Tuesday, March 2, 2010
POSTER SESSION I: LABORATORY INSTRUMENTS AND SAMPLES
7:00 p.m. Town Center Exhibit Area

Zhang J. J. Dauphas N. Davis A. M.
A New Chemical Separation Method for MC-ICPMS Measurement of Titanium Isotopic Compositions in Natural Materials **[#2170]**
We have developed a new approach to separate titanium from silicate matrices with TODGA and AG1-X8 ion exchange resins. Preliminary titanium isotope results for two geostandards are reported.

Nakamura N. Nyquist L. E. Reese Y. Shih C.-Y. Fujitani T. Okano O.
Stable Chlorine Isotope Study; Application to Early Solar System Materials **[#2233]**
In order to clarify the stable chlorine isotope features of early solar sytem materials, we have initiated TIMS technique applicable for analysis of small planetary materials at NASA JSC. We report the current status of chlorine isotope analysis at JSC.

Strashnov I. Blagburn D. J. Gilmour J. D.
RISK: A Resonance Ionization Mass Spectrometer for Krypton **[#1708]**
A resonance ionization mass spectrometer for krypton (RISK) has been developed. Atoms are released by a step-heating and ionized by pulsed tunable lasers. The sensitivity below 1000 atoms is demonstrated by detecting 81 Kr in noncumulate eucrite Stannern.

Pourmand A. Dauphas N. Ireland T.
A Novel Technique for Accurate Analysis of Lanthanides, Sc and Y in Meteorites: Towards a Reevaluation of Cosmic Abundances **[#2544]**
A novel sample digestion and MC-ICP-MS technique is proposed for accurate analysis of rare Earth elements (REE). REE concentrations are determined in a group of meteorites to help re-examine the cosmochemical behavior of lanthanides in meteorites.

Stephan T. Davis A. M. Pellin M. J. Savina M. R. Veryovkin I. V.
CHILI — The Chicago Instrument for Laser Ionization — A Progress Report **[#2321]**
CHILI, a new RIMS instrument with ~10 nm lateral resolution and 40–50% useful yield, is under construction at the University of Chicago. It will be applied to the analysis of samples from the Stardust mission and may be able to date presolar dust.

Anderson R. C. Beegle L. W. Fleeming II G. M.
Understanding the Effects of Triboelectric Charging on Cross Sample Contamination in the Mars Science Laboratory Sample Handling System **[#2003]**
Accurate analysis requires that materials analyzed by *in situ* instruments represent the initial material prior to its collection and delivery. Here we will discuss the role of adhesion (electrostatic) within the MSL sample handling system.

Andreev G. Dominguez G. Gainsforth Z. Westphal A. J. Basov D. Thiemens M. H.
Scanning Scattering Near-Field Infrared Microscopy: A New Tool for the Mapping of Functional Groups at the Ten Nanometer Scale **[#2265]**
A novel infrared spectral mapping instrument has been developed offering the ability characterize the functional group composition of returned samples with ten nanometer spatial resolutions with minimal or no sample alteration.

Nakashima D. Ushikubo T. Kita N. T. Valley J. W.
Development of Multiple Hole Disk for Isotope Analysis of Tiny Samples Using Ion Microprobe **[#2309]**
We developed a multiple hole disk for stable isotope analysis of tiny samples using ion microprobe. Potential analytical biases derived from surface shape of the disk are 1‰ or less, and the disk is applicable to tiny particle analysis.

Stojic A. N. Brenker F. E.
Argon Ion Slicing (ArIS): A Murchison Close Up and Its Implications for TEM Sample Preparation in Earth and Planetary Sciences **[#1765]**
We report the successful preparation of an electron transparent area >40,000 μm2 from the Murchison meteorite. We obtained this enormously large TEM foil by using the refined argon ion slicing (ArIS) technique.

McCausland P. J. A. Brown P. G. Holdsworth D. W.
Rapid, Reliable Acquisition of Meteorite Volumes and Internal Features by Laboratory X-Ray Micro-CT Scanning **[#2584]**
X-ray Micro-CT imaging is a benchtop lab technique that can be used to obtain meteorite volume, surface area and the dimensions of objects of interest within the meteorite.

Ohno S. Namiki N. Ishibashi K. Kobayashi M. Arai T. Senshu H. Wada K. Yamagishi A. Miyamoto H. Komatsu G. Matsui T.
Development of Mars Environment Simulation Chamber at Planetary Exploration Research Center, Chiba Institute of Technology **[#1754]**
A new Mars environment simulation chamber is being developed in the PERC/Chitech in Japan. The aim of its development is to reproduce the surface conditions of Mars and to contribute the instrumental development and martian science.

Sobron P. Wang A.
A Planetary Environment and Analysis Chamber Equipped with Multiple Spectroscopic Sensors **[#1994]**
A Planetary Environment and Analysis Chamber (PEACH) has been developed at Washington University in St. Louis, in order to conduct co-registered spectroscopic measurements on geological samples under planetary relevant environmental conditions.

Edmunson J. Betts W. Rickman D. McLemore C. Fikes J. Stoeser D. Wilson S. Schrader C.
NASA Lunar Regolith Simulant Program **[#1786]**
This abstract is an introduction to the NASA Exploration Technology Development Program's lunar regolith simulant team at Marshall Space Flight Center, the U.S. Geological Survey, and Glenn Research Center. Requests for simulant are also addressed.

Allen C. Sellar G. Nuñez J. I. Winterhalter D. Farmer J.
Lunar Reference Suite to Support Instrument Development and Testing **[#1457]**
Instruments are being developed for possible use on lunar robotic landers, for lunar field work, and for analyses at a lunar outpost. JSC Curation will support such instrument testing by providing lunar sample "ground truth".

Nuñez J. I. Farmer J. D. Sellar R. G. Allen C. C.
The Multispectral Microscopic Imager: Integrating Microimaging with Spectroscopy for the In-Situ Exploration of the Moon **[#1581]**
The MMI combines microscopic imaging with VIS-NIR spectroscopy to provide *in situ* mineralogy within a microtextural framework for the exploration of the Moon. We present our latest results of analysis of a suite of Apollo samples with the MMI.

Nissinboim A. Ebel D. S. Harlow G. E. Boesenberg J. S. Sherman K. M. Lewis E. R. Brusentsova T. N. Peale R.. E. Lisse C. M. Hibbitts C. A.
The American Museum of Natural History Mineral Library for Spectroscopic Standards **[#2518]**
Minerals from the AMNH collections are highly characterized (crystal XRD, EMPA), powdered <2 μm, reanalyzed (SEM, powder XRD), and transmission IR spectra analyzed for Herschel PACS. Library minerals will also serve reflectance spectra needs.