**Session Program**

**31 May 2024**

# MAP-Fis Essays Workshop

# *MAP-Fis Essays Presentations*

Zoom Video Conference Room
Zoom Video Conference Room

# Friday 31 May

09:15

## MAP-Fis Essays Presentations: Session B - Relativity & Gravitation (I)
**Session** | **Location:** Zoom Video Conference Room, Zoom Video Conference Room

09:15–09:40

### Solving the Hubble tension with nonmininally coupled f(R) theories of gravity

**Speaker**
Miguel Barroso Varela

09:40–10:05 **Non-linear Evolutions of Black Holes in Numerical Relativity**

**Speaker**
José Pedro Mota Valente Ferreira

10:05–10:30

### Deep-Learning Classification and Parameter Inference of Rotational Core-Collapse Supernovae

**Speaker**
Solange Nunes

10:30–10:55 **Deep Learning for transient signals in gravitational-wave astronomy**

**Speaker**
Tiago Fernandes

10:55

11:10

## MAP-Fis Essays Presentations: Session A - Climate & Environment
**Session** | **Location:** Zoom Video Conference Room, Zoom Video Conference Room

11:10–11:35

### Dusty Atmospheric Rivers: relationship between intense transport of water vapour and aerosols in the Iberian Peninsula

**Speaker**
Diogo Luís

11:35–12:00

### Impactos das alterações climáticas na formação de Cold Air Pools na Região Demarcada do Douro

**Speaker**
Marta Teixeira

12:00–12:25 **TO BE DETERMINED**

**Speaker**
SHEDRACH CHIAHA

12:25

11:10

## MAP-Fis Essays Presentations: Session B: Relativity & Gravitation (II)
**Session** | **Location:** Zoom Video Conference Room, Zoom Video Conference Room

11:10–11:35 **Extreme mass ratio inspirals around non-Kerr compact objects**

**Speaker**
Manuel Mariano

**11:35–12:00**  **Accretion patterns from exotic compact objects**

**Speaker**
Pedro Passos

**12:00–12:25**

**Machine learning anomaly detection techniques for the search of new signals at LHC with ATLAS experiment**

**Speaker**
Annalisa Berti

12:25

14:00

## MAP-Fis Essays Presentations: Session A: Material Physics & Condensed Matter I
**Session** | **Location:** Zoom Video Conference Room, Zoom Video Conference Room

**14:00–14:25**

**Emergence of novel properties at the interfaces in oxide heterostructures and superlattices**

**Speaker**
Alexandre Silva

**14:25–14:50**

**Naturally Layered Ruddlesden-Popper Ferroelectrics towards Energy Efficient Materials**

**Speaker**
António Cesário

**14:50–15:15**

**Biofunctional Cyclic Dipeptide Nanofibers for Energy Harvesting and Nonlinear Optical Conversion**

**Speaker**
Daniela Santos

**15:15–15:40**

**Spatially and temporally modulated active patch for skin cancer treatment**

**Speaker**
Diana Bogas

**15:40–16:05**  **Remediação ambiental**

**Speaker**
Paulo Boano

16:05

14:00

## MAP-Fis Essays Presentations: Session B: High Energy Physics
**Session** | **Location:** Zoom Video Conference Room, Zoom Video Conference Room

**14:00–14:25**  **Bootstrap and Holographic CFTs**

**Speaker**
Filipe Serrano

**14:25–14:50**  **A multi-point bootstrap approach to Quantum Field Theory**

**Speaker**
Ricardo Rodrigues

**14:50–15:15**

**Light and Ultralight Dark Matter: exploring novel synergies between particle physics, strong gravity and cosmology**

**Speaker**
Vinícius Oliveira

**15:15–15:40** **Gravitational echoes from primordial phase transitions**

**Speaker**
Marco Finetti

**15:40–16:05** **Coding the Cosmos, Searching for Superstrings**

**Speaker**
Ricarda Heilemann

16:05

16:20

**MAP-Fis Essays Presentations: Session A: Material Physics & Condensed Matter I**
**Session** | **Location:** Zoom Video Conference Room, Zoom Video Conference Room

**16:20–16:45**

**Combined local probe technique and ab-initio calculation on layered Perovskites**

**Speaker**
Pedro Alexandre Silva De Sousa

**16:45–17:10**

**Understanding anomalies in liquid water with upconversion thermometry**

**Speaker**
Ramon Filho

**17:10–17:35**

**Advanced Photoelectrodes in Photoelectrochemical Cells for Solar Water Splitting and Green Hydrogen Generation**

**Speaker**
Sofia Gonçalves

18:00

16:20

**MAP-Fis Essays Presentations: Session B: Optics & Photonics**
**Session** | **Location:** Zoom Video Conference Room, Zoom Video Conference Room

**16:20–16:45** **Insect-Brain Inspired Neuromorphic Nanophotonic Devices**

**Speaker**
João Azevedo

**16:45–17:10**

**Hybrid optical fiber sensors interfaced with interfaced with micro/nano fabrication technologies: towards a multisensing platform**

**Speaker**
João Santos

**17:10–17:35**

**Development of polarimetric remote sensing technique for road condition inquiry and fast probing**

**Speaker**
Nazar Romanyshyn

**17:35–18:00**  **Versatile Neuromorphic Frameworks for Optical Computing**

**Speaker**
Vicente Rocha

18:00