#MCH25 Schedule

Time (EEST / Sofia Time)	Monday, April 7	Tuesday, April 8	Wednesday, April 9
8:30 – 9:00	Registration & Introduction		
9:00 – 9:20	**MCH25_031 Andrés Asensio Ramos (Invited)**	MCH25_036 Srikar Paavan Tadepalli	**MCH25_043 Oleg Stepanyuk (Invited)**
9:20 – 9:40		MCH25_037 Niels Sayez	
9:40 – 10:00	MCH25_005 Hannah T. Rüdisser	MCH25_019 Antonio Reche	MCH25_004 Egor Illarionov
10:00 – 10:20	MCH25_006 Julio Hernandez Camero	MCH25_034 Vergil Yotov	MCH25_013 Brandon Panos
10:20 – 10:40	MCH25_021 Daniel Collin	MCH25_001 Nouhaila Bouhadi	MCH25_016 Armando Collado-Villaverde
10:40 – 11:00	Coffee break	Coffee break	Coffee break
11:00 – 11:20			
11:20 – 11:40	MCH25_011 Guillem Castelló i Barceló	**MCH25_041 Carlos José Díaz Baso (Invited)**	MCH25_026 Ndifreke Nyah
11:40 – 12:00	MCH25_014 Harry Birch		MCH25_033 Christoph Schirninger
12:00 – 12:20	MCH25_015 Antonio Reche	MCH25_002 Eric Nana Asamoah	MCH25_038 Panagiotis Gonidakis
12:20 – 12:40	MCH25_017 Nitin Yadav	MCH25_008 Momchil Molnar	MCH25_030 Juan Esteban Agudelo Ortiz
12:40 – 14:40	Lunch	Lunch	Lunch
14:40 – 15:00	**MCH25_032 Sabrina Guastavino (Invited)**	MCH25_018 Kai Yang	MCH25_003 Sergey Belov
15:00 – 15:20		MCH25_027 Anchal Aiswariya Dutta	MCH25_007 Vincenzo Ventriglia
15:20 – 15:40	MCH25_020 Thomas Williams	MCH25_028 Sanchita Pal	MCH25_044 Milo Buitrago-Casas
15:40 – 16:00	Coffee break	MCH25_029 Joanna Slawinska	Coffee break
16:00 – 16:20		Coffee break + Poster Session	
16:20 – 16:40	MCH25_009 Mirkan Yusuf Kalkan		Discussion and Farewell
16:40 – 17:00	MCH25_023 Philippe Vong		
17:00 – 17:20	MCH25_024 Edoardo Legnaro		
17:20 – 17:40	MCH25_046 Lidiya Ahmed		
17:40 – 18:00	MCH25_035 Dominik Gronkiewicz		
18:00 – 18:30	Reception		
18:30 – 19:00			
19:00 – 19:30			
19:30 – 20:00			

SESSIONS

1	Applications of Machine Learning / Computer Vision in Heliophysics
2	Explainable Machine Learning and Physics-Informed Neural Networks
3	Machine Learning / Computer Vision Techniques and Tools

#MCH25 Schedule

Time (EEST / Sofia Time)	MONDAY, APRIL 07 TALKS
8:30 – 9:00	Registration & Introduction
SESSION 1 - Machine Learning / Computer Vision Applications in Heliophysics	
9:00 – 9:40	**MCH25_031 Andrés Asensio Ramos - Heliophysics and Machine Learning: Applications, Challenges, and Future Directions (Invited)**
9:40 – 10:00	MCH25_005 Hannah T. Rüdisser - ARCANE: An Operational Framework for Automatic Realtime ICME Detection in Solar Wind In Situ Data
10:00 – 10:20	MCH25_006 Julio Hernandez Camero - Interpreting Transformer-Based CME Forecasting and the Role of Flare Associations
10:20 – 10:40	MCH25_021 Daniel Collin - Forecasting Solar Wind Speed From Solar Images Using Distributional Regression
10:40 – 11:20	Coffee break
11:20 – 11:40	MCH25_011 Guillem Castelló i Barceló - Fast Bayesian spectral analysis using Convolutional Neural Networks: Applications over GONG Hα solar data
11:40 – 12:00	MCH25_014 Harry Birch - Towards a robust algorithm for prominence detection: Optimising the YOLOv5 object detection network for 304 Å SDO/AIA observations.
12:00 – 12:20	MCH25_015 Antonio Reche - A unified framework for solar filament detection, classification, and tracking with deep learning
12:20 – 12:40	MCH25_017 Nitin Yadav - Vortex detection in various solar magnetic field configurations
12:40 – 14:40	Lunch
14:40 – 15:20	**MCH25_032 Sabrina Guastavino - The power of Artificial Intelligence in predicting the full chain of Space Weather events: the May 2024 Superstorm case study (Invited)**
15:20 – 15:40	MCH25_020 Thomas Williams - Investigating the Efficacy of Topologically Derived Time-Series for Flare Forecasting
15:40 – 16:20	Coffee break
16:20 – 16:40	MCH25_009 Mirkan Yusuf Kalkan - The prediction of the MHD wave energies in stellar convection zones using neural networks
16:40 – 17:00	MCH25_023 Philippe Vong - Bypassing the static input size of Neural Networks in flare forecasting by using Spatial Pyramid Pooling
17:00 – 17:20	MCH25_024 Edoardo Legnaro - Deep Learning Techniques for Sunspot Classification
17:20 – 17:40	MCH25_046 Lidiya Ahmed - Machine Learning for Faraday Cup Calibration and Optimization of Ion Parameter Estimation
17:40 – 18:00	MCH25_035 Dominik Gronkiewicz - In search for strongly non-thermal flares: applying machine learning to find non-thermal electron acceleration signatures
18:00 – 20:00	Reception

#MCH25 Schedule

Time (EEST / Sofia Time)	TUESDAY, APRIL 08 TALKS
9:00 – 9:20	MCH25_036 Srikar Paavan Tadepalli - Detection and Statistics of High-frequency QPPs in Solar Flares
9:20 – 9:40	MCH25_037 Niels Sayez - Mitigating hallucination with non-adversarial strategies for image-to-image translation in solar physics
9:40 – 10:00	MCH25_019 Antonio Reche - Polar faculae and their relationship to the solar cycle
10:00 – 10:20	MCH25_034 Vergil Yotov - Towards Automating Type II Solar Bursts Measurement in LOFAR Dynamic Spectra
SESSION 2 - Explainable Machine Learning and Physics-Informed Neural Networks	
10:20 – 10:40	MCH25_001 Nouhaila Bouhadi - Hybrid Optimization of Space Weather Parameters using Machine Learning and Explainable AI
10:40 – 11:20	Coffee break
11:20 – 12:00	**MCH25_041 Carlos José Díaz Baso - Physics-informed machine learning for the analysis of spectropolarimetric observations (Invited)**
12:00 – 12:20	MCH25_002 Eric Nana Asamoah - Physics-informed loss functions for vertical total electron content forecast
12:20 – 12:40	MCH25_008 Momchil Molnar - Physics Informed Neural Networks Milne Eddington (PINN-ME) inversions
12:40 – 14:40	Lunch
14:40 – 15:00	MCH25_018 Kai Yang - Spectropolarimetric Inversion in Four Dimensions with Deep Learning (SPIn4D): Physics-Informed Machine Learning for 3D Reconstruction of the Solar Photosphere
15:00 – 15:20	MCH25_027 Anchal Aiswariya Dutta - Explainable Machine Learning and Physics-Informed Neural Networks in Heliophysics
15:20 – 15:40	MCH25_028 Sanchita Pal - Physics-informed AI framework for automated solar wind stream identification and geoeffectiveness prediction
15:40 – 16:00	MCH25_029 Joanna Slawinska - Koopman Operator Theory And New Data-Driven Approach to Modeling and Signal Processing Of Spatiotemporal Data
16:00 – 18:00	Coffee break + Poster Session

#MCH25 Schedule

Time (EEST / Sofia Time)	WEDNESDAY, APRIL 09 TALKS
SESSION 3 - Machine Learning / Computer Vision Techniques and Tools	
9:00 – 9:40	**MCH25_043 Oleg Stepanyuk - Machine Learning and Eruptive Solar Phenomena: Current Advances, Challenges, and Our Approach (Invited)**
9:40 – 10:00	MCH25_004 Egor Illarionov - Self-supervised machine learning for digitizing historical catalogs of solar observations
10:00 – 10:20	MCH25_013 Brandon Panos - Reinforcement Learning for Accelerating Radiative Transfer Simulations in Solar Physics
10:20 – 10:40	MCH25_016 Armando Collado-Villaverde - Forecasting geomagnetic local indices using neural networks
10:40 – 11:20	Coffee break
11:20 – 11:40	MCH25_026 Ndifreke Nyah - A Global and Spatiotemporal Time-Distributed Multivariate Deep Learning with Multi-Loss Regularisation for Solar Flare Forecasting
11:40 – 12:00	MCH25_033 Christoph Schirninger - Instrument-to-Instrument translation: An AI tool to intercalibrate and enhance space-based solar observations
12:00 – 12:20	MCH25_038 Panagiotis Gonidakis - Efficient Segmentation, Detection and Clustering of Solar Coronal Structures: A Comparison of U-Net, YOLO and Classical Computer Vision Techniques Using SDO Data
12:20 – 12:40	MCH25_030 Juan Esteban Agudelo Ortiz - Spectropolarimetric inversions applying Deep Learning Techniques
12:40 – 14:40	Lunch
14:40 – 15:00	MCH25_003 Sergey Belov - Implementing a Fully Connected Neural Network for Detecting Quasi-Periodic Pulsations in Solar and Stellar Flares
15:00 – 15:20	MCH25_007 Vincenzo Ventriglia - An explainable machine learning model for Large-Scale Travelling Ionospheric Disturbances forecasting
15:20 – 15:40	MCH25_044 Milo Buitrago-Casas - Early and Actionable Flare Alerts for Large Solar Flare Observation Campaigns
15:40 – 16:20	Coffee break
16:20 – 17:00	Discussion and Farewell

#MCH25 Schedule

Time (EEST / Sofia Time)	TUESDAY, APRIL 08 - POSTER SESSION
16:00 – 18:00	MCH25_010 Areyendhu Shalu - Bridging Physics and Artificial Intelligence: A Comprehensive Framework for Solar Activity Analysis and Forecasting
	(Retracted) MCH25_012 Leah Zuckerman - Unsupervised Machine Learning for the Segmentation of Photospheric Structures
	MCH25_022 Jonah Ekelund - SpacePhyML: Enabling Access to Space Physics Data for Machine Learning Applications
	MCH25_025 Paloma Jol - Deep Learning study into sunspot evolution for use in flare forecasting.
	MCH25_039 Agnieszka Kopacz - Deriving solar HXR fine structure from UV images through machine learning
	(Retracted) MCH25_040 Mohamed Mohamed - Short-Term Solar Energetic Proton Flux Forecasting: Preliminary Deep Learning Insights and Future Directions with Transformer Architectures
	MCH25_042 Robert Jarolim - Physics-informed neural networks for the next generation of solar magnetic field modeling
	MCH25_045 Gamal Zayed - High-Frequency Signal Absorption in the Ionospheric D-Layer: Modeling and Future Prospects for AI