Warren P. H. Rubin A. E. Ziegler K.

*Northwest Africa 5415: A Howarditic Impact-Melt Breccia with Zoned Relict Orthopyroxenes and Augites, and Corroded, Complexly Mantled Fo-59 Olivines* [#2545]

NWA5415 is unusual among HEDs for its clear manifestation of origin by large-scale impact melting. Our section’s five relict olivines display reaction textures (pyroxene coronas) formed by immersion in melt on the Si-rich side of the ol-px liquidus.

Roszjar J. Srinivasan G. Bischoff A. Mezger K. Whitehouse M.

*Hf-W Ages of Zircons — New Constraints on the Evolution of the Eucrite Parent Body* [#1655]

We determined Hf-W ages from zircons found in four basaltic eucrites using the Cameca 1270 ion microprobe. The consistent crystallization ages suggest that the eucrite zircons formed in between a short time period after core-mantle segregation.

Greenwood R. C. Haack H. Buchanan P. C. Franchi I. A. Smith C. L. Johnson D. Burbine T. H.

*Searching for the Missing Mantles of Disrupted Asteroids: Evidence from an Olivine-rich Clast in the Vaca Muerta Mesosiderite* [#2456]

As part of an investigation into the olivine-rich material in mesosiderites we have looked in detail at a clast from Vaca Muerta which may represent preserved mantle material.

Ghosh A. Day R.

*Thermal Simulation of a Magma Ocean on Asteroid 4 Vesta* [#1850]

We present a thermal model of a magma ocean scenario on 4 Vesta.

Scott E. R. D. Greenwood R. C. Franchi I. A. Sanders I. S.

*Oxygen Isotopic Constraints on the Origin and Parent Bodies of Eucrites, Howardites, and Diogenites* [#2263]

Our oxygen isotopic analyses of 18 eucrites and four diogenites suggest that Vesta was isotopically homogeneous and that five of these eucrites with abnormal O isotopic compositions plus NWA 011 come from five Vesta-like bodies.

Righter K. Sutton S. Danielson L. Pando K. Le L. Newville M.

*Using Vanadium in Spinel as a Sensor of Oxygen Fugacity in Meteorites: Applications to Mars, Vesta, and Other Asteroids* [#2213]

Some meteorites do not contain mineral assemblages required to apply traditional oxy-barometers. Here we introduce a technique using vanadium X-ray absorption features in spinels to characterize the oxygen fugacity of meteoritic dunites, pyroxenites, and chondrites.


*Peridotites Related to 4 Vesta: Deep Crustal Igneous Cumulates and Mantle Samples* [#2466]

NWA 5480 may be a sample of Vesta-Related Mantle, but 4Vesta may be just one part of a former, larger body (Opis).

Bogard D. Garrison D.

*Ar-Ar Impact Heating Ages of Eucrites and Timing of the LHB* [#1131]

Ar-Ar ages indicate impact resetting ~4.48 Ga ago for unbrecciated eucrites and ~3.4–4.1 Ga for brecciated eucrites. These impacts likely are related to the late heavy bombardment (LHB) of the Moon.