Thursday, March 17, 2005
POSTER SESSION II: METEORITE CHARACTERIZATION TECHNIQUES
7:00 p.m. Fitness Center

Kohout T. Kletetschka G. Pesonen L. J. Wasilewski P. J.
Determination of Meteorite Porosity Using Liquid Nitrogen **[#1743]**
We introduce a new harmless method for porosity measurement suitable for meteorite samples. The method is a modification of the Archimedean method based on immersion of the samples in a liquid medium like water or organic liquids. We used liquid nitrogen for its chemically inert characteristics.

Strait M. M. Consolmagno G. J.
Validation of Methods Used to Determine Microcrack Porosity in Meteorites **[#2073]**
Porosity measurements of meteorites were evaluated, and inconsistencies between hand sample and thin section methods were investigated and can be ascribed to weathering effects, experimental uncertainties and image quality.

Smith D. L. Ernst R. E. Samson C. Herd R. K.
Magnetic Susceptibility of Stony Meteorites: Evaluation of Anisotropy and Frequency Dependence **[#1408]**
Evaluation of four magnetic parameters that show promise as meteorite classification tools and discriminants: bulk magnetic susceptibility and its frequency dependence, and the degree and shape of the anisotropy of magnetic susceptibility.

Macke R. J. Consolmagno G. J. Rochette P. Britt D. T.
A Fast, Non-Destructive Method for Classifying Ordinary Chondrite Falls Using Density and Magnetic Susceptibility **[#1550]**
We describe a fast, non-destructive method for classification of H, L, and LL chondrites using grain density and magnetic susceptibility measurements.

Smith D. L. Samson C. Herd R. K. Christie I. Sink J.-E. DesLauriers A. Ernst R. E.
Measuring the Bulk Density of Meteorites and Rock Samples Non-Destructively Using 3D Laser Imaging **[#1372]**
Initial results are presented of a new non-destructive technique for determining the bulk density of meteorites and other solid objects using a Laser Camera System.

Nettles J. W. McSween H. Y. Jr.
Size and Shape Distributions of Chondrules and Metal Grains Revealed by X-Ray Computed Tomography Data **[#2018]**
X-ray CT data were used to measure size and shape distributions of chondrules and metal grains in three ordinary chondrites. Comparisons of these distributions has implications for potential nebular sorting processes.

Fries M. Steele A.
Inclusions Within Chondrule Mineral Grains as Characterized Using Confocal Raman Imaging **[#2238]**
Rounded, randomly emplaced inclusions within chondrule mineral grains have been characterized by confocal Raman imaging and found to contain mixtures of carbon, metal sulfides, mineral grains, and other components. Initial characterization of inclusions from Allende and EET 96188 are described.

Moroz L. V. Schmidt M. Schade U. Hiroi T. Ivanova M. A.
Synchrotron-based Infrared Microspectroscopy as a Useful Tool to Study Hydration States of Meteorite Constituents **[#1357]**
We show that synchrotron-based IR microspectroscopy is a useful tool to study hydration states of meteorites *in situ*. We show that Dho225 and Dho735 are metamorphosed carbonaceous chondrites whose matrices are dehydrated compared to CM2 chondrites.

Hoffman E. J. Schade U. Moroz L.
Anomalous Spectra of High-Ca Pyroxenes: Further Correlations Between NIR and Mössbauer Patterns **[#2096]**
As for previously reported high-Ca pyroxenes, Mössbauer spectra of the infrared spectral Type B ("anomalous") samples in this study also present an anomaly, indication of more Fe-III than shown by chemical analysis. Minor phases may be responsible.

Schwandt C. S.
Evolution of Meteorite Chip Samples During Typical Storage Methods: A Seven and a Half Year ALH 84001 Case Study **[#1910]**
Examination of a meteorite chip intermittently over more than seven years reveals the mobilization and re-crystallization of halite and sulfates on the surface of the sample.

Lyon I. C. Matsuda Y. Strasser P.
Analysis of Extra-Terrestrial Materials by Muon Capture — Developing a New Technique for the Armory **[#1636]**
We are developing a new analytical technique for elemental and isotopic analysis of extra-terrestrial materials using muon capture. The technique is in its early stages but offers new possibilities such as non-destructive and thin-film analysis.