

Wednesday, March 20, 2013

[W302]

## TISSINT AND NWA 7034: THE LATEST IN MARS SAMPLE RETURN

8:30 a.m. Waterway Ballroom 4

**Chairs:** Christopher Herd  
Carl Agee

- 8:30 a.m. Herd C. D. K. \* Duke M. J. M. Bryden C. D. Pearson D. G.  
[Tissint Among the Shergottites: Parental Melt Composition, Redox State, La/Yb and V/Sc](#) [#2683]  
We provide an actual bulk SiO<sub>2</sub> analysis of the Tissint meteorite, along with redox estimates, and then compare Tissint to other shergottites.
- 8:45 a.m. Grosshans T. E. \* Lapen T. J. Andreasen R. Irving A. J.  
[Lu-Hf and Sm-Nd Ages and Source Compositions for Depleted Shergottite Tissint](#) [#2872]  
We present trace-element abundances for the major constituent phases, Lu-Hf and Sm-Nd ages, initial Hf- and Nd-isotope data, and source compositions for Tissint.
- 9:00 a.m. Brennecka G. A. \* Borg L. E. Symes S. J. K. Wadhwa M.  
[The Age of Tissint: Sm-Nd and Rb-Sr Isotope Systematics of a Martian Meteorite Fall](#) [#1786]  
We report the Rb-Sr, <sup>147</sup>Sm-<sup>143</sup>Nd, and <sup>146</sup>Sm-<sup>142</sup>Nd systematics of Tissint. The age information and isotopic characteristics are compared to other martian meteorites.
- 9:15 a.m. El Goresy A. \* Gillet Ph. Miyahara M. Ohtani E. Ozawa S. et al.  
[Multiple Shock Events and Diamond Formation on Mars](#) [#1037]  
Several shock events with distinct dense inventories encountered in Tissint and NWA 6162: diamond and olivine dissociation to MgSiO<sub>3</sub> perovskite + magnesiowüstite.
- 9:30 a.m. Lin Y. \* El Goresy A. Hu S. Zhang J. Gillet P. et al.  
[NanoSIMS Analysis of Organic Carbon from Mars: Evidence for a Biogenetic Origin](#) [#1476]  
Two petrographic settings of organic carbon in the Tissint martian meteorite and its isotopic compositions of C, N, and H by nanoSIMS demonstrate a biogenetic origin.
- 9:45 a.m. Steele A. \* McCubbin F. M. Benning L. Siljestrom S. S. Cody G. D. et al.  
[Organic Carbon Inventory of the Tissint Meteorite](#) [#2854]  
We have inventoried the organic material in the Tissint meteorite. We find C and N containing organic compounds associated with hydrothermal mineral inclusions.
- 10:00 a.m. Agee C. B. \* McCubbin F. M. Shearer C. S. Santos A. R. Burkemper L. K. et al.  
[Oxide Phases and Oxygen Fugacity of Martian Basaltic Breccia Northwest Africa 7034](#) [#2965]  
Substantial ferric iron components in the oxides phases of NWA 7034 show it is not only the most water-rich martian meteorite, but also the most oxidized.
- 10:15 a.m. Santos A. R. \* Agee C. B. McCubbin F. M. Shearer C. K. Burger P. V. et al.  
[Examination of Lithologic Clasts in Martian Meteorite NWA 7034](#) [#2533]  
In this study we classify lithologic clasts in the meteorite NWA 7034 using mineral textural relationships, major-element and REE chemistry, and O isotopes.
- 10:30 a.m. Ziegler K. \* Sharp Z. D. Agee C. B.  
[The Unique NWA 7034 Martian Meteorite: Evidence for Multiple Oxygen Isotope Reservoirs](#) [#2639]  
NWA 7034 contains multiple coexisting oxygen-isotope reservoirs, and attests to isotopic differences between the deep mantle and the crust/atmosphere of Mars.

- 10:45 a.m. Cartwright J. A. \* Ott U. Hermann S. Agee C. B.  
[NWA 7034 Contains Martian Atmospheric Noble Gases](#) [#2314]  
Black Beauty's her name, from Mars she certainly came, as our work displays. Noble gas it's clear,  
shows trapped martian atmosphere, more data to come!
- 11:00 a.m. Rochette P. Gattacceca J. \* Scorzelli R. B. Munayco P. Agee C. B. et al.  
[Searching for the Lithology Responsible for Large Crustal Magnetization on Mars: A Changing Perspective from NWA 7034](#) [#1343]  
NWA7034 provides the only relevant lithology to account for the large crustal magnetization of Mars.  
We evidence abundant magnetite, maghemite, and goethite.
- 11:15 a.m. Hewins R. H. \* Zanda B. Humayun M. Pont S. Fieni C. et al.  
[Northwest Africa 7533, an Impact Breccia from Mars](#) [#2385]  
NWA 7533 contains clast-laden melt rocks, orthopyroxene, norite-monzonite, and microbasalt.  
Inverted pigeonite and alkali feldspars indicate a deep origin.
- 11:30 a.m. Humayun M. \* Zanda B. Hewins R. H. Göpel C.  
[Composition of North West Africa 7533: Implications for the Origin of Martian Soils and Crust](#) [#1429]  
Implications of the matrix chemistry of the new martian impact breccia, NWA 7533, for the origin of  
martian soils and crustal thickness will be presented.