

# Overview 10M-S<sup>3</sup> Program

## The Tenth Moscow Solar System Symposium (10M-S<sup>3</sup>)

IKI RAS, 7-11 October 2019

	7 October	8 October	9 October	10 October	11 October							
10.00	<b>Opening Session</b>	<b>Session 2. Venus</b>	<b>Session 4. Moon and Mercury</b>	<b>Session 5. Giant planets</b>	<b>Session 7. Solar wind</b>							
10.20												
10.40												
11.00	<b>Session 1. Mars</b>					<b>Session 3. Extrasolar planets</b>	<b>Session 6. Small Bodies</b>	<b>Session 8. Astrobiology</b>				
11.20												
11.40									Coffee	Coffee	Coffee	Coffee
12.00												
12.20												
12.40									Lunch	Lunch	Lunch	Lunch
13.00												
14.00												
14.20												
14.40												
15.00												
15.20												
15.40												
16.00	Coffee	Coffee	Coffee	Coffee	Coffee							
16.20												
16.40												
17.00												
17.20												
17.40												
18.00	<b>Poster Session</b>	Social events in Moscow	<b>Poster Session</b>	Concert	Social events in Moscow							
18.20												
18.40												
19.00	<b>Poster Session</b>	Social events in Moscow	Social events in Moscow	Reception								
20.00	<b>Welcome party</b>											

# 10M-S<sup>3</sup> Scientific Program

**Monday, 7 October 2019**

	Lev Zelenyi	Opening Remarks	<b>10.00-10.10</b>
	James W. Head	The Apollo lunar exploration program: scientific legacy and the road ahead	<b>10.10-11.00</b>

**Session 1. MARS** **11.00-19.00**

**Convener: Oleg KORABLEV**  
**conference hall, second floor**

<b>10MS3-MS-01</b>	Alexander Trokhimovskiy et al	Methane and other trace species detection attempts using ACS MIR channel onboard TGO ExoMars mission	11.00-11.20
<b>10MS3-MS-02</b>	Anatoliy Pavlov et al	A novel mechanism for rapid methane destruction by cosmic rays on Mars	11.20-11.40

**Coffee-break** 11.40-12.00

<b>10MS3-MS-03</b>	Anna Fedorova et al	The O <sub>2</sub> vertical profiles in the Martian atmosphere with ACS-NIR onboard TGO	12.00-12.20
<b>10MS3-MS-04</b>	Mikhail Luginin et al	Dust and water ice aerosols during the first year of ACS TIRVIM and NIR observations	12.20-12.40
<b>10MS3-MS-05</b>	Dmitrij Titov et al	Mars Express recent science highlights	12.40-13.00

**Lunch** 13.00-14.00

<b>10MS3-MS-06</b>	Alexey Malakhov et al	FREND onboard ExoMars: global near-surface water abundance and local features	14.00-14.20
<b>10MS3-MS-07</b>	Sergei Nikiforov et al	Analysis of the water distribution in Martian subsurface estimated by passive measurements with the DAN instrument onboard NASA/MSL	14.20-14.40
<b>10MS3-MS-08</b>	Maya Djachkova et al	Subsurface water content in Gale crater from DAN measurements and its correlation with mineral abundance on the surface	14.40-15.00
<b>10MS3-MS-09</b>	James W. Head	Toward an understanding of early Mars climate history: new themes, directions and tests	15.00-15.20
<b>10MS3-MS-10</b>	Ashley Palumbo et al	Volcanism on early Mars: Exploring the influence of the SO <sub>2</sub> plume on local and short-term climate change	15.20-15.40
<b>10MS3-MS-11</b>	Mikhail Ivanov and H. Hiesinger	The Acidalia Mensa region on Mars: A key element to test the Mars ocean hypothesis	15.40-16.00

**Coffee-break** 16.00-16.20

<b>10MS3-MS-12</b>	Boris Ivanov	Air shock wave traces on Mars	16.20-16.40
<b>10MS3-MS-13</b>	Vladimir Ogibalov and G. Shved	Effect of aerosol scattering on radiative transfer in the CO <sub>2</sub> and CO infrared bands in the daytime Martian atmosphere under breakdown of vibrational LTE	16.40-17.00
<b>10MS3-MS-14</b>	Maria Pilar Velasco et al	The Martian atmospheric dust dynamic through fractional differential models and simulations	17.00-17.20
<b>10MS3-MS-15</b>	Thomas Duxbury and Natalia Seregina	Looking Back at Mars 50 years: Mariner Mars 1969 imaging	17.20-17.40
<b>10MS3-MS-16</b>	Mikhail Verigin et al	Measurements of the Martian crust magnetization 25 years before its discovery	17.40-18.00
<b>10MS3-MS-17</b>	Marina Díaz Michelena and C. R. Kilian	Magnetic measurements in terrestrial analogues of Mars	18.00-18.20
<b>10MS3-MS-18</b>	Marina Díaz Michelena et al	Newton novel magnetic instrument. Potential application to unveil key questions as the origin of Martian moons	18.20-18.40
<b>10MS3-MS-19</b>	Jose Luis Vazquez-Poletti et al	Serverless Computing for Mars Exploration and Colonization Applications	18.40-19.00

**POSTER SESSION (all sessions)** **19.00-20.00**

<b>Tuesday, 8 October 2019</b>			
<b>Session 2. VENUS</b>			<b>10.00-16.00</b>
<b>Convener: Ludmila ZASOVA</b>			
<b>conference hall, second floor</b>			
<b>10MS3-VN-01</b>	Vladimir A. Krasnopolsky	Venus Nighttime Photochemical Model: Nightglow of O <sub>2</sub> , NO, OH and Abundances of O <sub>3</sub> and ClO	10.00-10.20
<b>10MS3-VN-02</b>	Peter Wurz et al	Measurement of the composition of Venus atmosphere during aerobreaking	10.20-10.40
<b>10MS3-VN-03</b>	Helmut Lammer et al	Atmospheric noble gas isotope and bulk K/U ratios as a constraint on the early evolution of Venus and Earth	10.40-11.00
<b>10MS3-VN-04</b>	Maike Bauer et al	Implications of hydrodynamic escape for the Venusian water inventory, constrained by D/H	11.00-11.20
<b>10MS3-VN-05</b>	Richard Ernst et al	Geological tests of global warming models on Venus	11.20-11.40
<b>Coffee-break</b>			<b>11.40-12.00</b>
<b>10MS3-VN-06</b>	Leonid Ksanfomality	Bright flashes of lightning on Venus were recorded in infrared images of the Akatsuki mission	12.00-12.20
<b>10MS3-VN-07</b>	Dmitry Gorinov et al	Circulation of the lower cloud level on the nightside of Venus from VIRTIS-M (Venus Express) and IR2 (Akatsuki) data in 1.74 $\mu\text{m}$	12.20-12.40
<b>10MS3-VN-08</b>	Vladimir Gubenko and I. Kirillovich	Internal waves characteristics in the Venus's atmosphere revealed from the Magellan and Venus Express radio occultation data by two independent methods	12.40-13.00
<b>Lunch</b>			<b>13.00-14.00</b>
<b>10MS3-VN-09</b>	Richard Ghail et al	EnVision: European concept of a mission to Venus	14.00-14.20
<b>10MS3-VN-10</b>	Patricia Beauchamp et al	Proposed Venus Flagship Mission	14.20-14.40
<b>10MS3-VN-11</b>	Ludmila Zasova and the JSDT	Venera-D: a potential joint Roscosmos – NASA mission to explore Venus' atmosphere, surface, interior structure and plasma environment	14.40-15.00
<b>10MS3-VN-12</b>	Vladimir Gromov and Alexander.Kosov	A model of microwave absorption of atmospheric gases for the radiometric experiment in the Venera-D mission	15.00-15.20
<b>10MS3-VN-13</b>	Valentin Parmon et al	Hypothetical living forms on Venus planet and their possible nature	15.20-15.40
<b>10MS3-VN-14</b>	Anastasia Kosenkova et al	Maneuverable Entry Vehicles for Venus research	15.40-16.00
<b>Coffee-break</b>			<b>16.00-16.20</b>
<b>Session 3. EXTRASOLAR PLANETS</b>			<b>16:20-18:45</b>
<b>Convener: Alexander TAVROV</b>			
<b>conference hall, second floor</b>			
<b>10MS3-EP-01</b>	Daniel Angerhausen et al	The LIFE mission: a Large Interferometer For Exoplanets	16.20-16.40
<b>10MS3-EP-02</b>	Shingo Kameda et al	WSO-UV/UVSPEX for observation of Earth-like Exoplanets	16.40-16.55
<b>10MS3-EP-03</b>	Andreas Krenn et al	Energy-limited escape: an examination of the range of applicability	16.55-17.10
<b>10MS3-EP-04</b>	Valery Shematovich et al	Atmospheric escape of close-in Neptunes	17.10-17.25
<b>10MS3-EP-05</b>	Ildar Shaikhislamov et al	3d gasdynamic modeling of transitiong hot exoplanets	17.25-17.40
<b>10MS3-EP-06</b>	Daria Kubyschkina et al	The past rotation history of Kepler-11 revealed by the present atmospheres of its planets	17.40-17.55
<b>10MS3-EP-07</b>	Vladislava Ananyeva et al	Mass distribution of exoplanets considering observation selection effects in the transit detection technique	17.55-18.10
<b>10MS3-EP-08</b>	Vladislava Ananyeva et al	Mass distribution of transit planets depending on the host star spectral class (considered: K, G, F)	18.10-18.20
<b>10MS3-EP-09</b>	Anastasia Ivanova et al	RV-exoplanets mass distribution at M-dwarf-type host stars	18.20-18.30
<b>10MS3-EP-10</b>	Leonid Ksanfomality and Alexander Tavrov	On a possible role of giant exo-rings of the j1407b type in physical properties of the KEPLER KIC 8462852 object	18.30-18.45

**Wednesday, 9 October 2019**

**Session 4. MOON AND MERCURY**

**10.00-18.00**

**Conveners: Igor MITROFANOV, Maxim LITVAK  
conference hall, second floor**

<b>10MS3-MN-01</b>	Johannes Benkhoff et al	BepiColombo en route to Mercury	10.00-10.20
<b>10MS3-MN-02</b>	Alexandre Kozyrev et al.	MGNS: first data en route to Mercury	10.20-10.40
<b>10MS3-MN-03</b>	Evgeny Slyuta	Geology, geochemistry and geophysics of the Moon: from priority scientific tasks to scientific equipment	10.40-11.00
<b>10MS3-MN-04</b>	James W. Head and Lionel Wilson	Rethinking lunar mare basalt regolith formation: new concepts of lava flow protolith and evolution of regolith thickness and internal structure	11.00-11.20
<b>10MS3-MN-05</b>	Jinsong Ping et al	Low frequency radio astronomical experiments on the moon	11.20-11.40
<b>Coffee-break</b>			<b>11.40-12.00</b>
<b>10MS3-MN-06</b>	Mikhail Gerasimov et al	Morphologies of impact-simulated condensates	12.00-12.20
<b>10MS3-MN-07</b>	Elliot Sefton-Nash et al	Targeting lunar volatiles with ESA's PROSPECT payload on LUNA-27	12.20-12.40
<b>10MS3-MN-08</b>	Rahul Sharma et al	Lunar lava tubes represent vast potential	12.40-13.00
<b>Lunch</b>			<b>13.00-14.00</b>
<b>10MS3-MN-09</b>	Sergey Voropaev and A.Yu. Dnestrovsky	Features of the fossil tidal bulge formation for the early Moon	14.00-14.20
<b>10MS3-MN-10</b>	Wang Mingyuan et al	Prospect of planetary radio emission based on low frequency detection of Chang'E-4	14.20-14.40
<b>10MS3-MN-11</b>	Susanne Schroder et al	LIBS for in-situ geochemical investigations of extraterrestrial surfaces of atmosphereless bodies	14.40-15.00
<b>10MS3-MN-12</b>	Egor Sorokin et al	Experimental simulating of a micrometeorite impact on the Moon	15.00-15.20
<b>10MS3-MN-13</b>	Svetlana Demidova	Distribution of P-bearing olivines sources in the lunar crust	15.20-15.40
<b>10MS3-MN-14</b>	James W. Head and Lionel Wilson	Dike intrusion-related processes in the lunar crust: the role of country rock porosity/permeability in magmatic percolation and thermal annealing, and implications for gravity signatures	15.40-16.00
<b>Coffee-break</b>			<b>16.00-16.20</b>
<b>10MS3-MN-15</b>	Alexander Basilevsky et al	Potential lunar base on Mons Malapert: Topographic, geologic and trafficability consideration	16.20-16.40
<b>10MS3-MN-16</b>	Zhanna Rodionova et al	Topographical Features of the Lunar Maria and Basins	16.40-17.00
<b>10MS3-MN-17</b>	Maya Djachkova et al	Landing site selection for future lunar landers	17.00-17.20
<b>10MS3-MN-18</b>	Maxim Litvak et al	The nearest perspectives for Lunokhod 2.0	17.20-17.40
<b>10MS3-MN-19</b>	Igor Mitrofanov et al	The concept of LUNA-28 mission for polar soil return	17.40-18.00

**POSTER SESSION (all sessions)**

**18.00-19.00**

<b>Thursday, 10 October 2019</b>			
<b>Session 5 . GIANT PLANETS</b>			<b>10.00-13.10</b>
<b>Convener: Scott BOLTON</b>			
<b>conference hall, second floor</b>			
<b>10MS3-GP-01</b>	Scott Bolton et al	Result from Juno on the Origin of Jupiter	10.00-10.15
<b>10MS3-GP-02</b>	John Connerney et al	Jupiter's Magnetic Field and Magnetosphere at the Midpoint of the Juno Mission	10.15-10.30
<b>10MS3-GP-03</b>	Alberto Adriani et al	Infrared observations of the Jupiter's atmosphere	10.30-10.45
<b>10MS3-GP-04</b>	Masafumi Imai et al	Observations of radio and plasma waves at Jupiter from Juno Waves investigation	10:45-11:00
<b>10MS3-GP-05</b>	Alessandro Mura et al	Observations of Jupiter Aurorae from Juno	11.00-11.15
<b>10MS3-GP-06</b>	Vladimir Krasnopolsky	Photochemical Model of Pluto's Atmosphere and Ionosphere	11.15-11.30
<b>10MS3-GP-07</b>	John Joergensen et al	Jovian Moon interaction with energetic electrons as measured by the Juno ASC	11.30-11.45
<b>Coffee-break</b>			<b>11.45-12.00</b>
<b>10MS3-GP-08</b>	Erica Nathan et al	Experimental and Numerical Model for Freezing Icy Satellites	12.00-12.15
<b>10MS3-GP-09</b>	Manuel Scherf et al	The origin and evolution of Titan's nitrogen atmosphere	12.15-12.30
<b>10MS3-GP-10</b>	Igor Alexeev et al	Diagnostics of the Jovian magnetospheric state during the Juno mission	12.30-12.40
<b>10MS3-GP-11</b>	Alexander Perminov and Eduard Kuznetsov	The resonant semi-analytical motion theory for giant planets of the Solar system	12.40-12.50
<b>10MS3-GP-12</b>	Valery Kotov	Rotation of giant planets	12.50-13.00
<b>10MS3-GP-13</b>	Michel Blanc et al	Science objectives and mission scenarios for future missions to the Jupiter system	13.00-13.10
<b>Lunch</b>			<b>13.10-14.00</b>
<b>Session 6. SMALL BODIES (including cosmic dust)</b>			<b>14.00-18.00</b>
<b>Conveners: Alexander BASILEVSKY, Alexander ZAKHAROV</b>			
<b>conference hall, second floor</b>			
<b>10MS3-SB-01</b>	Thomas Duxbury	The International Phobos / Deimos Data Working Group	14.00-14.15
<b>10MS3-SB-02</b>	Mikhail Marov and Sergei Ipatov	Migration of planetesimals from different distances outside Mars' orbit to the terrestrial planets and the Moon	14.15-14.30
<b>10MS3-SB-03</b>	Mikhail Marov et al	Simulations of fragmentation of dust aggregates at the snowline in a protoplanetary disk: first results	14:30-14:45
<b>10MS3- SB-04</b>	Sergei Ipatov	Probabilities of collisions of planetesimals from different parts of the feeding zone of the terrestrial planets with the forming planets, the Moon, and their embryos	14:45-15:00
<b>10MS3- SB-05</b>	Sergey Efimov and V. Sidorenko	Lidov-Kozai cycles in secular dynamics of resonant Kuiper belt objects	15:00-15.15
<b>10MS3- SB-06</b>	Sergey Krasilnikov et al	Pinnacles on the surface of the 67P/Churyumov-Gerasimenko comet nucleus	15.15-15:30
<b>10MS3- SB-07</b>	Vladimir Busarev and Ekaterina Feoktistova	Assessment of the possibility of ice presence on 101955 Bennu	15.30-15.45
<b>10MS3- SB-08</b>	Yuri Skorov	Thermal models of comets. New challenges after the Rosetta mission	15.45-16.00
<b>Coffee-break</b>			<b>16:00-16:20</b>
<b>10MS3- SB-09</b>	Sergey Voropaev et al	Small bodies' strength: failure model	16.20-16.35
<b>10MS3- SB-10</b>	Ute Boettger et al	Raman spectrometer for Phobos in-situ exploration	16.35-16.50
<b>10MS3- SB-11</b>	Ekaterina Koren and Eduard Kuznetsov	Features of the Dynamical Evolution of Near-Earth Asteroid Pairs	16.50-17.05
<b>10MS3- SB-12</b>	Eduard Kuznetsov et al	Search for young asteroid pairs with close orbits	17.05-17.20
<b>10MS3- SB-13</b>	Sergey Popel et al	Dusty plasmas in environments of Mars	17.20-17.35
<b>10MS3- SB-14</b>	Ilan Roth	Present solar observations - a catalyst of processes at the birth of solar and death of stellar system	17.35-17.50
	Panel Discussion		17.50-18.00
	CONCERT		18.00-19.00
	RECEPTION		19.00-20.00

<b>Friday, 11 October 2019</b>			
<b>Session 7: SOLAR WIND INTERACTIONS WITH PLANETS AND SMALL BODIES</b>			<b>10.00-12.40</b>
<b>Conveners: Oleg VAISBERG room 200, second floor</b>			
<b>10MS3-SW-01</b>	Eduard Dubinin et al	What is a main driver for ion losses at Mars and what is a role of the crustal magnetic field?	10.00-10.20
<b>10MS3-SW-02</b>	Lev Zelenyi et al	Thin current sheets of sub-ion scales observed by MAVEN in the Martian magnetotail	10.20-10.40
<b>10MS3-SW-03</b>	Salvador Jimenez et al	Induced magnetic field in Mars ionosphere. Solar wind and aurorae	10.40-11.00
<b>10MS3-SW-04</b>	Valery Shematovich et al	Kinetic Monte Carlo Model of High-Energy H/H+ Precipitation into the Martian Atmosphere	11.00-11.20
<b>10MS3-SW-05</b>	Alexander Grigoriev et al	The Fine Structure of the Interface between the Magnetosheath and the Venusian Induced Magnetosphere	11.20-11.40
<b>Coffee-break</b>			11.40-12.00
<b>10MS3-SW-06</b>	Andrey Divin et al	A Fully Kinetic Study of Electron Acceleration Around a Weak Comet	12.00-12.20
<b>10MS3-SW-07</b>	Vladimir Busarev et al	Similarity of sublimation activity of the main-belt primitive asteroids 704 Interamnia, 24 Themis, and 449 Hamburga and solar flares' influence	12.20-12.40
<b>Session 8: ASTROBIOLOGY</b>			<b>10.00-17.00</b>
<b>Conveners: Elena VOROBYOVA, Oleg KOTSYURBENKO conference hall, second floor</b>			
<b>10MS3-AB-01</b>	Elias Chatzitheodoridis	Biosignature detection with state-of-the-art instrumentation	10.00-10.20
<b>10MS3-AB-02</b>	Sohan Jheeta	Astrochemistry: synthesis of the basic 'building blocks' of life	10.20-10.40
<b>10MS3-AB-03</b>	Vladimir Kompanichenko	Origin of life through the efficient reaction of prebiotic systems to external oscillations: application to Mars, Europa, and Enceladus	10.40-11.00
<b>10MS3-AB-04</b>	Vladimir Matveev and A.Malygin	Sorption theory of the origin of life	11.00-11.20
<b>10MS3-AB-05</b>	Valeriy Snytnikov	The most likely places to detect traces of extraterrestrial life in the Solar System	11.20-11.40
<b>Coffee-break</b>			11.40-12.00
<b>10MS3-AB-06</b>	Martin Ferus	Exoplanets: Natural laboratories of chemical evolution and origin of life	12.00-12.20
<b>10MS3-AB-07</b>	Daniel Angerhausen et al	Big Data and Machine learning for Exoplanets and Astrobiology: Results from NASA Frontier Development Lab	12.20-12.40
<b>10MS3-AB-08</b>	Valery Shematovich and M. Sachkov	Study of exoplanet habitability: potential atmospheric biomarkers O <sub>2</sub> /O <sub>3</sub> in ultraviolet	12.40-13.00
<b>Lunch</b>			13.00-14.00
<b>10MS3-AB-09</b>	Vinod Kumar Gupta	Emergence of photoautotrophic assimilative mechanisms in an irradiated sterilized aqueous mixture of some inorganic and organic substances induced by electromagnetic radiation of Sun	14.00-14.20
<b>10MS3-AB-10</b>	Chandra Wickramasinghe and Richard Hoover	Comets, carbonaceous chondrites and extraterrestrial life	14.20-14.40
<b>10MS3-AB-11</b>	Sergey Bulat et al	Microbial life under thick glacier sheets: lessons from the subglacial Antarctic Lake Vostok exploration	14.40-15.00
<b>10MS3-AB-12</b>	Richard Hoover and E.V. Pikuta	Advances in astrobiology: life in ice	15.00-15.20
<b>10MS3-AB-13</b>	Oleg Kotsyurbenko	Methanogenic archaea as model microorganisms for astrobiology	15.20-15.40
<b>10MS3-AB-14</b>	Anton Ryumin and M. Kapralov	Astrobiological studies in Dubna	15.40-16.00
<b>Coffee-break</b>			16.00-16.20
<b>10MS3-AB-15</b>	Nikita Demidov	Pingos on Spitsbergen and on Mars as astrobiological target	16.20-16.40
	Panel Discussion		16:40-17:00

## Poster Session

7 October 19.00-20.00

9 October 18.00-19.00

exhibition hall, ground floor

### MARS

10MS3-PS-01	Benjamin D. Boatwright and James W. Head	Testing the Effectiveness of Impact Bombardment on Early Mars Landscape Degradation
10MS3-PS-02	Ashley Palumbo and James W. Head	Rainfall on Noachian Mars: Nature, timing, and influence on geologic processes and climate history
10MS3-PS-03	Mariya Zharikova et al	O <sub>2</sub> nightglow observations in the Martian atmosphere by SPICAM/MEX
10MS3-PS-04	Natalia Savelyeva et al	First measurements of Carbon Monoxide in Martian Atmosphere from ACS-TIRVIM Solar Occultation Observations Onboard ExoMars TGO
10MS3-PS-05	Ekaterina Starichenko et al	Gravity waves in Martian atmosphere from ACS/TGO solar occultations: preliminary results
10MS3-PS-06	Gennady Dolnikov et al	Investigation of the Martian dust dynamics with Dust Complex: Instrument Development and Calibration
10MS3-PS-07	Manuel Dominguez-Pumar et al	Performance of a miniature Martian 3d wind sensor in the dust devil scale
10MS3-PS-08	Yulia Izvekova et al	Hydrodynamic similarity of dust devils on Earth and Mars
10MS3-PS-09	Victor Benghin et al	Comparison of Liulin-MO dosimeter radiation measurements during ExoMars 2016 TGO Mars' a circular orbit with dose estimations based on galactic cosmic ray models
10MS3-PS-10	Sergei Nikiforov et al	The ADRON-RM instrument onboard the ExoMars rover
10MS3-PS-11	Alexander Kosov et al	LaRa (Lander Radioscience) on the ExoMars 2020 Kazachok lander
10MS3-PS-12	Diego Rodríguez Díaz et al	AMR instrument for ExoMars 2020 scientific payload for stationary magnetic measurements on the surface of Mars
10MS3-PS-13	Imant Vinogradov et al	M-DLS experiment for the ExoMars-2020 mission Stationery Landing Platform: instrument design, fabrication and calibration results
10MS3-PS-14	Kirill Zakharchenko et al	Characterization of space radiation monitor based on diamond sensitive elements for future interplanetary missions
10MS3-PS-15	Gennady Kochemasov	Warm and wet martian period in comparison with mantle heating in other rocky planets and the Moon
10MS3-PS-16	Olaga Tretyukhina	Multiscale hipsometric web-map of Mars
10MS3-PS-17	Sergei Kulikov et al	Possible electromagnetic emissions above the magnetic anomalies: Phobos-2 observations
10MS3-PS-18	Ekaterina Grishakina et al	Physical, mechanical, hydrophysical, and microbiological properties of Martian soil simulant
10MS3-PS-19	Sergey Krasilnikov et al	Measuring of volume and thicknesses of remnant massifs of layered deposits on Mars, using altimetry data and math approximation
10MS3-PS-20	Alexandra Bermejo et al	Controlling electromagnetic waves with all dielectric metamaterials
10MS3-PS-21	Alexey Batov et al	Estimates of stresses beneath Elysium Planitia on Mars
10MS3-PS-22	Tamara Gudkova et al	Estimates of density anomalies beneath Elysium Planitia on Mars
10MS3-PS-23	Inna Stepanova et al	Method of S-, and R-approximations in solving the problems of geophysics: application for Mars

### VENUS

10MS3-PS-24	Alexey Martynov et al	Development of the Venera-D Spacecraft Design
10MS3-PS-25	Daria Evdokimova et al	Water vapour distribution in the Venus deep atmosphere by the SPICAV-IR/VEX night observations
10MS3-PS-26	Anatoly Gavrik	Radio occultation of Venusian ionosphere

10MS3-PS-27	Marina Patsaeva et al	Dependence of cloud top circulation above Aphrodite Terra on solar-related effects and topography. Variations in the behavior of zonal wind over mission time from VMC/Venus Express wind fields
10MS3-PS-28	Jacob Benheim et al	Autonomous aerodynamic repeating diver for Venus atmospheric research of clouds
10MS3-PS-29	Vladimir Gubenko et al	Activity of small-scale internal waves in the Venus's northern polar atmosphere by using radio occultation measurements of signal intensity ( $\lambda = 32$ cm) from the Venera-15 and -16 satellites
10MS3-PS-30	Tamara Gudkova and Vladimir Zharkov	Corrections to model Love number $k_2$ due to inelasticity of the interiors of Venus
10MS3-PS-31	Eugenia Guseva and Mikhail Ivanov	Topographic configuration of coronae on Venus: supporting evidence for time-dependent styles of resurfacing

### MOON AND MERCURY

10MS3-PS-32	James W. Head and Boris Ivanov	Ina Irregular Mare Patch (IMP): new insights from observations of superposed impact craters
10MS3-PS-33	James W. Head et al	Volcanically-induced transient atmospheres on the Moon: assessment of duration and significance
10MS3-PS-34	Aaron Cherian et al	Project Orpheus: lunar laboratory
10MS3-PS-35	Ariel Deutsch et al	Investigating diurnal changes in the normal albedo of the lunar surface at 1064 nm: a new analysis with the Lunar Orbiter Laser Altimeter
10MS3-PS-36	Ariel Deutsch et al	Distribution of surface water ice on the Moon: an analysis of host crater ages provides insights into the ages and sources of ice at the lunar south pole
10MS3-PS-37	Alexey Berezhnoy et al	$^3\text{He}$ -rich potential landing sites on the Moon
10MS3-PS-38	Sergey Krasilnikov et al	Selection of landing site for potential lunar base on Mons Malapert
10MS3-PS-39	Gennady Sizentsev et al	Lunar resources to address energy and climate problems on Earth
10MS3-PS-40	Mikhail Malenkov et al	They are ahead of time: the influence of the Soviet and American lunar rovers on modern planetary research
10MS3-PS-41	Ivan Agapkin and Evgeny Sluta	Problems of studying the physico-mechanical properties of lunar soil in the TERMO-LR experiment for the Luna-Resource-1 project
10MS3-PS-42	Olga Turchinskaya and Evgeny Sluta	Preliminary data on mapping and outlining of various concentrations of ilmenite in lunar rocks on the visible side of the Moon
10MS3-PS-43	Andrey Divin et al	Structure of the electrostatic potential above ion-scale lunar magnetic anomalies
10MS3-PS-44	Alexander Basilevsky et al	Rolling boulders and their tracks on lunar slopes
10MS3-PS-45	Ekaterina Kronrod et al	The structure, composition and temperature in the Moon based on the joint inversion of geophysical and geochemical data for a linear temperature profile in the mantle
10MS3-PS-46	Igor Zavyalov et al	Implementation of lunar crater catalogue for morphometric studies of the craters (diameter 1-10 km)
10MS3-PS-47	Ekaterina Feoktistova et al	Thermal regime and regolith parameters of landing site of probe Chang'E
10MS3-PS-48	Svetlana Pugacheva et al	Research of the lunar south polar area
10MS3-PS-49	Azariy Barenbaum	Stratigraphic scale as proof of cyclicity bombardments of solar system by galactic comets
10MS3-PS-50	Azariy Barenbaum and Michael Shpekin	Problems of interpretation crater data in the Solar System
10MS3-PS-51	Nadezhda Chujkova et al	Determination Of global density inhomogeneities and stresses inside the Moon
10MS3-PS-52	Maria Kolenkina et al	Patterns in morphometry of Mercury and the Moon: morphological mapping at the global level
10MS3-PS-53	Maria Kolenkina et al	Creating a museum collection of archive data of planet research with the help of modern technologies
10MS3-PS-54	Maria Kolenkina et al	Using relief approximation methods to study the surface of the Moon
10MS3-PS-55	Olaga Tretyukhina and Evgeny Slyuta	Interactive globe of the digital elevation model of Moon relief
10MS3-PS-56	Sergey Ipatov	Angular momenta of colliding rarefied condensations and formation of the Earth-Moon system
10MS3-PS-57	Valerii Burmin and A.G. Fatyanov	The focusing effect of P-wave in the Moon's and Earth's low-velocity core. Analytical solution
10MS3-PS-58	Gennady Kochemasov	Modulated lunar orbiting frequencies and corresponding them structures (Chang'E 3 & 4)
10MS3-PS-59	Rico Fausch et al	The neutral gas mass spectrometer for the Luna-Resurs mission
10MS3-PS-60	Veniamin Fedulov et al	Experimental study of degassing of the early Earth and Moon during accretion



10MS3-PS-61	Vladimir Cheptsov et al	Dependence of accuracy of elemental and isotopic composition measurement on the volume of the spectra array for the LASMA-LR instrument onboard Luna-Glob and Luna-Resource missions
10MS3-PS-62	Jianfeng Cao et al	Precise orbit determination of Chang'e 4 lander based on doppler measurement
10MS3-PS-63	Lue Chen et al	Precise Open-loop Doppler Measurement of Chang'e-4 Probe Based on China's Deep Space Interferometry System

#### GIANT PLANETS

10MS3-PS-64	Ivan Pensionerov et al	Comparison of the Jupiter's current disc model with the magnetic field observations from Juno and Galileo
10MS3-PS-65	Elena Belenkaya	Jupiter's auroras associated with Galilean moons and the main ovals
10MS3-PS-66	Vladimir Vdovichenko et al	Zonal features of the weak ammonia absorption bands behavior on Jupiter
10MS3-PS-67	Anna Dunaeva et al	Theoretical composition of the Titan's ocean derived from the tidal love numbers
10MS3-PS-68	Victor Kronrod et al	Adjustment of models of the internal structure of Titan with love numbers data
10MS3-PS-69	Gennady Kochemasov	Pluto granules and X-ray emission calculated by modulated orbital frequencies (comparison with Saturn and Jupiter)
10MS3-PS-70	Gennady Kochemasov	Saturnian hexagon is not alone

#### SMALL BODIES (including cosmic dust)

10MS3-PS-71	Maxim Zheltobryukhov et al	Polarization of comet 46P/Wirtanen
10MS3-PS-72	Ekaterina Chornaya et al	Fast variations of composition in the 21P/Giacobini-Zinner coma
10MS3-PS-73	Evgenij Zubko et al	Peculiar Polarization of Comet C/2018 V1 (Machholz-Fujikawa-Iwamoto)
10MS3-PS-74	Timur Nozdrachev et al	Small fragments of asteroids and cometary nuclei orbiting Earth: numerical simulation
10MS3-PS-75	Vladimir Busarev and Sergei Ipatov	Estimation of the fraction of ice material delivered to the Main asteroid belt in the early Solar system
10MS3-PS-76	Arina Rezaeva et al	Modeling of asteroid reflectance with laboratory databases of analog sample
10MS3-PS-77	Larissa Golubeva and Dmitry Shestopalov	Polarimetric properties of asteroid 3200 Phaethon
10MS3-PS-78	Aleksei Rosaev	Numeric modeling of asteroid orbits close to 3:1 resonance
10MS3-PS-79	Alexander Gusev et al	Space iron oxide microspheres: origin and typomorphic features
10MS3-PS-80	Alekander Potoskuev et al	The project of multiband photometry of small bodies of the solar system with Robophot
10MS3-PS-81	Artem Krivenko et al	Experimental investigation of mechanical properties of meteorites
10MS3-PS-82	Nikolay Perov and V. E. Pakhomycheva	Interstellar meteoroids sorting in the Solar system
10MS3-PS-83	Tatiana Salnikova et al	Possible models of the planetary systems formations
10MS3-PS-84	Markus Reinhard Benedikt et al	Escape of rock-forming volatile elements and noble gases from planetary embryos
10MS3-PS-85	Gennady Kochemasov	Natural octahedrons of various sizes including hidden ones in Earth and Saturn
10MS3-PS-86	Elena Petrova and V.P. Tishkovets	Light scattering by discrete random media: pitfalls in the comparison of models and experiments
10MS3-PS-87	Iliya Kuznetsov et al	Investigation of the atmosphereless bodies dust dynamics: experimental set-up
10MS3-PS-88	Yulia Izvekova and Sergey Popel	Wave effects in dusty plasmas in Martian atmosphere
10MS3-PS-89	Alexey Demyanov and V.V. Vysochkin	Dust Impact Mass-Spectrometer «METEOR-LD»

#### SOLAR WIND INTERACTIONS WITH PLANETS AND SMALL BODIES

10MS3-PS-90	Sergey Kolomiets et al	An experiment and data processing technique aimed at determining the radial speed of solar wind inhomogeneities of various spatial scales
10MS3-PS-91	Georg Minasyan et al	Methods of Detection of Failures in Phase Data of GNSS and Their Influence on Value of Measurements of the Total Electron Content
10MS3-PS-92	Galina Khachikyan	Observed response of Earth's lithosphere to solar wind and radiation belt variations
10MS3-PS-93	Natalia Bulatova	Features of the Sun's influence on the Earth lithosphere in periods of minima activity

<b>10MS3-PS-94</b>	Artem Shestakov et al	Complex of low-weight miniature instruments for space weather monitoring
<b>10MS3-PS-95</b>	Oleg Khavroshkin and Vladislav Tsyplakov	The observation of the solar flare on the neutrino telescope
<b>10MS3-PS-96</b>	Oleg Khavroshkin and Vladislav Tsyplakov	Neutrino Telescope: Problems and Solution
<b>10MS3-PS-97</b>	Ricardo Tomas Ferreyra et al	A new inversion of the Prandtl-Meyer relation
<b>ASTROBIOLOGY</b>		
<b>10MS3-PS-99</b>	Richard Hoover and Alexey Rozanov	Evidence for indigenous microfossils in carbonaceous chondrites
<b>10MS3-PS-100</b>	Andrey Kharitonov	The influence of cycles of space weather on geochronology of biological and climatic changes
<b>10MS3-PS-101</b>	Marina Rumenskikh et al	3D modeling of transit observations of the hot exoplanets
<b>10MS3-PS-102</b>	Laurenz Spross et al	Why Earth-like N <sub>2</sub> atmospheres are most likely not common on terrestrial planets
<b>10MS3-PS-103</b>	Margarita Kryuchkova et al	How fungal communities of desert soils respond to irradiation by high-energy electrons (HEE)?
<b>10MS3-PS-104</b>	Růžena Ferusová Živorová and Martin Ferus	Czech participation on the ARIEL telescope mission - remote sensing of asteroid and cometary impact events
<b>10MS3-PS-105</b>	Vladimir Cheptsov et al	Bacteria survival in Europa's surface ice after pulse ejection of subsurface ocean water
<b>10MS3-PS-106</b>	Andrey Belov et al	Edaphic bacterial communities of the arid Mojave Desert: astrobiological implication
<b>10MS3-PS-107</b>	F. A. I. Azar and Ilya Digel	PARAFAC Algorithm for Resolving Fluorescence Signatures of Life-Specific Compounds