

# AHEAD 2020

INTEGRATED ACTIVITIES FOR  
HIGH ENERGY ASTROPHYSICS



Funded by the Horizon 2020  
Framework Program  
of the European Union  
Grant Agreement No. 871158

## **WP3- Networking activities** for the synergies between the Gravitational Wave and the High Energy Astrophysics Community

*Francesca Spagnuolo*, **European Gravitational Observatory (EGO)**





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- **WP3** focuses on the networking activities for the synergies between gravitational wave and high energy astrophysics communities



Tasks

**T3.1 Management of the Network** (F.Spagnuolo, EGO)

**T3.2 Multimessenger Research** (S. Katsanevas, E.Cuoco, EGO)

**T3.3 Synergies with HE and Geoscience** (S. Katsanevas, E.Cuoco, EGO)

**T3.4 Research and Development** (B. Mours, CNRS)

**T3.5 Low Latency Triggers and Access to data** (M. Van der Sluys, Nikhef)

**T3.6 Next Generation Large Infrastructures** (M. Punturo, INFN)

**RP2 interim review:** great improvement was achieved in RP2 compared with RP1 (deeply affected by COVID-19)> no recommendations concerning WP3

AHEAD 2020 Second General Meeting, Rome 26-27 November 2024



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**Stavros Katsanevas, EGO**  
(2020-27 November 2022# )



**Elena Cuoco, EGO**  
(since April 2023)  
WP3 Leader and Task Coordinator  
T3.2 Multimessenger Research  
T3.3 Synergies with HE and  
Geoscience



**Francesca Spagnuolo, EGO**  
Acting Coordinator (December  
2022- March 2023) and Task  
Manager  
T3.1 Management of the Network



**Benoit Mours, CNRS, Task  
Leader T3.4 Research and  
Development**



**Michele Punturo, INFN, Task Leader**  
T3.6 Next Generation Large Infrastructures



**Marc Van der Sluys, Nikhef, Task  
Leader (since March 2023)**  
T3.5 Low Latency Triggers and Access to data





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# Activity progress towards goals



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G1,G2,G3

G1,G3,G4

G1,2,3,4

RP1

2 Mar 2020-1 Sept 2021

RP2

2 Sept 2021- 1 Mar 2023

RP3

2 Mar 2023-1 Dec 2024

## WP3 GOALS

- G1-** common policy on issues such as low latency alerts, data sharing, publication rules
- G2-** exchange of/common interpretation of experimental results
- G3-** interdisciplinary issues with other domains, including geoscience
- G4-** enabling technologies and design elements of next gen LRI, eg ET

## COVID-19

Several informal remote meetings in preparation of INFRA DEV and INFRA TECH calls

23-25 June ONLINE  
2nd GRAVI-GAMMA Workshop  
From Multi-Wavelength to multi-messenger

1st International Workshop on Gravitational Wave detection on the Moon

14-15 October, 2021  
Cascina, Italy

Low-latency alerts & Data analysis for Multi-messenger Astrophysics

13-14 Jan 2022  
Online

Report of Contributions

13-14 January 2022

Report of Contributions

15-17 nov 2022  
EGO  
Europe/Rome fuso orario

1st ET Annual meeting

Sintesi
Calendario
Lista contributi
Iscrizione
Elenco partecipanti
Zoom links (ET wiki page - ET account needed)

The 2022 ET annual meeting will be the occasion to discuss key points of the ET collaboration and of the ET design. The meeting will be hosted by the European Gravitational Observatory (EGO) and will be the occasion to visit the largest European gravitational wave detector: Advanced Virgo.

The meeting is open to all the ET collaboration members and to the aHEAD2020 members and it will be both in person and via videoconference.

This event is supported by the Horizon 2020 Framework programme of the European Union, G.A. 871158



**Multi-Messenger Astrophysics Workshop (MMAW)**  
**October 10-12, 2022**  
**EGO, Cascina, Italy**

Workshop on the synergies between astrophysics and geoscience

MARCH 4-5, 2024  
EGO, CASCINA (ITALY) AND ONLINE

AHEAD 2020 workshop on the synergies between astrophysics and geoscience

Data analysis for multi-messenger Astrophysics Workshop

OCTOBER 21-23, 2024  
EGO, CASCINA (ITALY)



A Roadmap for Multi-Messenger Astrophysics

WP 3 DELIVERABLE NO. 3.5

Project acronym: AHEAD2020  
Project Title: Integrated Activities for the High Energy Astrophysics Domain  
Grant Agreement No: 871158  
This deliverable is part of a project that has received funding from the European Union's Horizon 2020 research and innovation programme  
Start date of the project: 2020-03-02



# Key results in RP3, impact and lessons learned

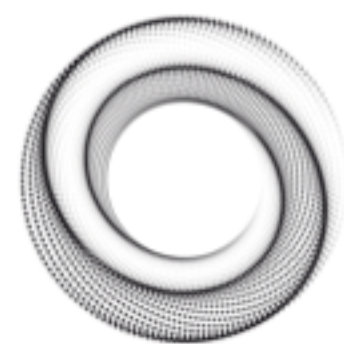
- 3 workshops organized in **RP3**, with >110 registered participants (total)
- several side-events (meetings, trainings, etc.) organized by people involved in WP3 open to the multi-messenger community
- all deliverables submitted (D3.4 Roadmap document; D3.5 Last year final report)
- during RP3 **no major deviations**, except for the Workshop on low-latency triggers and access to data organized in Amsterdam > cancelled for lack of interest (only 4 registered participants)

**LL1-** attendance was higher when workshops were in hybrid mode (in-person/remote) **BUT** active involvement was higher when participants met physically

**LL2-**workshops focused on specific technical issues failed to engage a large audience **WHILE** workshops covering a more broad topic or several different issues attracted more people







# Conclusions (1/2)

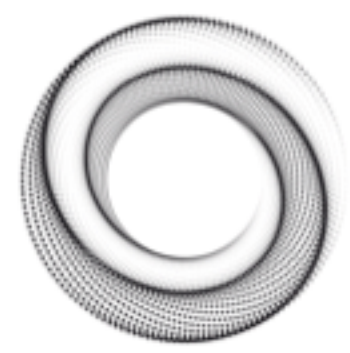


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Task/Lead partner	Initial plan of NAs	NAs actually held
T3.2 Multimessenger research/EGO	2 symposia: <ul style="list-style-type: none"><li>1 in 2020</li><li>1 in 2024</li></ul>	<ul style="list-style-type: none"><li>GW on the Moon 1st Intl workshop, @EGO, Oct 2021, participants: <b>341</b></li><li>MM 1st workshop organized together with T3.5 (Paris &gt;ZOOM), 13-14 Jan 2022, participants:<b>160</b></li><li>MM 2nd workshop @EGO, 10-12 Oct 2022, participants:<b>107</b></li><li>Data Analysis for Multimessenger Astrophysics @EGO, 21-23 Oct 2024, participants:<b>37</b></li></ul>
T3.3 Synergies with High Energy and Geoscience/EGO	2 symposia: <ul style="list-style-type: none"><li>1 in 2021</li><li>1 in 2023</li></ul>	<ul style="list-style-type: none"><li>Several remote meetings in 2021-2022 (APOGEIA proposal), participants: <b>45</b></li><li>Workshop on the synergies between astrophysics and geoscience @EGO, 4-5 Mar 2024, participants: <b>57</b></li></ul>
T3.4 Research and Development/CNRS	2 workshops: <ul style="list-style-type: none"><li>1 in 2022</li><li>1 in 2023</li></ul>	<ul style="list-style-type: none"><li>Workshop CBC search with MBTA @INP2 29 Mar 2022, participants: <b>20</b></li><li>Workshop on CBC search with MBTA @INP2 27 Mar 2023, participants:<b>18</b></li></ul>
T3.5 Low Latency Triggers and Access to Data/Nikhef	2 workshops <ul style="list-style-type: none"><li>1 in 2021</li><li>1 in 2023</li></ul>	<ul style="list-style-type: none"><li>MM 1st workshop organized together with T3.5 (Paris &gt;ZOOM), 13-14 Jan 2022</li><li>Workshop on low-latency triggers and access to data organized in Amsterdam &gt; cancelled for lack of interest (only 4 registered participants)</li></ul>
T3.6 Next generation Large Infrastructures/INFN	2 workshops <ul style="list-style-type: none"><li>1 in 2020</li><li>1 in 2022</li></ul>	<ul style="list-style-type: none"><li>ET Site Studies and Characterization, Nuoro, 8-11 Nov 2021, participants: <b>50</b></li><li>ET annual meeting @EGO 15-17, Nov 2022 participants: <b>176</b></li></ul>

Total number of participants to NAs: **1011**



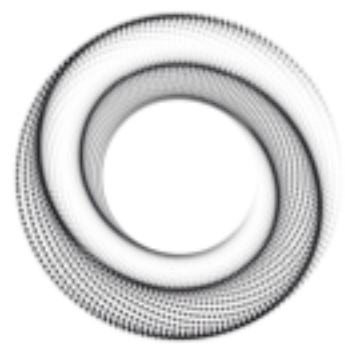
# Conclusions (2/2)

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- WP3 activities involved more than a thousand people
- Lead to the development of a roadmap for Multimessenger Astrophysics
- Fueled collaboration between partners
  - synergies between geoscience and astrophysics has led to contacts between ET and groups working on muonography
  - several AHEAD2020 partners are involved in a newly Horizon Europe financed project «Astrophysics Centre for Multimessenger studies in Europe» (ACME)



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# THANK YOU for your attention!