Indian Planetary Science Conference (IPSC-2020)

19-21 February 2020, PRL , Ahmedabad

Programme

19th February (Wednesday)

08:30 – 09:00	**Registration**	
09:00 – 10:15	**Inaugral Session**	
09:00 – 09:10	**Welcome**	**Anil Bhardwaj,** Director, PRL
09:10 – 09:20	**Overview of IPSC-2020**	**Varun Sheel,** Convener, IPSC
09:20 – 09:35	**Opening Remarks**	**Shri A.S. Kiran Kumar,** Chairman, APEX Science Board & Chairman, PRL Council
09:35 – 09:55	**Chandrayaan-2 Mission: An Overview**	**Ritu Karidhal,** Mission Director, Chandrayaan-2
09:55 – 10:15	**Lunar Spectroscopy: An Overview**	**Prakash Chauhan,** Director, IIRS
10:15 – 10:45	**HIGH TEA & GROUP PHOTO**	
10:45 – 12:45	**Science Observations from Chandrayaan-2 Orbiter Payloads (Chair: Prakash Chauhan)**	
10:45 – 11:00	CHACE 2	Smitha Thampi, SPL
11:00 – 11:15	DFRS	Raj Kumar Choudhary, SPL
11:15 – 11:30	XSM	Santosh Vadawale, PRL
11:30 – 11:45	CLASS	S. Narendranath, URSC
11:45 – 12:00	TMC-2	A.S. Arya, SAC
12:00 – 12:15	OHRC	Aditya Dagar, SAC
12:15 – 12:30	IIRS	Satadru Bhattacharya, SAC
12:30 – 12:45	DFSAR	Raj Kumar, SAC
12: 45 – 14:00	**LUNCH**	
14:00 – 15:20	**Lunar Science: Present Understanding & Outstanding Questions (Chair: Neeraj Srivastava)**	
14:00 – 14:20	Lunar petrology & geochemistry	Nachiketa Rai, IIT Roorkee
14:20 – 14:40	Crater chronology of the Moon	S. Vijayan, PRL
14: 40 – 15:00	Impact melts: Morphology & Spectroscopy	Deepak Dhingra, IIT Kanpur
15:00 – 15:20	Lunar swirls: The enigma	Megha Bhatt, PRL
15:20 – 15:50	**TEA**	
15:50 – 18:50	**Lunar Science (Continued) (Chair: Deepak Dhingra)**	
15:50 – 16:10	Magnetic anomalies on the Moon	Dhanya M.B., SPL
16:10 – 16:30	Water in the interior of the Moon	Amit Basu, PRL
16:30 – 16:50	Lunar magnetism	Hemant Singh, IIT Mumbai
16: 50 – 17:10	Electrostatics on sunlit hemisphere of the Moon	Sanjay Mishra, PRL
17:10 – 18:50	Development and On-board Testing of High Sensitivity MEMS Accelerometers for Seismic Activity Studies	Jiju John, LEOS
	Geology of the Grimaldi Basin on the Moon: Shreds of evidence for volcanism and tectonism during the Copernican period	Tanu Singh, PRL
	Remote Sensing Based Evidence of Water Ice in the cold traps of Shackleton Crater at the Lunar South Pole	Ishan Rayal, Doon University
	Lunar Landing: A Numerical Perspective of its Damaging Effects on Surrounding Systems and Structures	Sanjeev Mishra, PRL
	Unravelling the Stratigraphy and geological history of DAS crater on the farside of Moon based on morphology, minerology and	Thesniya P.M., IIST

	ejecta emplacement dynamics	
	Mineralogical characterization of the basaltic floor of Tsiolkovisky crater, Moon with Chandrayaan-1 Moon Mineralogy Mapper	Henal Bhatt, MG Science Institute
	A study of surface temperature variations observed by LRO Diviner Radiometer data	Subhadyouti Bose, BITS
	Radar Observation of Lunar Craters Ohm and Stevinus using m-chi decomposition and Circular Polarization Ratio Techniques	Shreekumari Patel, M. G. Science Institute
	Study of spectral reflectance characteristics of Taruntius crater on Moon	Nabamita Chaudhari, Pondicherry University
19:30	**DINNER**	

20th February (Thursday)

Session 1: Science & Exploration of Mars & Venus) (9:15 – 10:30)

(Chair: J.N. Goswami)

09:15 – 09:30	Science returns from ISRO's future planetary missions	S.A. Haider, PRL
09:30 – 09:45	Martian lower atmosphere: Current views and future directions	Varun Sheel, PRL
09:45 – 10:00	Exploring the atmosphere of Venus	Raj Choudhary, SPL
10:00 – 10:30	Some new aspects of the electron density structures in the Martian ionosphere	Venkateswara Rao Narukull, NARL
	Polarization signatures of Mars dust and clouds	Bhavesh Jaiswal, URSC
	Calculation of ionization efficiency in the Martian dayside ionosphere: modelling using MAVEN observations	Vrinda Mukundan, SPL
10:30 – 11:00	**TEA**	

Session 2: Science & Exploration of Mars & Venus (cont.) (11:00 -13:00)

(Chair: S.A. Haider)

Design of X-Band diplexer for transmitter subsystem in a future Radio Occultation experiment	Trushit Upadhyaya, CHARUSAT
Dawn–Dusk Asymmetries in the Martian Upper Atmosphere	Neha Gupta, NARL
Mineralogical investigation of bole beds of Deccan Volcanic Province for Martian analogue	Pragya Singh, IIT Mumbai
Study of Subsurface of Lava Province on Mars using SHAllow RADar (SHARAD)	Rajiv R. Bharti, PRL
Energization of Martian Heavy Ions during Solar Energetic Particle Events: MAVEN Observations	Krishnaprasad C., SPL
Evidence for volcanic resurfacing in the surrounding region of Ravi Vallis, Mars	Harish, PRL
Spectral Investigation of hydrated minerals on Arsia Mons and Ascraeus Mons using THEMIS and CRISM datasets	Adnan Ahmad, IIT Guwahati

Tangential winds of a vortex system in a planetary surface layer	Shefali Uttam, PRL
A causative mechanism for the extremely enhanced ionization produced by discrete aurora on Mars: MARSIS observations	Ms. Siddhi Shah
NAVA - an experiment designed to detect the hitherto undetected Oxygen airglow emission in Venus from an orbiter	Dibyendu Chakrabarty, PRL
Millimeter-Wave Radiometry for studying Venus Atmospheric Constituents	R Renju, ISRO
LUNCH (13:00 – 14:00)	

Session 3: Science & Exploration of Mars & Venus (cont.) (14:00 – 15:00)

(Chair: Raj Kumar Choudhary)

Interplanetary Dust around Venus	Jayesh Pabari, PRL
Optical Instrumentation of an NIR Spectro-Polarimeter for planetary atmospheric studies	Hanumantha Rao M.V., LEOS
Solar Soft x-ray Spectrometer on-board Venus Orbiter Mission	Nishant Singh, PRL
Autorotation based descend System for Venus Atmospheric Study	Susmitha Patnala, IIT Chennai
Design and development of a miniature metrology suite for future Planetary balloon missions	Chandan Kumar, PRL
TEA (15:00 – 15:30)	

Session 4: Poster Slides (1 minute each) (15:30 – 16:30)

Session 5: Solar System Processes, Jovian planets, Asteroids and Small bodies (16:30 – 19:00)

(Chair: Debabrata Banerjee)

Europa - Sprint Mission : Possible opportunities	Megala S., SSPO and Shyama Narendranath, URSC
Minor body studies using MIRO telescopes over the past two decades	Shashikiran Ganesh, PRL
Discovering Main Belt Asteroids by analyzing Pan-STARRS astronomical data at IASC.	Joshi Yogeshkumar, Poornima University
Atomic carbon, nitrogen, and oxygen forbidden emission lines in the water poor comet C/2016 R2 (Pan-STARRS)	Susarla Raghuram, PRL
Radiation Induced Chemistry on Icy Satellite Surfaces Embedded in Magnetospheric Plasma Environments of solar system – A New Experimental Facility at PRL	Jaya Krishna Meka, PRL
Flare-CME of 07 March 2011 influences the Saturn	Tusharkumar Bhatt, Kadi Sarva Vishwavidyalaya
The Electrostatic Ion Beam Trap: A prospective instrument for in-situ composition analysis of planetary atmospheres and space plasma	Koushik Saha, IIT Dharwad
Statistical study of CME properties during the Gnevyshev Gap in cycle 23 and 24	Dipali Burud, Kadi Sarva Vishwavidyalaya
Whistler mode waves for subtracted distribution in Saturn's magnetosphere at different radial distances	Neeta Shukla, MRIIRS
Residue from VUV irradiation of benzene ices	Rahul Kushwaha, PRL
DINNER (19:30)	

21 February (Friday)

Session 6: Vision and Opportunities for Future Planetary Exploration (9:15-10:30)

(Chair: M. Shanmugam)

09:15-09:30	Launch Vehicle Capability for future Planetary Exploration	Priyanshu Mishra, VSSC
09:30-09:45	Opportunities for future Planetary Exploration	Deepak Negi, VSSC
09:45-10:00	Heat flow and Geophysical Exploration of the Moon	Durga Prasad, PRL
10:00-10:15	Asteroid Exploration Mission	Guneshwar Thangjam, NISER
10:15-10:30	Science and Technical aspects of Lunar Sample Return	N. Srivastava, PRL
10:30-11:00	**TEA**	

Session 7: Vision and Opportunities for Future Planetary Exploration (cont.) (11:00 –12:15)

(Chair: P. Janardhan)

11:00-11:15	Landing site selection for planetary missions to Moon	Amitabh, SAC
11:15-11:30	Landing Sites for Mars Surface Science	Rishitosh Sinha, PRL
11:30-11:45	Exploration of Mars with Mars Robotic Laboratory	M. Shanmugam, PRL
11:45-12:00	Science using Gamma Ray Spectrometer	Debarata Banerjee, PRL
12:00-12:15	Testing platforms available for space science experiments	Praveen Kumar, SSPO

Session 8: Study of meteorites & terrestrial analogues (12:15 – 13:00)

(Chair: Narendra Bhandari)

12:15-12:30	Meteorites – Messengers from Space	Kuljeet Marhas, PRL
12:30-12:45	Understanding planetary processes through laboratory study of terrestrial analogues	V.J. Rajesh, IIST
12:45-13:00	Primary and Impactor Components in Lohawat Howardite	Mahaveer Sisodia, J.N Vyas University
13:00-14:00	**LUNCH**	

Session 9: Poster Session with Tea (14:00 – 16:00)

Session 10: Study of meteorites & terrestrial analogues (Cont.) (16:00 – 17:40)

(Chair: Kuljeet Marhas)

16:00-17:40	Journey of organic compounds from interstellar clouds via asteroid parent body to Earth as evidenced from Hydrocarbons in Mukundpura Carbonaceous Chondrite	Narendra Bhandari, Science and Spirituality Research Institute
	Geochemical evolution of lunar anorthositic crust as told by meteorite	Dwijesh Ray, PRL
	Revisiting the lower bound on the initial temperature of accreting moonlets	Vishal Goyal, Panjab University
	The CAI alteration in Mukundpura Meteorite	Dipak Panda, PRL
	Wolf-Rayet Stars as a source of Pre-solar Grains	Anuj Gupta, Panjab University
	Combined Isotopic, Microstructural and (S)TEM Investigations of Presolar Silicates	Manish Sanghani, University of Copenhagen
	Early Evolution of Earth-Moon system using Hf-W isotopes	Yash Srivastava, PRL
	Origin of Solar System in context of the chemical evolution of the Milky Way Galaxy	Tejpreet Kaur, Panjab University
	Microstructural and Microchemical constraints in CM Carbonaceous Chondrite: Implications for Parent Body Processes	Shivani Baliyan, PRL
	Study of aqueous alterations in carbonaceous meteorite parent body using FTIR spectroscopy	Shreya Natrajan, PRL

LIST OF POSTERS

Sr. No.	Abstract Title	Name
	MARS	
1.	Glaciation in the Erebus Montes region of Mars	Rishitosh K. Sinha, PRL.
2.	Dust in Martian Atmosphere: Effect on Meteorology and Radiative Budget	Pradeep Attri, Univ. of Hyderabad.
3.	Micrometeorite Ablation in Martian Atmosphere	Jyoti, Banasthali Vidyapith.
4.	Effect of heterogeneous chemistry in the Martian atmosphere	Ashimananda Modak, PRL.
5.	Soil-Moisture Interaction on the Present-Day Surface of Gale Crater, Mars	Priyabrata Das, PRL.
6.	Theoretical modeling of the diffuse aurora in Martian atmosphere	Masoom Jethwa, PRL.
7.	Geological Investigation of Northern Rim of Argyre Planitia, Mars using High-Resolution Datasets	Vidyesh Sathe, K.J. Somaniya College of Sci. & Com.
8.	Discovery of skylights on the flank of Elysium Mons, Mars	Ravi Sharma, J.J.T. Univ. Of Jhunjhunu.
9.	Design and Mechanical Analysis of Deployment Mechanism for LPEX experiment onboard MOM-2 Mission	Janmejay Kumar, PRL.
10.	Study of dust particle parameter within inner solar system and its role in design consideration for processing electronics	Srirag Nambiar, PRL.
11.	Comparative Hydration Quantification by ChemCam LIBS Emission Spectra	Sourabh Shubham, IIT Kharagpur.
12.	Study of a Floor-Fractured Crater In Central Eastern Arabia Terra of MARS	Alka Rani, PRL.
13.	FPGA Implementation of Streaming Filters for Space Applications	Rangababu Peesapati, NIT Meghalaya.
14.	Design of Rotorcraft MAV for Operation in Mars Atmosphere	Ajo Joseph Anto, IIT Madras.
15.	Proposed measurements of high energy particles in the Martian environment using Energetic Ion Spectrometer	Amogh Auknoor, PRL.
16.	A study of Nitric oxide dayglow in the upper atmosphere of Mars using MAVEN/NGIMS data	Maneesha Dharwan, PRL.
17.	Quantum Cascade Laser Spectrometer for the Unambiguous Detection of Biogenic Methane over Mars	Ramkumar Thokuluwa, NARL.
	METEORITES	
18.	Impact processes in the planetary systems are crucial for the origin of life	Surendra Vikram Singh, PRL.
19.	Shock Processing of Carbon Nanopowder: A way to Understand the Formation Mechanism of C60 in Circumstellar Environment	Arijit Roy, PRL.
20.	Span study of cosmic ray exposure ages in ordinary chondrites	Avadh Kumar, PRL.
21.	Graphite inclusions in Iron meteorite and their isotopic perspective in understanding the Early Solar system processes.	Vikram Goyal, PRL
	MOON	
22.	Electron Ionization of H2O Ice on Lunar Surface Exposed to Solar Wind	Siddharth Pandya, KKSJMSC.
23.	Mineralogical diversity of Mare Undarum derived using Hyperspectral data	Arpita Purohit, M.G. Sci. Institute.
24.	Mons Malapert: A Potential Site for Lunar Outpost	Raj Patel, PRL.
25.	Geologic context of Mg-Spinel Lithology at Thomson crater on the Moon	Garima Sodha, IIT Kanpur
26.	Water ice detection in permanently shadowed regions of Lunar North Pole	Chandani Sahu, IIRS.

27.	Automatic mapping of morphology and mineralogy from planetary hyperspectral remote sensing images: A case study of Lunar hyperspectral images	Keerthi V, ISRO
28.	Revelation of surface age of Chandrayaan-2 landing sites using Crater Size Frequency Distribution (CSFD) technique	Riddhish Soni, IIRS.
29.	Volcanism in and around crater Tsiolkovskiy: Integrated Morphological and Mineralogical Assessment	Deepak Dhingra, IIT Kanpur.
30.	The Geology of Moretus Crater on the Moon using Chandrayaan-1 and Lunar Reconnaissance Orbiter Data	Sourish Chatterjee, IGNOU.
31.	Spectral analysis of lunar swirls at Descartes, Airy and Van De Graff crater: A case study to understand space weathering	Prateek Tripathi, IIT Roorkee.
32.	Detection of Mg-Spinel at Sinus Iridium	Amar Nath, MPCST.
33.	Modeling Chandrayaan-1 Hyperspectral (HySI) Data for Mineral Mixing Analysis using Hapke's Bi-directional Reflectance Function	Shafiyoddin Sayyad, Milliya Arts, Science & Mgmt. Science College, Beed.
34.	Differentiating between round and flat floor craters using machine learning	Vishal Ranjan Prasad, IIT Gandhinagar.
35.	Automatic classification of floor-fractured craters using machine learning algorithms	Suchit Purohit, Guj. Univ.
36.	Impact Craters in the Solar System-Comparative Study of Craters in the Earth, Moon & Mars Using Orbital Data Sets.	P.M. Vignesh, Bharathidasan Univ.
37.	Understanding the Kohlschutter crater on the Lunar Farside using M3 data	Nabamita Chaudhuri, Pondicherry Univ.
38.	A Working Model of New Type of Planetary Rover & Lithological Mapping of Manilius Crater Region using Chandrayaan-1 Date Sets	Sudharsan Santhana Krishnan, Bharathidasan Univ.
SOLAR SYSTEM PROCESSES		
39.	Determination of Atmospheric Composition of Circumbinary Planets in the Habitable Zone using Lightning Transmission Spectrum	Ruchika , Panjab Univ.
40.	Planetary Orbits and Their Chaos	Shubham Bangalia, Panjab Univ.
41.	Multi-fluid Modelling of the Cometary Atmosphere	Sana Ahmed, PRL.
42.	Electromagnetic wave by injection of hot ion/electron beam with parallel AC electric field in Saturnian magnetosphere	R.S. Pandey, Amity Institute of Applied Sciences.
43.	Study of the Atmosphere of Hot Jupiter	Vikas Soni, PRL.
44.	Sticking of dust/micrometeorite particles on to ices at high impact velocities - Implications for astrochemical ice enrichment	Shivakarthik Ekambaram, PRL.
45.	Prediction of Some Solar Activity Parameters using a Backpropogation Model	Sabarinath A, VSSC.
46.	CO+ first-negative band emission: A tracer for CO in the Martian upper atmosphere	Susarla Raghuram, PRL.
47.	Theoretical Study of Obliquely Propagating Electron-Cyclotron waves in the Vast Magnetosphere of Saturn	Jyoti Kumari, Amity Institute of Applied Sciences.
48.	Depth-wise Microbiome and Isotopic Profiling of a Moderately Saline Microbial Mat in a Solar Saltern and Its Implications For Planetary Science	Yogaraj Banerjee, IIS Banglore.
VENUS		
49.	Possibility of collision induced cloud charging in Venusian atmosphere	Ananyo Bhattacharya, SVNIT.
50.	Prototype Design and Testing of Electrically Short Rhombus Antenna for Lightning Detection	Sonam Jitarwal, PRL.
51.	Venus Radiation environment monitor (VeRad) on-board Venus Orbiter	Sushil Kumar, PRL.
52.	Analysis of Antenna Sensitivity at Extremely Low Frequencies for	Trushit Upadhyaya, CUSAT.

	Future Planetary Lightening Experiments	
53.	Expected performance of a dust detector in presence of solar wind particles	Jakhariya Jay, V.V.P. Engg. College.
54.	Neutral & Ion mass-spectrometer for future Venus mission	Piyush Sharma, PRL.
INSTRUMENTATION		
55.	Automated Core Drilling of Planetary Surfaces for future In-situ and Sample Return Missions	Abhishek Verma, PRL.
56.	Distributed Smart Payload Instrumentation for Planetary Rover Using Mini Rovers	Satvik Patel, DDU.
57.	An Intelligent Digital Fluxgate Magnetometer Payload	Himanshu Mazumdar, DDU.
58.	Miniaturized Instrumentation for Planetary Environment Monitoring	Harshavardhan. IIIT Kottayam.
59.	Development of a Prototype system for PETC	P. Kalyan Reddy, PRL.