

Scientific Program

The Variable Sun: Past, Present, and Future Perspectives

Venue: Vikram Sarabhai Space Centre and IIST, Thiruvananthapuram, Kerala

Dates: 13 – 17 October 2025

IT: Invited Talk

CT: Contributed Talk

Day 1: 13/10/2025 (Monday)

8:30-9:30	Onsite Registration & Badge Collection	
9:30-10:00	<i>Welcome Addresses & Announcements</i>	
	Session 1: Dynamics of Solar Interior and Solar Magnetism Session Chair: S S Hasan	
10:00-10:20	(IT) Sabrina Bechet, ROB, Belgium	Sunspot Drawings Analysis: Past Data, Current Status, and Future Trend
10:20-10:40	(IT) Prantika Bhowmik, IISc, India	Understanding the Physics of Sunspot Cycle Predictions
10:40-10:55	(CT) Dibya Kirti Mishra, ARIES, India	Automatic Detection of Plages in Historical Kodaikanal Solar Observatory Suncharts Using Machine Learning Technique
10:55-11:30	Tea Break	
	Session 1: Dynamics of Solar Interior and Solar Magnetism Session Chair: S S Hasan	
11:30-11:50	(IT) Subhamoy Chatterjee, SWRI, USA	Exploring the Missing Link between Surface Observations and Subsurface Dynamics through Physics-Informed Neural Networks
11:50-12:05	(CT) Soumyadeep Chatterjee, IIT-Kanpur, India	Probing Magnetic Field Inside the Sun from Three Decades of Observed Surface Magnetograms
12:05-12:25	(IT) Bibhuti Kumar Jha, SWRI, USA	The Origin and Importance of Active Region Tilt in Solar Magnetism
12:25-2:00 pm	Lunch	
	Session 1: Dynamics of Solar Interior and Solar Magnetism Session Chair: Dibyendu Nandi	
2:00-2:20	(IT) S P Rajaguru, IIA, India	The Internal Meridional Circulation of the Sun
2:20-2:40	(IT) Bidya Binay Karak, IIT-BHU, India	Understanding Long-Term Variations in the Solar Cycle
2:40-2:55	(CT) Srinjana Routh, ARIES, India	Polar Filaments as Indicators of High-Latitude Solar Field Interactions and Sunspot Cycle Strength
2:55-4:00	Tea + Poster Session	
	Session 2: Photospheric and Lower Atmospheric Dynamics Session Chair: Dibyendu Nandi	
4:00-4:20	(IT) Jayant Joshi, IIA, India	Quiet-Sun Ellerman Bombs: Ubiquity, Heating Signatures, and Links to Spicules
4:20-4:40	(IT) Sahel Dey, University of Newcastle, Australia	The Interplay of Solar Spicules and Coronal Swirling Conduits: from 3D MHD Models to Observations
4:40-4:55	(CT) Megha A, MAHE, Manipal, India	The SUIT Index: Full-disk Mg II Core-to-Wing Ratio
	End of Day 1	

	Day 2: 14/10/2025 (Tuesday)	
	Session 2: Photospheric and Lower Atmospheric Dynamics Session Chair: Tanmoy Samanta	
9:30-9:50	(IT) Heesu Yang, KASI, Korea	H α Dark Blobs and Transparent Regions at the Fronts of Fan-Shaped Jets
9:50-10:10	(IT) Lisa Upton, SWRI, USA	Quantification of the Rate of Active Region Emergence on the Sun
10:10-10:30	(IT) Nitin Yadav, IIT-Delhi, India	From Photospheric Vortices to Torsional Alfvén Waves: Pathways for Energy Transport in the Solar Atmosphere
10:30-10:45	Group Photo at VSSC	
10:45-11:15	Tea Break	
	Session 3: MHD Waves in the Sun Session Chair: Dipankar Banerjee	
11:15-11:35	(IT) Marcel Goossens, KU Leuven, Belgium	Fundamental Properties of MHD Waves in Non-Uniform Flowing Solar Plasmas
11:35-11:55	(IT) S Krishna Prasad, ARIES, India	Height-Dependent Energy Flux of Slow Waves in the Lower Solar Atmosphere
11:55-12:15	(IT) Manuel Luna, UIB, Spain	Oscillations and Waves in Solar Prominences: Observations and Physical Implications
12:15-12:30	(CT) Upasna Baaweja, ARIES, India	Investigation of Co-existence of longitudinal and transverse oscillations in polar plumes observed with Solar Orbiter/EUI
12:30-2:00 pm	Lunch	
	Session 3: MHD Waves in the Sun Session Chair: Vaibhav Pant/Anshu Singh	
2:00-2:20	(IT) Tobías Felipe, IAC, Spain	Dynamics of Umbral Flashes in Sunspots and Pores: Insights from High-Resolution Observations and Modeling
2:20-2:40	(IT) Sudip Mandal, MPS, Germany	The Mystery of Decayless Kink Oscillations in Solar Coronal Loops
2:40-2:55	(CT) Sankalp Srivastava, IIA, India	The Connection between Spicules and Propagating Coronal Disturbances from Radiative MHD Simulations of the Solar Atmosphere
2:55-3:15	(IT) Girjesh Gupta, USO, India	Source Region, Damping, and Seismological Application of 3-minute Slow Waves Propagating along Umbral Fan Loops
3:15-4:15	Tea + Poster Session	
	Special Session at Conference Dinner Venue Session Chair: Dibyendu Nandi	
5:45-6:45	(Special Talk) Dipankar Banerjee, IIST, India	Past and Future of Solar Physics in India: A Personal Perspective
6:45-8:45	<i>Conference Dinner</i>	
	End of Day 2	

	Day 3: 15/10/2025 (Wednesday)	
9:30-12:00	<i>Excursion-</i> Space Museum Tour	
12:00-1:30 pm	Lunch	
	Session 4: Dynamics and Coupling in the Solar Atmosphere Session Chair: Durgesh Tripathi	
1:30-1:50	(IT) Pradeep Kashyap, VIT-Bhopal, India	Ultraviolet Spectroscopy of the Transients/Regions of the Solar Atmosphere
1:50-2:10	(IT) Bhuwan Joshi, USO, India	Multi-Scale Coronal Transients Driven by Magnetic Reconnection in 2D and 3D
2:10-2:30	(IT) Nancy Narang, ROB, Belgium	Transient EUV Brightenings at the Finest Scales: New Insights from Solar Orbiter
2:30-2:45	(CT) Annu, IIA, India	Dynamics of Reconnection Nanojets in Eruptive and Confined Solar Flares
2:45-3:45	Tea + Poster Session	
	Session 4: Dynamics and Coupling in the Solar Atmosphere Session Chair: Piyali Chatterjee/Durgesh Tripathi	
3:45-4:05	(IT) Jordi de Jonge, KU Lueven, Belgium	Thermal Instability in the Stratified Solar Atmosphere, Coronal Loops and Current Sheets
4:05-4:25	(IT) Arpit Kumar Shrivastav, SWRI, USA	Probing Dynamics in a Pseudostreamer using Inner and Middle Corona Observations of Solar Orbiter
4:25-4:40	(CT) Soumya Roy, IUCAA, India	White-Light Continuum Across the Balmer Jump: Coordinated SUIT, HEL1OS, IRIS, and AIA Observations of the 2024 October 3 Flare
4:40-5:00	(IT) Shanwlee Sow Mondal, NASA-GSFC, USA	Characterizing Nanoflare Energy and Frequency through Field Line Analysis
	End of Day 3	

	Day 4: 16/10/2025 (Thursday) at IIST	
	Session 5: Solar Energetic Phenomena Session Chair: S Krishna Prasad	
9:45-10:05	(IT) Divya Oberoi, TIFR-NCRA, India	Solar Radio Studies with the SKAO: Status and Opportunities
10:05-10:25	(IT) P Sreejith, MAHE-Manipal, India	Solar Transient Studies with SUIT onboard Aditya-L1
10:25-10:45	(IT) Gopal Hazra, IIT-Kanpur, India	The Role of Stellar Coronal Mass Ejections in Driving Exoplanet Space Weather
10:45-11:00	Group Photo at IIST	
11:00-11:35	Tea Break	
	Session 5: Solar Energetic Phenomena Session Chair: Ankush Bhaskar	
11:35-11:55	(IT) N P S Mithun, PRL, India	The X-ray Sun: A Spectroscopic Perspective
11:55-12:15	(IT) Aveek Sarkar, PRL, India	Wave Activity in the Upstream Regions of ICME Shocks
12:15-12:30	(IT) Mihir Desai, SWRI, USA	Solar Energetic Particle Events
12:30-2:00 pm	Lunch	
2:00-2:20	(IT) Sargam Mulay, University of Glasgow, UK	Behaviour of Cool UV Emission from Molecular Hydrogen in Three Solar Flares
	Session 6: Space Weather in the Heliosphere Session Chair: Anshu Singh	

2:20-2:40	(IT) Ritesh Patel, SWRI, Boulder, USA	Direct In situ Observations of Eruption-associated Magnetic Reconnection in the Solar Corona
2:40-3:00	(IT) Bhargav Vaidya, IIT-Indore, India	Space Plasma Processes in the Sun-Earth Environment and their Modelling.
3:00-3:15	(CT) Prateek Mayank, University of Colorado, USA	Next-Generation MHD Modeling Of Solar Wind Using Neural Operators
3:15-3:35	(IT) Satheesh Thampi, VSSC, India	Science with Aditya-L1 PAPA
3:35-3:55	(IT) Vipin Kumar Yadav, VSSC, India	Science with Aditya-L1 MAG
4:00-7:30	<i>High-Tea & Cultural Event at IIST</i>	
	End of Day 4	

	Day 5: 17/10/2025 (Friday)	
	Session 6: Space Weather in the Heliosphere Session Chair: Tarun Kumar Pant/Piyali Chatterjee	
9:30-9:50	(IT) Nandita Srivastava, USO, India	Unveiling CME Dynamics in the Heliosphere
9:50-10:10	(IT) Wageesh Mishra, IIA, India	Thermal State of CMEs and Its Space Weather Implications
10:10-10:30	(IT) Satabdwa Majumdar, Austrian Space Weather Center, Austria	What Causes Errors in Wang-Sheeley-Arge Solar Wind Modelling at L1?
10:30-10:45	(CT) Priyansh Jaswal, CESSI, IISER-Kolkata, India	Implementing Neural Networks to predict whether an Active Region will spawn a Coronal Mass Ejection in the near future or not
10:45-11:15	Tea Break	
	Session 7: Future Instrumentation and Space Missions Session Chair: K Sankarasubramanian	
11:15-11:35	(IT) Craig De Forest, SWRI, USA	Imaging the Sun in Context with PUNCH: Mission Overview and First Results
11:35-11:55	(IT) B Ravindra, IIA, India	India's National Large Solar Telescope (NLST) for High-Resolution Solar Atmospheric Research
11:55-12:15	(IT) Sanjay Gosain, NSO, USA	Solar Vector Magnetographs from Ground and Space: Past, Present, and Future
12:15-12:35	(IT) K Nagaraju, IIA, India	Potential of EUV Spectropolarimetry to Probe Coronal Magnetic Fields
12:35-2:00 pm	Lunch	
	Session 7: Future Instrumentation and Space Missions Session Chair: K Sankarasubramanian	
2:00-2:20	(IT) Andrei Zhukov, ROB, Belgium	Observing the Solar Corona by the ASPIICS Coronagraph aboard the Proba-3 Formation-Flying Mission
2:20-2:40	(IT) Manju Sudhakar, ISRO, India	Probing Fundamental Flare Physics: The Scientific Case for Advanced X-ray and Gamma-ray Instrumentation
2:40-4:00	Discussion: Future Space and Ground-based Solar Instrumentation in Collaboration with International Partners	
	End of Day 5 <i>End of the Conference</i>	