

Tuesday, March 20, 2018

[T345]

## POSTER SESSION I: PLANETARY MISSION CONCEPTS V: SMALLSATS

6:00 p.m. Town Center Exhibit Area

Clark P. E. Malphrus B. Schabert J. Wilczewski S. Brown K. et al. **POSTER LOCATION #686**  
[Preparing for the Lunar Ice Cube Mission](#) [#1268]

Lunar Ice Cube will be deployed in lunar orbit in 2019 to demonstrate a cubesat-scale instrument capable of addressing SKGs related to volatile distribution.

Cloutis E. A. Dagdick B. R. Parkinson A. E. Kruzelecky R. V. Murzionak P. et al. **POSTER LOCATION #687**  
[Mapping Water Ice in Lunar Permanently Shadowed Regions Using a Tow-Band LIDAR](#) [#2189]

A proposed lunar cubesat using a two-band lidar is presented for exploring permanently-shadowed regions.

Hardgrove C. West S. T. Heffern L. E. Johnson E. Christian J. et al. **POSTER LOCATION #688**  
[Development of the Miniature Neutron Spectrometer for the Lunar Polar Hydrogen Mapper Mission](#) [#2341]

The Miniature Neutron Spectrometer is a scintillator-based neutron detector on the LunaH-Map SmallSat mission launching as a secondary payload on SLS EM-1.

Vinckier Q. Hayne P. O. Martinez-Camacho J. M. Paine C. Cohen B. A. et al. **POSTER LOCATION #689**  
[System Performance Modeling of the Lunar Flashlight CubeSat Instrument](#) [#1030]

Lunar Flashlight will map water ice of the lunar south pole. We present the instrument design, theory of operation, and preliminary performance analysis.

Grimm R. Stillman D. Staehle R. Eby M. Dirks G. et al. **POSTER LOCATION #690**  
[Mars DartDrop: Assessing Contemporary Habitability at Recurring Slope Lineae with a Simple In Situ Mission](#) [#1097]

The question of liquid water at recurring slope lineae can be resolved definitively by small penetrators measuring only temperature, electrical conductivity, and humidity.

Klesh A. Krajewski J. **POSTER LOCATION #691**  
[MarCO: Mars Cube One — Lessons Learned from Readyng the First Interplanetary Cubesats for Flight](#) [#2923]

In May of 2018, the MarCO spacecraft are scheduled to launch with the Mars-bound InSight lander for a novel technology demo of interplanetary small spacecraft.

Aye K.-M. Holsclaw G. VanWoerkom M. Portyankina G. **POSTER LOCATION #692**  
[Martian Polar SmallSat Explorer \(MAPSE\)](#) [#2948]

We present our design for a SmallSat mission to Mars, focusing on polar processes.

Ehlmann B. L. Klesh A. Alsdairy T. Dekany R. Dickson J. et al. **POSTER LOCATION #693**  
[Mars Nano Orbiter: A Cubesat for Mars System Science](#) [#2818]

Submitted to NASA for consideration for Mars-2020, MNO would image Phobos and Deimos completely and provide high temporal resolution images of martian weather.

Head J. N. Bray V. J. **POSTER LOCATION #694**  
[Mars Temporal Observing Requirements and Constellation Architecture](#) [#2792]

To see change on Mars / Non-technical per ITAR / Constellations now.

Takir D. Mulqueen J. Castillo-Rogez J. C. **POSTER LOCATION #695**  
[Asteroid Reconnaissance for Researching Organics and Water in the Solar System \(ARROWS2\): A Deep Space SmallSat Mission \(Concept\) to Primitive Asteroids](#) [#2754]

ARROWS2 is a SmallSat mission concept to visit three to eight primitive asteroids with one to three small spacecraft.

Carroll K. A. Spencer H. Zee R. E. Connors M. **POSTER LOCATION #696**

[Geophysical Reconnaissance Asteroid Surface Probe Science Objectives](#) [#1065]

We describe science objectives for GRASP, a small asteroid lander/rover designed to conduct geophysical investigations using a gravimeter and magnetometers.

Kohout T. Näsilä A. Tikka T. Granvik M. Kestilä A. et al. **POSTER LOCATION #697**

[Asteroid Spectral Imaging Mission \(ASPECT\) CubeSat to Characterize Asteroid Surfaces](#) [#1292]

ASPECT is a 3U interplanetary CubeSat with spectral imager to map surface composition of asteroids.

Fukuhara T. Sakamoto Y. Kuwahara T. Takahashi Y. Yoshida K. **POSTER LOCATION #698**

[Commercial Thermal Infrared Camera Applied to Small Satellite in Japan](#) [#1359]

The small thermal infrared camera has been developed for a small satellite mission. We propose the instrument to be applied to newer planetary science missions.

Eubanks T. M. Radley C. F. **POSTER LOCATION #699**

[Investigating the Interiors of Small Bodies and Ocean Worlds with Spacecraft Swarms and Schumann Resonances](#) [#2942]

We predict the existence of a Schumann resonance on Europa and show how these resonances can be used by small spacecraft to observe the interiors of small bodies.

Wang X. Sternovsky Z. Horanyi M. Dust BUSTER Team **POSTER LOCATION #700**

[CubeSat Electrostatic Dust Analyzer \(CEDA\) for Exploring Dust Transport Processes on Airless Planetary Bodies](#) [#1755]

We develop CEDA for verifying and characterizing electrostatic dust transport and its effects on surface processes on airless planetary bodies.

Clark G. Smith H. T. Cohen I. Paranicas C. Kollmann P. et al. **POSTER LOCATION #701**

[CHARGE: A Small Satellite Mission to Answer Outstanding Questions in the Challenging Radiation Environment at Jupiter](#) [#1142]

A small satellite mission concept to Jupiter to address the processes that source and sustain the neutral cloud near Europa.

Williams D. A. Lopes R. M. C. Castillo-Rogez J.

Jacobs D. C. Scowen P. A.

**POSTER LOCATION #702**

[CubeSats to Support Future Io Exploration](#) [#1017]

In this poster we discuss CubeSat concepts to study volcanism on Jupiter's moon Io as part of a future Io Observer mission.

Zuber M. T. Smith D. E. Mazarico E. Genova A. Neumann G. A. **POSTER LOCATION #703**

[Understanding the Evolution of the Solar System](#) [#2004]

SmallSats at three or more planets could determine the expansion of the solar system and its rotation in inertial space by measuring their positions over time.

Weinberg J. D. Petroy S. Roark S. E. Schindhelm E. Osterman D. et al. **POSTER LOCATION #704**

[Small Sat Innovations for Planetary Science Missions](#) [#2888]

We present here recent efforts in pioneering both SmallSats and instrument miniaturization through advanced algorithms, mission design, and implementation.