

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. * Chaussidon 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 ¹⁶O-rich oxygen isotopic composition contain large ¹⁰B excesses, possibly due to ¹⁰Be decay or to spallogenic ¹⁰B. They have recorded extreme irradiation processes.
- 1:45 p.m. Tang H. * Dauphas N.
[*Low Abundance and Homogeneous Distribution of ⁶⁰Fe in the Early Solar System* \[#1703\]](#)
 Issue of ⁶⁰Fe abundance and homogeneity is still unclear. We measured ⁵⁸Fe and ⁶⁰Ni abundances in many meteorites, from which we derive a much lower initial ⁶⁰Fe/⁵⁶Fe ratio and show that ⁶⁰Fe 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 ⁶⁰Fe-⁶⁰Ni 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 ⁶⁰Fe in the solar system.
- 2:15 p.m. Spivak-Birndorf L. J. * Wadhwa M. Janney P. E.
[*⁶⁰Fe-⁶⁰Ni Systematics of Chainpur Chondrules and the Plutonic Angrites Northwest Africa 4590 and 4801* \[#2861\]](#)
 We present ⁶⁰Fe-⁶⁰Ni 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 ⁶⁰Fe/⁵⁶Fe < ~1 × 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 ⁵³Cr and ⁵⁴Cr 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 ⁵³Mn-⁵³Cr System* \[#2163\]](#)
 The ⁵³Mn-⁵³Cr 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) × 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. Sprung P. 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 $\epsilon^{182}\text{W}$ 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 $\epsilon^{182}\text{W}$ of -3.37 ± 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.