Monday, July 27, 2015
EARLY SOLAR SYSTEM CHRONOLOGY — A TRIBUTE DEDICATED TO IAN HUTCHEON
1:30 p.m. Stanley Hall Room 105

Chairs: **Gary Huss**
Jennifer Matzel

1:30 p.m. McKeegan K. D. * Liu M.-C.
A Devil in the Details: Matrix-Dependent $^{40}Ca^{42}Ca^{++}/^{42}Ca^{+}$ and Its Effects on Estimates of the Initial $^{41}Ca/^{40}Ca$ in the Solar System **[#5314]**
Ian Hutcheon established that the molecular ion interference $^{4}0Ca^{42}Ca^{++}/^{42}Ca^{+}$ on $^{41}K^{+}$ is strongly dependent on the mineral analyzed. Correction for this "matrix effect" led to a downward revision of the initial $^{41}Ca/^{40}Ca$ of the solar system.

1:45 p.m. Boss A. P. * Keiser S. A.
Supernova Shock Triggering and Injection into the Presolar Cloud: Effects of Rotational Axis Orientation **[#5001]**
New 3D hydrodynamical models show that a supernova shock wave can trigger the collapse of the presolar cloud and inject significant amounts of SNe isotopes regardless of the angle between the cloud's rotation axis and the shock propagation direction.

2:00 p.m. Bollard J. * Kawasaki N. Sakamoto N. Larsen K. Wielandt D. Schiller M. Connelly J. N. Yurimoto H. Bizzarro M.
Early Disk Dynamics Inferred from Isotope Systematics of Individual Chondrules **[#5211]**
We report U-corrected Pb-Pb ages and internal ^{26}Al-^{26}Mg isochrons of chondrules. The ^{26}Al-^{26}Mg ages are systematically younger from 0.7 to 3.1 Myr relative to the Pb-Pb ages, implying a reduced initial abundance of ^{26}Al in chondrule precursors.

2:15 p.m. Matzel J. * Jacobsen B. Simon J. I.
Aluminum-Magnesium Chronology of the Rim of a Murchison Type A CAI **[#5372]**
We measured the Al-Mg isotope systematics of anorthite, melilite, and spinel in the W-L rim of a Type A CAI and determined that the data fall along a slope corresponding to an initial $^{26}Al/^{27}Al$ of >2e-5.

2:30 p.m. Dunlap D. R. * Wadhwa M. Romaniello S. J. Souders A. K. Hines R.
^{26}Al-^{26}Mg Systematics of Ungrouped Achondrites: Implications for Timing of Planetesimal Differentiation **[#5317]**
High-precision ^{26}Al-^{26}Mg systematics are reported for anomalous eucrites SaU 493 and NWA 4470 and ungrouped primitive achondrites NWA 5297 and Tafassasset. We aim to understand the differentiation timescales for these unique achondrite parent bodies.

2:45 p.m. Yin Q.-Z. * Amelin Y. Koefoed P. Huyskens M. H. Sanborn M.
U-Pb Dating of the Allende CAI A63 1-C-1 **[#5088]**
High precision U-Pb absolute dating of Allende CAI A63 1-C-1 will be presented, together with Al-Mg and Mn-Cr ages we obtained with this CAI. The age reported here is subject to change pending final $^{238}U/^{235}U$ ratio measured on the same CAI.

3:00 p.m. Kita N. T. * Tenner T. J. Ushikubo T. Bouvier A. Wadhwa M.
Bullock E. S. MacPherson G. J.
Why Do U-Pb Ages of Chondrules and CAIs Have More Spread than Their ^{26}Al Ages? **[#5360]**
To test ^{26}Al homogeneity in the early solar system, we compare relative ^{26}Al ages of chondrules and CAIs with their absolute U-Pb ages. We will summarize the relevant data and discuss possible causes of discrepancies between the two chronometers.

3:15 p.m. Alexander C. M. O'D. *
The Closely Linked Timing of Chondrule and Chondrite Formation **[#5369]**
Chondrules from a single group formed over a very short time interval and shortly before accretion of their parent body.

3:30 p.m. Jilly-Rehak C. E. * Huss G. R. Nagashima K.
^{53}Mn-^{53}Cr Dating of Secondary Dolomite in a Renazzo (CR Chondrite) Dark Inclusion **[#5136]**
Mn-Cr dating of dolomite indicates formation ~4 Myr after CAIs, similar to calcite from the Renazzo matrix, but distinct from the late-stage calcite age in another CR chondrite. The dolomite age agrees with carbonates in CI and CM chondrites.

3:45 p.m. Krot A. N. * Doyle P. M. Nagashima K. Jogo K. Wakita S. Ciesla F. J. Alexander C. M. O'D. Bonal L. Fujiya W.
Chronology of Aqueous Activity and Sources of Water on the Chondrite Parent Bodies: Testing the Grand Tack Model **[#5150]**
To test the Grand Tack dynamical model of the solar system evolution, the accretion regions of hydrated chondrite asteroids are constrained using ^{53}Mn-^{53}Cr and O-isotope systematics of aqueously formed minerals, thermodynamical and physical modeling.

4:00 p.m. Blackburn T. * Alexandar C. M. O'D. Carlson R. W. Elkins-Tanton L.
Accretion and Impact Histories of OC Parent Bodies Constrained by Phosphate Pb-Pb Dates, Thermal, and Ni-Metal Modeling **[#5331]**
We present new phosphate Pb-Pb data from ten ordinary chondrites. These data and metallographic data are interpreted with a series of models designed to simulate the thermal Pb in phosphate and Ni-in-metal evolution for a chondrite parent body.

4:15 p.m. Pravdivtseva O. * Meshik A. Hohenberg C. M. Irving A. J.
I-Xe Systematics of Brachinite-Like Ultramafic Achondrite Northwest Africa 5400 **[#5387]**
I-Xe studies of separated mineral phases indicate that I-Xe systematics in NWA 5400 apparently survived parent body processing.

4:30 p.m. Amelin Y. * Koefoed P. Bischoff A. Budde G. Brennecka G. Kleine T.
Pb Isotopic Age of ALM-A — A Feldspar-Rich Volcanic Rock from the Crust of the Ureilite Parent Body **[#5344]**
Pb-isotopic age of ALM-A (Almahata Sitta trachyandesitic meteorite) is determined at 4562.0 ± 3.4 Ma.

4:45 p.m. Koefoed P. * Amelin Y. Irving A. J.
U-Pb Age of Ungrouped Achondrite NWA 10132 **[#5218]**
NWA 10132 is a recently discovered achondrite which shares many similarities to the unique achondrite NWA 6704. Here we present the U-Pbb age of NWA 10132 and compare it to that of NWA 6704.