans on Atmospheric Loss During the Stage of Giant Impacts **[#2265]**
We numerically simulate the atmospheric blow-off by a Mars-sized giant impact. Here, we focus on the effect of an ocean on a planet. We show how the presence of an ocean enhances the atmospheric loss by a giant impact.

Sisterson J. M.
Measurement of Recoil Losses and Ranges for Spallation Products Produced in Proton Interactions with Al, Si, Mg at 200 and 500 MeV **[#1311]**
Recoil losses of ^{22}Na and ^{24}Na were measured in Al, Mg and Si targets. These losses were generally small and similar for the three target materials studied. These results are relevant to the study of radionuclides produced in presolar grains.