Tuesday, March 19, 2013 **[T638]**
POSTER SESSION: PLANETARY MISSION CONCEPTS
6:00 p.m. Town Center Exhibit Area

Sharma P. Nuding D. Ozhogin P. Bell I. Bennett K. et al. ***POSTER LOCATION #518***
VADER: Venus Atmosphere, Descent and Environmental Researcher, a NASA Planetary Science Summer School Mission Concept **[#1674]**
We propose a mission concept, Venus Atmosphere, Descent and Environmental Researcher (VADER), to explore the lower atmosphere and surface of Venus.

Heather D. J. Barthelemy M. Manaud N. Martinez S. Szumlas M. et al. ***POSTER LOCATION #519***
ESA's Planetary Science Archive: Status, Activities and Plans **[#1930]**
The PSA is a repository of all planetary data from ESA missions. The abstract presents our status and plans for 2013, including international activities.

Calaway M. J. Burkett P. J. Allton J. H. Allen C. C. ***POSTER LOCATION #520***
Ultra Pure Water Cleaning Baseline Study on NASA JSC Astromaterial Curation Gloveboxes **[#1241]**
Two cleaned astromaterial curation gloveboxes were examined to better understand organic cleanliness in preparation for future sample return missions.

Calaway M. J. Allton J. H. Allen C. C. Burkett P. J. ***POSTER LOCATION #521***
Organic Contamination Baseline Study on NASA JSC Astromaterial Curation Gloveboxes **[#1242]**
Two astromaterial curation gloveboxes were examined to better understand organic contamination in preparation for future sample return missions.

Bell M. S. Calaway M. J. Evans C. A. Li Z. Tong S. et al. ***POSTER LOCATION #522***
Robotic Sample Manipulator for Handling Astromaterials Inside the GeoLab Microgravity Glovebox **[#2134]**
Innovative robotic sample handling concepts designed to meet rigorous curation requirements for preliminary examination in low-gravity space environments are presented.

Klaus K. Post K. E. ***POSTER LOCATION #523***
Science and Exploration Missions Enabled by the Space Launch System **[#1231]**
A number of concepts for science missions were explored during Constellation. We have selected a diverse set of missions that span the SLS design space.

Klaus K. Elsperman M. S. Rogers F. ***POSTER LOCATION #524***
Mission Concepts Enabled by Solar Electric Propulson and Advanced Modular Power Systems **[#1486]**
Using a common spacecraft for multiple missions reduces costs. Solar electric propulsion provides the flexibility required for multiple mission objectives.

Dankanich J. W. Kremic T. Hibbitts K. Young E. Landis R. ***POSTER LOCATION #525***
Planetary Science Balloon Based Platform Assessment **[#1194]**
NASA completed a study to assess the potential for stratospheric balloons to address planetary science goals and objectives; findings and results are presented.

Ishimaru R. Sakamoto Y. Kobayashi M. Namiki N. Senshu H. et al. ***POSTER LOCATION #526***
Shootingstar Sensing Satellite (S^3: S-Cube): Cubesat Project for Observation of Meteors from Low Earth Orbit **[#1944]**
We propose in this work to use a CubeSat in planetary sciences, specifically to observe meteoritic entry into Earth's atmosphere.

Berk J. Straub J. Nervold A. Whalen D. ***POSTER LOCATION #527***
Space Station 2.0: A Transformational Architecture for Space Development **[#1861]**
Space Station 2.0: a low-cost space station in lunar orbit built using Space Act agreements for in situ data collection and investigation by human astronauts.

Klesh A. T. Castillo-Rogez J. C. ***POSTER LOCATION #528***
Applicability of Nano-Spacecraft to Deep Space Exploration **[#3099]**
Assessment of possible concepts of exploration with nanospacecrafts.

Magyar I. Udvardi M. Szakolczai P. Varga R. K. Veres B. et al. ***POSTER LOCATION #529***
Inner Design of a Habitat Module for Planetary Surfaces **[#2893]**
Our study relates to an inner design of a habitat module that is capable of supporting prolonged stays on the surface of a planetary body, e.g., Moon or Mars.

Clark P. E. MacDowall R. Farrell W. M. Petro N. E. Cox R. et al. ***POSTER LOCATION #530***
LunarCube: Advancement of Solar System Exploration with the CubeSat Paradigm **[#1233]**
We are evaluating application of the CubeSat paradigm to high-priority space or surface payloads for planetary, heliophysics, and astrophysics disciplines.

Farrell W. M. Bleacher J. E. Ames T. J. Carter L. M. Cheung C. Y. et al. ***POSTER LOCATION #531***
"Where to Hide?": A Tele-Robotic Application for HEOMD's Earth-Moon L2 Mission **[#2514]**
A tele-robotic GPR study of farside pit features is a feed-forward investment in future long-duration human stays on the Moon.

Mahanti P. Robinson M. S. Boyd A. ***POSTER LOCATION #532***
Uncertain Viewsheds — A Peek into Probabilistic Line-of-Sight Visibility Analysis **[#1739]**
Probability associated with mutual visibility found using lunar DEMs is analysed to study the effects of elevation errors and topography on viewshed estimation.

Metzger P. T. Lane J. E. ***POSTER LOCATION #533***
Effects of Spacecraft Landings on the Moon **[#3093]**
The rocket exhaust of spacecraft landing on the Moon causes a number of observable effects. Research results on this topic are summarized and reviewed.

Tanaka S. Mitani T. Otake H. Ogawa K. Kobayashi N. et al. ***POSTER LOCATION #534***
Present Status of the Lunar Lander Project SELENE-2 **[#1838]**
We report updated status of the SELENE-2 project and some progress of development of technological aspect of the system and instruments on board.

Poole W. D. Tian B. French R. A. Garber J. M. Barnes J. J. et al. ***POSTER LOCATION #535***
Anchoring a Geophysical Network Around the A33 Moonquake Nest to Explore the Interior Structure and Thermal Evolution of the Moon **[#1513]**
We explore how the A33 moonquake nest can be used as an anchor for a geophysical network that can be used to explore the interior structure of the Moon.

Tian B. Y. Poole W. D. Garber J. M. French R. A. Smith P. H. et al. ***POSTER LOCATION #536***
Landing Sites Optimized for Geophysical Studies of the Structure and Thermal State of the Lunar Interior **[#1629]**
Survey of possible landing sites/geophysical array configurations for addressing Concept 2 of the NRC report "The Scientific Context for Exploration of the Moon."

French R. A. Barnes J. J. Garber J. M. Poole W. D. Tian B. Y. et al. ***POSTER LOCATION #537***
Sample Return Landing Sites that can Provide Information on the Composition, Structure, and Evolution of the Lunar Interior **[#2914]**
Sample return landing sites that provide information regarding the composition, structure, and evolution of the lunar interior are identified.

Jones H. L. Peterson K. M. Whittaker W. L. Wong U. Y. ***POSTER LOCATION #538***
Skylight: Mission to Investigate and Model a Lunar Pit **[#3080]**
Caves on planetary bodies beyond Earth have always been of great interest for science and exploration, but for many years there was no known way to enter.

Varga T. P. Kabai S. Bérczi Sz. Szilágyi I. Varga T. N. ***POSTER LOCATION #539***
ISRU Based Lunar Surface Habitat Module **[#2862]**
We create a quasi-icosahedron lunar surface habitat module that is built from the same building elements and complementary elements for the vertices.

Heldmann J. L. Colaprete A. Elphic R. C. Glass B. Gonzales A. et al. ***POSTER LOCATION #540***
Science and Exploration Enabled by Private Entity Mars Fly-by Mission Opportunities **[#1657]**
We identify specific science and exploration investigations that can be enabled through a Mars flyby mission on a private spacecraft.

Vizi P. G. Dulai S. Marschall M. Bérczi Sz. Horvath A. et al. ***POSTER LOCATION #541***
Possible Identification Method for Martian Surface Organism by Using a New Strategy of Nano-Robots **[#2281]**
New nanotechnology ideas to detect and measure characteristics on planetary surfaces. We show a probe to measure the dark dune spots during seasonal changes.

Orenstein N. P. ***POSTER LOCATION #542***
Autonomous Mars In-Situ Resource Utilization Robot for Water Recovery Using Centrifugal Processing **[#1843]**
Multipurpose Mars resource identification, acquisition, and utilization robot with centrifugal refining process for in situ water reclamation and storage.

Shiro B. R. Kwon D. W. Craparo E. M. Infeld S. I. Heldmann J. L. et al. ***POSTER LOCATION #543***
Mars Geophysical Lander Mission: A Mission Concept from the 2003 Nasa Planetary Science Summer School **[#1706]**
The 2003 NASA Planetary Science Summer School student team created a “Mars Geophysical Lander” mission concept to explore the martian interior and atmosphere.

Chicarro A. F. ***POSTER LOCATION #544***
INSPIRE — A Future European Mars Network Science Mission **[#1081]**
INSPIRE is a concept for a potential future European Mars Network science mission to be launched in the early 2020s, following the footsteps of NASA’s INSIGHT mission in 2016.

Hoftun C. Lee P. Johansen B. W. Glass B. J. McKay C. P. et al. ***POSTER LOCATION #545***
Deep Drilling on Mars: Two Concepts and Prospects **[#2817]**
Deep drilling will be an important activity in future Mars exploration. Our study identifies two promising concepts: (1) coiled tubing drilling, and (2) mole drilling.

DeSouza C. A. G. ***POSTER LOCATION #546***
Conceptual Design of an Unmanned Aerial Vehicle for Mars Exploration (M.I.S.C.A.V.) **[#1291]**
This abstract focuses on the use of aerial vehicles for Mars exploration, with a focus on large-scale water and mineral detection for pre-landing purposes.

Shirbhate A. A. ***POSTER LOCATION #547***
Celestial Army — Telecommunication Over Mars **[#1008]**
This paper presents an idea about setting up a communication portal on the martian surface that will enable telecommunication on Mars and on Earth.

Cheng A. F. ***POSTER LOCATION #548***
AIDA: Test of Asteroid Deflection by Spacecraft Impact **[#2985]**
AIDA will demonstrate asteroid deflection and characterize kinetic impact β and crater size to yield new constraints on asteroid physical properties.

Wenkert D. D. Landau D. F. Bills B. G. Elkins-Tanton L. T. ***POSTER LOCATION #549***
Explorations of Psyche and Callisto Enabled by Ion Propulsion **[#1553]**
Ion propulsion enables planetary missions that would otherwise be unaffordable in a cost-capped program. Two such missions are described here.

Grima C. Schroeder D. M. Blankenship D. D. ***POSTER LOCATION #550***
Identifying Surface Characteristics with an Ice Penetrating Radar Sounder at Europa: Potential for Landing Site Selection **[#2980]**
Information on surface roughness from the radar sounder in the Europa Clipper mission concept can identify and characterize potential landing sites.

Senske D. Prockter L. Pappalardo R. Mellon M. Patterson W. et al. ***POSTER LOCATION #551***
Science that can be Achieved from The Europa Clipper Mission Concept: A Means to Explore Europa and Investigate its Habitability **[#1600]**
The Europa Clipper, a Jupiter-orbiting spacecraft that makes many flybys of Europa, provides an excellent platform to investigate Europa's potential habitability.

Potter R. W. K. Cable M. L. Cumbers J. Gentry D. M. Harrison T. N. et al. ***POSTER LOCATION #552***
Flyby of Io with Repeat Encounters (FIRE): A New Frontiers Mission Designed to Study the Most Volcanic Body in the Solar System **[#2874]**
We outline a New Frontiers mission concept to study Io, the most volcanically active body in the solar system.

Laneuville M. Bocanegra T. Bracken C. Costa M. Dirkx D. et al. ***POSTER LOCATION #553***
Unveiling the Evolution and Formation of Icy Giants **[#1644]**
Mission concept for Uranus' exploration prepared by members of the 2012 edition of Alpbach's Summer School on mission design.

Badders B. D. Hill T. Straub J. Berk J. Long N. J. et al. ***POSTER LOCATION #554***
Small Spacecraft Exploration of Uranian Moons **[#1860]**
A mission to uranian moons to conduct observations and allow determination of their origin, constraining the possible evolution and history of the solar system.

Hill T. Berk J. Straub J. Schiralli J. Badders B. D. et al. ***POSTER LOCATION #555***
Deep Space Planetary Exploration Using Commercially Available Solar Electric Propulsion **[#1858]**
A bold and reach-extending mission to Uranus using solar electric propulsion that will enthrall a new generation of technologists, scientists, and enthusiasts.

Wright I. P. Andrews D. J. Barber S. J. Sheridan S. Morse A. D. ***POSTER LOCATION #556***
Ptolemy: Preparations for Scientific Investigations at the Surface of a Comet **[#2129]**
Ptolemy is a GC-MS system included on the Philae lander (Rosetta) and will make chemical/isotopic measurements of surface materials on Comet 67P/C-G in 2014.