Monday, June 16, 2014
POSTER SESSION: EDL TECHNOLOGY
6:30 p.m. Dabney

Boghozian T. B. Stackpool M. S. Gonzales G. G.
Alternative High Performance Polymers for Ablative Thermal Protection Systems **[#8020]**
Comparing four ablation polymers with phenolic resin using different techniques, such as FTIR, TGA, DSC, and mechanical properties.

Brugarolas P. Chen A. Johnson A. Casoliva J. Singh G. Stehura A. Way D. Dutta S.
Concept for On-Board Safe Landing Target Selection and Landing for the Mars 2020 Mission **[#8029]**
We present a concept for a potential enhancement to Mars 2020 to enable landing on hazardous landing sites. It adds to MSL-EDL the capability to select and divert to a safe site through on-board terrain relative localization and target selection.

Fisher T.
Preliminary EDL Aeroshell Design Performance from a Newtonian Theory Simulation Tool **[#8042]**
This paper explores the potential of commercial software to support preliminary mission entry vehicle designs and flight performance metrics using Newtonian Impact theory within Matlab.

Beck R. A. S. Arnold J. O. Gasch M. J. Stackpoole M. M. Venkatapathy E.
Update on Conformal Ablative Thermal Protection System for Planetary and Human Exploration Missions **[#8065]**
In FY13, more advanced testing and modeling of the new NASA conformal ablative TPS material was performed. Most notable were the 3- and 4-point bending tests and the aerothermal testing on seams and joints in shear. The material outperformed PICA.

Bombelli A. Soler L. Mease K.
Entry Trajectory Planner for High Elevation Mars Landing **[#8070]**
Achieving high elevation landing sites requires parachute deployment altitude control. A planner is proposed that yields trajectories with near-optimal performance, where control profiles are obtained as solutions of non-linear programming problems.

Luque Ribas S. Zenou E. Hernandez D.
Guided Descent to Mars. Vision-Based Navigation System for a Mars Probe **[#8071]**
The Vision-based navigation system designed during this project uses database images of Mars and a camera on the probe to obtain the position and provide a feedback to the control systems, in order to increase the landing precision of the probes.

Saikia S. J. Saranathan H. Grant M. J. Longuski J. M.
Enabling Venus In Situ Missions Using Mechanically Deployed Aerodynamic Decelerator **[#8073]**
Trade study and optimal solutions for guided entry and aerocapture for Venus in situ missions using Mechanically Deployed Aerodynamic Decelerator to reduce peak deceleration loads, as well as peak heat fluxes.

Mignot Y. M. Pisseloup A. P.
Exomars Heatshield: From Design to Manufacturing **[#8102]**
Awarded a contract in 2007 for ExoMars Heatshield subsystem, Airbus DS is now close to deliver the Proto-Flight model for integration on the ExoMars Entry Demonstrator. The 11th IPPW is obvioulsy a good opportunity to share this enriching experience.

Kellas S. Maddock R. W.
Passive Earth Entry Vehicle Energy Absorbing Systems **[#8112]**
A critical element of a passive EEV performance is the energy absorbing system required to attenuate the dynamic landing loads. Two design approaches are described and the pros and cons based on particular mission requirements are discussed.

Heilimo J. Harri A.-M. Aleksashkin S. Koryanov V. Arruego I. Schmidt W. Haukka H. Finchenko V. Martynov M. Ostresko B. Ponomarenko A. Kazakovtsev V. Martin S. Siili T.
RITD — Adapting Mars Entry, Descent and Landing System for Earth **[#8039]**
The EDLS applicability to Earth's atmosphere is studied by the EU/RITD project. Project focuses to the analysis and tests of the transonic behaviour of this compact and light weight payload entry system at the Earth re-entry.

Ali H. K. Braun R. D.
In Situ Magnetohydrodynamic Energy Generation for Planetary Entry Vehicles **[#8046]**
This work aims to study the suitability of multi-pass entry trajectories for harnessing of vehicle kinetic energy through magnetohydrodynamic power generation from the high temperature entry plasma. Potential mission configurations are analyzed.

Morse K. J. Milam S. C. Ackerman A. J. Clyde N. W. Hoffman W. M. Kaschmitter B. F. Yovanoff M. A. SunSpiral V. Atkinson D. H.
Validation of a Model for the Impact Landing of a Tensegrity Landing System **[#8056]**
In this project impact tests were performed on an instrumented spherical tensegrity with a payload to determine the accuracy of current simulations for impact events.

Ginn J. M. Braun R. D. Clark I. G.
Parachute Dynamic Stability Variations Due to Atmospheric Density **[#8058]**
Apparent inertia effects on parachute dynamics are investigated. Both static and dynamic stability are examined as a function of apparent inertia parameters. Conclusions are drawn describing changes in stability based on atmospheric density.

Murphy M. K.
Depressed Aeroshell Forebody Geometries for the Generation of Lift **[#8075]**
Various depressed conic aeroshell forebody geometries are analyzed using a modified Newtonian method for their efficiency at generating lift during the entry and descent hypersonic flight regime.

Buchwald R.
A Landing Platform with Robotic Self-Leveling Capability **[#8093]**
A robotic concept for the autonomous touchdown, self-leveling and lowering of the landing platform to the ground for a simplified rover egress has been developed and tested using a terrestrial demonstrator of a full scale Mars landing platform.

Rodriguez E D. Santos J. A. Bose D. Vander Kam J.
AVCOAT Density Characterization for Orion Multi-Purpose Crew Vehicle (MPCV) **[#8109]**
Post flight TPS analysis will be conducted on the Orion Multi-Purpose Crew Vehicle. The material characterization includes density profiling through the AVCOAT TPS thickness. Results help to further development more accurate TPS response models.

Sepka S. A. Samareh J. A.
Development of FIAT-Based Parametric Thermal Protection System Mass Estimating Relationships for NASA's Multi-Mission Earth Entry Concept **[#8114]**
Mass estimating relationships have been formulated to determine a vehicle's Thermal Protection System material and required thickness for safe Earth entry. We focus on developing MERs, the resulting equations, model limitations, and model accuracy.

Park C. Arnold J. O. Green M. Witkowski A.
Conjecture on the Appearance of the Galileo Probe's Entry and Descent in to the Jovian Atmosphere **[#8044]**
This paper gives the technical background for depiction of the Galileo Probes appearance during jovian entry. A clip from the planetarium show "Dark Universe" will be shown during the opening.session.

Foster J. C. Le M. N.
Where's Your EDL Data? **[#8050]**
Entry, Descent, Landing (EDL) represents a critical capability in our exploration of the solar system. Data from past technologies may need to be reviewed or may be reused. Where should this data reside? Why archive the data that is being created?

Ksanfomality L. V.
Possible Life Found at a Wrong Place **[#8001]**
A re-examination of images of venusian surface returned from the VENERA landers 32 years ago has been undertaken using a modern processing technique. It allowed the detection of some new interesting entities that hypothetically may be related to fauna and flora of the planet.

Reza S. Rowan J. Witkowski A.
Overview of the OSIRIS-REx Parachute Recovery Subsystem **[#8066]**
A general overview of the planned Origins-Spectral Interpretation-Resource Identification-Security-Regolith Explorer (OSIRIS-REx) parachute recovery subsystem, to include modifications to the Stardust design and design and testing of a new PRS mortar.