

Session Program

31 August 2026 to 4 September 2026



**MACHINE LEARNING
FOR ASTROPHYSICS**

3RD EDITION

VALLETTA, 31 AUG - 4 SEP, 2026

International Conference on Machine Learning for Astrophysics 3rd Ed. - ML4ASTRO3

Cosmology

University of Malta, Aula Prima
Valletta Campus, St Paul Street Valletta VLT 1216, Malta

Thursday 3 September

09:30

Cosmology

Session | **Location:** University of Malta, Aula Prima, Valletta Campus, St Paul Street Valletta VLT 1216, Malta

09:30–10:10

[INVITED] ML methods in Cosmology

Speaker

Angus H. Wright

10:10–10:30

CosmoGen: A genetic algorithm framework for the exploration of dark energy dynamics

Speaker

Diogo Castelão

10:30–10:50

Emulating the Impact of Dark Matter Physics and Baryonic Effects on Milky Way-like Galaxies with the DREAMS Simulations

Speaker

Li-Wen Liao

10:50

11:10

Cosmology: Cosmology II

Session | **Location:** University of Malta, Aula Prima, Valletta Campus, St Paul Street Valletta VLT 1216, Malta

11:10–11:30

Simulation-based tension quantification of the cosmic dipole anomaly

Speaker

Mali Land-Strykowski

11:30–11:50

Field-level Bayesian Reconstruction of Cosmological Initial Conditions during the Epoch of Reionization

Speaker

Nikolaos Triantafyllou

11:50–12:10

Wising up to CatWISE: using simulation-based inference to measure the cosmic dipole

Speaker

Oliver Oayda

12:10

14:00

Cosmology: Cosmology III

Session | **Location:** University of Malta, Aula Prima, Valletta Campus, St Paul Street Valletta VLT 1216, Malta

14:00–14:20

Deep learning galaxy morphologies for shear calibration in the era of Euclid

Speaker

Benjamin Csizi

14:20–14:40

Symbolically regressing dark matter halo profiles using weak lensing**Speaker**

Alicia Martin

14:40–15:00

Machine Learning Methods for Stellar Collisions**Speaker**

Elena Gonzalez Prieto

15:00–15:20

Anomalous Dark Matter Halos with Normalizing Flows**Speaker**

Boris Khanikati

15:20–15:40

Generalizing ICL Predictions Across Simulations: A Velocity Dispersion-Based Deep Learning Approach**Speakers**

Pablo Agustin Martin Torres, Marta Barroso

15:40–16:00

Linking Radiation Transfer in the ISM to Cosmological Evolution using Symbolic Regression**Speaker**

Diane Salim

16:00

Friday 4 September

09:00

Cosmology: Generative AI, Emulators and Digital Twins

Session | **Location:** University of Malta, Aula Prima, Valletta Campus, St Paul Street Valletta VLT 1216, Malta

09:00–09:20

How do generative diffusion models learn cosmic web environments?

Speaker

Mehdi Noor

09:20–09:40

Digital Twins of the Universe: Machine Learning Against Cosmological Bias

Speaker

Jenny Sorce

09:40–10:00

AI-Assisted Super-Resolution-Simulations: application to the DEMNUni-Cov N-Body simulations

Speaker

Bruno Montalto

10:00