

Exploring New Frontiers in Cosmology

06–31 July 2026

Organisers:

Eleonora Di Valentino (The University of Sheffield)

William Giarè (University of Hawaii)

Matteo Martinelli (INAF, Osservatorio Astronomico di Roma)

Vivian Poulin (CNRS, Université de Montpellier)

Elsa M. Teixeira (CNRS, Université de Montpellier)

Luca Visinelli (Università degli Studi di Salerno)



GALILEO GALILEI INSTITUTE
LARGO ENRICO FERMI, 2
FIRENZE



Week 4: Practical information

27th – 31th July

- **We start at 9:30am every day**
- Three long talks (~ 1h15) per day
- Informal discussion sessions in the afternoon
- Everyone has an office to work and organise discussions
- **Lunches and coffee breaks (no food) are provided**
- Group picture on Thursday at lunch time
- Slack is our main channel for updates/materials
- Remote connection details on indico

INDICO



SLACK



Week 4: Models and Methods

27th – 31th July

The focus is on discussing state-of-the-art theoretical scenarios proposed to explain puzzles such as the nature of the dark sector, inflationary models, recent measurements, cosmic tensions, and possible hints of new physics.

MONDAY, 27 JULY

- **Constraints on neutrino masses in light of cosmological tensions**

Julien Lesgourgues

- **Model Independent Reconstruction of the Cosmological Evolution at Low Redshifts and Possible Theoretical Explanation**

Anjan Sen

- **How to ease the Hubble tension**

Nils Schöneberg



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TUESDAY, 28 JULY

- **Modeling Higher-Order Bias via the Cosmic Web:
Implications for DESI Full Shape Analyses**
- **Dark Energy after DESI**
- **The status of Early Dark Energy after ACT DR6 and
DESI DR2**

Samuel Brieden

Eric Linder

Rodrigo Calderon



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WEDNESDAY, 29 JULY

- **Screened Scalar Fields in Cosmology: Theory and Tests**
- **The influence of small -scale matter fluctuations on the large scale dynamics of light scalars**
- **Electromagnetically K-mouflaged dark matter**

Anne-Christine Davis

Philippe Brax

Jose Beltrán Jiménez



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THURSDAY, 30 JULY

- Interacting dark sectors and axio-dilaton cosmology
- Lagrangian models of interacting dark matter and dark energy
- Neutrinos, Dark Sectors, and Cosmological Tensions

Carsten van de Bruck

Erik Jensko

Sebastian Trojanowski



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FRIDAY, 31 JULY

- **Quantum Field Theory Approach To Gravitational Wave Physics**
- **Scalar-tensor theories from a particle's perspective**
- **Sign-Switching $\Lambda_{\rm s}$ CDM:**
- **Theoretical Realizations and Implications for Cosmological Tensions**

Gaetano Lambiase

Sergio Sevilano Muñoz

Özgür Akarsu



Visit to Villa Galileo – Wednesday 29 July

- **Visit starts at 4.30pm (meet at the entrance or leave together)**
- Please confirm your attendance to us by e-mail or slack
- Let us know if you plan to bring accompanying people



 **VILLA GALILEO, VIA DEL PIAN DEI GIULLARI, 42, 50125 FIRENZE**

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Thank you for coming and enjoy!

This week is meant to be collaborative – ask questions,
incentivise discussion and enjoy Florence!