Wednesday, May 16, 2012
WATER AND ORGANICS IN PRIMITIVE BODIES
4:20 p.m. Conference Room 201

Chairs: **Sandra Pizzarello**
Hikaru Yabuta

4:20 p.m. Oba Y. * Watanabe N. Hama T. Kuwahata K. Hidaka H. Kouchi A.
Surface Chemical Reactions to the Formation of Solid H_2O and its Isotopologues on Interstellar Grains at 10 K **[#6032]**
We experimentally studied the formation of solid H_2O through the surface reaction OH + H_2 at 10 K. Experimental results on the formation of H_2O through the reaction as well as its isotope effect will be discussed in the presentation.

4:30 p.m. Hama T. * Watanabe N. Kouchi A.
Nuclear-Spin Temperature of Water Molecules Thermally Desorbed from Ice: A Laboratory Study **[#6114]**
The present study reports experimental measurements of nuclear-spin states and rotational temperatures of thermally desorbed H_2O molecules from water ice by combining temperature-programmed desorption and resonance-enhanced multiphoton ionization.

4:40 p.m. Beck P. * Garenne A. Grisolle F. Montes-Hernandez G. Bonal L. Chiriac R. Toche F. Quirico E. Moynier F. Schmitt B.
Quantification of H_2O and CO_2 in Primitive Meteorites and Relation with NIR/MIR Spectra **[#6139]**
We study the NIR/MIR spectra of hydrated meteorites, discuss the water related signatures, which we relate to the quantification of H_2O and CO_2 made by TGA. We also compare with signatures at three microns detected on asteroids.

4:50 p.m. Pizzarello S. * Monroe A. A.
Asteroids, Early Nebular Aggregates and the Protoplanetary Disc: Equally Accountable for the Organic Composition of Primitive Solar Bodies? **[#6153]**
We performed comprehensive analyses of Renazzo-type C1–C3 meteorites' soluble organic composition and its possible relation to parent body and pre-accretionary processes.

5:00 p.m. Bonal L. * Alexander C. M. O'D. Huss G. R. Nagashima K. Quirico E. Beck P.
Asteroids and Comets Sampled Different Water Reservoirs **[#6206]**
By selecting a suite of CR chondrites and determining the isotopic composition of the water in different hydrated minerals, our objective was to place new constraints on the composition, evolution, and origin of asteroidal water.

5:10 p.m. Yokochi R. * Marboeuf U. Quirico E. Schmitt B.
Pressure-Dependent Trace Gas Trapping in Amorphous Water ice at 77 K: Implications for Determining Conditions of Comet Formation **[#6219]**
The trapping efficiencies of Ar, CO, CH_4, Kr and N_2 in amorphous ice were investigated at 77 K. Our results show that the trapped gas to water molecule ratio is controlled primarily by the partial pressure of gas present during ice deposition.

5:20 p.m. Kaluna H. M. * Hainaut O. R. Hsieh H. H. Meech K. J. Riesen T. E.
Longevity of Ice in the Main Belt Comet 176P/LINEAR **[#6425]**
We are using thermal evolution models to explore the drivers of MBC activity and volatile longevity in the main belt. In particular we will be looking at the Main Belt Comet 176P/LINEAR, which now has only been seen active once near perihelion.

5:30 p.m. Marboeuf U. * Schmitt B. Petit J.-M. Mousis O. Fray N.
A Cometary Nucleus Model Taking into Account all Phases of Water Ice: Amorphous, Crystalline and Clathrate **[#6248]**
We present a 1D model of comet, which takes into account all structures and phase changes of water ice: amorphous, crystalline, clathrate or a mixture of the three. This model allows us to predict different outgassing profiles of volatile molecules.

5:40 p.m. Quirico E. * Orthous-Daunay F.-R. Bonal L. Beck P. Brunetto R. Dartois E. Pino T. Engrand C. Duprat J.
The Multiple Origins of Insoluble Organic Matter from Primitive Chondrites **[#6275]**
We present a study by IR and Raman of the insoluble organic matter from 28 CI, CR, CM and ung-C2 chondrites. We evidence a chemical heterogeneity of the solar nebula and that thermal heating was the sole parent body process that modified IOM.

5:50 p.m. Mikouchi T. * Zolensky M. Satake W. Le L.
Relationship Between Iron Valence States of Serpentine in CM Chondrites and Their Aqueous Alteration Degrees **[#6298]**
We measured the Ferrous/Ferric ratio of serpentine in CM chondrites by S-XANES.

6:00 p.m. Kobayashi K. * Mita H. Yabuta H. Nakagawa K. Takahashi J. Imai E. Okudaira K. Tanabe M. Kawai H. Yano H. Hashimoto H. Yamashita M. Yokobori S. Yamagishi A. Tanpopo Working Group
Capture of Interplanetary Dust Particles and Exposure of Bioorganic Compounds Using the International Space Station: The Tanpopo Mission **[#6073]**
A novel astrobiology mission named Tanpopo on the International Space Station will be introduced. We will collect interplanetary dusts (IDPs) with aerogel, and expose amino acid (precursors) to examine possible alteration of organics in IDPs.

6:10 p.m. Ogata Y. Yabuta H. * Nakashima S. Okudaira K. Moriwaki T. Ikemoto Y. Hasegawa S. Tabata M. Yokobori S. Mita H. Kobayashi K. Imai E. Hashimoto H. Kawaguchi Y. Sugino T. Yano H. Yamashita M. Yamagishi A. Tanpopo Working Group
Organic Analysis of Terminal Particles Obtained from Aerogel Capture Experiment of Murchison Meteorite at 4 km/s **[#6366]**
Hypervelocity aerogel capture experiment of Murchison meteorite was conducted to evaluate a extent of modification of organic matter. Aromatic structure was not modified but a slight modification of aliphatic carbon was observed after the capture.