**Tuesday, March 2, 2010**
**POSTER SESSION I: MISSION PLANS AND CONCEPTS**
**7:00 p.m. Town Center Exhibit Area**

Benkhoff J.
*The BepiColombo Mission to Explore Mercury* **[#1743]**
BepiColombo is an ESA, JAXA interdisciplinary mission to explore the planet Mercury. Two spacecrafts, the Mercury Planetary Orbiter (MPO) and the Mercury Magnetospheric Orbiter (MMO), will be studying the planet and its environment and launched together in July 2014.

Balint T. S. Kerzhanovich V. V. Hall J. L. Baines K. H. Stephens S. K.
*Four Aspects of a Venus Balloon Mission Concept* **[#1301]**
Our poster explores four aspects of a typical Venus balloon mission concept using information design techniques, including a typical timeline; the atmospheric entry sequence; maps of the balloon's traverse path; and the material selection challenges.

Klaus K. Cook T. S. Smith D. B.
*Small Body Landers for Near Earth Object Missions* **[#1077]**
We are developing a small body lander product line that leverages the significant investments that have been made in the highly successful DARPA Orbital Express program.

Smith D. B. Klaus K. Caplin G. Elsperman M. S. Horsewood J.
*Low Cost Multiple Near Earth Object Missions* **[#1464]**
Our Commercial spacecraft are available with efficient high power solar arrays and hybrid propulsion systems (Chemical and Solar Electric) that make possible multiple Near Earth Object Missions within Discovery budget limits.

Ping J. S. Qian Z. H. Hong X. Y. Zheng W. M. Fung L. W. Liu Q. H. Zhang S. J. Shang K. Jian N. C. Shi X. Wang M. Y.
*Brief Introduction About Chinese Martian Mission Yinghuo-1* **[#1060]**
The first Chinese Mars Probe Yinghuo-1 will explore the space weather of Mars.

Zhao H.
*"Yinghuo-1"— Martian Space Environment Exploration Orbiter* **[#1558]**
The first Chinese Mars orbiter, Yinghuo-1.

Chicarro A. F.
*The European Robotic Exploration of the Planet Mars* **[#1645]**
An overview of the European contribution to the new joint NASA-ESA Mars Exploration program will be given, in particular focusing on the 2016, 2018 and 2020 mission opportunities.

Foing B. H. Barton A. Blom J. K. Mahapatra P. Som S. Jantscher B. Page J. Zegers T. Stoker C. Zavaleta J. Poulakis P. Visentin G. Noroozi A. Ehrenfreund P. Mickolacjzak M. Perrin A. Chevrier S. Direito S. Dene A. Voute S. Olmedo A. Groemer G. Stumptner W. Davies G. van Westrenen W. Koschny D. Lebreton J. P. Guglielmi M. Freire M. Walker R. ILEWG ExoGeoLab Team N. ILEWG Eifel Field Test Team N.
*ExoGeoLab Lander, Rovers and Instruments: Tests at ESTEC & Eifel Volcanic Field* **[#1701]**
We have built an ExoGeoLab lander demonstrator for future planetary missions, equipped with remotely operated instruments. We tested them at ESTEC and at an ILEWG field campaign at Eifel volcanic park in Germany in September 2009.

Ehrenfreund P. Foing B. H. Stoker C. Zavaleta J. Quinn R. Blake D. Martins Z. Sephton M. Becker L. Orzechowska G. van Sluis C. Boche-Sauvan L. Gross C. Thiel C. Wendt L. Sarrazin P. Mahapatra P. Direito S. Roling W. EuroGeoMars MDRS Team
*EuroGeoMars Field Campaign: Sample Analysis of Organic Matter and Minerals* **[#1723]**
We report on the results of chemical, physical and astrobiological measurements of samples collected during the EuroGeoMars campaign at Utah Mars Desert Research Station (MDRS) in February 2009, as interdisciplinary preparation for a strategic search for life on Mars.

Hendrikse J. Foing B. H. Monaghan E. Stoker C. Zavaleta J. Selch F. Ehrenfreund P. Wendt L. Gross C. Thiel C. Peters S. Borst A. Sarrazin P. Blake D. Boche-Sauvan L. Page J. Pletser V. Mahapatra P. Wills D. McKay C. Davies G. van Westrenen W. Batenburg P. Drijkoningen G. Slob E. Poulakis P. Visentin G. Noroozi A. Gill E. Guglielmi M. Freire M. Walker R. ExoGeoLab Team EuroGeoMars Team
*Highlights from Remote Controlled Rover for EuroGeoMars MDRS Campaign* **[#2435]**
The goal of the EuroGeoMars mission (from January 24 through February 28, 2009) was to validate a remote controlled rover for surface reconnaissance and extravehicular activity support and evaluate rover technical requirement for remote controlled reconnaissance from a habitat and *in situ* support.

Li R. Wang W. Tang M. Tang P. Coates A. Muller J. P. Griffiths A. Paar G. Oberst J.
*ESA ExoMars Rover Localization and Topographic Mapping: Pre-Launch PanCam Modeling and Error Analysis* **[#1819]**
This paper presents the concept of geometric modeling approaches for enhancing the localization and mapping capabilities of the ExoMars rover and advancing quantitative awareness of achievable accuracy.

Beaty D. W. Allen C. C.
*The Proposed Mars Astrobiology Explorer — Cacher [MAX-C] Rover: First Step in a Potential Sample Return Campaign* **[#2571]**
The proposed MAX-C mission would be capable of yielding exciting *in situ* mission results in its own right as well as making significant feed-forward contributions to sample return, likely becoming the first step in a potential sample return campaign.

Feldman S. M. Allwood A. C. MEPAG Mid-Range Rover Science Analysis Group
*Science Investigation Approach for the Proposed 2018 Mars Astrobiology Explorer–Cacher [MAX-C] Rover* **[#2384]**
This poster presents a scientific measurement approach for the Mars Astrobiology Explorer-Cacher (MAX-C), a mission concept for the Mars 2018 launch opportunity, formulated by the MEPAG Mid-Range Rover Science Advisory Group (MRR-SAG).

Titus T. N. Prettyman T. H. Brown A. Michaels T. I. Colaprete A.
*Mars Ice Condensation and Density Orbiter* **[#1151]**
The Mars Ice Condensation and Density Obiter (MICADO) is meant to be relatively inexpensive and lightweight discovery-class mission. MICADO will have the capability to monitor the deposition of Mars seasonal ice and determine ice densities.

Billingsley L. J. Miller D. P.
*A Robotic Mission to Study Wet Gullies on Mars* **[#1684]**
This poster will concentrate on the mobility requirements of a Mars rover, to make it from a safe landing area to a gully site appropriate for geological study.

Lee P. Veverka J. Bellerose J. Boucher M. Boynton J. Braham S. Gellert R. Hildebrand A. Manzella D. Mungas G. Oleson S. Richards R. Thomas P. C. West M. D.
*Hall: A Phobos and Deimos Sample Return Mission* **[#1633]**
Hall is a proposed NASA-led New Frontiers-class international robotic lander and sample return mission to explore and return samples from the two moons of Mars, Phobos and Deimos.

McEwen A. Turtle E. Keszthelyi L. Spencer J. Thomas N. Wurz P. Christensen P. Khurana K. Glassmeier K.-H. Auster U. Furfaro R. Davies A. Nimmo F. Moses J. Bagenal F. Kirk R. Wieser M. Barabash S. Paranicus C. Lorenz R. Anderson B. Showman A. Sandel B.
*Science Rationale for an Io Volcano Observer (IVO) Mission* **[#1433]**
The IVO Discovery mission could provide detailed understanding of Io's currently active volcanism, the melt state of the mantle, tidal heating mechanism, tectonics, mass loss processes, and potential internal magnetic field.

Stofan E. R. Lunine J. I. Lorenz R. D. Aharonson O. Bierhaus E. Clark B. Griffith C. Harri A-M. Karkoschka E. Kirk R. Kantsiper B. Mahaffy P. Newman C. Ravine M. Trainer M. Waite H. Zarnecki J.
*Exploring the Seas of Titan: The Titan Mare Explorer (TiME) Mission* **[#1236]**
The Titan Mare Explorer (TiME) is a Discovery-class mission that would constrain Titan's active methane cycle as well as its intriguing prebiotic organic chemistry by providing *in situ* measurements from the surface of a Titan sea.

Epperly M. E. Waite J. H. Brockwell T. G. Cronenberger J. O. Klaus K. K. Grayson G.
*Titan Submersible Explorer —The Case for Subsurface Sampling of Titanian Lakes* **[#1720]**
A team, led by Southwest Research Institute, has developed a mission concept to sample and analyze material from the bottom of Titan's lake. This poster and paper present the science and the feasibility of a submersible explorer concept.

Barnes J. W. McKay C. Lemke L. Beyer R. A. Radebaugh J. Atkinson D.
*AVIATR: Aerial Vehicle for In-Situ and Airborne Titan Reconnaissance* **[#2551]**
This poster presents the scientific, engineering, and programmatic rationale behind a Titan airplane concept, AVIATR. The vehicle would explore Titan's geologic and lower atmospheric diversity over the course of a 1-year nominal mission.

Smith R. M. Yozwiak A. W. Lederer A. P. Turtle E. P.
*HORUS — Herschel Orbital Reconnaissance of the Uranian System* **[#2471]**
A mission concept study of the uranian system is explored under the constraints of the NASA New Frontiers program. The study was designed and led by student interns at the Johns Hopkins University Applied Physics Laboratory.

Asphaug E. Barucci A. Belton M. Bhaskaran S. Brownlee D. Carter L. Castillo J. Chesley S. Chodas P. Farnham T. Gaskell R. Gim Y. Heggy E. Klaasen K. Kofman W. Kreslavsky M. Lisse C. McFadden L. Pettinelli E. Plaut J. Scheeres D. Turtle E. Weissman P. Wu R.
*Deep Interior Radar Imaging of Comets* **[#2670]**
Deep Interior is a comet rendezvous mission using a high heritage planetary sounding radar to derive a high definition image of the global interior.

Klaus K. Smith D. B. Kaplan M. S.
*Outer Planet Science Missions Enabled by Solar Power* **[#1076]**
Our studies demonstrate that New Frontiers-class science missions to the Jupiter and Saturn systems are possible with commercial solar-powered spacecraft. A new solar array technology will be developed and demonstrated by DARPA that will provide even higher power.

Sollitt L. S. Vilas F.
*The Atsa Suborbital Observatory: Using Crewed Suborbital Spacecraft for a Low-Cost Space-Borne Telescope* **[#2011]**
We discuss a human-tended suborbital flight program supporting NIR observations, suitable for a variety of solar system targets.

Blome H.-J. Wilson T. L.
*Cosmological Effects in Planetary Science* **[#1019]**
Cosmological terms appearing in the local dynamics of planetary systems are examined for Friedmann-Lemaitre cosmologies. These are related to known spacecraft anomalies using the Hubble parameter and the deceleration parameter of Big Bang cosmology.