

<b>Programme X Meeting on Fundamental Cosmology</b>			
<b>Time</b>	<b>Day 1 Wednesday 16/10</b>	<b>Day 2 Thursday 17/10</b>	<b>Day 3 Friday 18/10</b>
08:30	Registration		
	Welcome (8:50)		
09:00	Invited I (9:00)	Invited I (9:00)	Invited I (9:00)
09:30	Invited II (9:30)	Invited II (9:30)	Invited II (9:30)
10:00	Talk I (10:00)	Talk I (10:00)	Talk I (10:00)
	Talk II (10:20)	Talk II (10:20)	Talk II (10:20)
10:30	Blitz Session (3x) (10:40)	Blitz Session (3x) (10:40)	Blitz Session (3x) (10:40)
	Coffee break (11:00-11:30)	Coffee break (11:00-11:30)	Coffee break (11:00-11:30)
11:00			
11:30	Invited III (11:30)	Invited III (11:30)	Invited III (11:30)
12:00	Talk III (12:00)	Talk IV (12:00)	Invited IV (12:00)
	Talk IV (12:20)	Talk V (12:20)	
12:30	Talk V (12:40)	Talk V (12:40)	Discussion Session (12:30-13:10)
13:00	Lunch (13:00-14:30)	Lunch (13:00-14:30)	Lunch (13:10 - 14:30)
13:30			
14:00			
14:30	Blitz Session (4x) (14:30-14:50)	Blitz Session (3x) (14:30-14:50)	Blitz Session (3x) (14:30-14:50)
15:00	Invited IV (14:50)	Invited IV (14:50)	Talk III (14:50)
	Talk VI (15:20)	Talk VI (15:20)	Talk IV (15:10)
15:30	Talk VII (15:40)	Talk VII (15:40)	Talk V (15:30)
			Talk VI (15:50)
16:00	Discussion Session (16:00-16:40)	Invited V (16:00)	Talk VII (16:10)
16:30	Coffee break (16:40-17:10)	Coffee break (16:30-17:00)	Closing Remarks 16:30
17:00	Invited V (17:10)	Workshop on Communication Skills (17:00-19:00)	
17:30	Talk VIII (17:40)		
18:00	Talk IX (18:00)		
18:30	Talk X (18:20)		
19:00	Outreach Talk at Casa de la Ciencia 19:00 - 20:00		
19:30			
20:00			
20:30			
21:00		Social Dinner	

# Programme

## Wednesday 16/10

8:30 – 8:50: Registration

8:50 – 9:00: Welcome

Session I (Chair: Belén Barreiro)

9:00 – 9:30: **Invited** Marta Spinelli - Late-time cosmology with the SKA Observatory

9:30 – 10:00: **Invited** Carlo Baccigalupi CMB - LSS Probe Combination in Cosmology

10:00 – 10:20: Mathieu Remazeilles - Mapping the Hot Gas in the Universe with the LiteBIRD Mission

10:20 – 10:40: Marcos Cruz - Unexplained Correlation between Cosmic Microwave Background and Local Matter Density Field

Short I (Chair: Jose Oñorbe)

10:40 – 10:45: David Vallés Pérez - Cosmic accretion shocks as a tool to measure the mass of galaxy clusters

10:45 – 10:50: Alice Moyer-Anin - The SZ-Mass scaling relation of the NIKA2 SZ large Program: Analysis, systematics effects and cosmological applications

10:50 – 10:55: Manuel F. Ruiz-Herrera Bernal - The effect of galaxies in absorption and metals in Lyman-alpha forest BAO measurements

10:55 – 11:00:

11:00 – 11:30: Coffee Break

Session II (Chair: Carlo Baccigalupi)

11:30 – 12:00: **Invited** Antonio L. Maroto - Symmetries of the dark sector

12:00 – 12:20: Carlos García Boiza - Speeding up the Universe through an axion-like field

12:20 – 12:40: Mathew Galloway - Cosmoglobe DR2: Improved full-sky detection of the CIB from end-to-end reanalysis of COBE-DIRBE

12:40 – 13:00: Javier de Cruz Pérez - Tensions and anomalies in cosmology

13:00 – 14:30: Lunch break

Short II (Chair: Mathieu Remazeilles)

14:30 – 14:35: Elisa Fazzari -  $f(R)$ -gravity and non-equilibrium physics in the Late Universe versus the Hubble tension attenuation

14:35 – 14:40: Emanuele Fondi - Taming assembly bias for primordial non-Gaussianity

14:40 – 14:45: Salvatore S. Sirletti - Third-order corrections in the slow-roll expansion for single-field inflationary models

14:45 – 14:50: Beatriz Ruiz-Granados - Information measurements for characterizing CMB spectral distortions

Session III (Chair: Santiago Ávila)

14:50 – 15:20: **Invited** Sarah Bosman - Reionisation: a broad perspective

15:20 – 15:40: Balu Sreedhar - Hydrogen in the first billion years: Simulating the epoch of reionisation

15:40 – 16:00: Marc Manera - Gravitational redshifts with DESI and other surveys.

16:00 – 16:40: DISCUSSION: Tensions and Systematics. Guadalupe Cañas Herrera , Carlos Garcia Garcia and Tamara Davis.

16:40 – 17:10: Coffee Break

Session IV (Chair: Violeta Gonzalez Pérez)

17:10 – 17:40: **Invited** Santiago Arribas Mocoroa - The high redshift galaxies observed by JWST

17:40 – 18:00: Jean-Luc Starck - Weak Lensing High Order Statistics

18:00 – 18:20: Jorge Peñarrubia - Capture of stars by dark subhaloes

18:20 – 18:40: David Martinez-Delgado – Stellar Tidal Streams as Cosmological Diagnostic

19:00 – 20:00: Outreach Talk at Casa de la Ciencia

## **Thursday 17/10**

Session V (Chair: Enrique Martínez)

9:00 – 9:30: **Invited** Pauline Zarrouk - DESI DR1 results

9:30 – 10:00: **Invited** Judit Prat Marti – TBD (DES)

10:00 – 10:20: Tamara Davis - Final supernova cosmology results with the dark energy survey (DES)

10:20 – 10:40: Santiago Avila - The Dark Energy Survey: a precise BAO measurement from the final dataset

Short III (Chair: Carles Sánchez Alonso)

10:40 – 10:45: Silvan Fischbacher - Simulation-based inference of galaxy population models for photometric redshift estimation

10:45 – 10:50: Marcos M. Cueli - Toward the measurement of neutrino masses via cosmic magnification on submillimeter galaxies

10:50 – 10:55: Sara Rodríguez Cabo - Neural Network for CMB polarisation recovery

10:55 – 11:00:

11:00 – 11:30: Coffee Break

Session VI (Chair: Mariam Bouhmadi)

11:30 – 12:00: **Invited** Guadalupe Cañas Herrera - Overview of the Euclid mission

12:00 – 12:20: Nicola Deiosso - Cosmological Constraints from Simulations and Observational Data Combinations with DESI DR1

12:20 – 12:40: Adriana Nadal Matosas - Testing the robustness of the Baryon Acoustic Oscillations in the presence of massive neutrinos

12:40 – 13:00: Rebeca Fernández Fernández - Cosmic insights from galaxy clusters: Exploring magnification bias on sub-millimetre galaxies

13:00 – 14:30: Lunch break

Short IV (Chair: José Ramón Bermejo Climent)

14:30 – 14:35: Adrian Gutiérrez Adame - PNG-UNITsims: Halo clustering response to primordial non-Gaussianities as a function of mass

14:35 – 14:40: Juan Alberto Cano Díez - Study of the physical properties of strong gravitational lens candidates in the sub-mm through SED analysis

14:40 – 14:45: Jose Luis Bernal - On the contributions of extragalactic CO emission lines to ground-based CMB observations

14:45 – 14:50:

Session VII (Chair: Doris Stoppacher)

14:50 – 15:20: **Invited** Violeta González Pérez - How much does the galaxy-halo connection matters in a cosmological context?

15:20 – 15:40: Sara Ortega-Martinez - Investigating the halo-galaxy connection of ELGs in the DESI survey using the Subhalo Abundance Matching-extended (SHAMe-SF) model galaxy clustering

15:40 – 16:00: Elena Fernández García - Constraining cosmological parameters using void statistics from the SDSS survey

Session VIII (Chair: Alberto Domínguez)

16:00 – 16:30: **Invited** Javier Antonio Olmedo Nieto - From Big Bang to (anisotropic) Big Bounce: new insights from the early universe

16:30 – 17:00: Coffee Break

17:00 – 19:00: Workshop on Communication Skills

## **Friday 18/10**

Session IX (Chair: Mar Bastero Gil)

9:00 – 9:30: **Invited** Angelo Ricciardone Probing Early and Late Universe Cosmology with Gravitational Waves

9:30 – 10:00: **Invited** Miguel Ángel Sánchez Conde - Gamma-ray dark matter searches circa 2024: status and future

10:00 – 10:20: Chiara De Leo - Constraining Cosmology with Large Scale Structure and Gravitational Waves

10:20 – 10:40: Carles Sánchez Alonso - Inverse Galaxy-Galaxy Lensing: Magnification, Intrinsic Alignments and Cosmology

Short V (Chair: Beatriz Ruiz-Granados)

10:40 – 10:45: Christian Gimeno Amo - Studying the statistical isotropy of the universe with Planck Data Release 4

10:45 – 10:50: Debabrata Adak - A model-independent method to estimate synchrotron spectral index map

10:50 – 10:55: Jose Ramón Bermejo Climent - Primordial non-Gaussianity measurements from the Quaia catalog using angular redshift fluctuations: a new cosmological observable

10:55 – 11:00:

11:00 – 11:30: Coffee Break

Session X (Javier Antonio Olmedo Nieto)

11:30 – 12:00: **Invited** Jesús Torrado Cacho - Advances in Cosmological inference with Machine-learning and automatic-differentiation

12:00 – 12:30: **Invited** Tomasz Kacprzak – TBD (AI & COSMOLOGY)

12:30 – 13:10: DISCUSSION: Emulators and AI in Cosmology. Tomasz Kacprzak, Boris Leistedt and Jesús Torrado.

13:10 – 14:30: Lunch break

Short VI (Chair: Judit Prat)

14:30 – 14:35: Sergi Novell Masot - LSS cosmology with the Bispectrum

14:35 – 14:40: Sefa Pamuk - Euclid constraints for  $f(R)$  Hu-Sawiki models

14:40 – 14:45: Tommaso Moretti - Inflationary parity-violating scalar trispectrum

14:45 – 14:50:

Session XI (Chair: Pauline Zarrouk)

14:50 – 15:10: Jacobo Asorey Barreiro - Update on cosmological tensions from the most recent datasets from early and late Universe probes

15:10 – 15:30: Martín Rodríguez Monroy - Treating observational systematics for LSS in photometric surveys

15:40 – 15:50: Tristan Hoellinger - Novel methods for Bayesian implicit likelihood inference in cosmology

15:50 – 16:10: Anna Porredon - Impact of photo-z uncertainties on the Euclid DR1 joint analysis of weak lensing and photometric

16:10 – 16:30: Mar Pérez Sar - Angular Redshift Fluctuations: A Window into Cosmic Voids

16:30 – 16:40: Closing remarks