Vaccaro E.  Russell S. S.   Lee M. R.   Starkey N. A.   Frachi I. A.  

Non-Destructive Characterisation of Fine Grained Samples: Assessment of In Situ Micro-XRD of Primitive Meteorite Matrix  [#5348]
The size of samples returned from space missions makes it vital to develop non-invasive technique. We have carried out a non-destructive in situ micro XRD analysis of ALHA 7307 matrix and TEM observations to assess the validity of the technique.

Szurgot M.  Wach R. A.   Matusiak M.  

Thermophysical Properties of NWA 4560 Chondrite  [#5007]
Specific heat capacity, thermal diffusivity, thermal conductivity of NWA 4560 chondrite and troilite phase transitions have been determined.

Wach R. A.  Szurgot M.   Matusiak M.  

Thermal Properties of Kilabo Chondrite  [#5010]
Specific heat capacity, volumetric heat capacity, thermal diffusivity, and thermal conductivity have been determined for Kilabo chondrite. Troilite content and troilite phase transition data have been determined.

Szurgot M.  

Thermal Properties of Chelyabinsk Meteorite  [#5012]
Specific heat capacity, volumetric heat capacity, thermal diffusivity, and thermal conductivity of Chelyabinsk chondrite have been determined.

Szurgot M.  Wach R. A.   Bartoschewitz R.  

Thermophysical Properties of the Braunschweig Meteorite  [#5015]
Specific heat capacity, thermal conductivity, thermal diffusivity, troilite abundance, temperature of troilite alpha/beta transition, and relict temperatures revealed by troilite thermometry have been determined in the Braunschweig L6 chondrite.

Szurgot M.  Wach R. A.   Bartoschewitz R.  

Calibrating Troilite Cosmothermometer in Braunschweig Meteorite  [#5026]
Effect of temperature of controlled heating and time on temperature of alpha/beta phase transformation in Braunschweig troilite has been established. Relict temperatures between 160°–600°C can be determined by troilite thermometry.

Szurgot M.  

Modal Abundance of Minerals in Sołtmany L6 Chondrite  [#5031]
Relative abundance of constituent minerals in Soltmany L6 chondrite has been estimated, and grain density, porosity and specific heat capacity predicted.

Almeida N. V.   Smith C. L.   Sykes D.   Downes H.   Ahmed F.   Russell S. S.  

Finding “Pebbles” in Barwell with X-Ray Micro-Computed Tomography (μCT)  [#5033]
We present the volumes and three-dimensional shapes of several rounded inclusions similar to the igneous “Barwell Pebble” using this non-destructive technique. This information helps shed light on their incorporation into the L chondrite parent body.

Brandstätter F.  Koeberl C.   Topa D.  

The Steingarden Nunataks L6 Chondrites STG 07002, 07003, 07004: Relationship to Type 7 Chondrites  [#5047]
Steingarden Nunataks L6 chondrites STG 07002, 07003 and 07004 have several features in common with some recently described L7 chondrites. The similarities comprise microscopic textures as well as the mineral chemistry of major silicates and opaques.
The present study is focused on the comparative analysis of spectral characteristics for light- and dark-colored lithologies in Chelyabinsk chondrite by means of photo-, thermo- and cathodoluminescence techniques.

The Fuhe Chondrite

Fuhe is an L5 chondrite.

CH, H, EH and EL-chondrites are the most enriched in Fe, Ni, Cr, Co, Au, Pd, Pt among chondrites groups. Their parent bodies are the most valuable from mining point of view.

Chemical data of 74 enstatite chondrites reveal that mineral chemistry cannot be correlated with petrologic type. Differences in sulfide chemistry suggest that at least four parent lithologies (two each for the EH and EL subgroups) might be required.

We have clarified luminescence centers of extraterrestrial enstatite and comparatively discuss the CL of terrestrial and extraterrestrial enstatite in meteorites (E-chondrite; Dar al Gani 734, Sahara 97096 and Yamato 86004).

NWA 6901 is related to other CR metachondrites. Its bulk chemical composition may be best explained by infiltration of a melt similar in chemistry to phosphates in NWA 011.

We present new ⁴⁰Ar/³⁹Ar data for the Jilin Chondrite. Modeling of our data using a MDD model shows either the feldspar became less retentive, the pyroxene became more retentive, or the event was exceptionally high temperature/short duration.

We discuss unusual textural features of three new type 3 chondrites (H3, L3, LL3) from the Lut desert. Together with a new H4 chondrite and Shahdad (H5), there appears to be a great variety of O-chondrites in the Lut desert of Iran.

This study compares hot desert meteorite finds from a systematic and well documented field search to NWA specimens obtained through purchases in the market places of Algeria and Morocco. Several of these important meteorites will be discussed.
Krzesińska A. Fritz J.  
*Early Evolution of the H Chondrite Parent Body: Record in Chromite-Plagioclase Assemblages* [#5228]  
Chromite-plagioclase assemblages in H chondrites contain well recrystallized chromite and criptoantiperthite. They are interpreted here as a result of impact melting and following annealing in early history of the parent body.

Steer E. D. Treiman A. H.  
*Alteration of Sulphides in the Rumuruti Chondrite La Paz Icefield (LAP) 031275* [#5333]  
Pyrrhotite in LAP 03175 (R5) has altered to a fine-grained mineral mixture. New data (optical, chemical, and Raman) suggest the mixture includes violarite and tochilinite, but not (as suggested earlier) graphite, hematite, and/or jarosite.

Chabou M. C. Bendaoud A. Ait Kassi M.  
*Classification and Mineralogy of a New Ordinary Chondrite from Hassi El Gassi (Southern Algeria)* [#5329]  
We present here the classification and mineralogy of a new ordinary chondrite recovered in Hassi el Gassi (Southern Algeria). Based on its mineralogical composition and textural features, this meteorite is classified as an H6 chondrite.

*The Chelyabinsk Fall Highly Siderophile Element Abundance and $^{187}$Os/$^{188}$Os Composition and Comparison with Ordinary and Carbonaceous Chondrites* [#5078]  
New osmium isotope and highly siderophile element abundance data are presented for the Chelyabinsk ordinary chondrite fall (February 2013) and placed into context with new data for ordinary and carbonaceous chondrites.

Trivedi M. Smith H. D. Sears D. W. G.  
*Detecting and distinguishing metamorphic gradients of Unequilibrated (Type 3) Ordinary Chondrites using Infrared Reflectance Spectra* [#5451]  
We measure the IR reflectance spectra of fallen UOC to determine if Type 3 meteorites can be identified and classified using IR reflectance spectra and clinopyroxene abundance. Spectra was obtained from RELAB and taken on samples from SI and NHM.

Ray D. Mahajan R. R. Ghosh S. Murty S. V. S. Chakraborti K.  
*Troilte-Metal Nodule in Katol Chondrite-Role of Impact and Noble Gas Evidences* [#5154]  
Katol, a troilte-metal bearing highly equilibrated L6-7 chondrite.

Vaccaro E. Russell S. S. Goral T. Starkey N. A. Franchi I. A.  
*Matrix Variability in Primitive Meteorites* [#5327]  
We have carried out high resolution SEM image and element maps of carbonaceous chondrites matrix to explore the variability of mineralogy. These techniques provide information at high spatial resolution on larger areas and more readily than TEM.