

Program

Location: Dabney Hall, California Institute of Technology Campus

Tuesday, 18 June 2013: Morning

7:30-8:30am: Registration

8:30-8:45am: Welcome and Workshop Overview

Gregg Vane, JPL and IAA: LCPM-10 Welcome

Jean-Michel Contant, Secretary General, IAA: IAA Welcome

Firouz Naderi, JPL Director for Solar System Exploration: JPL Welcome

Keith Grogan, JPL: Workshop Overview and Logistics

8:45am-12:00pm - Session 1: Agency Programs and Plans for Low-Cost Planetary Missions

Co-Chairs: Marcello Coradini, ESA and Gregg Vane, Caltech/JPL

- [NASA'S Planetary Science Program: Highlights from recent low-cost missions and future plans.](#) James Green, Director, NASA Planetary Science Division, and Lisa May, NASA Mars Program Executive - **confirmed**
- [The role of low cost missions in the ESA program.](#) Marcello Coradini, ESA Special Assistant, and Luigi Colangeli, Head, Planetary Mission Office, ESA/ESTEC - **confirmed**
- [The ASI Italian Space Agency Planetary Program - overview and plans.](#) Marcello Coradini, ESA Special Assistant, and Enrico Flamini, Chief Scientist, ASI - **confirmed**

10:00-10:20am: Coffee Break

- [Current and future activities in planetary exploration in the Indian Space Research Organization, ISRO.](#) Anil Bhardwaj, Head, Planetary Sciences Branch, Vikram Sarabhai Space Center, ISRO - **confirmed**
- [The DLR German Space Program role in planetary science.](#) Tilman Spohn, Head, Institute of Planetary Research, DLR - **confirmed**
- [Japan's low-cost Solar System missions: Past, present and future.](#) Junichiro Kawaguchi, Secretary General, Secretariat of Strategic Headquarters for Space Policy, JAXA/Institute of Space and Astronautical Science (ISAS) and Hajime Yano, JAXA/ISAS - **confirmed**
- [The CNES French Space Agency Planetary Program - overview and plans.](#) Pierre Bousquet, Head of Office, Planetology and Microgravity Projects, CNES - **confirmed**

12:00-1:30pm: Lunch at the Caltech Athenaeum

Tuesday, 18 June 2013: Afternoon

1:30-3:30pm - Session 2: Latest Science Results from On-Going Missions

Co-chairs: Christophe Sotin, Caltech/JPL and Louise Prockter, JHU/APL

- [Unraveling the secrets of the Moon's interior: Latest results from NASA's GRAIL mission.](#) Sami Asmar, JPL - **confirmed**
- [Most recent discoveries of the nature of Venus from the Venus Express.](#) Colin Wilson, Oxford University - **confirmed**
- [Major results from NASA's Dawn mission visit to Vesta.](#) Carol Raymond, JPL - **confirmed**
- [What we have learned from the Asteroid Itokawa samples returned by the Hayabusa-1 mission.](#) Hajime Yano, JAXA/ISAS - **confirmed**
- [Results from NEOWise.](#) James Bauer, JPL - **confirmed**

3:30-3:50pm: Coffee Break

3:50-5:50pm - Session 3: Missions Currently Under Development for Launch in the Near Future, and the Challenges They Face in Maintaining Their Proposed Low Cost

Co-Chairs: David Lehman, Caltech/JPL and Hajime Yano, JAXA/ISAS

- [NASA's LADEE Mission to the Moon.](#) Gregory Delory, UC Santa Cruz, and Butler Hine, Ames Research Center - **confirmed**
- [The 2013 MAVEN mission to Mars: Status and lessons learned.](#) Bruce M. Jakosky, University of Colorado, Laboratory for Atmospheric and Space Science, and David F. Mitchell, NASA Goddard Space Flight Center - **confirmed**
- [The NASA InSight Mission.](#) Stacy Weinstein-Weiss, JPL - **confirmed**
- [JAXA's Hayabusa-2 Asteroid Mission,](#) Hitoshi Kuninaka, JSPEC, and Hajime Yano, JAXA/ISAS
- [NASA's GRAIL Lunar Discovery Mission: How we competed a two-spacecraft mission on cost and on schedule.](#) David Lehman, JPL - **confirmed**

6:00pm - Welcome Reception and Posters at Dabney Patio

Welcome Reception

Wednesday, 19 June 2013: Morning

8:30am-12:00pm - Session 4: Science Instruments: Breakthroughs Achieved, Breakthroughs Required to Enable the Next Generation of Low-Cost Planetary Exploration

Co-Chairs: Tilman Spohn, DLR and Chris Webster, Caltech/JPL

- [The challenges of low-cost instruments for planetary missions.](#) Chris Webster, JPL
- [Compact Integrated Raman Spectrometer \(CIRS\) for in situ phase characterization of during robotic exploration missions on the surface of planetary bodies.](#) Alian Wang, Washington University in St. Louis
- [A novel scalar magnetometer based on rubidium vapor absorption.](#) Werner Magnes, Austrian Space Research Center
- [Mars Organic Molecule Analyzer \(MOMA\) Investigation on the 2018 ExoMars Rover.](#) Ricardo Arevalo, NASA GSFC
- [The Ultra Compact Imaging Spectrometer.](#) Diana Blaney, JPL

10:05-10:25am: Coffee Break

- [MoonLIGHT, a US-Italy lunar laser ranging retroreflector array for the 21st century, and SCF Lab, a unique infrastructure to characterize laser ranging and altimetry to moons and planets.](#) Simone Dell'Agnello, INFN-LNF, Italy
- [The MASCOT Radiometer MARA for the Hayabusa 2 Mission.](#) Matthias Grott, DLR
- [Sampling of Regolith Particles from Asteroids Utilizing Alternative Electrostatic Field.](#) Hiroyuki Kawamoto, Waseda University, Japan
- [Thinking Inside the Box: Concurrent Engineering Approaches to Low Cost Planetary Instrument Formulation at JPL.](#) Alfred Nash, JPL
- [The Heat Flow and Physical Properties Package \(HP3\) for the InSight Mission.](#) Tilman Spohn, DLR

12:00-1:30pm: Lunch at the Caltech Athenaeum

Wednesday, 19 June 2013: Afternoon

1:30-5:50pm - Session 5: Advanced Concepts for the Next Generation of Low-Cost Missions

Co-Chairs: Luigi Colangeli, ESA/ESTEC and Kim Reh, Caltech/JPL

- [Uranus Explorer.](#) Mark Hofstadter and Steve Matousek, JPL

- [Characterizing ExoPlanets Satellites \(CHEOPS\)](#). Willy Benz and Udo Wehmeier, University of Bern
- [Journey to Enceladus and Titan \(JET\)](#). Steve Matousek and Christophe Sotin, JPL
- [Solar Sailing to the Jovian Trojans](#). Hajime Yano, JAXA/ISAS
- [Impactor for Surface and Interior Science \(ISIS\)](#). John Elliott, JPL

3:30-3:50pm: Coffee Break

- [A low-cost mission to a metal world \(Psyche\)](#). Linda Elkins-Tanton, Carnegie Institution
- [Venus Atmospheric Maneuverable Platform \(VAMP\)](#). Kristen Griffin, Northrop Grumman
- [Far Above: Interplanetary Dust Structures with a Small Satellite in Inclined Heliocentric Orbit](#). James Lloyd, Cornell University
- [A Low-Cost NEO Micro Hunter-Seeker Mission Concept](#). Joseph Riedel, JPL
- [Low Cost Enceladus Sample Return Mission Concept \(LIFE\)](#). Nathan Strange and Peter Tsou
- [A Low-Cost Small Radioisotope Power System Centaur Flyby SmallSat Mission Concept](#). Brian Bairstow, JPL and Robert Cataldo, GRC

6:00pm - LCPM-10 Banquet at the Caltech Athenaeum

Thursday, 20 June 2013: Morning

9:00am-12:00pm - Session 6 Part 1: Cubesats and SmallSats: A New Paradigm for Conducting Planetary Exploration

Co-Chairs: John Baker, Caltech/JPL and Pierre Bousquet, CNES

- [The Interplanetary NanoSpacecraft Pathfinder In Relevant Environment \(INSPIRE\) CubeSat Project](#). Andrew Klesh, JPL
- [A Mobile Asteroid Surface Scout \(MASCOT\) for the Hayabusa 2 Mission](#). Ralf Jaumann, DLR
- [Next Generation SmallSat - Dare to Explore Where No Craft Has Gone Before](#). Julie Castillo, JPL
- [Piggybacking Arianespace launches: a cost-efficient opportunity for planetary exploration smallsats](#). Carole Billot, TASF; and Joel Michaud, CNES
- [Wide Field UV Imaging For Space Weather Cubesats](#). Nigel Bannister, University of Leicester
- [Novel ideas for exploring Mars with CubeSats](#). Tomas Komarek, JPL
- [Lunar magnetic field measurements with a cubesat impactor](#). Ian Garrick-Bethell, University of California, Santa Cruz
- [Using smallsats and cubesats as ancillaries: a low-cost strategy maximizing the science return of fly-by missions](#). Joel Poncy, TASF

- STUDSAT-2, India's First Twin Satellite Mission for Inter Satellite Communication Demonstration. Bheema Rajulu, Nitte Meenakshi Institute of Technology, India

12:00-1:30pm: Lunch at the Caltech Athenaeum

Thursday, 20 June 2013: Afternoon

1:30-2:30pm - Session 6 Part 2: Cubesats and SmallSats: A New Paradigm for Conducting Planetary Exploration

Co-Chairs: John Baker, Caltech/JPL and Pierre Bousquet, CNES

- [Enabling Low Cost Planetary Missions by Reducing Launch Cost via Co-Manifest or Secondary Launches](#), Jared Lang, JPL
- [Cubesat Strategies for Long-Life Missions](#), William Frazier, Ball Aerospace
- CubeSats and Europa: Focused Science with Disposable Spacecraft. Lauren Halatek, JPL

2:30-2:50pm: Coffee Break

2:50-4:00pm - Session 7: Robotic/Human Exploration Link

Co-Chairs and moderators: Enrico Flamini (ASI), Brent Sherwood (JPL)

*Panelists: [Cassie Conley](#) (NASA HQ), Chair, IAA Study Group on Robotic Exploration, [Victoria Friedensen](#) (NASA HQ), Lead, Joint Robotic Precursor Activity, **Patrick Michel**, CNRS/France, International Space Exploration Coordination Group, **International panelists**, invitations and commitments in work*

How can low-cost robotic missions support human exploration goals? What are some novel options - and practical limitations - for robotic precursors to retire human-spaceflight's Strategic Knowledge Gaps? What roles could robotic "adjunct" systems play during and between human missions, and what are the driving issues for safe and productive combined operations? Finally, when SLS, Orion, Commercial Crew, and other private human systems are operational, how might those capabilities fundamentally change low-cost robotic missions of the future?

This session about anticipated and undiscovered synergies between robotic and human exploration will be conducted as a panel discussion among experts active in this interface today.

4:00pm Conference Wrap-Up

4:30pm - Adjourn