Tuesday, March 20, 2018 **[T338]**
POSTER SESSION: PLANETARY MISSION CONCEPTS I:
SMALL BODIES AND SOLAR SYSTEM
6:00 p.m. Town Center Exhibit Area

Iwata T. Okada T. Matsuura S. Tsumura K. Yano H. et al. ***POSTER LOCATION #586***
Investigation of the Solar System Disc Structure During the Cruising Phase of the Solar Power Sail Mission **[#1870]**
We present the scientific objectives and instruments in the cruising-phase of the Solar Power Sail Mission to investigate our solar system disc structure.

Smith D. E. Zuber M. T. ***POSTER LOCATION #587***
Solar Geodesy: Can We Detect Changes in the Solar Gravity Field? **[#2027]**
The sun's gravity field is poorly known and understood. It is also probably varying and might be detectable with an "additional" planet.

Maghareh A. Gomez D. Dyke S. J. Bobet A. Ramirez J. et al. ***POSTER LOCATION #588***
Resilience for Permanent Extraterrestrial Habitats **[#2860]**
This abstract provides an overview of a system resilience framework to design a safe and resilient permanent extraterrestrial habitat system.

Dyke S. J. Bobet A. Ramirez J. Melosh H. J. Gomez D. et al. ***POSTER LOCATION #589***
Resilient Extraterrestrial Habitat Engineering **[#2882]**
Establishing a new interdisciplinary effort at Purdue University to perform the science and establish the knowhow to build resilient extraterrestrial habitats.

Baker J. D. Lay N. E. ***POSTER LOCATION #590***
Deep Space Communication Architecture Study **[#2940]**
A study was performed on a deep space communications architecture needed to support small spacecraft on future planetary missions.

Lieber M. D. Schindhelm E. Roark S. E. Rohrschneider R.
Weinberg J. D. et al. ***POSTER LOCATION #591***
Applying Model Predictive Control Architecture for Efficient Autonomous Data Collection and Operations on Planetary Missions **[#2960]**
Autonomous control of formations of CubeSats, interrogation of underground structures or caves, and adaptive instruments for information collection.

Wyatt E. J. Fraeman A. A. Castillo-Rogez J. C. Chien S. A.
Herzig S. J. et al. ***POSTER LOCATION #592***
Science Autonomy for Planetary Cave Exploration **[#1787]**
Presentation of a new concept for planetary cave exploration with focus on telecom strategies and science autonomy.

Horanyi M. Grun E. Juhasz A. Kempf S. Piquette M. et al. ***POSTER LOCATION #593***
i^{2}DUNE: A Mission to Explore the Chemical Diversity of Our Solar System **[#1809]**
i^{2}DUNE will explore the diversity of the chemical makeup of a broad range of bodies in our solar system and beyond.

Molag K. de Winter B. Toorenburgh Z. Versteegh B. G. Z.
van Westrenen W. et al. ***POSTER LOCATION #594***
WATER-I Mission Concept: Water-Rich Asteroid Technological Extraction Research **[#1950]**
The WATER-I mission will be a follow-up of NASA's OSIRIS-REx mission and aims to extract water from a C-type asteroid to use it as fuel to return to Earth.

Sood R. Pezent J. Heaton A. ***POSTER LOCATION #596***
NEA Scout-X: A Cost-Effective Mission Performing Flybys of Multiple Near-Earth Asteroids and Rendezvous **[#2217]**
High-fidelity trajectory design and analysis was carried out to perform close flybys of multiple near-Earth asteroids leveraging cost-effective sail dynamics.

Carroll K. A. Faber D. R. ***POSTER LOCATION #597***
Asteroid Orbital Gravity Gradiometry **[#1231]**
A single absolute accelerometer can be made to act as a gravity gradiometer for missions to small asteroids, such as ESA's proposed HERA mission to Didymos.

Michel P. Kueppers M. Cheng A. Carnelli I. ***POSTER LOCATION #598***
The Hera Mission: European Component of the Asteroid Impact and Deflection Assessment (AIDA) Mission to a Binary Asteroid **[#1144]**
Hera is the European (ESA) component of the AIDA mission aimed to investigate a binary asteroid and to measure the outcome of the US DART kinetic impactor test.

Barnouin O. S. Chabot N. L. Ernst C. M. Carnelli I. Cheng A. et al. ***POSTER LOCATION #599***
The Science Proximity Operations of the Double Asteroid Redirection Test Mission **[#1042]**
We present the proximity operations of the Double Asteriod Redirection Test (DART) mission.

Rivkin A. S. Cheng A. F. Stickle A. M. Richardson D. C.
Barnouin O. et al. ***POSTER LOCATION #600***
The Double Asteroid Redirection Test (DART): Overview and Update **[#2055]**
The DART mission plans / To impact Didymos B: / It's for self-defense.

Hirabayashi M. Davis A. B. Nadiu S. P. Yu Y. Fahnestock E. G. et al. ***POSTER LOCATION #601***
NASA's DART Mission to Didymos: The Effect of Shape Deformation of the Primary and Ellipticity of the Secondary on Post-Impact Orbital Period **[#2108]**
The secondary's elongation shortens the orbital period after the DART impact, and the shape deformation of the primary makes it significant.

Szalay J. R. Cohen B. Horanyi M. Rivkin A. S. Sternovsky Z. ***POSTER LOCATION #602***
Impact Ejecta Clouds: A Scientific Resource for Understanding Asteroid Origins and Evolution **[#1195]**
We present on the impact ejecta environment of asteroids and how it provides critical insight into the origin and evolution of airless bodies in the solar system.

Ho T. M. Ulamec S. Bartukin V. Biele J. Bibring J.-P. et al. ***POSTER LOCATION #603***
MASCOT on Hayabusa2: The Plan to Perform In-Situ Science Operation of a Nano-Size Landing Package on NEA Ryugu **[#1551]**
The paper gives a status update of the MASCOT surface science package currently onboard the Hayabusa2 mission to near-Earth asteroid Ryugu.

Yoshikawa M. Tsuda Y. Watanabe S. Tanaka S. Nakazawa S. et al. ***POSTER LOCATION #604***
Mission Status of Hayabusa2 **[#1771]**
Hayabusa2 is on schedule and it will arrive at Ryugu in June or July of 2018. The status of spacecraft is fine and we are ready for the proximity operation.

Davis A. B. Scheeres D. J. ***POSTER LOCATION #605***
Mass Parameter Estimation of Doubly Synchronous Binary Asteroid Systems Through Visual Observation **[#2075]**
We investigate estimation of doubly synchronous binary asteroid system mass parameters by observation of oscillations about the doubly synchronous equilibrium.

Kuramoto K. Kawakatsu Y. Fujimoto M. Genda H. Imamura T. et al. ***POSTER LOCATION #606***
Martian Moons Exploration (MMX) Conceptual Study Update **[#2143]**
MMX is a mission to the martian moons under conceptual study in ISAS/JAXA. This paper presents the progress of conceptual study and the status of this mission.

Lawrence D. J. Peplowski P. N. Beck A. W. Burks M. T.
Chabot N. L. et al. ***POSTER LOCATION #607***
The Mars-moon Exploration with GAmma rays and NEutrons (MEGANE) Investigation for the Martian Moon eXploration (MMX) Mission **[#2121]**
The MEGANE investigation will measure Phobos' elemental composition from the MMX mission to answer foundational questions of solar system formation.

Hiroi T. Milliken R. E. Kaiden H. Sasaki S. Matsuoka M. et al. ***POSTER LOCATION #608***
Gaussian Deconvolution of the 3-Micron Hydration Band of Carbonaceous Chondrites for Identifying Their Parent Bodies Using a Spectrometer in Space **[#1056]**
This simple method may prove useful for classifying carbonaceous chondrites based on the band centers and relative strengths of the 2.72 and 2.75 μm bands.