

Monday, March 17, 2014

[M151]

**NORTHWEST AFRICA 7034 AND PAIRINGS:  
INSIGHTS INTO THE RED PLANET FROM THE BLACK BEAUTY  
2:30 p.m. Waterway Ballroom 1**

**Chairs:** Monica Grady  
Carl Agee

- 2:30 p.m. Hewins R. H. \* Zanda B. Humayun M. Lorand J.-P. Pont S.  
[\*Impact Melt Rocks and Pristine Clasts in Northwest Africa 7533\*](#) [#1416]  
This martian breccia contains feldspathic clasts with Ni-rich pyroxene and some Ni-poor orthopyroxene clasts, respectively interpreted as impact-related and pristine material.
- 2:45 p.m. Santos A. R. \* Agee C. B. Shearer C. K. Burger P. V. McCubbin F. M.  
[\*A Trace Element Investigation into the Petrogenetic Relationships of Different Igneous Lithologies Within Martian Meteorite NWA 7034\*](#) [#2621]  
Major elements and REEs in pyroxene were used to determine the petrogenetic relationships between igneous lithologies in NWA 7034.
- 3:00 p.m. Nemchin A. A. \* Humayun M. Whitehouse M. J. Hewins R. H. Lorand J.-P. et al.  
[\*Oxygen Isotope Compositions and Ti and REE Concentrations of Zircon from Martian Meteorite NWA 7533\*](#) [#1720]  
Oxygen-isotope compositions of zircon from martian meteorite NWA 7533 suggest existence of different oxygen reservoirs during zircon formation and alteration.
- 3:15 p.m. Yin Q.-Z. \* McCubbin F. M. Zhou Q. Santos A. R. Targese R. et al.  
[\*An Earth-Like Beginning for Ancient Mars Indicated by Alkali-Rich Volcanism at 4.4 Ga\*](#) [#1320]  
Discovery of 4.35–4.44 Ga and 1.44 Ga zircons and 1.35 Ga phosphates in a martian meteorite indicates Earth-like beginning for Mars with alkali-rich volcanism.
- 3:30 p.m. Goderis S. \* Brandon A. D. Mayer B. Humayun M. Agee C. B.  
[\*Tracing Impactor Signals Prevalent in Martian Regolith Breccia Northwest Africa 7034 with Os Isotopes and Platinum Group Elements\*](#) [#2200]  
The highly siderophile element budget of NWA 7034 suggests roughly carbonaceous chondritic impactors and a Re-Os fractionation event ~1.9 Ga ago.
- 3:45 p.m. Humayun M. \* Hewins R. H. Lorand J.-P. Zanda B.  
[\*Weathering and Impact Melting Determined the Mineralogy of the Early Martian Crust Preserved in Northwest Africa 7533\*](#) [#1880]  
Weathering of an olivine-bearing regolith to form Fe-oxides, followed by impact melting, creates an opx and magnetite mineralogy in the early martian crust.
- 4:00 p.m. Schwenzer S. P. \*  
[\*Evaluating Potential Alteration Products of NWA7034: Expanding Our Knowledge of Martian Crustal Alteration Assemblages\*](#) [#1718]  
Modeling insights into alteration minerals formed by a variety of processes — from martian/terrestrial weathering to volcanic and impact-generated hydrothermal.

- 4:15 p.m. Muttik N. \* Keller L. P. Agee C. B. McCubbin F. M. Santos A. R. et al.  
[\*A TEM Investigation of the Fine-Grained Matrix of Martian Basaltic Breccia NWA 7034\*](#) [#2763]  
Fine-grained groundmass of NWA 7034: textural evidence of short term heating event.
- 4:30 p.m. Grady M. M. \* Schwenzer S. P. Verchovsky A. B.  
[\*The Mantle, Crust and Atmosphere of Mars as Illuminated by the Light Element Geochemistry of NWA 7034\*](#) [#2779]  
Analysis of C, N, and noble gases in martian meteorite NWA 7034 indicates that it contains trapped martian atmosphere.