PROGRAM
Outer Planet Flagship Mission Instrument Workshop
June 3–5, 2008
Monrovia, California

TSSM- and EJSM-relevant topics are highlighted in blue and purple, respectively. Topics equally relevant to both flagship missions are left without highlight.

Venue: Double Tree Hotel, 924 W. Huntington Drive, Monrovia, California

Tuesday, June 3

Start Time	Length (hr:min)	Title & Speaker
7:30 AM		**Registration Opens (Madera Ballroom entrance foyer)**
8:30 AM	0:30	**Welcome remarks** Jim Cutts (JPL)
		Outer Planets Program Overview Len Dudzinski (NASA HQ)
		ESA Cosmic Vision Studies Jean-Pierre Lebreton (ESA) [via telecon]

Session 1: Overview of the Titan/Saturn System Mission
Madera Ballroom

9:00 AM	0:30	**TSSM Orbiter Science** Jonathan Lunine (UA) [via telecon]
9:30 AM	0:20	**TSSM Orbiter Mission Design & Architecture** Kim Reh (JPL)
9:50 AM	0:20	**TSSM Orbiter Flight Systems** John Elliot (JPL)
10:10 AM	0:20	**TSSM Orbiter Planning Payload** Mark Perry (APL)
10:30 AM	0:30	**Break**
11:00 AM	0:30	**TSSM Orbiter Science Scenario** Rob Lock (JPL)
11:30 AM	0:45	**TSSM In Situ Element Science and Instruments** Athéna Coustenis (Paris Observatory)
12:15 PM	1:30	**Lunch**
1:45 PM	0:45	**TSSM In Situ Element Architecture, Flight Systems, & Planning Process** Christian Erd (ESTEC)

Tuesday, June 3 (Continued)

Session 2: Overview of the Europa/Jupiter System Mission
Madera Ballroom

2:30 PM	0:30	**EJSM Europa Orbiter Science** Amanda Hendrix (JPL)
3:00 PM	0:20	**EJSM Europa Orbiter Mission Design & Architecture** Karla Clark (JPL)
3:20 PM	0:20	**EJSM Europa Orbiter Flight Systems** Grace Tan-Wang (JPL)
3:40 PM	0:20	**EJSM Europa Orbiter Planning Payload** John Boldt (APL)
4:00 PM	0:30	**Break**
4:30 PM	0:30	**EJSM Europa Orbiter Science Scenario** Rob Locke (JPL)
5:00 PM	0:30	**EJSM Ganymede Orbiter Science** Michele Dougherty (Imperial College London)
5:30 PM	0:40	**EJSM Ganymede Orbiter** Christian Erd (ESTEC)

Session 3: Mission Study Posters
Breakout room & poolside

6:10 PM	1:50	**Poster viewing and discussion w/light refreshments poolside**
8:00 PM		**Adjourn for dinner**

Day 2 (June 4, Wednesday)

Session 4: Planetary Protection Overview
Madera Ballroom

8:30 AM	1:00	**Planetary Protection for the Outer Planet Flagship Missions** Andy Spry (JPL)

Session 5: Instrument Poster Summaries
Madera Ballroom

9:30 AM	1:00	**Instrument Poster Summaries Set #1 (Posters 1 – 16)** 4 minutes each
10:30 AM	0:30	**Break**
11:00 AM	1:00	**Instrument Poster Summaries Set #2 (Posters 17 – 31)** 4 minutes each
12:00 PM	1:30	**Lunch**
1:30 PM	1:00	**Instrument Poster Summaries Set #3 (Posters 32 – 46)** 4 minutes each

Session 6: Environmental Challenges in the Jovian System
Madera Ballroom

2:30 PM	0:45	**Overview of the Jovian Environment** Hank Garrett (JPL)
3:15 PM	0:30	**The Europa Orbiter Environment** Insoo Jun (JPL)
3:45 PM	0:30	**Break**
4:15 PM	0:30	**The Jupiter Ganymede Orbiter Environment** Nicolas Andre (ESTEC)
4:45 PM	0:15	**Next Steps** Jim Cutts (JPL)

Session 7: Instrument Poster Summaries
Madera Ballroom

5:00 PM	1:00	**Instrument Poster Summaries Set #4 (Posters 47 – 61)** 4 minutes each

Session 8: Outer Planet Flagship Mission Instrument Posters
Breakout rooms & poolside

6:00 PM	2:00	**Poster viewing and discussion w/light refreshments poolside**
8:00 PM		**Adjourn for dinner**

Day 3 (June 5, Thursday)

Session 9: Europa Orbiter Parts & Materials Challenges: Survivability, Selection, & Testin
Madera Ballroom

8:30 AM	0:45	**Radiation Effects on Electronic Parts** Allan Johnston (JPL)
9:15 AM	0:45	**Radiation Effects on Materials** Paul Willis (JPL)
10:00 AM	0:30	**Shielding Consideratons** Insoo Jun (JPL)
10:30 AM	0:30	**Break**
11:00 AM	0:45	**Spacecraft Charging Effects** Hank Garrett (JPL)
11:45 AM	0:15	**Mission Lifetime Model** Robert Rasmussen (JPL)
12:00 PM		**Adjourn**

"Contributed Instrument Abstracts Received for Outer Planet Flagship Mission Instrument Workshop
All instrument papers are presented as posters. Each poster is also allocated 4 minutes for an oral summary.

Poster #	Abstract Title	Authors
Instrument Poster Summaries Set #1 (Posters 1 – 16)		
1	CIRS-lite for the Titan-Saturn Flagship Mission	J. Brasunas, M. Flasar, D. Jennings
2	SAMPLING SYSTEMS FOR NEAR SURFACE EXPLORATION OF TITAN	K. Zacny, K. Davis, E. Mumm, G. Paulsen, and L. Parrington
3	Deep UV Raman and Native fluorescence: An Optical based instrument for Detection and Characterization of Organics on Titan	Rohit Bhartia, William F. Hug, Robert West, Richard Kidd, Ray Reid, Kenneth H. Nealson, Arthur L. Lane
4	Integrated Remote Raman Spectroscopy and Lidar Instrument for Planetary Surface and Atmospheric Sensing	M. Nurul Abedin, S. Ismail, S. K. Sharma, A. K. Misra
5	Science case for a sub-millimeter sounder on the TSSM mission	E. Lellouch,S.Vinatier,M. Allen, S. Gulkis, P. Hartogh, R. Moreno, I. Mehdi, A. Maestrini,J-M. Krieg
6	Titan Regolith Subsurface Mole for Physical Properties (TiReS)	Lutz Richter, Matthias Grott, Frank Sohl
7	ACOUSTICS OF TITAN'S TROPOSPHERE WITH ACTIVE MULTI-MICROPHONE TECHNIQUES. LESSONS LEARNED FROM THE HUYGENS HASI ACOUSTIC SENSOR	B.P. Besser (1), K. Schwingenschuh (1), H.U. Eichelberger (1), W. Magnes (1), G. Prattes (1), ÷. Aydogar (1), I. Jernej (1), H.I.M. Lichtenegger (1), R. Hofe (2), T. Tokano (3)
8	A Chemical Analysis System for the Titan Montgolfier	A.D.Morse, J.H.Waite, F.Raulin, F.Goesmann, M.Hilchenbach, I.Gilmour, V.K.Pearson, J.S.Watson, M.R.Leese and S.J.Barber
9	Autonomous Science Planning for a Titan Aerobot	Daniel M. Gaines, Rebecca Castano, Tara Estlin, Steve Chien, Ashley G. Davies
10	HIGH RESOLUTION IN SITU/REMOTE LASER SPECTROMETER (HIRLS)	T. Kostiuk, T. A. Livengood, K. E. Fast, G. Sonnabend, F. Schm¸lling, T. Hewagama, D. Buhl
11	In Situ Physical Properties Measurements for Future Titan Probes	A.J. Ball; J.C. Zarnecki; M.C. Towner; A. Hagermann; M.R. Leese; B. Hathi
12	Dust Detector Mass Spectrometer for Investigation of Icy Satellite Particulates	K. Miljkovic; S. Sheridan; A.D. Morse; A.J. Ball; S.J. Barber; J.K. Hillier; N. McBride; C.S. Cockell; I.P. Wright; J.C. Zarnecki; M.R. Leese; S.J. Bartlett; D.A. Rothery; N.J. Mason; E.A.Taylor
13	Multipass Spherical Ring Spectrometer for in situ Chemical Sensing	Warren P. George, Bruce E. Bernacki, and David C. Scott
14	A SEISMOMETER FOR ICY MOONS AND PLANETS	T. Chui*, J. Young and K. Penanen, Ho Jung Paik, Clive Neal
15	Cassini Extended Mission Design	Brent Buffington and Nathan Strange
16	Possibilities for a Titan Landed Mass Spectrometer	Tim Brockwell, Jacob Grimes, Hunter Waite, David Young
Instrument Poster Summaries Set #2 (Posters 17 – 31)		
17	SPECTROCHEM: AN IN-SITU INSTRUMENT FOR SURFACE CHEMICAL	C. C. Hays and S. R. Narayanan
18	Icy Moons Cryogenic Seismometer	C. C. Hayes
19	Fluxgate Magnetometers for Outer Planets Flagship Missions	Krishan K. Khurana, Robert J. Strangeway, Christopher T. Russell, Mark B. Moldwin, David Pierce, Werner Magnes, Martin Volwerk and W. Baumjohann
20	AN ITALIAN VIS-NIR IMAGING SPECTROMETER FOR THE EXPLORATION OF THE OUTER SOLAR SYSTEM	G. Filacchione, A. Coradini, F. Capaccioni, G. Piccioni, E. Flamini, G. Preti
21	A New Electric Field Sensor for Atmospheric and Space Sciences	Nilton O. Renno
22	Topography of Icy Satellites: Constraints for Landers and Radar Sounding	P. Schenk, F. Nimmo

23	INCREASING OUTER PLANET MISSION SCIENCE RETURN THROUGH USE OF AUTONOMY: HARDWARE AND SOFTWARE REQUIREMENTS FOR DETECTING VOLCANIC PROCESSES	Ashley Gerard Davies, Steve Chien, Rebecca Castano
24	Robust Efficient Autonomous Payload Approach	Brian Shortt, Omar Emam, and Nicolas De Angelis
25	A NEW X-RAY FLUORESCENCE SPECTROMETER FOR PLANETARY EXPLORATION	W. T. Elam (APL-UW) and Warren C. Kelliher (NASA LaRC)
26	MAGNETOMETER FRONT-END ASIC (MFA)	Magnes 1),W., H.Hauer 2), A.Valavanoglou 1), M.Oberst 2), H.Neubauer 2), D.Pierce 3), J.Means 3), I.Jernej 1), C.Hagen 1), M.Volwerk 1), W.Baumjohann 1), R. Strangeway 3), K. Khurana 3), P. Falkner 4)
27	Non-Thermal Microwave Detector	Chris Ruf and Nilton Renno, University of Michigan
28	THE LESIA CONTRIBUTION TO THE PAYLOAD OF FUTURE OUTER PLANET MISSIONS	P. Drossart, B. BÈzard, A. Coustenis, T. Fouchet, E. Lellouch, P. Gaulme, A.SÈmery, J.-M.RÈess, Y . Hello
29	Design constraints affecting lander magnetometers for Jupiter and Saturn missions	P. Brown, H. O Brien, C. Carr, M. Dougherty, T. Oddy and T. Beek
30	Ultraviolet Spectrograph Concepts for the Outer Planet Flagship Mission	Retherford, K. D., S. A. Stern, D. C. Slater, R. G. Gladstone, M. R. Davis, J. Wm. Parker, A. J. Steffl, T. K. Greathouse, N. J. Cunningham, J. R. Spencer (SwRI)
31	A high dynamic range plasma analyzer suitable for in-situ measurements on the EJSM/TSSM missions	A. J. Coates, G. H. Jones, D. O. Kataria
Instrument Poster Summaries Set #3 (Posters 32 – 46)		
32	Atomic Clocks for Outer Planet Mission Navigation and Radio Science	John Prestage, Sang Chung, Robert Thompson, Robert Tjoelker, Eric Burt, Nan Yu; JPL
33	A Novel Approach To The Detection Of Bouguer Anomalies And Mass Concentrations	Luke Sollitt, Jon Arenberg, Luther Beegle
34	Planetary Interior, Atmospheric, and Surface Studies with Advanced Radio Science Instrumentation	S. W. Asmar, W. Folkner, J. W. Armstrong, M. Tinto
35	Advanced Planetary Atmosphere-Magnetosphere Mass Spectrometer (APAMMS)	E. C. Sittler Jr., J. F. Cooper, W. T. Kasprzak, P. R. Mahaffy, H. B. Niemann, R. E. Hartle, N. Paschalidis, D. Chornay, M. Coplan, and R. E. Johnson
36	Compact Mass Spectrometers for Analysis of Cosmic Dust and Particulates	D. E. Austin, J. Radebaugh, H. L. K. Manning, T. J. Ahrens, and J. L. Beauchamp
37	AN UPDATE ON MICRO-PENETRATORS FOR IN-SITU SUB-SURFACE INVESTIGATIONS OF EUROPA, ENCELADUS AND TITAN	R. A. Gowen, A.Smith, I.A.,Crawford, A.J.Ball, S.J.Barber, P.Church, Y.Gao, A.Griffiths, A.Hagermann, W.T.Pike, A.Phipps, S.Sheridan, M.R.Sims, D.L.Talboys, and N.Wells
38	ONBOARD AUTONOMY TO IMPROVE SCIENCE RETURN	Steve Chien, Rebecca Castano, Ashley Davies, Kiri Wagstaff
39	Digital, tuned, fluxgate magnetometers for Jupiter and Saturn missions	H. O Brien, P. Brown, C. Carr, M. Dougherty, T. Oddy and T. Beek
40	Oxford Ral Terahertz-Infrared Sensor ORTIS	P.G.J .Irwin, B.N. Ellison, L.N. Fletcher, B. Alderman, P. Hartogh, R. de Kok, N. Teanby, and S.B. Calcutt
41	Radar Sounding of Ice: the SORA Experiment	Alberti G., et al.
42	XITE: An X-ray Telescope for the Missions to the Outer Planets	G. Branduardi-Raymont
43	Ultrahigh spectral resolution submillimeter spectrometry for planetary observations	Mark Allen, Sam Gulkis, Imran Mehdi (Jet Propulsion Laboratory)
44	Astrobiology from Europan Orbit	Mark Allen, Robert Carlson, Ken Cooper, Brian Drouin, Kevin Hand, Anders Skalare, Pat Beauchamp, John Pearson, Herb Pickett, David Rodgers, Peter Siegel, Sam Gulkis, Goutam Chattopadhyay (Jet Propulsi
45	Miniature Gas Chromatograph/Mass Spectrometer for use in Outer Planety Missions	A. Chutjian, M. Durrach, J. A. MacAskill, S. Madzunkov

46	Recent developments in time-of-flight mass spectrometry: low-power timing discriminator and innovative uses of MCP	Pierre DEVOTO, Jean-Louis MEDALE, Jean-André SAUVAUD, Claude AOUSTIN, André FEDOROV, Philippe LOUARN, Nicolas ANDRE; Centre d'Etude Spatiale des Rayonnements, Toulouse, France
Instrument Poster Summaries Set #4 (Posters 47 – 61)		
47	Ionospheres, Rings and Magnetospheres: Cold Plasma Diagnostics around the Gas Giants	A. I. Eriksson, J.-E. Wahlund, R. Modolo, A. Vaivads, L. Blomberg, J. Cumnock, W. Kurth
48	Ocean Detection on Europa: Langmuir Probe Measurements for Ionospheric Current Compensation	J.-E. Wahund, A. I. Eriksson, R. Modolo, L. Blomberg, J. Cumnock
49	Living with GeV Electrons: Lessons Learned Designing a Star Tracker for Europa	Kyle Miller, Mike Duncan, Charles VanHouten
50	The Diviner Europa Radiometer Experiment	D. A. Paige, G. Schubert, W. B. Moore, J. M. Aurnou, D. J. McCleese, J. T. Schofield, M. Foote and S. B. Calcutt
51	Europa Orbiter NAC	R. Jaumann, S. Mottola, J. Oberst, H. Michaelis, N. Schmitz, K. Stephan
52	Ultraviolet Science at Europa and the Jupiter System	A. R. Hendrix, John Clarke, Larry W. Esposito, Paul D. Feldman, Candice J. Hansen, Arthur L. Lane, Bill McClintock, Melissa A. McGrath, Nick Schneider
53	A Radio Astronomy Experiment for the Europa-Jupiter System Mission	B. Cecconi, M. Moncuquet, P. Zarka
54	Hot Plasma Composition Analyzers (HPCA) for Planetary Plasma Environments	Gomez, R. G., Young, D. T., Waite, J.H.
55	AN ION AND NEUTRAL MASS AND ENERGY ANALYZER TO STUDY EUROPA S EXOSPHERE/SURFACE COUPLING : A WINDOW TOWARDS EUROPA S INTERIOR AND ITS SURFACE RADIOLYSIS	Cipriani, F., Leblanc, F., Witasse O, Johnson R.E., Berthelier J.J.
56	PASSIVE R.F. ELECTRIC ANTENNAS AS IN SITU DETECTORS OF PLASMAS IN THE JUPITER MAGNETOSPHERE	M.Moncuquet, B. Cecconi and the "plasma" team of the LESIA
57	Submm investigations of the Europa Jupiter System Mission (EJSM)	P. Hartogh, E. Lellouch, S. Gulkis, C. Jarchow, R Moreno, P. Drossart, M. Allen, H. Sagawa, P. Irwin, A. Selig, G. Beaudin, I. Mehdi, A. Maestrini, B. Ellison
58	MARSIS AND SHARAD: RADAR SOUNDING FROM ORBIT AT MARS	G. Picardi (1), J. J. Plaut (2), R. Seu (3), R. Phillips (4), and the MARSIS and SHARAD Teams; (1) (1) Dipartimento InfoCom, Università di Roma "La Sapienza," I-00184 Rome, Italy.; (2) Jet Propulsion Laboratory, California Institute of Technology, Pasadena, CA 91109, USA.; (3) Southwest Research Institute, Boulder, CO 80302, USA.; Washington University, St. Louis, MO 63130, USA.
59	Radiation environment and effects monitor for the Europa/Jupiter mission	K A Ryden, C S Dyer, P A Morris, A Hands
60	Electric field diagnostics in the Jovian system	Lars Blomberg, Judy Cumnock, Anders Eriksson, Jan-Erik Wahlund
61	Neutral detection at Europa	S. Livi[1], A. Milillo[2], S. Orsini[2], R. Goldstein[1], G. Ho[3], K. C. Hsieh[4], A.M. Di Lellis[5], E. De Angelis[2], R.E. Johnson[6], V. Mangano[2], S. Massetti[2], A. Mura[2], C. Plainaki[2], E. Palumbo[7], G. Strazzulla[7]; 1. SwRI, San Antonio, Texas, USA; 2. INAF/IFSI, Rome, Italy; 3. JHUAPL, USA; 4. University of Arizona, Tucson, USA; 5. AMDL srl, Rome, Italy; 6. University of Virginia, USA; 7. INAF/OACa
62	Spatial Heterodyne Spectroscopy: Compact Emission Line Resolving Spectral Sensors with High Étendue for Spaceflight Applications	Walter M. Harris (University of California, Davis), Olivia R. Dawson (University of Washington), Jason Corliss (Univerisity of Wisconsin), Fredric L. Roesler (University of Wisconsin)
Posters Only, by Request		
63	Outer Planets Flagship Mission	Curt Niebur, Leonard Dudzinski, Marcello Coradini, Jean-Pierre Lebreton, James Cutts
64	NEXT GENERATION MASS SPECTROMETRY ON THE TSSM LANDER	W. Brinckerhoff, P. Mahaffy, D. G. Glavin, H. B. Niemann, W. Kasprzak, D. Harpold, NASA Goddard Space Flight Center, Greenbelt, MD 20771

65	NEXT GENERATION MASS SPECTROMETRY ON THE TSSM ORBITER	P. Mahaffy, W. Kasprzak, H. B. Niemann, D. Harpold, W. Brinckerhoff, NASA Goddard Space Flight Center, Greenbelt, MD 20771
66	An UV auroral imager for the Europa-Jupiter System Mission	EJ Bunce, NP Bannister, and TJ Stevenson; Department of Physics and Astronomy, University of Leicester, UK
67	A Miniaturised Laser Instrument for Titan in-situ Analysis	Elmar K. Jessberger, Isabelle Rauschenbach and the International GENTNER-Team