Wednesday, October 26, 2016
POSTER SESSION: II
4:10–6:00 p.m. California Ballroom

Fillingim M. O. Wishnow E. H. Miller T. Edelstein J. Lillis R. J. Korpela E. England S. Shourt W. V. Siegmund O. McPhate J. Courtade S. Curtis D. W. Deighan J. Chaffin M. Harmoul A. S. Almatroushi H. R.
Wide-Field Ultraviolet Spectrometer for Planetary Exospheres and Thermospheres **[#4008]**
We will present the design for a wide field ultraviolet imaging spectrometer for remote sensing of planetary atmospheres. The imaging spectrometer achieves an extremely large instantaneous 110 degree field of view with no moving scanning mirror.

Kerber L. Nesnas I. A.
The Axel Rover: A Novel Platform for Instruments Making Measurements in Extreme Terrains **[#4122]**
Axel Rover is an extreme terrain rover that can carry a sizeable payload of capable instruments to difficult-to-reach locations in a variety of planetary environments.

Kenyon M. Mariani G. Johnson B. Brageot E. Hayne P.
Next-Generation Thermal Infrared Multi-Body Radiometer Experiment (TIMBRE) **[#4094]**
We have developed an instrument concept called TIMBRE which belongs to the important class of instruments called thermal imaging radiometers (TIRs). TIMBRE is the next-generation TIR with unparalleled performance compared to the state-of-the-art.

Ishimaru R. Sakamoto Y. Kobayashi M. Fujita S. Gonai T. Matsui T.
UV-Visible Observation of Meteors by CubeSat: S-CUBE Project **[#4030]**
We have launched a CubeSat project to observe meteors from space. A space-based observation enables a continuous global observation of meteors. Furthermore, it can access ultra-violet light from meteors which remain largely unknown.

Prettyman T. H. Yamashita N. Burger A. Rowe E. Butler J. Groza M. Stassun K. Lambert J. L. Castillo-Rogez J. C. Raymond C. A. Feldman S. M. Beck P. R. Cherepy N. J. Payne S. A.
Planetary Gamma Ray Spectroscopy with Strontium Iodide **[#4105]**
Strontium iodide, a new scintillator for gamma ray spectroscopy, offers improved performance for orbital and in situ measurements of planetary elemental composition.

Ho G. C. Andrews G. B.
Plasma Composition Instrument for Planetary and Cometary Missions **[#4084]**
We present a new plasma composition instrument design that would extend the energy range of the current plasma instrument and provide higher time cadence and mass measurement that are required for planetary and/or cometry flyover missions.

Kidd R. D. Bae B. Willis P. A. Noell A. C. Scianmarello N. Tai Y.-C.
MEMS Liquid and Gas Chromatography for Miniaturized Planetary In Situ Instruments **[#4062]**
Micro-Electro-Mechanical Systems (MEMS) technology to reduce the size, mass and power of the three classical chromatographic technologies: gas chromatography (GC), capillary electrophoresis (CE) and high performance liquid chromatography (HPLC).

Uckert K. Getty S. Grubisic A. Li X. Yu A. W. Fahey M. E. Brinckerhoff W. B. Li S. X. Cornish T. Farcy B. Elsila J. E.
Organic Detection in Ocean World Analogs with a Two-Step Laser Desorption/Ionization Time-of-Flight Mass Spectrometer **[#4098]**
We explore the analytical advantages offered by a prototype two-step laser desorption/ionization time-of-flight mass spectrometer, and demonstrate the detection of hydrocarbons in organically-doped cryogenic ocean world-relevant ices and mixtures.

Honniball C. I. Wright R. Lucey P. G.
The MIDAS Instrument Design and Characterization **[#4055]**
The Miniaturized Infrared detector of Atmospheric Species (MIDAS) utilizes an uncooled microbolometer coupled with a Sagnac interferometer. MIDAS will be used to detect and quantify atmospheric constituents for a variety of science applications.

Nikolic D. Darrach M.
LADEEView: Elemental Composition Analysis of Lunar Surface **[#4014]**
LadeeView is a comprehensive lunar data analyzer with modular architecture. Mass spectrometry module is designed to map elemental abundances along the LADEE spacecraft trajectories. These maps are useful input for future models of lunar exosphere.

John K. K. Abell P. Brisset J. Britt D. Colwell J. Durda D. Dove A. Fries M. Graham L. Hartzell C. Leonard M. Love S. Sanchez D. P. Scheeres D. J.
Strata-1: A Planetary Science Experiment on the Behavior of Asteroid Regolith in Microgravity **[#4092]**
Strata-1 is an experiment studying asteroid regolith in the microgravity environment of ISS. The prolonged microgravity and vibrational conditions of ISS are analogous to those on small Solar System bodies.

Patel A. Shanmugam M. Ladiya T.
Signal Processing Techniques for Silicon Drift Detector Based X-Ray Spectrometer for Planatary Instruments **[#4033]**
We are developing SDD based x-ray spectrometer using various pulse height analysis techniques. This study will help to identify the proper processing technique based on instrument specifications which can be used for future scientific missions.

Kobayashi M. Okudaira O. Kurosawa K. Okamoto T. Matsui T.
Dust Sensor with Large Detection Area Using Polyimide Film and Piezoelectric Elements **[#4047]**
We describe the development of dust particles sensor in space with large area (1m × 1m scale). The sensor has just a thin film of polyimide attached with small tips of piezoelectric elements. We performed experiments to characterize the sensor.

Lightholder J. Thompson D. R. Huffman W. Boland J. Chien S. Castillo-Rogez J.
Onboard Science Techniques to Optimize Science Data Retrieval from Small Spacecraft **[#4096]**
Software strategies for new onboard science techniques which optimize science return under the constrains of interplanetary small spacecraft. These include size, power, attitude control and communications bandwidth.

Adams E. Y. Murchie S. L. Hohlfeld E. M. Peplowski P. N.
Planetary Object Geophysical Observer (POGO): A New Approach to Small Body Landed Science **[#4053]**
The Planetary Object Geophysical Observer, or POGO, is a geochemical landed package designed for ballistic deployment to its target body, to survive landing at 5 m/s, and to achieve its core objectives from any landed orientation.

Sittler E. C. Jr. Cooper J. F. Paschalidis N. Jones S. L. Brinckerhoff W. L. Paterson W. R. Ali A. Coplan M. A. Chornay D. Sturner S. J. Benna M. Bateman F. B. Fontaine D. Verdeil C. Andre N. Blanc M. Wurz P.
Advanced Ion Mass spectrometer for Giant Planet Ionospheres, Magnetospheres and Moons **[#4088]**
Advanced Ion Mass Spectrometer is being developed to measure both major and minor ion species from 1 V to 25 kV with wide field-of-view in the 1–60 amu mass range at $M/\Delta M \leq 60$ over a wide range of ion intensities within high radiation environments.

Knapp M. Robey F. C. Lind F. D. Hecht M.
Flexible low-band Instrument for RF Measurement and Imaging (FIRMI) **[#4129]**
We propose to apply vector antenna technology, antennas that measures full electric and magnetic field vectors, to RF source characterization, ionospheric sounding, and to surface penetrating radar in the 250 kHz – 30 MHz range.

Wu K. Doran G. B. Thompson D. R. Allwood A. C. Flannery D. T. Sharrow R. F. Pedersen D. A. K. Liebe C. C.
Performance of Image Registration-Based Instrument Placement for PIXL **[#4081]**
We analyze performance of an algorithm for precise closed-loop instrument placement that uses context camera images to recognize landmark features on a rock surface.

Kedar S. Pike W. T. Standley I M. Calcutt S. B. Bowles N. Blaes B. Irom F. Mojarradi M. Vance S. D. Bills B. G.
The Europa Seismic Package (ESP): 2. Meeting the Environmental Challenge **[#4134]**
We outline a pathway for adapting the SP microseismometer delivered to InSight to provide a Europa Seismic Package that overcomes the three significant challenges in the environmental conditions, specifically gravity, temperature and radiation.

Griggs C. E. Paik H. J. Moody M. V. Rowlands D. D. Lemoine F. G. Li X. Han S.-C.
Superconducting Gravity Gradiometer for Planetary Missions **[#4041]**
A new and innovative design for a compact tensor gravity gradiometer gives a potential sensitivity better than .1 mE $Hz^{-1/2}$ in the measurement band of 1 mHz to 0.1 Hz for a device with a baseline just over 10 cm.

Bar-Cohen Y. Zacny K. Badescu M. Lee H. J. Sherrit S. Bao X. Paulsen G. L. Beegle L.
The Auto-Gopher — A Wireline Rotary-Percussive Sampler for Deep Subsurface Planetary Exploration **[#4001]**
To enable the required capability for subsurface sampling in such bodies as Europa a wireline deep rotary-percussive corer, called Auto-Gopher, was developed and will be described.

Hernandez Schwartz Asphaug Thangavelautham
Micro-Penetrometer Instrument for Small Bodies **[#4135]**
We present a micro-penetrometer instrument for determining hardness, granularity, porosity and composition of asteroid surfaces for use on SmallSat and CubeSat missions. The presentation includes mission concepts and laboratory experiments.

Lerman H. N. Hutchinson I. B. Bannister N. P. McHugh M. Ingley R. Lester M. Wright D. Milan S. Brunskill C. Garton D.
The Development of a Highly Integrated Imaging Payload for Space Weather and Maritime Monitoring **[#4064]**
The results of testing a UV enhanced CCD for a CubeSat-compatible, multi-purpose imaging payload, targeted at space weather monitoring and maritime domain awareness.

Francis R. Estlin T. A. Wagstaff K. Doran G. Mandrake L.
Instrument Autonomy Techniques Enhance Science Return and Efficiency of Surface Missions **[#4121]**
Onboard autonomy at the instrument level can speed mission progress and enable new investigations. We describe the range of roles autonomy can play in surface missions, and survey existing and flight-proven techniques available for new instruments.

Seo M. G. Cho M. H. Tahk M. J.
Common Region Detection Algorithm for Adjacent Lunar Surface Images Using Crater Matching **[#4029]**
The algorithm to figure out the common area of two partially overlapping lunar surface images is proposed in this paper. The performance of this algorithm is demonstrated by the image merging test.

Sellamuthu H. Sharma R. K.
On-Board Orbit Propagator Using Kustaanheimo-Stiefel Elements for Mars Micro Orbiters **[#4004]**
An analytical orbit propagator for small spacecraft missions about Mars is developed using Kustaanheimo-Stiefel regularization method. The perturbation models include the solar gravity and the second zonal harmonic of Mars.

Dell'Agnello S. SCF_Lab Team Currie D. Richards R. Chandler J.
Next-Generation Laser Retroreflectors for the Science and Exploration of the Moon, Mars and Beyond **[#4074]**
We describe next-generation laser retroreflectors for solar system science/exploration, developed at INFN-LNF, Frascati, Italy in collaboration with ASI and NASA-SSERVI, for lunar missions, ExoMars, Mars2020, Phobos, Jupiter icy/rocky moons, asteroids.