**Session Program**

**8–13 Jun 2025**


# Fifth MODE Workshop on Differentiable Programming for Experiment Design

## *Applications in Astro-HEP and Neutrino Physics*

OAC conference center, Kolymbari, Crete, Greece.

# Monday 9 June

18:00

## Applications in Astro-HEP and Neutrino Physics

**Session** | **Location:** OAC conference center, Kolymbari, Crete, Greece. | **Conveners:** Christian Glaser, Dr Christian Haack

18:00–18:25

### Array Optimization for the Tau Air-Shower Mountain-Based Observatory

**Speaker**
Jeffrey Lazar

18:25–18:30 **Discussion**

18:30–18:55

### Advancing Detector Calibration and Event Reconstruction in Water Cherenkov Detectors through Differentiable Simulation

**Speaker**
Omar Alterkait

18:55–19:00 **Discussion**

19:00

# Wednesday 11 June

11:30

## Applications in Astro-HEP and Neutrino Physics

**Session** | **Location:** OAC conference center, Kolymbari, Crete, Greece. | **Conveners:** Christian Glaser, Dr Christian Haack

11:30–11:55 **Optimization of the Future P-ONE Neutrino Telescope**

**Speaker**
Dr Christian Haack

11:55–12:00 **Discussion**

12:00–12:25 **Optimization pipeline for in-ice radio neutrino detectors**

**Speaker**
Martin Langgård Ravn

12:25–12:30 **Discussion**

12:30

# Thursday 12 June

09:00

## Applications in Astro-HEP and Neutrino Physics

**Session** | **Location:** OAC conference center, Kolymbari, Crete, Greece. | **Conveners:** Dr Christian Haack, Christian Glaser

09:00–09:25

### A Differentiable Interferometer Simulator for the Computational Design of Gravitational Wave Dectectors

**Speaker**
Jonathan Klimesch

09:25–09:30 **Discussion**

09:30–09:55 **Image reconstruction with proton computed tomography**

**Speaker**
Zsofia Jolesz

09:55–10:00 **Discussion**

10:00–10:25

### Point-spread function design in optical microscopy by end to end optimization

**Speaker**
Yoav Shechtman

10:25–10:30 **Discussion**

10:30

16:30

## Applications in Astro-HEP and Neutrino Physics

**Session** | **Location:** OAC conference center, Kolymbari, Crete, Greece. | **Conveners:** Christian Glaser, Dr Christian Haack

16:30–16:55

### Experimental validation of a DDPG-based approach for Fabry-Perot optical cavity locking control

**Speaker**
Mr Andrea Svizzeretto

16:55–17:00 **Discussion**

17:00–17:25 **Artificial Scientific Discovery for New Quantum Experiments**

**Speaker**
Dr Xuemei Gu

17:25–17:30 **Discussion**

17:30