

Tuesday, March 22, 2016

[T336]

**POSTER SESSION I: PLANETARY DIFFERENTIATION  
AND THE ORIGIN OF THE TERRESTRIAL PLANETS**

6:00 p.m. Town Center Exhibit Area

Lasbleis M. Laneuville M. Helffrich G. *POSTER LOCATION #536*

[\*Evolution of an Initially Stratified Liquid Core and Onset of a Dynamo\*](#) [#1896]

Accretion models predict initially strongly stratified core. We study how to destabilize and start convection in such a liquid metal layer.

Lin Y. Tronche E. J. Steenstra E. S. van Westrenen W. *POSTER LOCATION #537*

[\*Solidification Evolution of a Dry Lunar Magma Ocean: Constraints from Experimental Petrology\*](#) [#1296]

This work shows firstly the whole solidification evolution of a dry lunar magma ocean based on experimental petrology.

Zhang Y. X. *POSTER LOCATION #538*

[\*The Mass of the Depleted MORB Mantle is Less Than That of the Upper Mantle\*](#) [#1666]

Whether continental crust and depleted MORB mantle (DMM) are complementary is re-assessed. The results show that the mass of DMM is 83% of the upper mantle.

Condie K. C. Shearer C. K. *POSTER LOCATION #539*

[\*Incompatible Element Ratios in Plate Tectonic and Stagnant Lid Planets\*](#) [#1058]

Nb/Th and Zr/Nb in basaltic mantle sources in the Earth and Moon suggests that Earth was in a stagnant lid regime prior to the onset of plate tectonics about 3 Ga.

Medard E. Martin A. M. Righter K. Lanzitroti A. Newville M. *POSTER LOCATION #540*

[\*Platinum Partitioning at Low Oxygen Fugacity: Implications for Core Formation Processes\*](#) [#2801]

Pt is dissolved as anions in silicate melts under  $f_{O_2}$  relevant for core formation. This could partly explain excess siderophile elements in the Earth's core.

Armstrong K. Frost D. J. McCammon C. M. Rubie D. Boffa-Ballaran T. *POSTER LOCATION #541*

[\*Oxidation States of Fe in Silicate Melts as a Function of Pressure and Implications for Redox Evolution of the Early Mantle\*](#) [#2580]

High pressure experimental results of  $Fe^{3+}/FeT$  ratio in silicate melts.

Li Y. Dasgupta R. Tsuno K. Monteleone B. Shimizu N. *POSTER LOCATION #542*

[\*Establishing the Carbon and Sulfur Budget of the Earth's Silicate Reservoir by Accretion and Core Formation Process\*](#) [#2486]

The partitioning of carbon and sulfur between Fe-rich alloy melt and silicate melt at magma ocean conditions, with implications for Earth's accretion process.

Render J. Fischer-Gödde M. Burkhardt C. Kleine T. *POSTER LOCATION #543*

[\*Molybdenum Isotopes and the Building Blocks of the Earth\*](#) [#2639]

Our Mo isotopic data of enstatite and ordinary chondrites suggests that Earth cannot have accreted from a combination of any of the known chondrite groups.

Zube N. G. Nimmo F. Jacobson S. A. *POSTER LOCATION #544*

[\*Tungsten Isotopic Evolution and Mantle Equilibration in Grand Tack Accretion Simulations\*](#) [#2480]

The evolution of the Hf/W isotopic system is followed through the accretionary collisions of 28 N-body simulations using the Grand Tack scenario.

Ipatov S. I. Marov M. Ya. *POSTER LOCATION #545*

[\*Migration of Planetesimals to Forming Terrestrial Planets from the Feeding Zone of Jupiter and Saturn\*](#) [#1458]

A considerable fraction of water could be delivered to the embryo of the Earth when its mass was smaller than the present mass of the Earth.

- Hesse M. A. Ghanbarzadeh S. Prodanovic M. *POSTER LOCATION #546*  
[Hysteresis in Melt Network Topology Allows Core Formation by Porous Flow](#) [#2664]  
We show that hysteresis in the melt network topology allows the segregation high dihedral angle melts and rapid core formation by porous flow in planetesimals.
- Zhu M. -H. Wünnemann K. *POSTER LOCATION #547*  
[Giant Impact Forming the Crustal Thickness Dichotomy of the Moon](#) [#1771]  
Giant impact could reproduce the crustal thickness dichotomy and farside highlands of the Moon.
- Laneuville M. *POSTER LOCATION #548*  
[Effect of Tidal Dissipation on Lunar Crust Formation](#) [#1694]  
Recent studies show the source of the lunar crust is heterogeneous. I study asymmetric magma ocean crystallization due to temperature-dependent tidal heating.
- Petaev M. I. Jacobsen S. B. Huang S. Lock S. J. Stewart S. T. *POSTER LOCATION #549*  
[Testing Models of the Moon's Origin, III: Phase Diagram of a Proto-Lunar Disk and Condensation of Trace Elements](#) [#2468]  
Concentrations of major and trace elements in silicate melts condensed in a proto-lunar disk of BSE composition are compared with estimates of the bulk Moon.
- Pahlevan K. *POSTER LOCATION #550*  
[Isotopic Constraints on Proto-Lunar Disk Evolution](#) [#2999]  
We use stable isotopic measurements on samples to develop new constraints on proto-lunar disk evolution.
- Jacobsen S. B. Petaev M. I. Boatwright B. Lock S. J. Stewart S. T. *POSTER LOCATION #551*  
[A New Model for Lunar Origin: Elemental and Isotopic Constraints](#) [#2713]  
The composition of the Moon is consistent with it condensing out of bulk silicate Earth vapor. Its core forms with insignificant effects in the Hf-W isotopic system.
- Murri M. Scandolo L. Fioretti A. M. Alvaro M. Nestola F. et al. *POSTER LOCATION #552*  
[Fe-Mg Exchange Reaction in Clinopyroxene and Its Application to the Thermal History of Planetary Bodies](#) [#1425]  
New equilibrium annealing experiments (800 to 1000°C) have been performed on a Fe-poor augite to obtain a new geothermometer for augites from martian nakhlites.
- Charnoz S. Bugnet L. Siebert J. *POSTER LOCATION #553*  
[Processing of Moon Material in the Protolunar Disk: Devolatilisation During the Protolunar Disk Phase](#) [#2012]  
We study the Moon's formation and investigate the process of material devolatilisation. We find that devolatilisation may occur in the protolunar disk.