

Tuesday, July 28, 2015

**POSTER SESSION: EXPOSURE HISTORY AND DELIVERY OF METEORITES
FROM ASTEROIDS, MARS, AND THE MOON,
FROM FALLS, FINDS, AND RECOVERIES**

5:30 p.m. Hearst Memorial Mining Building (HMMB) Floor One

Roberts R. V. Gaffey M. J. Fieber-Beyer S. K.

[*Is the Gefion Dynamical Asteroid Family the Source of the L-Chondrites?*](#) [#5073]

Data reduction and analysis of VNIR spectra from 11 Gefion family asteroids reveal a diverse mix of lithologies and that most of the sampled Gefion family asteroids do not have L-chondrite compositions.

Nagao K. Haba M. K. Lee J. I. Kim T. Lee M. J.

[*Noble Gases of the Jinju \(H5\) Meteorite Fell on March 9, 2014, in Korea*](#) [#5027]

Noble gas compositions of the Jinju meteorite that fell in Korea show relatively short cosmic-ray exposure age of (2–3) My, almost perfect retention of radiogenic ^4He and ^{40}Ar for about 4.0 Gy, and support the petrologic classification of H5.

Beard S. P. Swindle T. D.

[*\$^{21}\text{Ne}\$ Cosmic-Ray Exposure Ages of Ureilites*](#) [#5305]

It is unclear whether ureilites represent primitive or differentiated materials. In order to further constrain the origin of ureilites, we investigate possible relationships of CRE ages with other parameters.

Roth A. S. G. Metzler K. Hofmann B. Leya I.

[*Neon Produced by Solar Cosmic Rays in Chondrites with Small Pre-Atmospheric Sizes*](#) [#5234]

Solar-cosmic-ray-produced Ne is rather uncommon among meteorites from our collections but - surprisingly - more frequently found in rare meteorite classes. Here we postulate that this observation is actually the result of a sampling bias.

Markley M. M. Kletetschka G.

[*Nanophase Iron Production Through Laser Irradiation: Space Weathering Analog*](#) [#5011]

Magnetic observations of laser irradiated olivine provide a record of the sizes and populations of nanophase iron. These variances can be used as a measure of space weathering and forward modelling the spectral changes due to the iron.

Smith T. Leya I.

[*The Xenon-129 Concentrations in Troilite Inclusions of Iron Meteorites*](#) [#5203]

Seven troilite samples have been separated from four different iron meteorites and analyzed for their noble gas concentrations. Here we present the xenon isotopic ratios and xenon-129 concentrations.

Li Y. Li X. Y. Wu Y. X. Sr. Li S. J. Wang S. J.

[*Irradiation of Anorthite by Iron Ions-A Simulation of the Solar Wind Origin of Nanophase Iron in Lunar Soil*](#) [#5246]

We present a simulant study of the origin of nanophase iron particles that implanted into the lunar soil particles by solar wind. Iron, ferrous oxide and ferric oxide were identified and their origins were discussed.

Reedy R. C.

[*Extreme Solar Particle Events and Their Effects on Meteorites*](#) [#5288]

Both modern and ancient solar events with very-high fluxes of energetic protons are reviewed. Huge events were observed in 2012, 1859, 993, and 775. The production of cosmogenic nuclides in meteorites, including that by extreme events, is discussed.

Galloway M. J. Sansom E. K. Bland P. A.

[*Automating Sub-Pixel Fireball Position Identification in Long Exposure Digital Images*](#) [#5160]

We propose an automated method for finding fireball trajectory positions in long exposure digital images with sub-pixel precision, for a large scale multi-camera meteor observation network.

Jenniskens P. Harlan S. Zolensky M. Yin Q.-Z. Verosub K. L. Jull A. J.

[Meteorites Found on Misfits Flat Dry Lake](#) [#5140]

We report the discovery of meteorites along the northern shore of the Misfits Flat dry lake near Stagecoach, NV. The first meteorite was found by Scott Harlan of Salinas, CA, on Sept. 22, 2013. In 18 subsequent visits, 57 more stones were found.

Dos Santos E. Scorzelli R. B. De Avillez R. R. Pourkhorsandi H. Rochette P. Gattacceca J.

[Weathering Effects on Ordinary Chondrites from the Lut Desert \(Iran\) Studied by \$^{57}\text{Fe}\$ Mössbauer Spectroscopy](#) [#5076]

The Lut Desert (Iran) is a high-potential region for preserving large concentrations of meteorites. In this work, we will apply ^{57}Fe Mössbauer spectroscopy to investigate weathering in ordinary chondrites collected in different areas from Lut Desert.

Hsu W. Wang K.

[A Massive Iron Meteorite Shower Over Northwest of China](#) [#5087]

Two massive iron meteorites were recently found in the vicinity of Armanty.

Bischoff A. Ebert S. Patzek M. Horstmann M. Pack A. Barrat J.-A. Decker S.

[New Individuals from the Almahata Sitta Strewn Field: Old Friends and Brand-New Fellows](#) [#5092]

Nine new samples (MS-MU-012–MS-MU-020) from the Almahata Sitta strewn field were studied including ureilitic samples, chondrites, and a unique sample (MS-MU-019). Among these MS-MU-012 is an unbrecciated, ureilitic feldspar-olivine-pyroxene rock.

Hruba J. Kletetschka G.

[Melting and Freezing of Ice in Relation to Iron Oxidation of Meteorites](#) [#5093]

Meteorites discovered in the Antarctic ice sheet are better preserved than specimens elsewhere as the ice protects them. But ice or snow adhering to their surfaces may melt or sublimate directly on them, which may cause their oxidation.

Yakovlev G. A. Oshtrakh M. I.

[Surface Weathering Products of Dronino Iron Meteorite Fragment: A Study Using Mössbauer Spectroscopy with a High Velocity Resolution](#) [#5109]

Re-examination of the surface weathering products of Dronino iron meteorite fragment was carried out using Mössbauer spectroscopy with a high velocity resolution.

Chennaoui Aoudjehane H. Hewins R. Zanda B. Gattacceca J. Devouard B. Jambon A.

[Tinajdad, the Latest 2014 Moroccan Fall, a Ni-Rich H5](#) [#5195]

In this abstract, a description of the latest September 2014 fall reported in the south of Morocco is given. Only one piece has been recovered, it's a Ni-rich H5.

Chennaoui Aoudjehane H. Agee C. B. Irving A. J. Garvie L. A. J. Ziegler K. Jambon A. Weber P.

[Tirhert — July 2014 — Eucrite Fall in Morocco](#) [#5197]

Tirhert is the latest eucrite fall reported in Morocco on July 2014 in Foum Al Hisn area. A fieldwork has been conducted to document the fall and limit the strewnfield. The meteorite has been found immediately the day after the fall.

Zucolotto M. E. Monteiro F. A.

[Results of an Intensive Brazilian Divulcation Program Involving Amateur Astronomers and Students](#) [#5391]

Brazil has a very few number of meteorites comparing with its continental size, holding only 55 meteorites at 2009 when our divulgation program received the first financial supports. Now there are 77 approved meteorites.

Alexander E. C. Jr. Kracher A. Wasson J. T. von der Handt A.

[The Minnesota Meteorite Mystery: Two Unrelated Very Flat Irons](#) [#5231]

Two iron meteorites of similar unusual shape but different chemical composition have been found within ~3 km of each other. We investigate possible reasons for this coincidence.

Moggi Cecchi V. Caporali S. Pratesi G.

[DaG 1066: A Newfound Anomalous Ureilite with Chondritic Inclusions](#) [#5252]

General description, textural, and compositional features of the polymict ureilite DaG 1066, recovered in 1999 in Libya, are provided. The meteorite contains various inclusions, among which almost pure forsterite and enstatite-bearing chondrules.

Righter K. Satterwhite C. E. Schutt J.

[Updates on Pairing Issues with the US Antarctic Meteorite Collection](#) [#5266]

We examine a few pairing groups in the US Antarctic meteorite collection with known issues and give an update on some of the larger or more significant pairing groups.

Wimmer K. Gnos E. Heinlein D. Hofmann B.

[A Fireball from an Aten Type Orbit Over Germany and Switzerland](#) [#5355]

A fireball with a remarkably flat slope trajectory crossed Germany and Switzerland on March 15, 2015. Trajectory and strewn field could be derived from multiple fotografic, video and seismic records. The meteoroid originates from an Aten type orbit.

Bryson K. L. Agrawal P. Ostrowski D. R. Sears D. W. G.

[Fracture Characterization of Meteorites](#) [#5361]

NASA ARC has been tasked with understanding the behavior of ~100m asteroids entering the atmosphere and quantifying the impact hazard. As part of this task, we report the initial results of a survey of the fracture properties of meteorites.

Ostrowski D. Sears D. W. G. Bryson K. Agrawal P.

[Physical Properties of Meteorite Falls in Relation to Planetary Defense](#) [#5363]

NASA ARC has set up a new lab to study a suite of physical properties of all types of meteorite falls. This is aide to the Planetary Defense initiative at Ames in determining how to deflect or the impact outcome of potentially hazardous bodies.

Ustinova G. K.

[Two Approaches to Studying Cosmogenic Radionuclides in Chondrites](#) [#5022]

Two approaches to studying (using) cosmogenic radionuclides in chondrites are considered. The preference of that, which compares the measured cosmogenic radionuclide production rates with the calculated ones at the GCR intensity at 1 AU is explained.

Chennaoui Aoudjehane H. Jambon A.

[Meteorite Falls in Morocco During the Last Decade: An Overview](#) [#5186]

A statistics study of meteorite falls in Morocco during the last decade comparing to some other countries in the word. The number of falls in Morocco during this period is higher than any other place in the word.

Schmitz B.

[The Meteorite Flux to Earth Through the Phanerozoic Eon — The First Results](#) [#5323]

Extraterrestrial spinels in slowly formed marine sediments can link the history of earth's biosphere, tectonics and climate to the history of the asteroid belt and the solar system.

Schmitz B. Yin Q.-Z. Sanborn M. E. Tassinari M.

[Chromium Isotopes in Ordovician Fossil Meteorites and the Quest for the Impactor that Broke Up the L-Chondrite Parent Body](#) [#5037]

In the search for fossil meteorites in a quarry in Ordovician limestone a meteorite has been found that does not match any presently known meteorite type. It can be a piece of the impactor that broke up the L-chondrite parent body 470 Ma ago.

Klinova S. V. Yakovlev G. A. Firsov N. N. Grokhovsky V. I.

[Microbiological Influence of Phototrophic Bacteria on Meteorites In Vitro](#) [#5210]

Microbiological influence of phototrophic bacteria on various meteorites in vitro is investigated.