

5M-S³ Scientific Program

13 October 2014

Opening Session. New Highlights results 10.00-11.40

5MS³-OS	Lev Zelenyi	Welcome	10.00-10.10
5MS³-NHR-01	Peter Wurz et al	Early Activity of comet Churyumov-Gerasimenko: ROSINA in situ Measurements of the Coma	10.10-10.40
5MS³-NHR-02	James Head, III	An Overview of the MESSENGER Mission to Mercury: New Perspectives on an Old Planet and its Environment	10.40-11.10
5MS³-NHR-03	R.Elphic, T.Stubbs and LADEE science PI team,	Results from the Lunar Atmosphere and Dust Environment Explorer (LADEE)	11.10-11.40

Coffee-break 11.40-12.00

Session 1: Mars 12.00-18.00

Convener: Oleg Korablev

5MS³-MS-01	Eduard Dubinin et al	Large-amplitude coherent structures in plasma near Mars	12.00-12.20
5MS³-MS-02	Oleg Vaisberg	Atmospheric losses of Mars induced by solar wind	12.20-12.40
5MS³-MS-03	Stas Barabash et al	Solar wind interaction with Phobos	12.40-13.00

Lunch 13.00-14.00

5MS³-MS-04	Valery Shematovich	Non-thermal dissipation of the Martian upper atmosphere	14.00-14.20
5MS³-MS-05	Vladimir Krasnopolsky	Observations of the CO dayglow at 4.7 μ m on Mars: Variations of temperature and CO mixing ratio at 50 km	14.20-14.40
5MS³-MS-06	Olivier Witasse et al	Comet C/2013 A1 (Siding Spring) flyby of Mars: Mars Express safety concerns and science plans	14.40-15.00
5MS³-MS-07	James Head, III et al	Late Noachian "Cold and Icy Highlands" Model: Geological Predictions for Equilibrium Environments and Non-equilibrium Melting Scenarios	15.00-15.20
5MS³-MS-08	James Cassanelli and James Head	Volcano-ice Interactions in a Late Noachian "Icy Highlands" Mars: Implications for Groundwater Recharge and Outflow Channel Water Sources on the Tharsis Rise	15.20-15.40
5MS³-MS-09	James Dickson et al	Multi-phase, punctuated gully erosion on Mars: Seasonal insolation effects on the melting and refreezing of surface ice in the McMurdo Dry Valleys	15.40-16.00

Coffee-break 16.00-16.20

5MS³-MS-10	Erica Jawin et al	Paraglacial Geomorphology on Mars: The Distribution of Post-Glacial Features across the Mid- Latitudes	16.20-16.40
5MS³-MS-11	Jürgen Oberst et al	Dynamic Shape and Down-Slope Directions on Phobos	16.40-17.00
5MS³-MS-12	Sergey Raevskiy et al	Diagnostic properties of body waves for sounding the interiors of Mars	17.00-17.20
5MS³-MS-13	Yaroslav Ilyushin et al	Surface clutter in ground penetrating radar sounding: real MARSIS echoes computer simulations	17.20-17.40

5MS³-MS-14	Vladimir Gubenko et al	The internal waves and saturation degree in the Earth's atmosphere from radiosonde wind and temperature measurements and applications to RO waves in planetary atmospheres	17.40-18.00
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**Poster Session
(all sessions)**

18.00-19.00

14 October 2014

Session 2: Moon

10.00-19.00

Conveners: Igor Mitrofanov, Lev Zelenyi

Session 2.1. Lunar data analysis and interpretation

10.00-13.00

5MS³-MN-01	Sergei Ipatov	Formation of embryos of the Earth-Moon system as a result of a collision of two rarefied condensations	10.00-10.20
5MS³-MN-02	Yangxiaoyi Lu	Analysis of the iron content and morphology of CE-3 landing site	10.20-10.40
5MS³-MN-03	James Head and L. Wilson	Lunar Regional Pyroclastic Deposits: Sources of Volatiles and the Role of Near-Surface Volatile Enhancement	10.40-11.00
5MS³-MN-04	Ekaterina Kronrod et al	Possible temperature profiles of the lunar mantle	11.00-11.20
5MS³-MN-05	Alexey Berezhnoy et al	Search for Meteoroid Impacts on the Moon	11.20-11.40
	Coffee-break		11.40-12.00
5MS³-MN-06	Vladislav Shevchenko	Space Cornucopia on the Lunar Poles	12.00-12.20
5MS³-MN-07	Michael Shpekin and Ch.R.Mukhametshin	Problem of joint photogrammetric processing images obtained by different cameras from different orbits	12.20-12.40
5MS³-MN-08	Anton Sanin, I.Mitrofanov, M.Litvak, W.Boynton, K.Harshman, R. Starr, L. Evance, R.Sagdeev, E. Chin, T. McClanahan, T. Livengood	Water distribution at lunar poles according to LEND neutron mapping	12.40-13.00
	Lunch		13.00-14.00
	Session 2.2. Future Lunar investigations and missions		14.00-19.00
5MS³-MN-09	Lev Zelenyi, I. Mitrofanov, A.Petrukovich, V.Khartov, A.Lukyanchikov and V.Dolgopолоv	The sequence of missions “Luna-Glob”, “Luna-Resurs” and “Luna-Grunt”	14.00-14.20
5MS³-MN-10	Lev Zelenyi, I. Mitrofanov and V.Tret'yakov	Scientific investigations onboard “Luna-Glob” and “Luna-Resource” landers	14.20-14.40
5MS³-MN-11	Berengere Houdou	European approach to lunar exploration in cooperation with Russia	14.40-15.00
5MS³-MN-12	James Carpenter	Accessing and assessing the lunar resources with PROSPECT	15.00-15.20
5MS³-MN-13	Alexander Kosov et al	Coherent Luna’s radio beacon and its scientific potential	15.20-15.40
5MS³-MN-14	Dmitri Skulachev et al	Lunar Regolith Investigation Using Microwave Radiometer/Scatterometer	15.40-16.00
	Coffee-break		16.00-16.20
5MS³-MN-15	Alexander Gusev et al	Fine effects of spin-orbit dynamics of the Moon, Lunar radio beacons and Lunar Navigation Almanac for ChangE-3/4, Luna-Glob-Resource, SELENE-2 missions	16.20-16.40

5MS³-MN-16	Alexander Basilevsky et al	Survival times of meter-sized rock boulders on the surface of airless bodies	16.40-17.00
5MS³-MN-17	Oleg Kozlov et al	Mobile scientific platform: possibility of development and application outlook	17.00-17.20
5MS³-MN-18	Irina Karachevtseva et al	Methods and instruments for the complex spatial analysis of the potential landing sites on the Lunar subpolar area	17.20-17.40
5MS³-MN-19	Mikhail Ivanov et al	Landing site selection for Luna-Glob mission in crater Boguslawsky	17.40-18.00
5MS³-MN-20	Ryan Chau and Austin Mardon	Using the Moon as a Stepping Stone to Reach Other Planets	18.00-18.20
5MS³-MN-21	James Head et al	Human Exploration of the Moon: A Science and Engineering Synergism roadmap for the Future	18.20-18.40
5MS³-MN-22	Lev Zelenyi and Igor Mitrofanov	Integrated lunar program of Roscosmos: manned and robotic missions	18.40-19.00

15 October 2014

Session 3: Dust and dusty plasma in space

10.00-13.00

Conveners: Alexander Zakharov, Mark Koepke

5MS³-DP-01	Nikolay Borisov and Alexander Zakharov	The influence of frozen water under the surface on dust motion in the Lunar polar region (invited)	10.00-10.20
5MS³-DP-02	Mark Koepke et al	The concept of separate charging and discharging energy-dependent work functions based on experimental and simulation circulating-loop analysis of granular materials properties and charge state (invited)	10.20-10.40
5MS³-DP-03	Sergey Popel et al	Fine-dispersed particles and dusty plasmas at the Moon (invited)	10.40-11.00
5MS³-DP-04	Tatiana Burinskaya	Non-monotonic potentials above the day-side lunar surface exposed to the solar radiation (invited)	11.00-11.20
5MS³-DP-05	Evgeny Rosenfeld and Alexander Zakharov	Relation between the charge/discharge processes of dust particles and the dynamics of dust clouds over the Moon surface (invited)	11.20-11.40

Coffee-break

11.40-12.00

5MS³-DP-06	Tatiana Salnikova and S.J.Stepanov	On the dust matter in the neighborhood of the Lagrange libration points	12.00-12.20
5MS³-DP-07	Barbara Atamaniuk and H. Rothkaehl	Polish Contribution to ESA Juice mission (RPWI). Dusty plasma and turbulent plasma investigations as a tools for diagnostic Space Weather conditions.	12.20-12.40
5MS³-DP-08	Evgenij Zubko et al	Reflectance of interplanetary dust particles inferred with the Umov effect	12.40-13.00

Lunch

13.00-14.00

Session 4: Venus

14:00-18:20

Convener: Ludmila Zasova

5MS³-VN-01	Vladimir Krasnopolsky	Chemistry of Venus' Atmosphere	14.00-14.20
5MS³-VN-02	Imant Vinogradov et al	Vertical profiling of sulphur dioxide and other gases contents and isotope ratios in the Venussian atmosphere by a diode laser spectrometer ISKRA-V on board of the Venera-D lander	14.20-14.40
5MS³-VN-03	Vladimir Krasnopolsky	Observations of the CO dayglow at 4.7 μ m, CO mixing ratios, and temperatures at 74 and 105 km on Venus	14.40-15.00
5MS³-VN-04	Ludmila Zasova et al	Oxygen night airglow in Venus atmosphere (VIRTIS/VEX)	15.00-15.20
5MS³-VN-05	Alexander Rodin	Non-hydrostatic GCM simulations of subsolar-antisolar circulation in the Venus atmosphere	15.20-15.40
5MS³-VN-06	Nikolay Ignaiev et al	Haze above the clouds of Venus from VIRTIS / Venus Express limb night side observations	15.40-16.00

Coffee-break

16.00-16.20

5MS³-VN-07	Denis Belyaev et al	Sulphur dioxide distribution in Venus' night-side mesosphere	16.20-16.40
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5MS³- VN -08	Mikhael Bondarenko and A. Gavrik	Venus - the Lifecycle of 5-15km Gravity Waves: from the Upper Cloud to Extinction in the Thermosphere as Observed from Occultation Data	16.40-17.00
5MS³- VN -09	Mikhail Ivanov and James Head	Embayed craters on Venus: Testing the catastrophic and equilibrium resurfacing models	17.00-17.20
5MS³- VN -10	Alexander Bazilevskiy et al	Current volcanism on Venus: Evidence from the VEx VMC observations	17.20-17.40
5MS³- VN -11	Mikhail Kreslavsky et al	New Constraints on Resurfacing History of Venus from Impact Craters	17.40-18.00
5MS³- VN -12	Alexander Pavelyev et al	Bistatic radar investigation of the North and South poles surface of Venus using reanalysis of Venera's 15 and 16 data	18.00-18.20

**Poster Session
(all sessions)**

18.20-19.20

16 October 2014

Session 5: New Projects and experiments

10.00-13.00

Convener: Oleg Korablev

5MS³-NP-1	Leonid Ksanfomality	Physics of planetans—oceanic planets	10.00-10.20
5MS³-NP-2	Marina Diaz Michelena	New Instruments for Planetary Mineralogy	10.20-10.40
5MS³-NP-3	Hideo Hanada et al	Development of a telescope for observation of the lunar rotation and experiments on the ground.	10.40-11.00
5MS³-NP-4	Igor Alexeev	Mercury Magnetosphere	11.00-11.20
5MS³-NP-5	Victor Ostrovskii and E. A. Kadyshevich	Life Origination Hydrate Theory (LOH-Theory): the reaction mechanism and set of necessary and sufficient conditions	11.20-11.40

Coffee-break

11.40-12.00

5MS³-NP-6	Olivier Witasse et al	The ExoMars Programme	12.00-12.20
5MS³-NP-7	Masaki Fujimoto	Frequency matters: ISAS's strategy for small but edgy planetary explorations	12.20-12.40
5MS³-NP-8	Andrey Patrakeev et al	PHOBOS Sample Return: next approach	12.40-13.00

Lunch

13.00-14.00

Session 6: Giant Planets and their moons

14.00-16.00

Conveners: Oleg Korablev, Konstantin Marchenkov

5MS³-GP-1	Ivan Vasko et al	Standing shear Alfvén waves driven by the Jupiter dipole wobbling	14.00-14.20
5MS³-GP-2	Vladimir Krasnopolsky	Chemical composition of Titan's atmosphere: Observations and the photochemical model	14.20-14.40
5MS³-GP-3	Sergey Bulat et al	Is there life in subsurface oceans of Jovian moons? The borehole frozen water of the subglacial Lake Vostok (East Antarctica) and its microbial content	14.40-15.00
5MS³-GP-4	Alexander Kokhanov et al	New methodology for study of the basic geodetic parameters and relief of outer planetary bodies: Galilean satellites and Enceladus	15.00-15.20
5MS³-GP-5	Anatoly Manukin et al	Gravity-inertial measurements on Europa - Jupiter's moon	15.20-15.40
5MS³-GP-6	Alexander Batkhin	Quasi-capture in Hill problem	15.40-16.00

Coffee-break

16.00-16.30

Celebration of the 250th Anniversary of the Founding of Brown University and 40 years of Brown-Vernadsky and IKI Cooperation

16.30-18.00

Poster Session

13 October 18.00-19.00

15 October 18.20-19.20

Mars

5MS³-PS-01	Daria Kuznetsova and M. Gritsevich	Classification of meteor events in the Martian atmosphere
5MS³-PS-02	Boris Voronin et al	Calculation of line broadening coefficients and temperature exponents for CO-CO ₂ colliding system
5MS³-PS-03	Svetlana Guslyakova et al	Long-term nadir observations of the O ₂ dayglow by SPICAM IR.
5MS³-PS-04	Nadegda Chujkova et al	Anomalous internal structure of the terrestrial planets from gravitational field and topography: first results of the exploration of Mars
5MS³-PS-05	Timothy Goudge et al	An Assessment of Source to Sink Mineralogy for the Jezero Crater, Mars Paleolake System
5MS³-PS-06	James Head, III and K.R. Ramsley	Impact ejecta from Mars to Phobos: Regolith bulk concentration and distribution, and the sufficiency of Mars ejecta to produce grooves as secondary impacts
5MS³-PS-07	Elliott Rosenberg and James Head	The Water Volume Required to Erode the Valley Networks on Mars: Implications for Late Noachian Climate
5MS³-PS-08	James Dickson et al	Stratigraphic relationships between gullies and the Latitude Dependent Mantle on Mars: Evidence for cyclical emplacement, burial, inversion and removal of young fluvial features in the mid-latitudes.
5MS³-PS-09	Evgeniy Lazarev et al	New version of Mars Globe.
5MS³-PS-10	Soile Kukkonen et al	Mapping and dating the resurfacing events on Martian outflow channels: A case study of Harmakhis Vallis in the eastern Hellas rim region
5MS³-PS-11	David Weiss and James Head	Testing the Glacial Substrate Model for Double-Layered Ejecta Craters on Mars
5MS³-PS-12	Tamara Gudkova et al	Free oscillations for interior structure models of Mars
5MS³-PS-13	Vladimir Zharkov and T. V. Gudkova	On non-hydrostatic deviations in the core-mantle boundary of Mars
5MS³-PS-14	Luis Vazquez et al	New Approaches for the Analysis of Geomagnetic Data
5MS³-PS-15	Luis Vazquez et al	An approach to calculate solar radiation fluxes on the Martian surface
5MS³-PS-16	Pascal Rosenblatt and B. Pinier	Phobos' origin: Revisiting the capture scenario. Tidal evolution of the post-capture orbit.

Moon

5MS³-PS-17	Yuri Barkin et al	The drift and steps of the center of mass of the Moon with respect to the crust and interpretation of unexplained secular changes of the lunar orbit
5MS³-PS-18	Yuri Barkin	The unified theory of natural processes of planets, satellites and the Sun
5MS³-PS-19	Vladimir Busarev et al	New spectral features of some asteroids
5MS³-PS-20	Vladislav Shevchenko and Yangxiaoyi Lu	Lunokhod 1 and Chang'e 3 Landing Sites: Comparative Characteristics

5MS³-PS-21	Gennady Kochemasov	KREEP-like terrains rising in wide subsided basalt filled hemospheric expanses of Earth, Mars, and Moon: a common reason
5MS³-PS-22	Gennady Kochemasov	A new planetological thinking: orbits create structures
5MS³-PS-23	Jennifer Whitten and James W. Head	Ancient volcanism on the Moon: The global distribution and composition of cryptomaria
5MS³-PS-24	Sergey Voropaev	Figures of equilibrium of self-gravitating inhomogeneous mass
5MS³-PS-25	Lauren Jozwiak et al	Lunar floor-fractured craters: probes of shallow crustal magmatism on the Moon
5MS³-PS-26	Vladimir Cheptcov et al	Low Pressure as Extraterrestrial Factor Influencing on the Viability of Microorganisms
5MS³-PS-27	Boris Ivanov	Ceres as a target for the impact cratering
5MS³-PS-28	Ekaterina Feoktistova	The nature of NSR N1 area in the crater Peary
5MS³-PS-29	Natalia Kozlova et al	New techniques of lunar image processing and artificial modeling of surface
5MS³-PS-30	Ryan Chau and Austin Mardon	Lunar Caving and Lava Tubes
5MS³-PS-31	Alexander Kokhanov et al	Mapping and the morphometric measurements of small lunar craters
5MS³-PS-32	Koji Matsumoto et al	Lunar internal structure modeling using Apollo seismic travel time data and the latest selenodetic data
5MS³-PS-33	Albert Abdrakhimov and Alexander Basilevsky	Comparison of local geology of Chang'e 3 landing site and in the middle of Lunokhod-1 traverse.
5MS³-PS-34	Andrei Sadovski and Alexander Skalsky	Deflection of solar wind protons from the lunar magnetic anomalies
5MS³-PS-35	Vladimir Smirnov et al	Radiolocation as an effective tool for remote sensing of the subsurface structure of the lunar soil
5MS³-PS-36	Sergey Aseev et al	The Gas-Analytical-Complex for analysis of volatiles in the Lunar polar regolith during the Luna-Resource mission (2019)

Dust and dusty plasma in space

5MS³-PS-37	Evgeny Lisin et al	Dusty plasma sheath near the lunar surface (numerical simulation)
5MS³-PS-38	Gennady Dolnikov et al	Dust Particles investigation for future Russian lunar missions
5MS³-PS-39	Elena Seran and Michel Godefroy	Electric charging of dust particles: Impact on the variations of electric field and electric resistivity of air
5MS³-PS-40	Andrei Shiryaev et al	Photoluminescence of silicon-vacancy defects in meteoritic nanodiamonds.
5MS³-PS-41	Oleg Khavroshkin and Vladislav V. Tsyplakov	The exolife: new factors
5MS³-PS-42	Tatiana Morozova et al	Nonlinear dust acoustic waves in a dusty plasma over the Moon
5MS³-PS-43	Vasily Dmitriev et al	A toolkit for meteor orbit determination using numerical integration of equations of motion

Venus

5MS³-PS-44	Anna Fedorova et al	Cloud top and water vapor variations in the Venus' mesosphere from the SPICAV observations
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5MS³-PS-45	Evgeniya Guseva	Morphometry of rift-associated volcanoes on Venus and Earth
5MS³-PS-46	Leonid Ksanfomality	Viscoplastic medium on the surface of Venus
5MS³-PS-47	Igor Khatuntsev et al	Variations of the zonal flow at Venus cloud tops from VMC/VEX UV images in period from 2006 to 2014
5MS³-PS-48	Marina Patsaeva et al	Correlation of the cloud top wind pattern with cloud morphology at the upper cloud level of Venus at 25°S-75°S from VMC/Venus Express

New Projects and experiments

5MS³-PS-49	Mikhail Gerasimov et al	The Martian Gas-Analytic Package for the Landing Platform Experiments of the ExoMars 2018
5MS³-PS-50	Imant Vinogradov et al	Diode laser spectroscopy for the ExoMars-2018 mission stationery landing platform
5MS³-PS-51	Ilya Kuznetsov	Proposal of the Dust Complex onboard the ExoMars-2018 lander
5MS³-PS-52	Anatoly Manukin	Seismic and gravity measurements on Mars within the "ExoMars"
5MS³-PS-53	Konstantin Luchnikov et al	Mass-spectrometric method for unveiling signs of life via analysis of the elemental composition of the supposed biomass extracted from regolith of Mars
5MS³-PS-54	Konstantin Luchnikov et al	Characterization of ion formation conditions in LA TOF MS by virtue of indirect MCP detector illumination
5MS³-PS-55	Sergey Pavlov et al	Correlated study of particles returned by the HAYABUSA space probe from the 25143 Itokawa asteroid by SRXTM, NG-MS, IR and Raman microscopy
5MS³-PS-56	Gennady Kochemasov	Self-destructing small cosmic bodies: Churyumov-Gerasimenko comet and some earlier examples
5MS³-PS-57	Oleksandr Potashko	Comet Churyumov-Gerasimenko is not ice
5MS³-PS-58	Elena Belenkaya and I. I. Alexeev	FTEs in the Mercury magnetosphere: Dependence on IMF
5MS³-PS-59	Michael Shpekin	Some principles of creating astrometric observatory on the Moon territory
5MS³-PS-60	Oleg Khavroshkin and Tsyplakov V.V.	Two gamma – ray radiation sources: elements synchronizing, solar periodicity
5MS³-PS-61	Ryan Chau and Austin Mardon	Mental Health Care Considerations for Long Term Space Missions

Giant Planets and their moons

5MS³-PS-62	Yurii Chetverikov et al	The content of helium and molecular hydrogen in accretion ice of the subglacial Lake Vostok, East Antarctica
5MS³-PS-63	Anna Dunaeva et al	Ice/rock ratio in Ganymede and Titan in the context of their internal structure, origin and evolution
5MS³-PS-64	Maxim Zaitsev et al	Experimental study of the shock-evaporative transformation of meteoritic organics during hypervelocity impacts for the characterization of exogenous organic matter on the surfaces of icy satellites
5MS³-PS-65	Andrei Makalkin and V.A. Kronrod	Gas drag and capture of planetesimals in accretion disks of Jupiter and Saturn with account of ablation and fragmentation.

5MS³-PS-66	Pyotr Lyssenko et al	Some Recent Spectrophotometric Studies of Jupiter and Saturn
5MS³-PS-67	Vladislav Sidorenko	Dynamics of “jumping” Trojans