Tuesday, March 14, 2006
POSTER SESSION I: ASTROBIOLOGY: MISSIONS
7:00 p.m. Fitness Center

Starke V. Maule J. Monaco L. Flores G. Steele A.
Microarray Technology for Space Exploration **[#2124]**
We discuss the use of microarrays in several areas of planetary exploration interest. We detail a protoype microarray for the simultaneous detection of over 120 microorganisms of interest to space exploration.

Vasavada A. R. MSL Science Team
NASA's 2009 Mars Science Laboratory: An Update **[#1940]**
The Mars Science Laboratory will launch in fall 2009. Its overall scientific goal is to explore and quantitatively assess a local region on Mars' surface as a potential habitat for life, past or present.

Schmidt T. J. Beegle L. W. Wilson M. G. Wilson G. R.
A Concept for the 2016 Mars Astrobiology Field Laboratory **[#2337]**
An overview of the 2016 Mars Astrobiology Field Laboratory.

Zent A. P. Quinn R. C. Lambert J. L. Kounaves S. Young S. Bell J. Hecht M. Taylor C.
Measurement of Total Organic and Total Inorganic Carbon on Mars **[#2184]**
A wet-chemistry spectroscopic system for total carbon and C isotope analysis.

Beegle L. W. Guerrero J. Douglas S. Kidd R. Lane A. L. Pelletier M. Feldman S. Mungas G. S. Blake D. Dissly R. Waite J. H. Young D. T. Sun H. Wells S. MSE Team
The Mars Subsurface Explorer **[#1467]**
We have developed a terrestrial field campaign to explore two subsurface biological habitats under the Mojave Desert to a depth of 20 meters. This will be done by combining four instruments of high TRL with a field demonstrated drilling platform.

Schulze-Makuch D. Dohm J. M. Fairen A. G. Baker V. R. Fink W. Strom R. G.
Sample Return Missions to Mars, Venus, and the Ices on Mercury and the Moon **[#1324]**
Missions to our neighboring planets Venus and Mars should be planned to explore potentially life-containing refuges and return samples for analysis. Sample return missions should also include ice samples from Mercury and the Moon.

Fink W. Dohm J. M. Tarbell M. A. Hare T. M. Baker V. R. Schulze-Makuch D. Furfaro R. Fairén A. G. Ferré T. P. A. Miyamoto H. Komatsu G. Mahaney W. C.
Multi-Tier Multi-Agent Autonomous Robotic Planetary Surface/Subsurface Reconnaissance for Life **[#1433]**
Tier-scalable autonomous reconnaissance enables intelligent, unconstrained, and distributed science-driven exploration of prime locations on Venus, Mars, Io, Europa, Titan, and elsewhere, allowing for increased science return and the search for life.

Schuerger A. C. Berry B. Nicholson W. L.
Terrestrial Bacteria Typically Recovered from Mars Spacecraft Do Not Appear Able to Grow Under Simulated Martian Conditions **[#1397]**
Bacteria typically recovered from spacecraft were tested for growth at low pressures. Results indicated that most species were strongly inhibited at low pressues, and that there may be a direct pressure effect on bacterial growth.

Weinstein S. Pane D. Warren-Rhodes K. Cockell C. Ernst L. A. Minkley E. Fisher G. Emani S. Wettergreen D. S. Wagner M. Cabrol N. Grim E. Waggoner A. S.
Implementation of a Daylight Fluorescence Imaging System to Autonomously Detect Biomarkers of Extant Life in the Atacama Desert **[#2456]**
We have integrated a biomarker detection system with a rover for the search for sparse life in extreme environments. The system incorporated a pulsed fluorescence imager, a reagent sprayer, and a surface scraping device for remote detection of fluorescence signals.

Thompson D. R. Smith T. Wettergreen D.
Autonomous Detection of Novel Biologic and Geologic Features in Atacama Desert Rover Imagery **[#2085]**
Novelty detection helps planetary rovers perform adaptive sampling and return to maximize the value of transmitted data. We investigate context-sensitive novelty detection using images collected during rover traverse in the Atacama desert.

Parnell J. Lindgren P. Osinski G. R. Cockell C. S. Lee P.
Simple Devices for Concentration of Microbial Life: Experiments in Haughton Impact Structure **[#1050]**
Simple devices that create environments with high levels of light and moisture could attract extant microbial life on a planetary surface and hence enhance the detection of it. Experience in the Haughton crater shows that this can occur readily.

Van Houten K. A. Strauch L. R. Murray G. M. Izenberg N. R.
Molecularly Imprinted Polymers for Astrobiology **[#1381]**
Molecular Imprinted Polymer (MIP)-based sensors are promising candidates for a variety of *in-situ* planetary astrobiological and geochemical mission profiles, and are currently being developed under NASA Grant #NNG05GM90G.

Izenberg N. R. Murray G. M. Van Houten K. Strauch L. Hofstra A. Uy O. M.
Development of Astrobiological Molecularly Imprinted Polymer Sensors **[#1372]**
Molecular Imprinted Polymer-based sensors are promising candidates for a variety of *in-situ* planetary astrobiological and geochemical mission profiles. We have begun developing and testing them through the NASA ASTID Program.

Kim H. I. Kim H. Beegle L. W. Johnson P. V. Beauchamp J. L. Kanik I.
Theoretical Ion Mobility Studies of Amino Acids **[#2127]**
ESI/IMS is a potential onboard instrument for searching organic molecules on future missions to Mars. DFT calculated geometries of amino acids yield predicted mobilities in good agreement with previous amino acid mobility experiments.

Duong T. A. Liu D. Kanik I.
Neural Network Prediction of Reduced Ion Mobility of Amino Acid Based on Molecular Structure **[#1474]**
We present a new input feature mapping technique which is based on Riemannian metric tensor to enhance the neural network learning capability for predicting the reduced ion mobility based on the molecular structure for NASA remote applications.