

12th LISA CosWG Workshop



Report of Contributions

Contribution ID: 2

Type: **not specified**

Exploring cosmological gravitational wave backgrounds through the synergy of LISA and ET

Tuesday 3 June 2025 15:10 (20 minutes)

The gravitational wave (GW) interferometers LISA and ET are expected to be functional in the next decade(s), possibly around the same time. They will operate over different frequency ranges, with similar integrated sensitivities to the amplitude of a stochastic GW background (SGWB). We investigate the synergies between these two detectors, in terms of a multi-band detection of a cosmological SGWB characterised by a large amplitude, and a broad frequency spectrum. By investigating various examples of SGWBs, such as those arising from cosmological phase transition, cosmic string, primordial inflation, we show that LISA and ET operating together will have the opportunity to assess more effectively the characteristics of the GW spectrum produced by the same cosmological source, but at separate frequency scales. Moreover, the two experiments in tandem can be sensitive to features of early universe cosmic expansion before big-bang nucleosynthesis (BBN), which affects the SGWB frequency profile, and which would not be possible to detect otherwise, since two different frequency ranges correspond to two different pre-BBN (or post-inflationary) epochs. Besides considering the GW spectrum, we additionally undertake a preliminary study of the sensitivity of LISA and ET to soft limits of higher order tensor correlation functions. Given that these experiments operate at different frequency bands, their synergy constitutes an ideal direct probe of squeezed limits of higher order GW correlators, which can not be measured operating with a single instrument only.

Author: GHOSHAL, Anish (University of Warsaw, Poland)

Presenter: GHOSHAL, Anish (University of Warsaw, Poland)

Session Classification: Afternoon session

Contribution ID: 3

Type: **not specified**

Black holes and gravitational waves from phase transitions in realistic models

Wednesday 4 June 2025 15:30 (20 minutes)

Among all the possible candidates for Dark Matter, one appealing example is a population of Primordial Black Holes, which could have been borne by various processes in the early stages of the Universe. In this talk, I will investigate the formation of such objects as the result of the collapse of energy density fluctuations originating from supercooled first-order phase transitions. I will stress the importance of including the second-order corrections in the expansion of the bubble nucleation rate and show its implications for the production of Primordial Black Holes as well as the emission of Gravitational Wave signals. Finally, I will illustrate the application of this formalism to a realistic particle model, showing that in certain regions of parameter space both abundant production of Primordial Black Holes and emission of strong Gravitational Wave signals is realized.

Author: TOCZEK, Piotr (University of Warsaw)**Presenter:** TOCZEK, Piotr (University of Warsaw)**Session Classification:** Afternoon session

Contribution ID: 4

Type: **not specified**

Bayesian free-form reconstruction of curvature perturbations from scalar induced gravitational waves

Tuesday 3 June 2025 14:50 (20 minutes)

The formation of primordial black holes (PBHs) from amplified density fluctuations in the early universe may also generate scalar-induced gravitational waves (GW), carrying vital information about the primordial power spectrum and the universe's expansion history. We present a Bayesian approach to reconstruct both the scalar power spectrum and the equation of state from GW observations, using interpolating splines to flexibly capture features in the data. The optimal number of nodes is chosen via Bayesian evidence to balance model complexity and reconstruction fidelity.

Author: MALHOTRA, Ameet**Presenter:** MALHOTRA, Ameet**Session Classification:** Afternoon session

Contribution ID: 5

Type: **not specified**

SMBH growth in FDM and WDM universes, bounds from JWST and predictions for LISA

Thursday 5 June 2025 09:30 (20 minutes)

In the talk, I will introduce a new semianalytical model (SAM) for supermassive black hole (SMBH) growth that departs from traditional EPS-based merger tree methods by directly tracking differential SMBH growth via mergers. I will show that this model reveals a clear preference for heavy SMBH seeds across diverse datasets—including recent JWST observations—except in cases of extremely efficient merging, where a light-seed scenario uniquely fits the JWST data. I will also discuss the interplay between galaxy–SMBH co-evolution and dark matter (DM) models. I will show that, by incorporating the effects of warm and fuzzy DM on large-scale structure formation and halo evolution, the latest JWST measurements of the UV luminosity function and SMBHs can be used to place novel constraints on DM properties. Notably, this uncovers a previously unexplored link between the initial SMBH seed mass and DM characteristics, establishing SMBH evolution as a remarkably sensitive tracer of DM. Finally, I will also comment on what are the prospects of future GW observatories, namely LISA and the atom interferometers, to complement current observations and severely constrain or discover deviations from cold DM.

Author: URRUTIA, Juan (KBFI)**Presenter:** URRUTIA, Juan (KBFI)**Session Classification:** Morning session

Contribution ID: 6

Type: **not specified**

Finding phase transitions in future LISA data

Thursday 5 June 2025 15:10 (20 minutes)

A gravitational wave background from a first order phase transition at the electroweak scale may be observable with future detectors such as LISA. While the Standard Model does not predict a first order phase transition, these occur in many extended scenarios. Therefore, detecting a stochastic gravitational wave background could point to new physics, while a null detection could constrain or even exclude many scenarios beyond the Standard Model. However, finding a signal in LISA coming from an early universe phase transition is not straightforward, due to the expected instrument noises and astrophysical backgrounds, such as the one produced by a population of white dwarf binaries. In this talk I will present our recent advances in recovering injected phase transition signals in realistic simulated LISA data, where we exploit the annual modulation of the astrophysical sources to improve the signal separation. I will show how this could allow us to shed light on the physics of the first few seconds of the universe.

Authors: HOOPER, Deanna; MINKKINEN, Tiina (University of Helsinki)

Presenters: HOOPER, Deanna; MINKKINEN, Tiina (University of Helsinki)

Session Classification: Afternoon session

Contribution ID: 7

Type: **not specified**

Thermal nucleation in perturbation theory

Wednesday 4 June 2025 15:10 (20 minutes)

Cosmological first-order phase transitions may have generated a gravitational wave background observable with LISA, offering a unique probe of beyond-Standard-Model physics. A crucial step in predicting this background is the reliable computation of bubble nucleation rates. In this talk, I will give an overview of recent advancements in perturbative high-temperature nucleation rate calculations. These include the application of effective field theory, which enhances our understanding of the equilibrium part of the computation, and the use of Boltzmann equations to account for the real-time, off-equilibrium effects of the primordial plasma onto nucleation. I will also discuss some open challenges that remain in perturbative approaches, paving the way for future developments.

Author: HIRVONEN, Joonas (University of Nottingham)**Presenter:** HIRVONEN, Joonas (University of Nottingham)**Session Classification:** Afternoon session

Contribution ID: 8

Type: **not specified**

Cosmic Mojito: the hidden recipe

Thursday 5 June 2025 14:50 (20 minutes)

The LISA Distributed Data Processing Center (DDPC) has kicked off in June 2024, aiming at designing and implementing the data processing and data analysis software and infrastructure to interpret LISA measurement data-streams. An important component of DDPC is the simulation of a representative, synthetic dataset feeding all the building blocks of data processing and analysis to design, optimize and challenge the different pipelines.

The first Common Dataset CD1, code-name «Mojito», will be produced by the end of 2025. It will eventually contain a rich cocktail of population-based MBHB mergers, EMRIs, galactic and extra-galactic white dwarves binaries, as well as a handful of stellar mass black hole binaries and their associated confusion background. On the instrument side, two different levels of noise complexity are foreseen, adjusting noise models and properties, or adding glitches and gaps. The main elements of the common dataset will be publicly released eventually.

On the cosmology side, 3 background signals are currently being proposed, all specified as phenomenological models (1. Flat, scale-free signal, 2. single broken power law, 3. double peaked spectrum), but mapped to theoretical templates of specific mechanisms (e.g. phase transitions, SIGWB and PBHs) to enable both agnostic or template searches. All backgrounds will be made isotropic in the CMB frame. By the time of the workshop, this selection should be reviewed, revised, and validated by DDPC and the LISA Science Team. In this talk, I will summarize the final selection and properties picked for these three signals, the physical and data analysis motivations behind.

Author: INCHAUSPÉ, Henri

Co-author: MINKKINEN, Tiina (University of Helsinki)

Presenter: INCHAUSPÉ, Henri

Session Classification: Afternoon session

Contribution ID: 9

Type: **not specified**

The stochastic gravitational wave background from cosmic superstrings

Thursday 5 June 2025 09:50 (20 minutes)

We study the stochastic gravitational wave background sourced by a network of cosmic superstrings and demonstrate that incorporating higher-mass string species, beyond the fundamental string, is crucial for accurately modeling the resulting gravitational wave spectrum across frequencies ranging from nanohertz to kilohertz.

Using the multi-tension velocity-dependent one-scale model to evolve the cosmic superstring network, we perform several fits to the NANOGrav 15-year dataset and obtain expectation values for the fundamental string tension, string coupling and effective size of compact extra dimensions. We find that the cosmic superstring best-fits are comparable in likelihood to Supermassive Black Hole models, thought by many to be the leading candidate explanation of the signal. The implications of the best-fit spectra are discussed within the context of future gravitational wave experiments.

Author: RAIDAL, Juhan Tiitus (National Institute of Chemical Physics and Biophysics (EE))

Co-authors: Mr MOSS, Adam (University of Nottingham); Mr AVGOUSTIDIS, Anastasios (University of Nottingham); COPELAND, Ed (Nottingham University)

Presenter: RAIDAL, Juhan Tiitus (National Institute of Chemical Physics and Biophysics (EE))

Session Classification: Morning session

Contribution ID: 10

Type: **not specified**

PBHs and SIGW: The importance of non-gaussianities

Tuesday 3 June 2025 14:30 (20 minutes)

We briefly describe an exact formalism, based on the threshold statistics on the compaction function, for the computation of the abundance of primordial black holes in the presence of local non-Gaussianity (NGs) in the curvature perturbation field with a completely generic functional form. As NGs modify the amplitude of perturbations necessary to produce a given PBH abundance, modeling these effects is crucial to connect the PBH scenario to its signatures at current and future GW experiments.

Author: IOVINO, Antonio Junior (Università di Roma "La Sapienza")

Co-authors: URBANO, Alfredo Leonardo; Mrs FRANCIOLINI, Gabriele; FERRANTE, Giacomo (Laboratoire Univers et Particules de Montpellier - CNRS)

Presenter: IOVINO, Antonio Junior (Università di Roma "La Sapienza")

Session Classification: Afternoon session

Contribution ID: 11

Type: **not specified**

Superconducting Cosmic Strings and Their Gravitational Wave Fingerprints

Thursday 5 June 2025 10:10 (20 minutes)

Superconducting cosmic strings are intriguing relics of high-energy physics beyond the Standard Model, with the potential to leave observable imprints in the form of gravitational waves. In this talk, I will present recent progress on the stochastic gravitational wave background generated by chiral superconducting cosmic string networks. For the first time, we incorporate the effects of vector radiation emitted by these strings, which influence loop evolution and, consequently, alter the resulting observational predictions.

Our results show that strong coupling between the string current and the vector field can lead to a significant suppression of the gravitational wave signal. However, in the regime of intermediate coupling, the signal remains detectable—offering a potential observational distinction between standard and superconducting cosmic strings.

Authors: RYBAK, Ivan (CAPA, Universidad de Zaragoza); SOUSA, Lara

Presenter: RYBAK, Ivan (CAPA, Universidad de Zaragoza)

Session Classification: Morning session

Contribution ID: 12

Type: **not specified**

Gravitational waves from strong phase transitions and CosmoGW

Wednesday 4 June 2025 14:30 (20 minutes)

I will present numerical results of strong phase transitions using the so-called Higgsless approach and recent theoretical developments to describe the GW production extending the stationary UETC assumption for sound waves to a locally stationary UETC that allows us to describe decaying sources of gravitational waves. The source of GWs corresponding to compressional motion (sound waves in their linear regime) decays for strong phase transitions due to the development of non-linearities in the fluid perturbations induced by the expansion and collision of broken-phase bubbles. I will also present a new public code (cosmoGW) available for templates and models of cosmological GWs that include recent developments for GW production from compressional (sound waves and non-linear compressional motion) and vortical (MHD turbulence) motion in the primordial plasma.

Author: ROPER POL, Alberto (Universite de Geneve (CH))

Presenter: ROPER POL, Alberto (Universite de Geneve (CH))

Session Classification: Afternoon session

Contribution ID: 13

Type: **not specified**

Acoustic gravitational waves beyond leading order in bubble over Hubble radius

Wednesday 4 June 2025 14:50 (20 minutes)

We calculate the gravitational wave power spectrum from sound waves in a cosmological first order phase transition in the unexplored regime of large bubbles, by which we mean that the mean bubble spacing R_* is a non-negligible fraction of the Hubble length $\mathcal{H}_*^{-1}$, i.e. $R_*\mathcal{H}_* \gtrsim \mathcal{O}(1)$. Since the amplitude of the gravitational wave signal increases with $R_*\mathcal{H}_*$, this is also the loud signal regime. In this regime the effects of gravity, hitherto neglected, become relevant. We carry out the calculation in cosmological perturbation theory expanding in the parameter $R_*\mathcal{H}_*$, or bubble over Hubble radius. The leading order term is the standard result for acoustic production of gravitational waves. At next-to-leading order we find three novel contributions: two contributions arise from general relativistic corrections to the dynamics of both sound waves and gravitational waves. A third contribution comes from secondary gravitational waves induced by curvature perturbations. These contributions suppress the gravitational wave peak amplitude. The suppression factor, with respect to the leading order contribution, scales as $(R_*\mathcal{H}_*)^2$, and also depends on other transition parameters, such as the sound speed c_s , the duration of the acoustic source, and the peak wavenumber of the velocity field k_p . We investigate the range $0.3 \lesssim R_*\mathcal{H}_* \lesssim 10$ and $0.7 \lesssim k_p/\mathcal{H}_* \lesssim 20$ in a simplified model of the velocity field, finding that the suppression factor lies between 2% and 15% when $R_*\mathcal{H}_* \simeq 0.5$, but is independent of the root mean squared fluid velocity. We provide analytical approximations to the next-to-leading order corrections, and a recipe to join them smoothly across different frequency regimes. Our work improves the precision of the current estimations of the gravitational wave power spectrum in the relatively unexplored regime of phase transition with large bubbles.

Author: GIOMBI, Lorenzo (University of Helsinki)

Co-authors: Mr DAHL, Jani (University of Helsinki); Prof. HINDMARSH, Mark (University of Helsinki)

Presenter: GIOMBI, Lorenzo (University of Helsinki)

Session Classification: Afternoon session

Contribution ID: 14

Type: **not specified**

Biases in Source Recovery in the LISA Global Fit

Thursday 5 June 2025 14:30 (20 minutes)

In this talk I'll describe a stochastic sampler integrated into the GLASS global fit, as well as the challenges of recovering SGWBs as well as the confusion noise. Depending on the galactic population and the galactic binaries' sampler convergence, some regions of the residual can form a non-gaussian noise background. These non-gaussianities can lead to biases in discrete sources and false detections in the worst case for stochastic backgrounds. I will also discuss some mitigation strategies as well as the advantages of performing a stochastic background search in mixed time-frequency wavelet domain.

Author: ROSATI, Robert**Presenter:** ROSATI, Robert**Session Classification:** Afternoon session

Contribution ID: **16**

Type: **not specified**

Update from the CCC

Monday 2 June 2025 14:30 (30 minutes)

Author: CALCAGNI, Gianluca

Presenter: CALCAGNI, Gianluca

Session Classification: Welcome + Status of the LISA mission

Contribution ID: 19

Type: **not specified**

Pulsar Timing Arrays and Astrometry: Going Beyond the Hellings-Downs correlation

Friday 6 June 2025 09:30 (30 minutes)

I will discuss three topics related to the characterization of the stochastic gravitational-wave background using pulsar timing arrays and astrometry: the potential detection of its kinematic dipole, the prospects for measuring its circular polarization, and a novel method for identifying the presence of scalar polarization.

Author: TASINATO, Gianmassimo**Presenter:** TASINATO, Gianmassimo**Session Classification:** Morning session

Contribution ID: 21

Type: **not specified**

Simulation-Based-Inference for SGWB reconstruction

Monday 2 June 2025 17:30 (30 minutes)

Simulation-Based-Inference (SBI), also known as likelihood-free inference, is an alternative approach to Montecarlo techniques to perform Bayesian inference. SBI typically relies on Machine Learning (ML) methods to approximate the posterior distribution for some model parameters given the observed data. In the past years, SBI has been applied to a range of physics problems, including Gravitational Wave (GW) astronomy. In my talk, I will review the basics of SBI and discuss its application to the problem of detecting and characterizing Stochastic GW Backgrounds (SGWBs) with LISA.

Author: PIERONI, Mauro (CERN)**Presenter:** PIERONI, Mauro (CERN)**Session Classification:** Afternoon session

Contribution ID: 22

Type: **not specified**

Gravitational-Wave Standard Sirens: Status, Developments, and Prospects for Cosmology

Monday 2 June 2025 18:00 (30 minutes)

Gravitational-wave standard sirens provide an independent means of measuring the expansion history of the universe. With growing datasets from currently operational detectors and new experiments under construction (such as LISA) or in development (Einstein Telescope, Cosmic Explorer), standard sirens are gaining significant attention as a powerful cosmological probe. In this talk, I will review the concept and current status of standard siren techniques and observations, highlight recent advances in statistical methods, and discuss observational prospects in both the near and long term.

Author: MANCARELLA, Michele**Presenter:** MANCARELLA, Michele**Session Classification:** Afternoon session

Contribution ID: 23

Type: **not specified**

Disentangling galactic and extragalactic components in the GW background with LISA and Taiji

Thursday 5 June 2025 14:00 (30 minutes)

We explore the detectability of an anisotropic Stochastic Gravitational Wave Background (SGWB) using LISA

alone and jointly with the proposed Taiji interferometer. Going beyond traditional frequency-domain approaches, we incorporate the satellites' orbital motion via time-dependent response functions. First, we attempt model-independent reconstruction of the galactic SGWB, finding that both LISA and LISA+Taiji face challenges in tightly constraining anisotropies under realistic astrophysical models. Second, assuming known spectral and angular dependence of the galactic GW background, we show that an isotropic extragalactic component of astrophysical origin can be distinguished from the galactic one if their amplitudes match the expectations from the theoretical models.

Author: MENTASTI, Giorgio

Presenter: MENTASTI, Giorgio

Session Classification: Afternoon session

Contribution ID: 24

Type: **not specified**

Gravitational Wave Lensing: LISA perspective

Wednesday 4 June 2025 09:30 (30 minutes)

In the quest to explore the distant Universe, gravity's universal nature provides crucial aid, as any clump of matter may act as a giant lens to magnify the radiation emitted by otherwise too-faint objects. Thanks to the gravitational lensing of electromagnetic waves, we have mapped the elusive dark matter, found the furthest galaxies, and even discovered exoplanets.

Gravitational waves are the next frontier in gravitational lensing. Because of their well-understood waveforms and large wavelengths, they hold unique discovery potential to test gravity in the uncharted wave-optics regime, probe the dark matter substructure and find new populations of black holes in the early Universe. Gravitational lensing is also essential for precision standard siren cosmology. In this talk, after introducing the basics of gravitational-wave lensing, I will discuss the relevance of lensing for LISA and its unique characteristics.

Author: EZQUIAGA BRAVO, Jose Maria

Presenter: EZQUIAGA BRAVO, Jose Maria

Session Classification: Morning session

Contribution ID: 26

Type: **not specified**

Cosmological phase transitions

Wednesday 4 June 2025 14:00 (30 minutes)

In this talk, I will review recent developments in the topic of cosmological phase transitions. I will focus on the description of the thermodynamics of the phase transition and the dynamics of bubbles, but I will also explain the implications for the produced gravitational-wave signals and their observability prospects.

Author: SWIEZEWSKA, Bogumila**Presenter:** SWIEZEWSKA, Bogumila**Session Classification:** Afternoon session

Contribution ID: 27

Type: **not specified**

Distinguishing Cosmic-String Modelings with LISA

Tuesday 3 June 2025 09:30 (30 minutes)

Cosmic strings are predicted by various well-motivated models in high-energy particle physics and are potential sources of a gravitational wave background (GWB) detectable by LISA. Predicting their GWB relies on three key ingredients: the dynamics of the string network, the GW emission from loops, and the cosmic history of the Universe. Each of these components carries theoretical uncertainties, which depend on the underlying physical assumptions. Standard GWB templates are built on conventional modeling of these components, while alternative, beyond-conventional templates incorporate other new-physics effects. In parallel with the work of the LISA collaboration, we apply a simulation-based inference technique to reconstruct model parameters and assess the precision of parameter recovery across the model's parameter space. Furthermore, we evaluate LISA's capability to distinguish between different modelings and identify regions of parameter space where signatures of new physics can be robustly detected.

Authors: DIMITRIOU, Androniki; ZALDIVAR, Bryan; FIGUEROA, Daniel G.; SIMAKACHORN, Peera (IFIC, Valencia U.)

Presenter: SIMAKACHORN, Peera (IFIC, Valencia U.)

Session Classification: Morning session

Contribution ID: 32

Type: **not specified**

Challenges in maximising the scientific output of the Stochastic Gravitational Wave Background with LISA

Friday 6 June 2025 10:00 (30 minutes)

The Laser Interferometer Space Antenna (LISA) is expected to open a new window on the universe by detecting the stochastic gravitational wave background (SGWB) from both astrophysical and cosmological sources. However, maximising the scientific return from SGWB observations presents several challenges, most notably the difficulty of distinguishing the signal from stochastic instrumental noise and the uncertainties in our knowledge of that noise.

In this talk, I will provide an overview of how LISA's time-delay interferometry (TDI) channels are used to infer the instrument's noise properties, a crucial step for signal-noise separation. I will discuss the impact of imperfect noise characterisation on SGWB detection and parameter estimation, highlighting how uncertainties in the noise spectral density can significantly degrade our ability to constrain stochastic backgrounds. I will also present recent results from a joint effort among data analysts working on the reconstruction of SGWB signals from realistic synthetic LISA data.

This presentation will outline the current limitations in our detection capabilities and explore strategies under development to overcome them, aiming to ensure the full scientific potential of LISA's SGWB observations can be realised.

Author: MURATORE, Martina

Presenter: MURATORE, Martina

Session Classification: Morning session

Contribution ID: 33

Type: **not specified**

Exploring the Gravitational Wave Background and its Implications with ground based detectors

Tuesday 3 June 2025 14:00 (30 minutes)

The gravitational wave background (GWB) is a superposition of weak, independent and unresolved gravitational wave (GW) sources. It can be sourced by both astrophysical and cosmological sources, among which we find unresolved compact binary coalescences, supernovae, first order cosmological phase transitions and cosmic strings. Since the beginning of its observational runs, the LIGO-Virgo-KAGRA (LVK) collaboration has been searching for the GWB, utilizing a cross-correlation technique. We have not made a GWB detection thus far. However, we have succeeded in establishing upper limits on the GWB's amplitude, providing invaluable insights into the model parameters governing its various sources. In this presentation, I will provide an encompassing overview of the GWB, shedding light on the search techniques employed by the LVK collaboration and the multitude of data analysis challenges we encounter. Furthermore, I will delve into the implications of our searches for cosmological sources. Finally, I will explore the exciting prospects for future detection with third generation detectors, paving the way for groundbreaking discoveries in gravitational wave astronomy.

Author: ROMERO, Alba**Presenter:** ROMERO, Alba**Session Classification:** Afternoon session

Contribution ID: 34

Type: **not specified**

Gravitational wave lensing as a probe of small-scale structures in our universe

Wednesday 4 June 2025 10:00 (30 minutes)

Gravitational waves emitted from binary black hole mergers exhibit highly distinctive characteristics. When these waves undergo gravitational lensing, the resulting distortions in amplitude and phase can be identified. This phenomenon can thus be leveraged to probe small-scale dark matter structures that are still largely unexplored. In this talk, I will discuss recent advances in this field, including measurements of the small-scale matter power spectrum through lensing.

Author: CHOI, Han Gil (Institute for Basic Science)

Presenter: CHOI, Han Gil (Institute for Basic Science)

Session Classification: Morning session

Contribution ID: 35

Type: **not specified**

Update on the cosmic strings project

Monday 2 June 2025 16:30 (30 minutes)

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Author: SOUSA, Lara

Presenter: SOUSA, Lara

Session Classification: Updates on ongoing projects

Contribution ID: 36

Type: **not specified**

Update on the PBH tools project

Monday 2 June 2025 17:00 (30 minutes)

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Author: CLESSE, Sébastien

Presenter: CLESSE, Sébastien

Session Classification: Updates on ongoing projects

Contribution ID: 37

Type: **not specified**

Update on the polarisations project

Monday 2 June 2025 15:30 (30 minutes)

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Authors: MANGIAGLI, Alberto (APC); GAROFFOLO, Alice

Presenters: MANGIAGLI, Alberto (APC); GAROFFOLO, Alice

Session Classification: Updates on ongoing projects

Contribution ID: **38**

Type: **not specified**

Update on the standard sirens project

Monday 2 June 2025 15:00 (30 minutes)

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Authors: LAGHI, Danny; GENNARI, Vasco

Presenters: LAGHI, Danny; GENNARI, Vasco

Session Classification: Updates on ongoing projects

Contribution ID: 40

Type: **not specified**

Reconstructing primordial curvature perturbations

Tuesday 3 June 2025 10:00 (30 minutes)

Authors: PERNA, Gabriele; EL GAMMAL, Jonas (University of Stavanger)

Presenters: PERNA, Gabriele; EL GAMMAL, Jonas (University of Stavanger)

Session Classification: Morning session

Contribution ID: 41

Type: **not specified**

A positive-definite formulation of tunneling

Thursday 5 June 2025 15:30 (10 minutes)

Presenter: JINNO, Ryusuke (Kobe University)

Session Classification: Afternoon session