Tuesday, March 20, 2012
ISOTOPIC CONSTRAINTS ON EARLY SOLAR SYSTEM CHRONOLOGY
1:30 p.m.   Waterway Ballroom 5

Chairs: Herbert Palme
          Naomi Marks

1:30 p.m.  Gounelle M. *    Chausidon M.    Rollion-Bard C.
The Be-B, Al-Mg and Oxygen Isotopes Systematics of Isheyevo (CH/CB) Calcium-Aluminium-Rich Inclusions [#1912]
Be-B, Al-Mg, and O isotope systematics of Isheyevo CAIs are reported. Isheyevo CAIs with $^{16}$O-rich oxygen isotopic composition contain large $^{10}$B excesses, possibly due to $^{10}$Be decay or to spallogenic $^{10}$B. They have recorded extreme irradiation processes.

1:45 p.m.  Tang H. *    Dauphas N.
Low Abundance and Homogeneous Distribution of $^{60}$Fe in the Early Solar System [#1703]
Issue of $^{60}$Fe abundance and homogeneity is still unclear. We measured $^{56}$Fe and $^{58}$Ni abundances in many meteorites, from which we derive a much lower initial $^{60}$Fe/$^{56}$Fe ratio and show that $^{60}$Fe was homogeneously distributed among planetary bodies.

2:00 p.m.  Telus M. *    Huss G. R.    Nagashima K.    Ogliore R. C.    Tachibana S.
Reevaluating Our Understanding of the $^{60}$Fe-$^{60}$Ni System in Chondrites [#2733]
We summarize our findings regarding the Fe and Ni isotopic composition of chondrules from primitive ordinary chondrites and discuss important constraints on the initial abundance of $^{60}$Fe in the solar system.

2:15 p.m.  Spivak-Birndorf L. J. *    Wadhwa M.    Janney P. E.
$^{60}$Fe-$^{60}$Ni Systematics of Chainpur Chondrules and the Plutonic Angrites Northwest Africa 4590 and 4801 [#2861]
We present $^{60}$Fe-$^{60}$Ni isotope systematics for bulk Chainpur chondrules and plutonic angrites. The Chainpur chondrule data are used to estimate an upper limit on the initial solar system $^{60}$Fe/$^{56}$Fe $< -1 \times 10^{-7}$.

2:30 p.m.  Papanastassiou D. A. *    Chen J. H.    Weiss B P.
Mn-Cr Isotopic Systematics in the Eagle Station Pallasite Metal  [#2504]
We report large cosmic ray spallation effects for $^{53}$Cr and $^{54}$Cr in Eagle Station metal, which may affect the Mn-Cr chronometer interpretation and possible link of Eagle Station to CO3 and CV3 chondrites.

2:45 p.m.  Palme H. *    Kleine T.    Rubie D. C.
Early Volatile Depletion and Rapid Core Formation in the Earth: Evidence from the $^{53}$Mn-$^{54}$Cr System [#2163]
The $^{53}$Mn-$^{54}$Cr system of Earth compared to meteorites indicates volatile depletion in Earth within the first million years. Core formation began at the same time. The Cr-isotopic composition of the core is different from the mantle.

3:00 p.m.  Horan M. F. *    Carlson R. W.    Blichert-Toft J.
An Evaluation of the Palladium-Silver Isotope Systematics in the Oldest Differentiated Planetesimal: Beyond Shock [#1116]
Pd-Ag isotopic systematics in Muonionlusta (Group IVA iron meteorite, troilite Pb-Pb age = 4565.3 ± 0.1 Ma) yield an initial solar system abundance of 107Pd/108Pd of (2.8 ± 0.4) $\times 10^{-5}$, despite heterogeneous shock effects in troilite.
3:15 p.m. Sanborn M. E. * Carlson R. W. Wadhwa M.

*Internal Lu-Hf Isochrons for the Quenched and Plutonic Angrites and Their Chronological Implications [#2039]*

We present the initial results of our investigation of the $^{176}$Lu-$^{176}$Hf systematics in mineral separates and whole-rock fractions of the D’Orbigny quenched angrite and the NWA 4590 and NWA 4801 plutonic angrites.

3:30 p.m. Bast R. * Scherer E. E. Taetz S. Mezger K. Srinivasan G.

*Internal Lu-Hf Isotope Systematics of the Eucrites Millbillillie and Piplia Kalan [#2542]*

Internal Lu-Hf isochron data for the eucrites Piplia Kalan and Millbillillie were acquired to help determine the cause of the commonly observed discordance between U-Pb and Lu-Hf ages in meteorites and their components.

3:45 p.m. Burkhardt C. * Kleine T. Dauphas N. Wieler R.

*Origin of Nucleosynthetic Isotope Heterogeneity in the Solar Nebula Inferred from Mo and W Isotopes in Acid Leachates from Murchison [#2405]*

The first W-isotopic data of chondrite leachates are presented. Implications for the distribution of nucleosynthetic carriers, the origin of planetary-scale nucleosynthetic anomalies, and the solar system initial $\epsilon^{182}$W are discussed.

4:00 p.m. Kruijer T. S. * Fischer-Gödde M. Sprung P. Leya I. Wieler R. Kleine T.

*Neutron Capture on Pt and W Isotopes in Iron Meteorites: Implications for Hf-W Chronometry [#1529]*

We report the first precise Pt-isotope data for extraterrestrial materials. The Pt-isotope anomalies in IVB iron meteorites are neutron-capture induced. The combined Pt- and W-isotope results are used here to quantify cosmic-ray effects on W isotopes.

4:15 p.m. Wittig N. * Humayun M. Huang S. Brandon A. D.

*Revised Tungsten Isotope Chronology of IVB Iron Meteorites from W-Os Systematics [#1482]*

W-Os isotope systematics of 12 IVB iron meteorites, including five newly characterized samples, are correlated and used to derive a pre-irradiation $\epsilon^{182}$W of $-3.37 \pm 0.19$, which is indistinguishable from CAIs.

4:30 p.m. Walker R. J. * Touboul M.

*Improved Constraints on the Relative Timing of Metal Segregation in the Early Solar System Using Coupled W-Os Isotopes [#1166]*

$^{182}$W has been used to place age constraints on early metal-silicate segregation. New high-precision W measurements, coupled with Os-isotope constraints on cosmic ray exposure history, allow small differences in ages among iron groups to be resolved.