



**Indian Planetary Science Association
organizes
4th Indian Planetary Science Conference [IPSC-2023]
22-24 March 2023
at
Physical Research Laboratory, Ahmedabad**

Programme

Day 1: 22 March, Wednesday

Inaugural Session

(Venue: K.R. Ramanathan Auditorium)

9:00-9:30	Registration	
9:30-9:35	Lighting of Lamp	By Dignitaries
9:35-9:40	Welcome	Anil Bhardwaj, Director, PRL
9:40-9:50	Key-Note Address	Shri A. S. Kiran Kumar, Council Chair, PRL
9:50-10:00	Chief Guest Address	Shri S. Somanath, Chairman ISRO & Secretary, DoS
10:00-10:05	Overview of IPSC-2023 & IPSA	Varun Sheel, Convener, IPSC-2023
10:05-10:10	Vote of Thanks	Megha Bhatt, PRL
10:10-10:40	Inaugural Talk "Indian Capabilities for Space and Planetary Exploration" (Session Chair) [Shri. A. S. Kiran Kumar] (Council Chair, PRL)	Shri S. Somanath, Chairman ISRO & Secretary, DoS
10:40-11:15	High Tea & Group Photo	

Session 1: Lunar Science and Exploration – Recent Results & Future Directions

Session Chair: Deepak Dhingra (IIT Kanpur) & T. P. Das (ISRO HQ)

Time	Talk Title	Speaker	Institute
11:15-11:30	Indian Lunar Exploration Programme (Invited Talk)	T. P. Das	ISRO HQ Bengaluru
11:30-11:40	Geological investigation of scarps in the vicinity of the primary landing site of the Chandrayaan-3 mission	Rishitosh Sinha	PRL Ahmedabad
11:40-11:50	Streaming Plasma Instability in Lunar Ionosphere	Vipin Yadav	SPL, Trivandrum
11:50-12:00	Understanding Presence of CO ₂ in Lunar Exosphere from Experimental Observation of Chandrayaan 2	Swastika Chakraborty	Narula Institute of Technology, Kolkata
12:00-12:10	Geological Context of Elemental Maps from Chandrayaan 2 Large Area Soft X ray Spectrometer New Results	Deepak Dhingra	IIT Kanpur
12:10-12:20	Lunar Crater Feature Detection using Deep Learning	Suresh K.	SAC, Ahmedabad
12:20-12:30	Potential landing sites in lunar South Pole: An integrated study using radar and spectral properties	Nikhil Keshav	NISER, Bhubaneswar
12:30-12:40	Comparative Geology and mineralogy of lunar south pole for Chandrayaan-3 and Artemis III landing sites using M3 & IIRS Data	Prateek Tripathi	IIT Roorkee
12:40-12:50	Thermophysical Characterisation of selected landing sites on the Moon	K. Durga Prasad	PRL Ahmedabad

Session 2: Martian Atmosphere and Surface Processes

Session Chair: Sumanta Sarkhel (IIT Roorkee) & N.V. Rao (NARL)

Time	Talk Title	Speaker	Institute
13:00-13:15	Martian Atmospheric Boundary Layer: Constraints for Landing Missions (Lead Talk)	Varun Sheel	PRL Ahmedabad
13:15-13:25	Exploring Mars, its analogues and future landing sites	S. Vijayan	PRL Ahmedabad
13:30-14:30	LUNCH		

Session 2: Martian Atmosphere and Surface Processes (Cont.)

14:30-14:40	The Impact of Solar Radiation and Dust Storms on Martian Thermospheric Temperatures	Venkateswara Rao Narukull	NARL, Gadanki
14:40-14:50	A comparison of the impacts of CMEs and CIRs on the Martian dayside and nightside ionospheric species.	Lot Ram	IIT Roorkee
14:50-15:00	Subsurface study of the Tharsis graben system using SHARAD data	Rajiv R Bharti	PRL Ahmedabad
15:00-15:10	Morphic Analysis and Mapping of Surface Landforms of Lyot Crater, Mars	Shabana Ibrahim	University of Calicut

Session 3: One Minute Poster Presentations (Oral)

Session Chair: Jayesh Pabari (PRL) & Vipin Yadav (SPL)

15:10-16:15	One minute oral talk for each poster	65 mins.
16:15-18:00	TEA Break & POSTER Session	
18:00-19:00	5th PRL IAPT Dr. Vikram Sarabhai Public Lecture-2023 “SPACE RESEARCH THROUGH OPTICAL WINDOW” D. Pallamraju, Senior Professor and Dean, PRL, Ahmedabad	
19:30	DINNER	

Day 2: 23 March, Thursday

Session 4: Space & Planetary Instrumentation

Session Chair: Amitabh (SAC) & Satheesh Thampi (SPL)

Time	Talk Title	Speaker	Institute
09:30-09:45	Planetary Exploration using X-Ray instruments (Lead Talk)	Shanmugam M.	PRL Ahmedabad
09:45-09:55	Curved Prism based Imaging-spectrometer Design in a CubeSat format for Planetary Studies	Jenikumar Chengala	St. Xavier's College, Ahmedabad
09:55-10:05	Development and Characterization of a Multichannel Large Area X-Ray Spectrometer using Silicon Drift Detectors with ASIC Based Readout	Nishant Singh	PRL Ahmedabad
10:05-10:15	SEAMS: A space mission dedicated to ultra-low frequency radio observations	Abhirup Datta	IIT Indore
10:15-10:25	Supra-thermal & Energetic Particle Spectrometer (STEPS), subsystem of Aditya Solarwind & Particle Experiment (ASPEX) onboard Aditya-L1	Shiv Kumar Goyal	PRL Ahmedabad
10:25-10:35	Development of electronics for Dielectric permittivity measurements for future Lunar missions	Chandan Kumar	PRL Ahmedabad
10:35-10:45	Compact and Simple Deployment Mechanisms of Solar Panels in CubeSats and Rover Doors in Lunar or Planetary Missions	Aman Sharma	GKCIET, Malda
10:45-11:15	TEA Break		

Session 4: Space & Planetary Instrumentation (Cont.)

Time	Talk Title	Speaker	Institute
11:15-11:25	Neutral and Ion Mass Spectrometer (NIMS) For the study of Planetary atmospheres for future space missions	Piyush Sharma	PRL Ahmedabad
11:25-11:35	Investigating the shielding effect of gamma rays using transparent superlattice structure	Ajaymalolan K V	Chennai Institute of Technology
11:35-11:45	Ultra-thin carbon foil survivability under vibration stress – structural and functional implications in spaceborne Time-of-Flight systems	Abhishek J.K.	SPL, Trivandrum
11:45-11:55	Research Opportunities at ISRO/DoS in Space Science (Invited Talk)	Praveen Kumar	ISRO, HQ Bengaluru

Session 5: Lunar Science and Exploration – New Insights

Session Chair: Nachiketa Rai (IIT Roorkee) & Debabrata Banerjee (PRL)

Time	Talk Title	Speaker	Institute
12:00-12:10	Physical and Spectral Characteristics of the Reiner Gamma Swirl	Megha Bhatt	PRL Ahmedabad
12:10-12:20	Insights to lunar crustal diversity and magmatic history from lunar regolith breccia meteorites	Yash Srivastava	PRL Ahmedabad
12:20-12:30	Physical properties of lunar magmas under high-pressure and high-temperature conditions	Nachiketa Rai	IIT Roorkee
12:30-12:40	Scaliger Crater Region on the Moon: A Window to the Geological History of the Australe North Basin	Neha Panwar	PRL Ahmedabad
12:40-12:50	Character of Water-Ice Detections at Lunar North Polar Crater Peary: Implications for Buried Volatiles	Mishal K T	IIT Kanpur
12:50-13:00	Posidonius crater: A potential candidate to investigate the tectonic evolution on Moon	Kimi Kungree Basumataray	PRL Ahmedabad
13:00-14:30	LUNCH		

Session 6: Solar System Processes, Meteorites and Small Bodies

Session Chair: Amit Basu Sarbadhikari (PRL) & Gopalan Srinivasan (CSSEH)

Time	Talk Title	Speaker	Institute
14:30-14:40	Micrometeorites chemical and isotopic changes during atmospheric entry	Rudraswami N G	NIO, Goa
14:40-14:50	Constraining the Resurfacing processes on small asteroids using cosmogenic effects in their regolith	Gopalan Srinivasan	Centre for Space Science and Earth Habitability
14:50-15:00	Paleorecord of Variation in Cosmic Ray Flux from Extraterrestrial Chromite Grains	Subhasmita Swain	NISER, Bhubaneswar
15:00-15:10	Kopargaon in Maharashtra witnessed a recent meteorite fall	Dwijesh Ray	PRL Ahmedabad
15:10-15:20	Probing Late Irradiation Scenario Using ³⁶ Cl- ³⁶ S Isotope Systematics	Advait Unnithan	PRL Ahmedabad
15:20-15:30	Formation of Organic Species in the Gas Phase Cometary Coma	Sana Ahmed	PRL Ahmedabad
15:30-15:40	Characteristics of the Rantila, Diyodar enstatite achondrite meteorite fall	Pratik Trivedi	SSRI, Ahmedabad
15:40-18:00	TEA Break & POSTER Session		
19:30	DINNER		

Day 3: 24 March, Friday

Session 7: Venusian Atmosphere and Surface Processes

Session Chair: Dibyendu Chakrabarty (PRL) & T. K. Ramkumar (NARL)

Time	Talk Title	Speaker	Institute
09:30-09:45	Terrestrial Dyke Swarm Analogues of Prominent Sets of Extensional Lineaments in Eistla Regio Region, Venus (Invited Talk)	Rajesh K. Srivastava	Banaras Hindu University, Varanasi
09:45-09:55	Lightning on Venus	Jayesh Pabari	PRL Ahmedabad
09:55-10:05	Geological Mapping of Nehalennia Corona Region, Central Eistla Regio, Venus: Dyke Swarms, Volcanic Flows, and Associated Magmatic and Plume Centres	Harshita Singh	Banaras Hindu University, Varanasi
10:05-10:15	Design aspects of Venus Radiation environment monitor (VeRad) for the Venus orbiter mission	Sushil Kumar	PRL Ahmedabad
10:15-10:25	Neutral & Ion Mass spectrometer for planetary exploration	Ramakant Mahajan	PRL Ahmedabad
10:25-11:30	TEA Break & POSTER Session		

Session 8: Martian Atmosphere and Surface Processes

Session Chair: Varun Sheel (PRL) & Rajesh K. Srivastava (BHU)

Time	Talk Title	Speaker	Institute
11:30-11:40	Martian cold spot regions and associated properties during the 2018 global dust storm using MRO/MCS observations	Anirban Mandal	NIT Rourkela
11:40-11:50	Study of the Hydrogen and Oxygen escape from Mars	Siddhi Shah	PRL Ahmedabad
11:50-12:00	Gravity wave driven variability in the Mars ionosphere-thermosphere system	Vulapati Leelavathi	NARL, Gadanki
12:00-12:10	Bi-LSTM deep learning based Martian Ionosphere Electron Density prediction model using Mars Global Surveyor mission data observations	T. Venkateswara Rao	TIFR, Hyderabad
12:10-12:20	Spectrochemical Characterization of Evaporites from Sambhar Lake, Rajasthan, Northern India: Implication For Hypersaline Lake As Potential Terrestrial Martian Analogue	Preeti Kumari	IIST, Thiruvananthapuram
12:20-12:30	Glacial Lakes in Northwestern Himalayas: Potential analogues to understand Martian history	Thahira U	Bharatidasan University, Tiruchirappalli
12:30-12:40	Columnar Joints: A comparative study of Martian and Deccan Volcanic province	Aditya Das	PRL Ahmedabad
12:40-12:50	Volcanic craters and cones in central Kachchh mainland, western India: potential analogue for the Martian studies?	Anil Chavan	PRL Ahmedabad
13:00-14:30	LUNCH		

Session 9: Astrobiology, Astrochemistry and Exoplanets

Session Chair: Radhika T. (NRSC) & Kinsuk Acharyya (PRL)

Time	Talk Title	Speaker	Institute
14:30-14:40	Thermodynamic and Optical properties of water clusters at various temperatures and pressures and implications for atmospheric chemistry.	Ranganathan Subramanian	IIT Patna
14:40-14:50	Laser Ablation of Meteorite and Biomolecules in Liquid Environment (LAMB-LE): Simulating impact conditions in laboratory	Surendra Vikram Singh	PRL Ahmedabad
14:50-15:00	Exploration of the Microbial Community and Physicochemical Characteristics of a hypersaline lake and its Implications for Astrobiological Exploration on Mars	Deepali Singh	PRL Ahmedabad
15:00-15:10	Lipidomics as an emerging tool in Astrobiology	Gaurav Yadav	Integral University, Lucknow
15:10-15:20	Application of Machine Learning in Non Reactive Quantum Dynamics at Low Temperatures for Astrochemical Application	Apoorv Kushwaha	IIT Ropar
15:20-15:30	Discovery of a close-in massive giant planet around a sub-giant star	Akanksha Khandelwal	PRL Ahmedabad
15:30-16:15	TEA Break		
16:15-17:30	Panel Discussion and Concluding Session		