Friday, July 31, 2015
IRON AND STONY-IRON METEORITES:
COMPOSITION, ISOTOPES, SHOCK, AGES
A TRIBUTE DEDICATED TO JOE GOLDSTEIN
1:30 p.m. Stanley Hall Room 105

Chairs: **Carl Agee**
Jeremy Delaney

1:30 p.m. Mayne R. G. * McCoy T. J.
Pallasites: Does Density Matter After All? **[#5222]**
We utilize CT-data to understand the 3D relationship between metal and olivine in pallasites, in an attempt to constrain and test existing pallasite formation models.

1:45 p.m. Agee C. B. * Ziegler K. Muttik N.
New Unique Pyroxene Pallasite: Northwest Africa 10019 **[#5084]**
Discovery of NWA 10019 brings the number of different pyroxene pallasite types to five. These combined with the PMG, PES, and Milton would require a minimum of eight distinct parent bodies for the pallasite meteorites.

2:00 p.m. Chabot N. L. * Beck A. W. Ash R. D.
Examining Trace Element Partitioning into Iron Phosphide, with Applications to Iron Meteorites **[#5023]**
We present the first results from our experimental study to determine trace element partitioning behavior into iron phosphide, with applications to understanding the formation and evolution of iron meteorites.

2:15 p.m. Breen J. P. * Rubin A. E. Wasson J. T.
Shock Effects in IIIE Iron Meteorites: Implications for Parent-Body History **[#5083]**
IIIE irons comprise weakly shocked to severely shocked samples; the latter set contains vesicular troilite filaments. Haxonite occurs in weakly-to-moderately shocked IIIE irons, but is fully decomposed to graphite in strongly shocked samples.

2:30 p.m. Scott E. R. D. * Huss G. R. Goldstein J. I.
Carbon in Plessite and Taenite in Iron and Stony-Iron Meteorites **[#5124]**
Ion microprobe analyses for C in fine-grained plessite in carbide-bearing irons range from 10 ppm by wt. in pearlitic plessite to 1000 ppm in martensitic plessite. C contents give valuable clues to taenite decomposition temperatures and mechanisms.

2:45 p.m. Ek M. * Hunt A. C. Schönbächler M.
The Effects of Galatic Cosmic Ray Irradiation on Palladium Isotopes in Iron Meteorites **[#5181]**
New Pd isotope data of IAB, IIAB, IVA and IVB iron meteorites are presented. Preliminary results suggest correlated variations in 104Pd and the more established Pt dosimeter as well as the absence of nucleosynthetic anomalies in IAB meteorites.

3:00 p.m. Cook D. L. * Burkhard R. Schönbächler M. Leya I.
Iron Isotopes in the Metal Phase of IAB Iron Meteorites **[#5326]**
We analyzed IAB irons with a range of CRE ages to investigate whether effects from GCR may influence Fe isotopes. No resolvable anomalies were observed. Modeling of potential cosmic ray effects on Fe are underway to compare to our observations.

3:15 p.m. Isa J. * McKeegan K. D. Wasson J. T.
Cr-Bearing Inclusions in IVA Irons: Implication for Cr and Volatile Behaviors in the Metallic Cores **[#5352]**
We found inclusions that contribute to bulk Cr concentrations and found f_{O2} or f_{S2} changes during crystallization. O-isotope compositions of chromite are mass-dependently lighter than other IVA oxides. Also, we discovered a new mineral $MnCr_2S_4$.

3:30 p.m. Delaney J. S. * Turrin B. Lindsay F. Herzog G. F. Park J. Swisherr C. III
^{40}Ar-^{39}Ar Age Differences Across Petrographic Boundaries In Mesosiderites **[#5164]**
Petrographically constrained laser ^{40}Ar-^{39}Ar dates in mesosiderites reveal sub-cm scale age heterogeneity. Profiling across lithological boundaries shows bimodal ages that are probably associated with metal-silicate mixing and metamorphism.

3:45 p.m. Haba M. K. * Yamaguchi A. Hidaka H.
Formation Mechanism of Zircons in Mesosiderites **[#5207]**
Zircons in mesosiderites can be divided into two types based on geochemical features; one could be a relict zircon derived from silicate parts before the metal-silicate mixing and the other is a secondary zircon that formed during the mixing event.