Monday, July 24, 2017
SHORT-LIVED RADIONUCLIDES AND EARLY SOLAR SYSTEM CHRONOLOGY
1:30 p.m. Sweeney B

The origin and distribution of short-lived radionuclides and chronology of the early solar system will be discussed.

Chairs: **Reto Trappitsch**
Gregory Brennecka

1:30 p.m. Bojazi M. J. * Meyer B. S.
Short-Lived Radioactivities and Galactic Chemical Evolution. **[#6385]**
We follow the galactic chemical evolution of the short-lived radioactivities with a multi-zone inhomogeneous model. We include thermonuclear supernovae and neutron star mergers. We account for the early solar system abundances of most species.

1:45 p.m. Meyer B. S. * Bojazi M. J. Avila M. L. Talwar R.
Argon-38 Alpha Capture and Supernova Production of ^{41}Ca **[#6369]**
We present new measurements of alpha-capture reaction rates on argon-38. The new rates are lower than those in the standard rate library. This means the reverse rates are also lower, leading to an increase in the supernova production of calcium-41.

2:00 p.m. Brennecka G. A. * Kleine T.
A Low Abundance of ^{135}Cs in the Early Solar System: Ba Isotopic Signatures of Volatile-Depleted Meteorites **[#6223]**
Previous estimates of the ^{135}Cs/^{133}Cs in the early solar system required recent supernova input. New measurements show this previous value was ~2 orders of magnitude too high, and ^{135}Cs was simply inherited from the surrounding molecular cloud.

2:15 p.m. Dwarkadas V. V. * Dauphas N. Meyer B. S. Boyajian P. H. Bojazi M.
Meteoritic Constraints on the Origins of Our Solar System **[#6159]**
At the time of formation, our solar system had a high abundance of ^{26}Al, accompanied by low ^{60}Fe. This suggests that it may have originated by triggered star formation within the dense shell of a Wolf-Rayet bubble that was the main source of ^{26}Al.

2:30 p.m. Trappitsch R. * Boehnke P. Stephan T. Telus M. Savina M. R. Pardo O. Davis A. M. Dauphas N. Huss G. R.
The Life and Death of Iron-60 **[#6299]**
We measured the nickel isotopic composition in the Semarkona DAP1 chondrule by resonance ionization mass spectrometry. Correcting for mass dependent fractionation, we find an initial ^{60}Fe/^{58}Fe value of $(4.2 \pm 7.6) \times 10^{-8}$ (2 σ, MSWD = 1.15).

2:45 p.m. Boehnke P. McKeegan K. D. * Stephan T. Steele R. C. J. Trappitsch R. Davis A. M. Pellin M. J. Liu M.-C.
The Rise and Fall of Iron-60 **[#6243]**
RIMS analyses of Ni isotopes in Orgueil carbonates reveal large mass-dependent fractionation effects that cannot be seen by SIMS. High ^{60}Ni/^{62}Ni ratios resulting from mass fractionation can be misinterpreted as evidence of radiogenic ^{60}Ni*.

3:00 p.m. Yin Q.-Z. * Sanborn M. E. Huyskens M. Amelin Y.
Was ^{26}Al Heterogeneously Distributed in the Early Solar System? **[#6259]**
In this talk, we will examine critically the issue of homogeneity versus heterogeneity of ^{26}Al distribution in the early solar system, with critical samples in hand, and with zeroth order observational data only.

3:15 p.m. Chaumard N. * Hertwig A. T. Kita N. T. Tenner T. J. Kimura M.
Measurements of Silica Excess in Plagioclase in Chondrules from Primitive Carbonaceous Chondrites: Implications for ^{26}Al-^{26}Mg Systematics **[#6309]**
Chondrules in 3.05–3.1 CCs contain plagioclases that retained silica excess, so that they are suitable for ^{26}Al-^{26}Mg chronology. Moreover, the preservation of silica excess might be more sensitive to secondary processes than Mg diffusion.

3:30 p.m. Dunlap D. R. * Wadhwa M. Agee C.
^{26}Al-^{26}Mg Systematics of the Ungrouped Achondrite Northwest Africa 11119: Timing of Extraterrestrial Silica-Rich Magmatism **[#6268]**
Ungropued achondrite NWA 11119 has an andesite-dacite bulk SiO_2. The high precision ^{26}Al-^{26}Mg internal isochron age is 4564.9 Ma and records the earliest known episode of silicic magmatism in our solar system.

3:45 p.m. Ottolino J. Mayer B. Leya I. Humayun M. *
Large Cosmogenic Rhenium Isotope Anomalies in Evolved IIAB Iron Meteorites **[#6058]**
Large cosmogenic isotope anomalies in Rhenium (+50 ‰) are shown to result from neutron capture on W isotopes.

4:00 p.m. Kruijer T. S. * Burkhardt C. Budde G. Kleine T.
Dating the formation of Jupiter Using W and Mo Isotope Analyses of Meteorites **[#6333]**
Isotopic signatures of iron meteorites and chondrites require that Jupiter's solid core formed within <1 Ma after solar system formation.

4:15 p.m. Daly L. * Bland P. A. Forman L. V. Saxey D. W. Reddy S. M. Rickard W. D. A. Fougerouse D. Tessalina S. La Fontaine A. Yang L. Trimby P. W. Cairney J. Ringer S. P. Schaefer B. F.
Re-Os Geochronology of Refractory Metal Nuggets Through Atom Probe Microscopy **[#6119]**
Isotopic information extracted from refractory metal nuggets (RMNs) in refractory inclusions using atom probe microscopy, combined with standards, reveal RMNs plot on the Re-Os solar system/chondrite regression line.

4:30 p.m. Edwards G. H. * Blackburn T. Alexander C. M. O'D.
Accretion and Disruption Histories of the Ordinary Chondrite Parent Bodies **[#6367]**
Discrepant Pb-Pb phosphate ages and Ni-metal metallographic cooling rates for ordinary chondrites may be explained by a decoupling of the two systems along parent body cooling paths interrupted by a catastrophic disruption at ~60 My after CAIs.

4:45 p.m. Hartmann W. K. *
Where are the Empirical Data to Support the Orbit Evolution Models? **[#6200]**
Dynamical models of orbital evolution in the solar system have suggested certain aspects of impact melt ages or lunar isotope chemistry that seem not born out by observations. The relation of the models to observations is discussed.