अंतर्राष्ट्रीय सम्मेलन
उल्काभ, उल्का, उल्कापिंड: अंतरिक्ष से संदेशवाहक

International Conference on
Meteoroid, Meteor, Meteorites: Messengers from Space

MetMeSS-2024
20th – 22nd November 2024

Inaugural Session
Venue: K.R. Ramanathan Auditorium
Indian Standard Time (IST) in Hours
Day 1: 20th November, Wednesday

8:45-9:30	**Registration**
9:30-10:30	**Inauguration**
10:30-11:15	**High Tea & Group Photograph**

Session- I: Star Dusts and Start Bits!

Session Chairs: D. Banerjee and Ritesh K. Misra

11:15-11:35	Invited talk*: Meteoritic perspectives of the origin and early evolution of the Solar system.*	Ritesh Kumar Mishra VKSU, ARA, Bihar
11:35-11:45	Experimental heating of chondrite particles to stimulate micrometeorite heating during atmospheric entry	Rudraswami NG NIO, Goa
11:45-11:55	Laboratory evidence of p-nuclide nucleosynthesis in core-collapse supernovae	Manavi Jadhav University of Louisiana, Lafayette, LA
11:55-12:05	A novel spectroscopic approach to determine alteration histories of carbonaceous chondrites	Shreeya Natarajan PRL, Ahmedabad
12:05-12:15	Trace elements in refractory phases of primitive CAIs: implications for the formation and understanding the cosmochemical conditions in the early solar system perspective	Ankit Prakash Singh PRL, Ahmedabad

12:15-13:00	One slide one minute Poster Presentation	**Session Co-ordinator** **Sanjeev K. Mishra & Sonam Jitarwal**

Lunch 13:00-14:00 (PRL Nursery Lawn)

14:00-14:10	Organic diversity in differentiated bodies: unveiling Indigenous origin and impact dynamics	Neha PRL, Ahmedabad
14:10-14:20	Meteorite impacts or shallow moonquakes: what triggered the biggest boulder fall on the moon?	Rishitosh Kumar Sinha PRL, Ahmedabad

Session- II: Astrochemistry & Astrobiology

Session Chairs: Nigel Mason and S. Bhalamurugan

14:20-14:40	Invited Talk: Searching for the origins of life; from Meteorites to Mars.	Nigel Mason University of Kent, U.K
14:40-14:50	Tardigrades on icy moons – investigating their survivability using SALT	S. Bhalamurugan PRL, Ahmedabad
14:50-15:00	A study of the origin and distribution of dissolved organics in high-altitude hotsprings of Ladakh	A. H. Ansari BSIP, Lucknow
15:00-15:10	Theoretical Study of Chemical Pathways to Propanol Synthesis interstellar Medium	A. Mishra University of Lucknow
15:10-15:20	Shock Processing of smaller PAHs and its consequences on interstellar chemistry	A. Roy PRL, Ahmedabad

Tea Break 15:30-16:00

16:00-17:00	***Public lecture*** (PKAV**) : "Asteroid Sample Return"**	H. Yurimoto Hokkaido University, Japan

17:00-17:10	Formation of water ice at 200 k: a result of hydrogen bonding between diols and water.	W. Khan PRL, Ahmedabad
17:10-17:20	N_2D^+ as an evolutionary indicator of starless cores- the parent cloud of Solar type of system and our chemical origin	Dipen Sahu PRL, Ahmedabad
17:20-17:30	The habitat conditions of Early Mars and Earth were revealed by clumped isotopic analysis of carbonate precipitates in the meteorites and sedimentary archives	Prosenjit Ghosh IISc, Bangalore
17:30-17:35	Q/A Session	
17:35-17:50	Application of HR-SIMS in Planetary Science	Adrien Vuillaume Ametek, France

Day 2: 21st November, Thursday

Session- III: Journey into the Differentiated World

Session Chairs: Mahesh Anand and Amit Basu Sarbadhikari

9:30-9:50	Invited talk: Water on the Moon: The Role of Sample Science.	Mahesh Anand Open University, UK
9:50-10:00	Formation of Mesosiderite Silicates Petrogenesis of Angrites: Insights from Chondritic Precursor Materials	Nachiketa Rai IIT, Roorkee
10:00-10:10	Making a felsic volcanic construct on the moon: The Wolf Crater complex.	Himela Moitra IIT, Kharagpur
10:10-10:20	Variations of stable Sn isotopes constrain the early differentiation of planetary bodies	Dipankar Pathak, University of Bern, Switzerland
10:20-10:30	Nakhlites and Water-Rock Interaction: Alteration Processes in Martian Meteorites	Aditya Das PRL, Ahmedabad

Tea Break 10:30-11:00

11:00-11:10	Insights into the magma evolution of enriched to intermediate shergottites from melt inclusions	Varsha M Nair PRL, Ahmedabad
11:10-11:20	Arguin 002: a unique lunar norite	Moni Konkona Boruah Open University, UK
11:20-11:30	Application of clinopyroxene-liquid thermobarometers to low-Ti Apollo 15 mare basalts	Divyareshmi Thottungal Ravy University of Manchester, UK

11:30-11:40	Q/A Session	

Session- IV: Meteor & Space Weathering

Session Chairs: Varun Sheel and K Kishore Kumar

11:40-12:00	"Meteor Radar Network for Middle and Upper Atmospheric Monitoring in India"	K. Kishore Kumar SPL, Thiruvananthapuram
12:00-12:10	Laboratory Simulations of Solar Wind-Induced Space Weathering on Mercury and Other Solar System Bodies	Surya S.Rout NISER, Bhubanewsar
12:10-12:20	Observational Evidence of Two-Step Nonlinear Interactions Involving Zonally Symmetric Waves During Major Sudden Stratospheric Warmings	Gourav Mitra PRL, Ahmedabad
12:20-12:30	Lunar PSRs: Electric breakdown and its implications	Trinesh Sana PRL, Ahmedabad
12:30-12:40	A study on mesospheric temperature at 90 km altitude using meteor radars and satellite observations at conjugate high latitudes	Borukote Sangadeep Osmania University, Hyderabad
12:40-12:50	Q/A Session	

Lunch 13:00-14:00 (PRL Nursery Lawn)

Session- V: Impacts: Shocks and Shattering

Session Chairs: Sujoy Ghosh and Nachiketa Rai

14:00-14:20	Invited Talk: Akimotoite-bridgmanite formation in shocked chondrite	Sujoy Ghosh IIT, Kharagpur
14:20-14:30	Mars' structure and evolution as seen by impact craters	K. Miljkovic Curtin University, Australia

14:30-14:40	Potential target for early Earth impact-related studies from the Singhbhum Craton, India	J. Jodder University of Oslo, Norway
14:40-14:50	Nontraditional stable Sr isotopic variations in the impactites of Lonar impact structure, India: implications for melting, mixing and impact volatilization.	G.S. Papola IISc, Bangalore
14:50-15:00	Shock-produced textures and phases in Indian meteorites	K. Tiwari PRL, Ahmedabad
15:00-15:10	The Impact of Cosmic Dust on the Cretaceous-Paleogene Boundary	Vijay Pratap Singh NIO, Goa
15:10 – 15:15	Q/A Session	
15:15-17:30	Poster Session with tea	

18:30- 19:30 Cultural programme: Rangeli Saam

19:-30 Conference Dinner (PRL Library Lawn)

Day 3: 22nd November, Friday

10:00-10:30	Indian Moon Mission, Prof. Anil Bhardwaj, Director, PRL

Tea Break 10:30-11:00

Session- VI: Planetary Surface & Subsurface Processes

Session Chairs: Stephanie C. Werner and Neeraj Srivastava

11:00-11:20	Invited Talk: Lunar cratering chronology - implications	Stephanie C. Werner University of Oslo, Norway
11:20-11:30	Investigation of gravity signatures of crustal structures in the Mare Humboldtianum and adjoining regions, Moon	R.P. Rajasekhar SAC, Ahmedabad
11:30-11:40	Chandrayaan-3 landing site evolution by South Pole-Aitken basin and other impact craters	Vijayan S PRL, Ahmedabad
11:40-11:50	First-ever in-situ temperatures from a high-latitude location of the Moon – Insight from ChaSTE onboard Chandrayaan-3	K. Durga Prasad PRL, Ahmedabad
11:50-12:00	Understanding Thermophysical Environment of Lunar Poles: Implications to Volatile Stability.	G. Ambily PRL, Ahmedabad
12:00-12:15	Q/A Session	

Indian Meteorite-a glimpse	**Session Co-ordinator** **Dipak K Panda**

12:15-12:35	Overview of Indian Meteorite	Ramakant Mahajan, PRL, Ahmedabad

Lunch 13:00-14:00 (PRL Nursery Lawn)

Session- VII: Analogues: Similar but not the same

Session Chairs: Saibal Gupta and Dwijesh Ray

14:00-14:20	Invited Talk: Planetary Analogues – An Indian 'INSIDE' Story	Saibal Gupta IIT, Kharagpur
14:20-14:30	Spectroscopic characterization of Nidar ophiolite complex and its implications	S. Bhattacharya SAC, Ahmedabad
14:30-14:40	Retrieval of abundance in a particulate mixture using spectro-goniometric measurements at PRSL, PRL	N. Srivastava PRL, Ahmedabad
14:40-14:50	Dosimetric investigation of jarosite: a martian analogue	M. Singhal PRL, Ahmedabad
14:50-15:00	Characterization of hydrous sulphate in Matanomadh formation – a martian analog	N. Saha IIT(ISM) Dhanbad
15:00-15:10	Planetary Analogue Study	Adash R, IIST Trivandrum
15:10-15:20	Q/A Session	

Tea Break 15:30 – 16:00

16:00-17:00 **Concluding Sessions**

Young Researcher Award

Discussion & Feedback

Vote of thanks

Poster Session:

Star Dusts and Start Bits!

SDS-08	Estimation of cosmic radiation flux received by meteorites from their thermoluminescence study	Vinayak Kumar PRL, Ahmedabad
SDS-09	Secondary alterations in calcium aluminium inclusions	Mahananda Sengupta IIT, ISM Dhanbad
SDS-010	Modelling H and N isotope fractionation in molecular cloud and comparison With Meteoritic Data	Subhasmita Swain NISER, Bhubaneswar
SDS-011	Mineralogy and Nobel gas study in chondrule	Dipak Kumar Panda PRL, Ahmedabad
SDS-012	Galactic Chemical Evolution Simulations for Sulphur Isotopes	Antariksha Mitra PRL, Ahmedabad
SDS-013	Early solar system: events & processes	Anjani Pachauri Gautam Budh University, Noida
SDS-014	Decoding meteorites with reflectance spectroscopy and deep learning.	Roshan Nath IISER, Bhopal
SDS-015	Estimation of Mineral Abundance in Meteorites using Reflectance Spectroscopy	Soham D Mali IIST, Trivandrum
SDS-016	Unraveling the mystery of probable micrometeorite characteristics from Jonnagiri area, Kurnool dist, A.P, india	P V Sunder Raju NGRI, Hyderabad
SDS-017	Linking Kopargaon chondrite meteorite with s – type asteroid itokawa, a combined spectral – geochemical approach	Subham Sarkar PRL, Ahmedabad

SDS-018	Thermal Metamorphic Effects in CI- and CM-like Clasts in HED Meteorites: Insights from Raman Spectroscopy	Swarna Prava Das NISER, Bhubaneswar
SDS-019	Relative chronology of a large CAI from chainpur ordinary chondrite	Ritesh Kumar Mishra VKSU, ARA, Bihar

Astrochemistry & Astrobiology

AA-09	Molecular processes driven by positron interaction with H_2CO, NO_2 and O_3	Barad Nehaben Devchandbhai M.S. University, Baroda
AA-010	Making the interstellar minerals behind the shock front	Arijit Roy PRL, Ahmedabad
AA-011	Interstellar Formation 1, 4-pentadiyne (HCCCH2CCH): A DFT Study	Parmanand Pandey Lucknow University
AA-012	Proton Transfer Reaction of NCCNH+ in the Interstellar Medium (ISM)	Rachana Singh Lucknow University
AA-013	Electron impact ionization cross section of ethyl amine and propyl amine	Nirali Rajubhai bhavsar Government Science College, Surat
AA-014	Electron and positron interaction with molecule of astrophysical Importance	Pinalben Chandrakantbhai Mer M.S. University, Baroda
AA-015	Insights into plausible reaction pathway for the formation of Interstellar Allylimine: Theoretical Approach	Pravi Mishra Lucknow University
AA-016	Investigating astrochemical ices containing intramolecular hydrogen bond - 1,4 butanediol ice	Shivanshi Gupta PRL, Ahmedabad
AA-017	Mid-infrared spectroscopic investigation of a sample of near earth asteroids	Allena George St Paul’s College, Kalamassery

AA-018	Tentative's detection of Amines on Jupiter's moon Callisto	S Ganapathy PRL, Ahmedabad

Journey into the Differentiated World

DW-09	Raman analysis of zircon grains in the eucrite DAG-647	Sowmya Bhowmick Natural History Museum Vienna, Austria
DW-010	Textural and thermodynamic evaluation of Ureilite NWA 14072	Siddhesh Jadav University of Melbourne, Australia,
DW-011	Granite: Earth’s Blueprint for Planetary Geology	Riya Dutta PRL, Ahmedabad

Meteor & Space Weathering

MSW-07	Study of lunar dust lofting during the total lunar eclipse of 27-28 july, 2018 using polarised lunar eclipse spectra	Aman H. Singh University of Mumbai
MSW-08	Cosmic and Solar Energetic Particle Tracks in Regolith Breccia Meteorites	Neetha Thomas IISER, Berhampur
MSW-09	MAVEN observations of the Martian Gravity Waves and their Variability with the Phase of the Solar Cycle	Sunil Kumar NCPOR, Goa.

Impacts: Shocks and Shattering

ISS-06	Shock-induced Majorite and Majorite-pyrope solid solution in the Bori L6 chondrite	Rajesh Kumar Behera IIT, Kharagpur
ISS-07	Luna Impact Crater: cosmic fingerprint on Harappan Civilization	Sachana Sathyan PRL, Ahmedabad
ISS-08	Geomorphic and related significant observations on kaveri crater	Thirukumaran Venugopal Mangalore University, Mangalore
ISS-09	High Pressure Mineral Phases in Katol and Kamargaon Meteorites	Sanchi Gaikwad NISER, Bhubaneswar
ISS-010	Post Impact Aqueous Alteration of Basaltic Target Rocks: Implications for Mars and Earth	Vaishvi Tyagi IIT, Roorkee
ISS-011	Numerical Analysis of Rotating Ejecta Stability and Morphologies in Terrestrial and Lunar Impact Craters: Simulations Using iSALE and FE-SPH	Saurabh Shukla IIT, Kharagpur
ISS-012	High pressure mineral phases in rocks from Luna crater, Bhuj, Gujarat, India	Kethavath Jagan IISER, Bhopal
ISS-013	U-Th-Pb Chemical dating of shock-recrystallized monazite to decode the timing of asteroid impact: a future planetary exploratory tool	Garima Arora PRL, Ahmedabad
ISS-014	Petrography and geochemistry of Martian basaltic impact structures analogues (Vargeão Dome, Vista Alegre, Brazil; Lonar Crater, India)	Juliette Faucher Vrije Universiteit Brussel
ISS-015	Mineralogical and geochemical characterization of suspected impactites from the luna structure, western India	Ajay Dev Asokan PRL, Ahmedabad

Planetary Surface & Subsurface Processes

PSS -08	Advanced Thermal Modeling of Asteroid Ryugu: Insights into Subsurface Temperature Profiles and Structural Properties	Saurabh Shukla IIT, Kharagpur
PSS -09	Ice-exposing impact craters: a window into the current nature, depth and thickness of subsurface ice on mars	Namishka Mendonca Curtin University, Perth, WA, Australia
PSS -010	Unnamed crater in Terra Sirenum: Mars' Volcanic Mystery – Hot magma or Muddy Mischief?	Shreekumari Patel M.G. Science, Gujarat
PSS -011	Lunar Pyroclastics: A novel way of detection, characterization and validation	Dibyendu Misra PRL, Ahmedabad
PSS -013	Investigation of Kovalevskaya Crater: Insights from M3 and LRO-MiniRF	Surendra Kamtaprasad Varma University of Mumbai
PSS -014	Investigating Amazonian Fluvial Activity: The Geomorphological Impact Catastrophic Floods in Jovis Tholus Outflow channels on Mars	Sadeeda Marjan University of Kerala, Thiruvananthapuram

Analogues: Similar but not the same

ASS-07	Comparative Study of Columnar Joints: Insights from Mars and St. Mary's Island as a Terrestrial analogue	Manasa M.J. Mangalore University, Karnataka
ASS-08	Deccan volcanic bole layers: An under investigated Martian soil analogue	Anshul Dhiman Panjab University, Chandigarh

ASS-09	Laboratory Study of Regolith Analogues - relevance to recent Asteroid sample return missions	Ranjan Gupta IUCAA, Pune
ASS-010	Reflectance Spectroscopy of Lunar Soil Simulants: A Comparative Study of LSS-ISA-1 and JSC 1A Basalt	Denesh K PRL, Ahmedabad