ACME a new opportunity for multi-messenger in Europe

ACME
Astrophysics Center for
Multimessenger studies in Europe

The consortium

- ❖ 40 partners
- ❖ 15 countries
- ❖ > 30 research infrastructures
- ❖ Covering:

radio, optical, near infrared, X-rays, gamma-rays, gravitational waves, neutrinos, cosmic rays

Project duration:
Sept. 2024 – Aug. 2028

Total cost:
14.5 M€ (100% EU)

Project structure

Main Objectives:

- provide broader, simplified, and more efficient access to the best research infrastructures available to researchers in astronomy and astroparticle
- offer access to tate-of-the-art instruments and to virtual center of expertise focused on multimessenger astrophysics

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1. **Coordinate** the activities
2. Provide **transnational/virtual access** to RIs
3. Provide **centres of expertise** and **visists**
4. Improve **science data product** management
5. Manage **real-time alerts and observations**
6. Provide **training** for new generation
7. Open data sets to **other disciplines**, increase **citizen engagement**

→ **7 corresponding Work Packages (WP)**

Transnational Access TNA

Access to observations:
radio, high-energy gamma rays, neutrinos, cosmic rays **–WP2**

❖ **Nine instruments** covering radio, optical, γ, neutrinos, and cosmic rays.
❖ Those with existing processes: access **from Year 1**
❖ KM3NeT/Pierre Auger/CTAO: access **from Year 2**
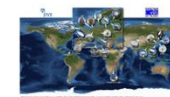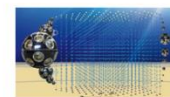
CFHT   CTAO   e-MERLIN

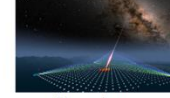Effelsberg   EVN   KM3NeT

LOFAR   MAGIC   Pierre Auger Observatory

Visits to MM nodes – WP3
- 1-2 week(s) stay, fully funded
- **First call** closed on 6 April 2025 **(74 eligible project, 46 selected);**
- **Second call** opened in September **(92 elegible projects)**, selection ongoing
- **Next call in February**
- MM projects on observations, data analysis, and theory.

For calls check ourwebsite:
https://www.acme-astro.eu

APC   AUTh Laboratory of Astronomy   BUW

CPPM   GSSI   IFAE Institut de Física d'Altes Energies

IGFAE   INAF   INFN

IRAP   IRFU   L2IT

SRON   UCLouvain   UNIGE

WP3 Virtual access - provision of scientific expertise

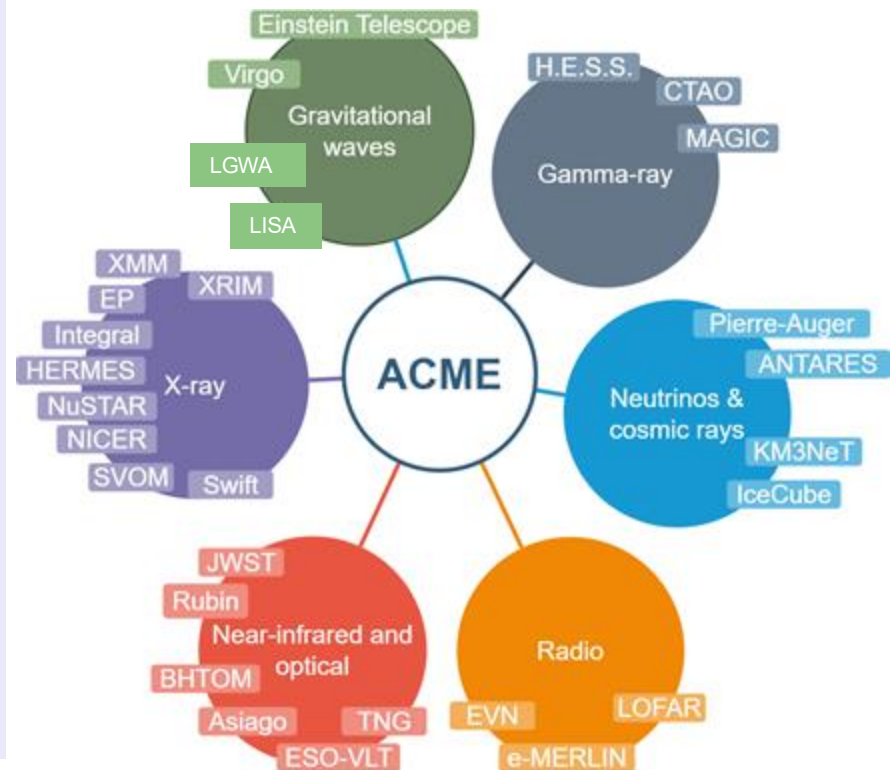One Centre of Expertise per messenger = **network of distributed nodes**.

provide
- ❖ **remote training in multi-messenger astronomy**
- ❖ **expertise** on **infrastructures, observations, advanced data analysis,** and **theoretical tools**

Implementation:

- ❖ hands-on sessions, help desk user support

Joint Centres of Expertise

JCE web-page

Visits to institutes (TNA)

Regular calls will be issued, aiming to support **research visits to European institutes** that provide **direct training and expert guidance in multi-messenger astronomy**.

The goal is to enhance and expand expertise in the observational, data analysis, and theoretical aspects across the various ACME messengers and multi-wavelength domains.

Visits are expected to take place in one of the participating institutes in the relevant domain of expertise. They last for one to two weeks (5-10 working days).

- List of institutes

Visiting users will be selected through a competitive process based on the quality of the scientific applications and the suitability between the proposed project and the insititute.

First call (April 2025)

Results

Second call (September 2025)

Registration form (Closed)

Online expertise (VA)

The access to expertise is given through **remote hands-on sessions and helpdesk**. The experts support the access to multi-messenger data analysis methods and tools, end-to-end expertise for multi-wavelength and multi-messenger follow-up of transient signals, and to the theoretical expertise to interpret data. Details on the expertise are given in the corresponding center pages:

- Gamma-rays
- Gravitational waves
- Neutrinos & Cosmic rays
- Optical & Near-infrared
- Radio
- X-rays

Hands-on sessions

These are online events on data analysis tools/platforms. Users should register for the training events to access them.

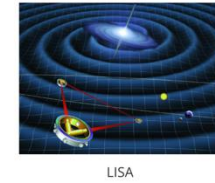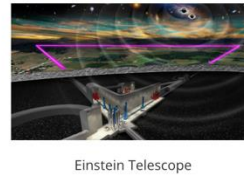Calendar of sessions
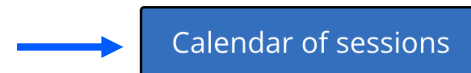
VA platform

The platform allows users to request assistance on any of the topics related to the expertise of the different centres. The users can register on the platform, create a ticket, and interact directly with experts there. The platform can be accessed through the following link:

Access to ACME VA platform

JCE – GRAVITATIONAL WAVE

List of nodes

LABORATORY OF ASTRONOMY
DEPARTMENT OF PHYSICS
ARISTOTLE UNIVERSITY OF THESSALONIKI

AUTh Laboratory of Astronomy

Gravitational waves, Visiting institute (TNA)

INFN
Istituto Nazionale di Fisica Nucleare

INFN

Gamma rays, Gravitational waves, Visiting institute (TNA)

L2IT

L2IT

Gravitational waves, Visiting institute (TNA)

GSSI
GRAN SASSO SCIENCE INSTITUTE

GSSI

Gravitational waves, Neutrinos & Cosmic rays, Visiting institute (TNA)

List of instruments and experiments

Einstein Telescope

LGWA

LISA

Virgo

List of provided expertises

GW Sources & Detection Forecasting ⊕

Low-Latency Alerts & Follow-up Planning ⊕

Data Analysis & Parameter Estimation ⊕

Machine Learning & Sub-threshold Search Support ⊕

Multi-Messenger Analysis & Theoretical Expertise ⊕

List of tools

Aladin Desktop
Powerful interactive sky atlas developed by the Centre de Données astronomiques de Strasbourg (CDS)…
read more

AresGW
AResGW is a machine-learning-based pipeline designed for offline real-time gravitational wave (GW) detection, especially optimized for binary black hole (BBH) mergers in the 7–50 M☉ range (individual component masses) with non-aligned spins, using real LIGO data. Core…
read more

B-pop
B-pop is a modular, Python-based software package designed to generate realistic populations of binary compact objects—such as binary neutron stars (BNS), neutron star–black hole binaries (NSBH), and binary black holes (BBH)—for use in gravitational-wave (GW)…
read more

BAT-GLIMPSE
BAT-GLIMPSE (Gamma-ray Localization using Imaging and Mosaic techniques for Pointing and Slew Epochs) is a real-time data analysis pipeline developed for the Swift Burst Alert Telescope (BAT). Its primary purpose is to detect and localize high-energy transients, such…
read more

Bilby
Bilby (Bayesian Inference Library) is an open-source Python package designed to perform Bayesian parameter estimation and model selection for gravitational-wave (GW) signals. It offers a flexible, modular, and user-friendly framework that allows researchers to analyze…
read more

JCE – Virtual Access platform

This platform provides access to expert guidance in the following areas:

- Expertise in multi-messenger observatories, and advanced data analysis and tools
- End-to-end support for multi-wavelength and multi-messenger observations
- Theoretical expertise and tools to help interpret data

→ Users are invited to register on the platform and submit a request via the ticketing system in the relevant domain.

→ Each inquiry will be addressed by one or more experts, who may respond directly within the ticket or propose a follow-up via phone or video call.

Accedi a support.acme-astro.eu

ACME

NOME UTENTE / EMAIL

marica.branchesi@gssi.it

PASSWORD

•••••••••••••••••

☐ Ricordami

Entra

Password dimenticata?

Sei già registrato con il tuo indirizzo email se hai già interagito col nostro team di supporto.
Puoi richiedere la tua password qui.

Registrati come nuovo cliente | ACME website

Powered by Zammad

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JCE – Tutorial calendar

November 2025

Nov 18 Tuesday

Nov 18 — **MOMENTA: follow-up of transient sources with multiple neutrino…**
Tue 18 Nov, 10:00 - 12:00

Nov 19 Wednesday

Nov 19 — **Build your own alert system**
Wed 19 Nov, 10:00 - 17:00

Nov 25 Tuesday

Nov 25 — **Eryn**
Tue 25 Nov, 10:00 - 16:00

Nov 26 Wednesday

Nov 26 — **LISAbeta**
Wed 26 Nov, 15:00 - 18:30

Currently, the calendar shows tutorials up to end of December, then we will announce the tutorials from January to March