

# Belgian-Dutch Gravitational Wave Meeting 2022



## Report of Contributions

Contribution ID: 1

Type: **not specified**

# Keynote presentation: Fundamental Physics and Cosmology with the Einstein Telescope

*Thursday 13 October 2022 09:40 (50 minutes)*

**Presenter:** MAGGIORE, Michele (Universite de Geneve (CH))

**Session Classification:** Keynote presentation: Michele Maggiore

Contribution ID: 2

Type: **not specified**

# Virgo Instrumentation

*Thursday 13 October 2022 10:55 (20 minutes)*

**Presenter:** STEINLECHNER, Sebastian (Maastricht University & Nikhef)

**Session Classification:** Updates from other experiments / collaborations

Contribution ID: 3

Type: **not specified**

## ETPathfinder

*Thursday 13 October 2022 11:15 (20 minutes)*

**Presenter:** KUIJER, Paul (Nikhef National institute for subatomic physics (NL))

**Session Classification:** Updates from other experiments / collaborations

Contribution ID: 4

Type: **not specified**

## **E-TEST**

*Friday 14 October 2022 10:55 (20 minutes)*

**Presenter:** COLLETTE, Christophe

**Session Classification:** Updates from other experiments / collaborations

Contribution ID: 5

Type: **not specified**

## **LIGO-Virgo-KAGRA Observational Science**

*Thursday 13 October 2022 11:35 (30 minutes)*

**Presenter:** VAN DEN BROECK, Chris

**Session Classification:** Updates from other experiments / collaborations

Contribution ID: 6

Type: **not specified**

## LISA Science

*Friday 14 October 2022 12:00 (30 minutes)*

**Presenter:** ROSSI, Elena

**Session Classification:** Updates from other experiments / collaborations

Contribution ID: 7

Type: **not specified**

# The Quest of Subsolar-mass (Primordial) Black Holes

*Thursday 13 October 2022 13:50 (20 minutes)*

**Presenter:** CLESSE, Sebastien

**Session Classification:** Data Analysis and Observations



Contribution ID: 8

Type: **not specified**

## Why gravitational waves need neutrinos

*Thursday 13 October 2022 12:05 (20 minutes)*

**Presenter:** W DE WASSEIGE, Gwen (UCLouvain)

**Session Classification:** Updates from other experiments / collaborations

Contribution ID: 9

Type: **not specified**

## **Correcting biases from overlapping signals in the third generation era: parameter estimation methods**

*Thursday 13 October 2022 15:10 (10 minutes)*

**Presenter:** BAKA, Tomasz

**Session Classification:** Data Analysis and Observations

Contribution ID: **10**

Type: **not specified**

## **Prospects of testing late-time cosmology with weak lensing of gravitational waves and galaxy surveys**

*Thursday 13 October 2022 17:05 (10 minutes)*

**Presenter:** BALAUDO, Anna

**Session Classification:** Data Analysis and Observations

Contribution ID: 11

Type: **not specified**

# Probing the Large Scale Structure of the Universe using Gravitational Waves

*Thursday 13 October 2022 17:15 (10 minutes)*

**Presenter:** BEIRNAERT, Freija

**Session Classification:** Data Analysis and Observations

Contribution ID: 12

Type: **not specified**

# Neural ratio estimation for precision analysis of GW signals

*Thursday 13 October 2022 14:40 (10 minutes)*

**Presenter:** BHARDWAJ, Uddipta (GRAPPA, University of Amsterdam)

**Session Classification:** Data Analysis and Observations

Contribution ID: 13

Type: **not specified**

# Galaxy catalogs for electromagnetic follow-up and cosmology

*Thursday 13 October 2022 16:25 (10 minutes)*

**Presenter:** DÁLYA, Gergely (Ghent University)

**Session Classification:** Data Analysis and Observations

Contribution ID: 14

Type: **not specified**

# Stochastic Gravitational-Wave Background and Pulsar Glitches

*Thursday 13 October 2022 14:20 (10 minutes)*

**Presenter:** DE LILLO, Federico

**Session Classification:** Data Analysis and Observations

Contribution ID: 15

Type: **not specified**

## **On the identification of strongly-lensed gravitational waves**

*Thursday 13 October 2022 15:55 (10 minutes)*

**Presenter:** JANQUART, Justin (Nikhef / Utrecht University)

**Session Classification:** Data Analysis and Observations



Contribution ID: 16

Type: **not specified**

## **REMOTE: Tests of sub-dominant mode amplitude structure of Binary black hole coalescences**

*Thursday 13 October 2022 14:50 (10 minutes)*

**Presenter:** KALAGHATGI, Chinmay

**Session Classification:** Data Analysis and Observations

Contribution ID: 17

Type: **not specified**

## **Gravitational-wave constraints on the GeV excess in the galactic center**

*Thursday 13 October 2022 14:10 (10 minutes)*

**Presenter:** MILLER, Andrew

**Session Classification:** Data Analysis and Observations

Contribution ID: **18**

Type: **not specified**

## **Constraining deviations from general relativity using quadruply lensed gravitational waves**

*Thursday 13 October 2022 16:15 (10 minutes)*

**Presenter:** NAROLA, Harsh

**Session Classification:** Data Analysis and Observations

Contribution ID: 19

Type: **not specified**

## **Identification of strongly lensed gravitational-wave pairs with deep learning**

*Thursday 13 October 2022 16:05 (10 minutes)*

**Presenter:** OFFERMANS, Arthur (KU Leuven)

**Session Classification:** Data Analysis and Observations

Contribution ID: 20

Type: **not specified**

# **Unraveling information about supranuclear-dense matter from the complete binary neutron star coalescence using future gravitational-wave detector networks**

*Thursday 13 October 2022 15:00 (10 minutes)*

**Presenter:** PUECHER, Anna (Nikhef)

**Session Classification:** Data Analysis and Observations

Contribution ID: 21

Type: **not specified**

## **Model-independent searches for anisotropic stochastic gravitational wave background**

*Thursday 13 October 2022 14:30 (10 minutes)*

**Presenter:** SURESH, Jishnu (Université catholique de Louvain)

**Session Classification:** Data Analysis and Observations

Contribution ID: 22

Type: **not specified**

## **REMOTE: Gravitational wave spectral synthesis**

*Friday 14 October 2022 16:35 (10 minutes)*

**Presenter:** VAN ZEIST, Wouter (Radboud University)

**Session Classification:** Theory and Astrophysics

Contribution ID: 23

Type: **not specified**

# Detectability of a spatial correlation between stellar mass black hole mergers and Active Galactic Nuclei

*Thursday 13 October 2022 16:45 (10 minutes)*

**Presenter:** VERONESI, Niccolò (Leiden Observatory)

**Session Classification:** Data Analysis and Observations



Contribution ID: 24

Type: **not specified**

# The impact of galaxy redshift uncertainty models on the Hubble constant from gravitational waves

*Thursday 13 October 2022 16:35 (10 minutes)*

**Presenter:** TURSKI, Cezary (Ghent University)

**Session Classification:** Data Analysis and Observations

Contribution ID: 25

Type: **not specified**

## **Nonlinear effects in the black hole ringdown: absorption-induced mode excitation**

*Friday 14 October 2022 14:20 (10 minutes)*

**Presenter:** BOSCH, Pablo (GRAPPA - University of Amsterdam)

**Session Classification:** Theory and Astrophysics

Contribution ID: 26

Type: **not specified**

## **Gradient corrections to the one-loop effective action for strong electroweak phase transitions**

*Friday 14 October 2022 15:00 (10 minutes)*

**Presenter:** CANEVAROLO, Sofia

**Session Classification:** Theory and Astrophysics

Contribution ID: 27

Type: **not specified**

## **Black hole multipoles in higher-derivative gravity**

*Friday 14 October 2022 14:00 (10 minutes)*

**Presenter:** CANO, Pablo Antonio (KU Leuven)

**Session Classification:** Theory and Astrophysics

Contribution ID: 28

Type: **not specified**

## **Modelling neutron star matter**

*Friday 14 October 2022 13:50 (10 minutes)*

**Presenter:** CHAR, Prasanta

**Session Classification:** Theory and Astrophysics

Contribution ID: 29

Type: **not specified**

## **The motion of test bodies in curved spacetime and its applications to GWs physics**

*Friday 14 October 2022 14:40 (10 minutes)*

**Presenter:** DRUART, Adrien (ULB)

**Session Classification:** Theory and Astrophysics

Contribution ID: **30**

Type: **not specified**

# **Wave-optics limit of the stochastic gravitational wave background**

*Thursday 13 October 2022 16:55 (10 minutes)*

**Presenter:** GAROFFOLO, Alice (Leiden University)

**Session Classification:** Data Analysis and Observations

Contribution ID: 31

Type: **not specified**

## **POSTER: Binary dynamics from Einstein-Maxwell theory at second post-Newtonian order using effective field theory**

**Presenter:** GUPTA, Pawan

**Session Classification:** Poster session



Contribution ID: **32**

Type: **not specified**

## **Relativistic modelling of EMRIs environment**

*Friday 14 October 2022 14:50 (10 minutes)*

**Presenter:** MACHET, Ludovico

**Session Classification:** Theory and Astrophysics

Contribution ID: 33

Type: **not specified**

## Searching higher-derivative extensions to GR in black holes' ringdown

*Friday 14 October 2022 14:10 (10 minutes)*

**Presenter:** MAENAUT, Simon (KU Leuven)

**Session Classification:** Theory and Astrophysics

Contribution ID: 34

Type: **not specified**

## How do binary stars form compact object mergers?

*Friday 14 October 2022 16:05 (20 minutes)*

**Presenter:** MARCHANT, Pablo (Institute of Astronomy, KU Leuven)

**Session Classification:** Theory and Astrophysics

Contribution ID: 35

Type: **not specified**

## **Forming merging double compact objects with stable mass transfer**

*Friday 14 October 2022 16:25 (10 minutes)*

**Presenter:** PICCO, Annachiara (KU Leuven)

**Session Classification:** Theory and Astrophysics

Contribution ID: 36

Type: **not specified**

## Tidally perturbed isolated horizons

*Friday 14 October 2022 14:30 (10 minutes)*

**Presenter:** RIBES METIDIERI, Ariadna (Radboud University)

**Session Classification:** Theory and Astrophysics

Contribution ID: 37

Type: **not specified**

## **Finding quiescent black holes in massive binaries**

*Friday 14 October 2022 15:55 (10 minutes)*

**Presenter:** SANA, Hugues (KU Leuven)

**Session Classification:** Theory and Astrophysics

Contribution ID: 38

Type: **not specified**

## **REMOTE: SOBBH with LISA: forecasts of background and events detectability in the light of GWTC-3**

*Friday 14 October 2022 16:45 (10 minutes)*

**Presenter:** TORRADO, Jesus (Université Libre de Bruxelles)

**Session Classification:** Theory and Astrophysics

Contribution ID: 39

Type: **not specified**

# Gravitational waves from dark matter production

*Friday 14 October 2022 15:10 (10 minutes)*

**Presenter:** VANVLASSELAER, Miguel (VUB)

**Session Classification:** Theory and Astrophysics



Contribution ID: 40

Type: **not specified**

# Entanglement Limits in Hybrid Spin-Mechanical GW Detectors

*Friday 14 October 2022 09:20 (10 minutes)*

**Presenter:** AGASTI, Souvik (University of Hasselt)

**Session Classification:** Instrumentation

Contribution ID: 41

Type: **not specified**

## **POSTER: High resolution compact vertical inertial sensor for atomic quantum gravimeter hybridizing**

**Presenter:** AMOROSI, Anthony (ULiège)

**Session Classification:** Poster session

Contribution ID: 42

Type: **not specified**

# **A first Proof-of-Concept for Gravity-Gradient Noise Mitigation with Spatio-Temporal Neural Networks at the Einstein-Telescope**

*Friday 14 October 2022 11:45 (10 minutes)*

**Presenter:** BERTRAM, David (RWTH Aachen University)

**Session Classification:** Instrumentation

Contribution ID: 43

Type: **not specified**

## **Mode mismatch in Advanced Virgo: Commissioning for O4 and future prospects with the phase camera**

*Friday 14 October 2022 09:00 (10 minutes)*

**Presenter:** DE ABREU SILVÉRIO CABRITA, Ricardo

**Session Classification:** Instrumentation

Contribution ID: 44

Type: **not specified**

## **Status of frequency dependent squeezing for AdV+**

*Friday 14 October 2022 09:10 (10 minutes)*

**Presenter:** GUO, Yuefan (Nikhef)

**Session Classification:** Instrumentation

Contribution ID: 45

Type: **not specified**

# OmniSens - Reimagining Seismic Isolation for the Einstein Telescope

*Friday 14 October 2022 10:10 (10 minutes)*

**Presenter:** HOLLAND, Nathan

**Session Classification:** Instrumentation

Contribution ID: 46

Type: **not specified**

## **A model for reproducing ice formation in gravitational-wave detectors and studying its impact on thermal noise**

*Friday 14 October 2022 09:40 (10 minutes)*

**Presenter:** IANDOLO, Guido Alex (GWFP, Maastricht University (Nikhef))

**Session Classification:** Instrumentation

Contribution ID: 47

Type: **not specified**

## **Impact of correlated seismic and correlated Newtonian noise on the Einstein Telescope**

*Friday 14 October 2022 10:20 (10 minutes)*

**Presenter:** JANSSENS, Kamiel Daniel K

**Session Classification:** Instrumentation



Contribution ID: 48

Type: **not specified**

## **Advancements in the Rasnik readout system and applications**

*Friday 14 October 2022 09:50 (10 minutes)*

**Presenter:** KOUSHIK, Anoop Nagesh

**Session Classification:** Instrumentation

Contribution ID: 49

Type: **not specified**

## **Construction and development of position sensors for seismic attenuators of the ETpathfinder experiment**

*Friday 14 October 2022 10:00 (10 minutes)*

**Presenter:** LI, Pengbo

**Session Classification:** Instrumentation

Contribution ID: 50

Type: **not specified**

# Development and testing of composite vacuum tubes for Einstein Telescope

*Friday 14 October 2022 11:35 (10 minutes)*

**Presenter:** REVATHI, Purnalingam (RWTH Aachen University)

**Session Classification:** Instrumentation

Contribution ID: 51

Type: **not specified**

## **E-TEST: A compact low-frequency isolator for large cryogenic mirror**

*Friday 14 October 2022 11:15 (10 minutes)*

**Presenter:** Mr SIDER, Ameer (PML - Precision Mechatronics Laboratory, Université de Liège, B-4000 Liège, Belgium)

**Session Classification:** Instrumentation

Contribution ID: 52

Type: **not specified**

## **The coatings research lab at Maastricht University**

*Friday 14 October 2022 09:30 (10 minutes)*

**Presenter:** SPAGNUOLO, Viola (Maastricht University)

**Session Classification:** Instrumentation

Contribution ID: 53

Type: **not specified**

## **POSTER: Towards precise absolute quantum gravimeters**

**Presenter:** TELOI, Mayana (Université libre de Bruxelles)

**Session Classification:** Poster session

Contribution ID: 54

Type: **not specified**

## **Leaf-spring suspension of a ultra-high performance vertical inertial sensor used for active seismic isolation**

*Friday 14 October 2022 11:25 (10 minutes)*

**Presenter:** ZEOLI, Morgane (Université Catholique de Louvain-la-Neuve)

**Session Classification:** Instrumentation

Contribution ID: 55

Type: **not specified**

## **POSTER: R&D facility for 2 $\mu$ m optical characterization**

**Presenter:** PASCUCCI, Daniela (Ghent University)

**Session Classification:** Poster session