

Overview 4M-S³ Program

The Fourth Moscow Solar System Symposium (4M-S³)

IKI RAS, 14-18 October 2013

Central topic: Moon and Mars exploration

	14 October	15 October	16 October	17 October	18 October							
10.00	Visit to the Lavochkin Association	Opening Session	Session 2. Moon	Session 3. Dust and dusty plasma in space	Session 5. Venus							
10.20												
10.40												
11.00												
11.20												
11.40				Coffee 11.40-12.00		Coffee 11.40-12.00	Coffee 11.40-12.00	Coffee 11.45-12.00				
12.00		Session 1. Mars					Session 4. Solar System study: Some milestones					
12.20												
12.40												
13.00										Lunch 13.00-14.00	Lunch 13.00-14.00	Lunch 13.00-14.00
14.00												
14.20												
14.40												
15.00												
15.20												
15.40												
16.00		Coffee 16.00-16.20	Coffee 16.00-16.20	Coffee 16.00-16.20	Coffee 16.00-16.30							
16.20												
16.40												
17.00												
17.20												
17.40												
18.00		Poster Session	Poster Session		Session 6. New Projects							
18.20												
18.40												
19.00		Welcome Party	Concert	Symposium reception	Social events In Moscow							
19.20												
19.40												
20.00												

Splinter-meeting	Chair	Date	Time	Room
ACS SWT1 (The first Science Working Team of ACS experiments on Exomars2016)	Oleg Korablev, IKI Franck Montmessin, LATMOS	14 October, 2013	10.00-19.00	Room 200
International Venus Exploration	Ludmila Zasova, Sanjay Limaye	17 October, 2013	10.00-12.00	Room 200
Dust experiments on the Moon and Mars	Alexander Zakharov	18 October, 2013	10.30-13.00	Room 200

4M-S³ Scientific Program

15 October 2013

Opening Session

10.00-11.40

4MS³-OS-01	Lev Zelenyi	Welcome	10.00-10.10
4MS³-OS-02	Lev Zelenyi, Vladimir Popovkin	Russian Solar system exploration program. Updated version	10.10-10.40
4MS³-OS-03	Alvaro Giménez	ESA's Space Science programme - achievements and future opportunities	10.40-11.10
4MS³-OS-04	James L. Green	NASA's Planetary Science Missions	11.10-11.40

Coffee-break

11.40-12.00

Session 1: Mars

12.00-18.00

Conveners: Oleg Korablev, Olivier Witasse

4MS³-MS-01	Olivier Witasse and A. Chicarro	10 years of Mars-Express /invited talk/	12.00-12.20
4MS³-MS-02	James Head and David Marchant	Antarctic Dry Valley Streams and Lakes: Analogs for Noachian Mars?	12.20-12.40
4MS³-MS-03	Mikhail Zolotov and M. Mironenko	Chemistry and timing of formation of Martian phyllosilicates and salts	12.40-13.00

Lunch

13.00-14.00

4MS³-MS-04	Igor Mitrofanov et al	Recent results of DAN investigation onboard Curiosity	14.00-14.20
4MS³-MS-05	Ruslan Kuzmin et al	Mars: Local morphology of the surface at the DAN measurements spots in the Gale crater	14.20-14.40
4MS³-MS-06	Tamara Gudkova et al	Construction of Martian seismic models. Free oscillations and body waves	14.40-15.00
4MS³-MS-07	Marina Michelena and Miguel Herraiz	Global scale magnetometry	15.00-15.20
4MS³-MS-08	Mikhail Ivanov et al	Evidence for possible Hesperian glaciation in Utopia Planitia on Mars	15.20-15.40
4MS³-MS-09	David Kutai Weiss and James Head	Noachian highland crater degradation on Mars: assessing the role of regional snow and ice deposits in a cold and dry early Mars	15.40-16.00

Coffee-break

16.00-16.20

4MS³-MS-10	Kathleen Scanlon and James Head	Volcano-Ice Interactions at Arsia Mons, Mars	16.20-16.40
4MS³-MS-11	Franck Lefèvre and Franck Montmessin	A polar ozone layer on Mars	16.40-17.00
4MS³-MS-12	Vladimir Krasnopolsky	Observations of the CO dayglow at 4.7 µm on Mars: Variations of temperature and CO mixing ratio at 50 km	17.00-17.20
4MS³-MS-13	Alexey Pankine and L. Tamparry	Vertical distribution of water vapor in Martian atmosphere from MGS TES day and night observations	17.20-17.40
4MS³-MS-14	Elena Vorobyova et al	Microbial communities of Earth permafrost and arid soils may persist at least 500 thousand years in the subsurface of Martian regolith and in the open space	17.40-18.00

**Poster Session
(all sessions)**

18.00-19.00

16 October 2013

Session 2: Moon

10.00-19.00

Convener: Igor Mitrofanov, Lev Zelenyi

Session 2.1. Moon. Lunar data analysis and interpretation

10.00-13.00

Chair: Maxim Litvak

4MS³-MN-01	Alexander Basilevsky et al	On the history of early meteoritic bombardment of the Moon	10.00-10.20
4MS³-MN-02	Evgeniy Lazarev et al	Comparison of impact crater populations in the lunar polar regions	10.20-10.40
4MS³-MN-03	Hideo Hanada et al	Geodetic observations for study of interior of the Moon and the planets in SELENE-2 and future missions	10.40-11.00
4MS³-MN-04	Jinsong Ping and X. Su	Chang'E-1 mission identified Lunar hidden BGA basins	11.00-11.20
4MS³-MN-05	Yuri Velikodsky et al	Opposition effect of the Moon from LROC WAC data	11.20-11.40
Coffee-break			11.40-12.00
4MS³-MN-06	Jürgen Oberst et al	Reduction and analysis of one-way laser ranging data from ILRS ground stations to LRO	12.00-12.20
4MS³-MN-07	Anton Sanin et al	LEND mapping of water at the south pole regions: data from LRO	12.20-12.40
4MS³-MN-08	Maya Djachkova and E. N. Lazarev	Selecting landing sites for lunar lander missions using spatial analysis	12.40-13.00
Lunch			13.00-14.00
Session 2.2. Missions Luna-Glob and Luna- Resource			14.00-15.20
Chair: Vladislav Tretyakov			
4MS³-MN-09	Igor Mitrofanov and V. Tretyakov	Scientific investigations onboard Luna landers	14.00-14.20
4MS³-MN-10	Maxim Litvak and O.Kozlov	Robotic arm and drilling element for Luna landers	14.20-14.40
4MS³-MN-11	Stas Barabash et al	Miniaturized analyzer of energetic neutrals LINA-XSAN for the Luna-Glob mission	14.40-15.00
4MS³-MN-12	Peter Wurz et al	In situ dating of planetary material by laser-based mass spectrometer	15.00-15.20
Session 2.3. Exploration of the Moon			15.20-19.00
Chair: Lev Zelenyi			
4MS³-MN-13	Lev Zelenyi et al	Russian lunar program of robotic exploration precursors	15.20-15.40
4MS³-MN-14	Viktor Khartov et al	Missions Luna-Glob and Luna- Resource	15.40-16.00
Coffee-break			16.00-16.20
4MS³-MN-15	Bernerdo Patti et al	Synergy of lunar program for Lunar Polar Sample Return in ESA and Roscosmos	16.20-16.40
4MS³-MN-16	Richard Fisackerly et al	European objectives and approach to lunar exploration in cooperation with Russia	16.40-17.00
4MS³-MN-17	Richard Fisackerly et al	Landing site characterization for future lunar exploration missions	17.00-17.20
4MS³-MN-18	Vladislav Shevchenko	Lunar resources: possibilities for utilization	17.20-17.40
4MS³-MN-19	Mikhail Panasuk	Lunar monitoring outpost of cosmic rays	17.40-18.00
4MS³-MN-20	Oleg Ugolnikov	Future perspectives of optical observations on the surface of the Moon	18.00-18.20
4MS³-MN-21	Mikhail Mogilevsky et al	Lunar low-frequency array: exploration of possible marker for exoplanets habitability	18.20-18.40
4MS³-MN-22	Nikolay Brukhanov	Plans for manned flight to the Moon	18.40-19.00

17 October 2013

Session 3: Dust and dusty plasma in space

10.00-11.40

Convener: Alexander Zakharov

4MS³-DP-01	Sergey Popel et al	Parameters of photoelectrons over the illuminated part of the Moon /invited talk/	10.00-10.20
4MS³-DP-02	Oleg Petrov and Vladimir Fortov	Structures and transport of charged dust under laboratory and microgravity conditions /invited talk/	10.20-10.40
4MS³-DP-03	Mark Koepke et al	Laboratory analysis of granular materials properties, size distributions, chemical and mineralogical compositions relevant to dust-grain charging investigations /invited talk/	10.40-11.00
4MS³-DP-04	Nikolay Borisov	The influence of the surface conductivity on the dust motion near the Moon and asteroids /invited talk/	11.00-11.20
4MS³-DP-05	Yaroslav Ilyushin	Intensity and polarization of Lunar Horizon Glow: numerical simulations.	11.20-11.40

Coffee-break

11.40-12.00

Session 4: Solar System study: Some milestones

12.00-19.20

(Academician Mikhail Marov 80th Anniversary Session)

Chair: Oleg Kuskov

4MS³-SS-01	Mikhail Marov	Space Exploration: A Personal Historical Highlights	12.00-12.20
4MS³-SS-02	James Head et al	50 Years of Russian and American Lunar Exploration: A Roadmap for the Future /invited talk/	12.20-12.40
4MS³-SS-03	Ludmila Zasova	Study of Venus by space missions: from Venera-4 to Venera-D /invited talk/	12.40-13.00
Lunch			13.00-14.00
4MS³-SS-04	Oleg Korablev	Mars exploration at the turn of the century /invited talk/	14.00-14.20
4MS³-SS-05	Vladislav Shevchenko	Lunar exploration problems /invited talk/	14.20-14.40
4MS³-SS-06	Oleg Kuskov et al	The interior of the Moon: Thermodynamics vs seismology /invited talk/	14.40-15.00
4MS³-SS-07	Mikhail Nazarov et al	Spinel-enstatite Association of lunar meteorites /invited talk/	15.00-15.20
4MS³-SS-08	Alexander Bazilevskiy	Estimation of the age of impact craters on the Moon, Mercury, Mars and Venus based on their morphology /invited talk/	15.20-15.40
4MS³-SS-09	Vladimir Zharkov and Tamara Gudkova	Construction of Martian seismic models. 1. Effects of temperature, anelasticity and hydration /invited talk/	15.40-16.00
Coffee-break			16.00-16.20
4MS³-SS-10	Igor Mitrofanov	Water and the problems of life on Mars /invited talk/	16.20-16.40
4MS³-SS-11	Yury Golubev	Development of Space Research Methods in the Keldysh Institute of Applied Mathematics /invited talk/	16.40-17.00

4MS³-SS-12	Alexandr Kolesnichenko	To theory of vortical dynamo in astrophysical disk with a gyrotropic turbulence /invited talk/	17.00-17.20
4MS³-SS-13	Valery Shematovich	Astrochemistry of the atmosphere-icy surface interface for astrophysical objects /invited talk/	17.20-17.40
4MS³-SS-14	Dmitry Bisikalo	Simulation of the interaction between the exoplanet WASP-12b and its host star /invited talk/	17.40-18.00
4MS³-SS-15	Vera Dorofeeva	Cosmochemical restrictions on models of evolution of outer solar nebula /invited talk/	18.00-18.20
4MS³-SS-16	Leonid Ksanfomality	On Temple 1 comet's nuclei surface	18.20-18.40
4MS³-SS-17	Vladimir Mazhukin	Mathematical modeling of pulsed laser impact on small space objects	18.40-19.00
4MS³-SS-18	Ivan Shevchenko	Resonances in the Solar and exoplanetary systems /invited talk/	19.00-19.20

18 October 2013

Session 5: Venus

10.00-16.00

Conveners: Ludmila Zasova, Hakan Svedhem

Chair: Ludmila Zasova

4MS³-VN-01	Hakan Svedhem, Colin Wilson	Recent results and future activities of Venus Express / invited talk /	10.00-10.20
4MS³-VN-02	Vladimir Krasnopolsky	Nighttime photochemical model and nightglow on Venus / invited talk /	10.20-10.40
4MS³-VN-03	Francesca Altieri	Gravity wave detection in the terrestrial planets' atmosphere through O ₂ airglow / invited talk /	10.40-11.00
4MS³-VN-04	Nikolay Ignatiev et al	Upper haze on the night side of Venus from VIRTIS- M / Venus Express observations	11.00-11.15
4MS³-VN-05	Alexander Rodin et al	Non-hydrostatic general circulation simulations of the transition region in the Venus atmosphere / invited talk /	11.15-11.30
4MS³-VN-06	Sanjay Limaye	Towards a better understanding of the Venus atmosphere – observations needed between 65 – 110 km	11.30-11.45
Coffee-break			11.45-12.00
Chair: Alexander Bazilevskiy			
4MS³-VN-07	Gabriele Arnold et al	Surface emissivity retrieval from VIRTIS/VEX data in the Quetzalpetlatl quadrangle on Venus based on the new MSR multi-spectrum retrieval technique / invited talk /	12.00-12.20
4MS³-VN-08	Mikhail Ivanov, James Head	Evolution of tectonics on Venus	12.20-12.40
4MS³-VN-09	Mikhail Ivanov, James Head	Geology of Fortuna Tessera: Insights into the beginning of the recorded history of Venus	12.40-13.00
Lunch			13.00-14.00
Chair: Hakan Svedhem			
4MS³-VN-10	Oleg Vaisberg and Artyom Shestakov	Dynamic processes in the solar wind as the cause of Venus ionosphere disturbances and loss of mass / invited talk /	14.00-14.20
4MS³-VN-11	Eduard Dubinin	Ionospheric magnetic fields and currents at Venus	14.20-14.40
4MS³-VN-12	Anatoly Gavrik et al	Stratified multi-layer structures of the Venus ionosphere from Venera 15 and 16 radio occultation measurements	14.40-14.55
4MS³-VN-13	Vladimir Gubenko et al	Radio occultation studies of internal gravity waves in the Earth's and planetary atmospheres	14.55-15.10
4MS³-VN-14	Vladimir Gotlib et al	Continued studies of the atmosphere of Venus on the basis of the development of long-lived balloons. / Next step for Venus investigation with long-living superpressure balloons- aerobots	15.10-15.25
4MS³-VN-15	Mikhail Ivanov et al	Selection of landing sites for the Venera-D mission	15.25-15.40
4MS³-VN-16	Leonid Ksanfomality	Hypothetical life found at the VENERA-14 landing site	15.40-16.00
Coffee-break			16.00-16.30

Session 6: New Projects			16.30-19.00
Convener: Oleg Korablev			

4MS³-NP-1	Olivier Witasse et al	The ExoMars programme	16.30-16.45
4MS³-NP-2	Francesca Esposito et al	The DREAMS experiment for the ExoMars 2016 mission	16.45-17.00
4MS³-NP-3	Daniil Rodionov et al	Science investigations at the ExoMars 2018 Landing Platform	17.00-17.15
4MS³-NP-4	Philippe Lognonne et al	Seismic exploration of Mars with VBB seismometers	17.15-17.30
4MS³-NP-5	Imant Vinogradov et al	Diode Laser Spectroscopy for Martian studies	17.30-17.45
4MS³-NP-6	Oleg Vaisberg et al	Investigation of atmosphere-magnetosphere connections and atmospheric losses at Mars	17.45-18.00
4MS³-NP-7	Marina Diaz Michelena and Rolf Kilian	MOURA Magnetometer and gradiometer for planetary magnetic mineralogy	18.00-18.15
4MS³-NP-8	Jordanka Semkova et al	Radiation investigations for ExoMars and Luna-Glob missions	18.15-18.30
4MS³-NP-9	Jinsong Ping et al	Chang'E-3/4 Lunar Landing Missions and Lunar Radio Science Experiments	18.30-18.45
4MS³-NP-10	Alexander Gusev and O.Titov	Moon geodetic VLBI system	18.45-19.00

Poster Session

15 October 18.00-19.00

16 October 19.00-20.00

Mars

4MS³-PS-01	Sergey Voropaev et al	Raman characterization of minerals in the recently fallen Martian meteorite Tissint
4MS³-PS-02	Soile Kukkonen et al	Resurfacing events on Martian outflow channels: A case study of Harmakhis Vallis in the eastern Hellas rim region
4MS³-PS-03	Sergey Raevskiy and Tamara Gudkova	Calculation of travel times for Martian interior structure models
4MS³-PS-04	Vladimir Smirnov, O. V. Yushkova	Calibration of subsurface radar «MARSIS» with Martian ionosphere
4MS³-PS-05	David K. Weiss and James W. Head	Ejecta Mobility of Excess Ejecta Craters on Mars: Assessing the Influence of Surface Snow and Ice deposits
4MS³-PS-06	Kathleen Scanlon and James W. Head	Snowmelt Modeling for Early Mars
4MS³-PS-07	Alvaro Gimenez-Bravo et al	Tomographic Signal Analysis for the Detection of Dust-Devils in Mars Atmosphere
4MS³-PS-08	Alexey Berezhnoy et al	Altai salt lakes halophiles under simulated early Mars conditions

Moon

4MS³-PS-09	Christian Wöhler et al	Analysis of the lunar hydroxyl absorption depth based on simulated surface temperature data
4MS³-PS-10	Roman Zhuravlev et al	Experiment ARIES-L for investigation of lunar regolith by means of SIMS and secondary neutras mass-spectrometry
4MS³-PS-11	Albert Abdrakhimov et al	Geological review of Lunokhod 1 area
4MS³-PS-12	Alex Tye et al	Ages of crater deposits of lunar south circum-polar craters containing evidence for volatiles: Haworth, Shoemaker, and Faustini
4MS³-PS-13	Ekaterina Grishakina et al	Compiling the hypsometric map of the Moon for the atlas "Relief of terres-trial planets and their satellites"
4MS³-PS-14	Mikhail Sinitsyn et al	Analysis of lunar pyroclastic deposits using LEND spectrometer data
4MS³-PS-15	Ekaterina Kronrod et al	The temperature profile of the lunar mantle and concentrations of radioactive elements in the Moon
4MS³-PS-16	Yangxiaoyi Lu et al	New Lunar Lander Site Selection
4MS³-PS-17	Michael Shpekin, A.A. Barenbaum	Impact craters Tsiolkovsky and Aitken as objects of search for residual water on the Moon
4MS³-PS-18	Boris Ivanov	Largest impact craters at small planetary bodies – models and observations
4MS³-PS-19	Gennady Kochemasov	Two examples of non-traditional interpretation of planetary features in light of latest cosmic data: 1) Mare Orientale gravity pattern; 2) Mercury's Northern Plains and Arctic Ocean of Earth
4MS³-PS-20	Vladimir Smirnov , O. V. Yushkova	Luna-Glob: consideration of the relief effect in solving the inverse problem of subsurface sensing

4MS³-PS-21	Natalia Kozlova et al	New technology of Lunokhod's panoramas image processing for detail mapping and analysis of lunar surface
4MS³-PS-22	Valeriy Burmin et al	On the nature of the seismic ringing of the Moon. Analytical modeling
4MS³-PS-23	Peter Wurz et al	Prototype of the gas chromatograph – mass spectrometer to investigate volatile species in the lunar soil for the Luna-Glob and Luna-Resource missions

Dust and dusty plasma in space

4MS³-PS-24	Maria Blecka et al	Numerical modeling the radiation emitted and scattered from the dust in the inner coma of the Comet 67P/Churyumov Gerasimenko - a possible basis for spectrometric searches
4MS³-PS-25	Elena Seran et al	Dust Lifting Experiment (DLE) : Variations of electric field and electric resistivity of air caused by dust motion
4MS³-PS-26	Alexander Volokitin and Barbara Atamaniuk	The low-frequency turbulence in an inhomogeneous dusty plasma
4MS³-PS-27	Inna Shashkova et al	Modeling the influence of lunar dust on the physical and biological systems

Solar System study: Some milestones

4MS³-PS-28	Andrei Makalkin	What determines the sizes of the regular satellite systems of Jupiter and Saturn
4MS³-PS-29	James Head et al	A global geologic map of Ganymede
4MS³-PS-30	Alexey Berezhnoy et al	Theoretical fluorescence spectra of pyrene in cometary comae
4MS³-PS-31	Svetlana Pugacheva, V. V. Shevchenko	Ancient volcanic relief types at Mars, Venus, Mercury and Moon. Origin, morphology, age
4MS³-PS-32	Gennady Kochemasov	The wave planetology: comparative tectonic granulation of Titan, Moon, and Mercury in relation to their orbital frequencies
4MS³-PS-33	Victor Kronrod et al	Internal structure of Titan for the model of the homogeneous accretion in the circumplanetary disk
4MS³-PS-34	Vladimir Busarev	Detection of possible spectral signs of O ₂ and CH ₄ on Europa and O ₂ on Ganymede and Callisto
4MS³-PS-35	Tagir Abdulmyanov	Simulation of the initial stages of formation of proto-planetary rings in the Solar system
4MS³-PS-36	Tagir Abdulmyanov	Determination of the initial moments of formation of proto-planetary rings in the Solar system
4MS³-PS-37	Oleg Khavroshkin, V.V. Tsyplakov	Sun – Earth: new channel of interaction
4MS³-PS-38	Sergei Ipatov	Outbursts and cavities in comets
4MS³-PS-39	Sergei Ipatov	The angular momentum of colliding rarefied preplanetesimals allows the formation of binaries

Venus

4MS³-PS-40	Denis Belyaev et al	Analysis of sulfur oxides content above Venus' clouds
4MS³-PS-41	Anna Fedorova et al	Observations of the near-IR nightside windows of Venus during Maxwell Montes transits by SPICAV IR onboard Venus Express
4MS³-PS-42	Andrea Longobardo et al	Nocturnal variations of the Venus upper cloud scale height

4MS³-PS-43	Evgeniya Guseva	Results of comparison of morphometric parameters of the dome-shaped rises and associated rift zones on Venus (Atla, Beta-Phoebe) and Earth (East Africa)
4MS³-PS-44	Anatoly Gavrik, Ya. Ilyushin	Structure of the multi-ray radio wave field in the Venusian ionosphere: numerical simulations with parabolic diffraction equation
4MS³-PS-45	Elena Petrova et al	Sizes of particles in the upper clouds of Venus from the SPICAV/VEx polarimetry
4MS³-PS-46	Alessandra Migliorini et al	Thermal structure of the Venus night side, retrieved on VIRTIS/Venus Ex-press data
4MS³-PS-47	Evgeniy Kuleshov et al	Database of Venus-15 and Venus-16 Radio Occultation Experiments

New Projects

4MS³-PS-48	Ilya Kuznetsov et al	Dust Complex of the ExoMars-2018 project
4MS³-PS-49	Ilya Kuznetsov et al	Dust instrument for the Lunar landers
4MS³-PS-50	Andrea Longobardo et al	VISTA, a micro-thermogravimeter to measure water and organics content in planetary environment
4MS³-PS-51	Sergey Pavlov et al	Micro-Raman spectroscopy of a particle RA-QD02-0035 from a collection of the HAYABUSA space probe to the 25143 Itokawa asteroid
4MS³-PS-52	Luis Vazquez et al	Solar Irradiance Sensor of the DREAMS-EDM ExoMars 2016
4MS³-PS-53	Julia Bodnarik et al	Using In Situ Neutron and Gamma-ray Spectroscopy to Characterized Asteroids
4MS³-PS-54	William Vaughan , J. W. Head	Thermal infrared spectroscopy of Mercury from orbit: Potential of, and predictions for, BepiColombo MERTIS
4MS³-PS-55	Vassiliy Marchuk et al	Model of 3D-GPR for space applications
4MS³-PS-56	Oleg Khavroshkin, A.Bogdanov	Exploration of Solar system: active seismology
4MS³-PS-57	Konstantin Luchnikov et al	Polyatomic ions mass analysis using compact laser desorption/ ionization TOF-MS
4MS³-PS-58	Dmitry Moiseenko et al	Energy-mass spectrometer for plasma measurements at Ganymede
4MS³-PS-59	Ivan Ilin, A.G.Tuchin	Quasi periodic orbits in the vicinity of the Sun-Earth system L2 point and their implementation in “Spectr-RG” and “Millimetron” missions
4MS³-PS-60	Alexey Grushevskii et al	To the Orbit Designing of the Jovian's Missions Using Reducing Gravity Assist Maneuvers For The Landing
4MS³-PS-61	Anna Dunaeva et al	Temperature change under adiabatic conditions in H ₂ O containing interiors of Titan