

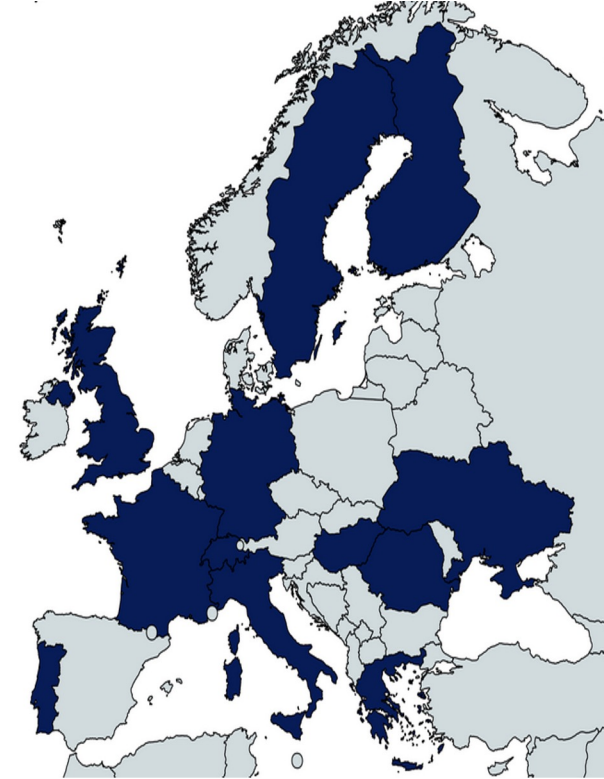


Astroparticle Physics
European Consortium (APPEC)
&
Astrophysics Centre for Multi-messenger
studies in Europe (ACME)

The AstroParticle Physics European Consortium (APPEC)



- ❖ An international coordination structure
- ❖ Current configuration was implemented in 2012
- ❖ Based on an MoU (renewed 2023), APPEC includes
 - 19 countries: Austria, Belgium, **Canada**, Czech Republic, **Finland**, France, Germany, Greece, Hungary, Italy, Poland, Portugal, Romania, Spain, **Sweden**, Switzerland, The Netherlands, **Ukraine**, United Kingdom
 - 24 funding agencies
- ❖ An annual budget of ~70 k€



The APPEC Consortium - objectives



Coordination of the astroparticle activities in Europe

- ❖ Provide scientific advice in a structured manner
- ❖ Develop collaborations with adjacent communities
 - (e.g. JENAA – Joint ECFA-NuPECC-APPEC Activities <https://www.nupecc.org/jenaa/> , EuCAPT <https://www.eucapt.org/>)
 - ASTRONET
- ❖ Initiate projects within the framework of European programmes (e.g. **ACME**, INFRA DEV 2026 proposal)
- ❖ Express a shared vision during international meetings of the astroparticle community
- ❖ Organize Town Meetings, Technology Forums, and sponsor conferences and thematic workshops
- ❖ Support communities (scientific and organizational guidance) in the process of establishing research infrastructures and equipment
 - ESFRI roadmap, EC funding, national and regional funds...
 - Joint outreach and communication efforts, Diversity, Education

The APPEC Consortium - organization



The General Assembly

- Strategic decision-making and oversight body
- Composed of representatives of funding agencies

President: Carlos Peña Garay (LSC, Spain)

Vice-presidents: Antoine Kouchner (CNRS/UPCité, France), Leszek Roszkowski (Astrocent Institute, Poland)

The Scientific Advisory Committee

- Advisory body

President: Aldo Ianni (INFN, Italy),

Vice-president: Mathieu de Naurois (CNRS, France)

The Joint Secretariat

- Executive body

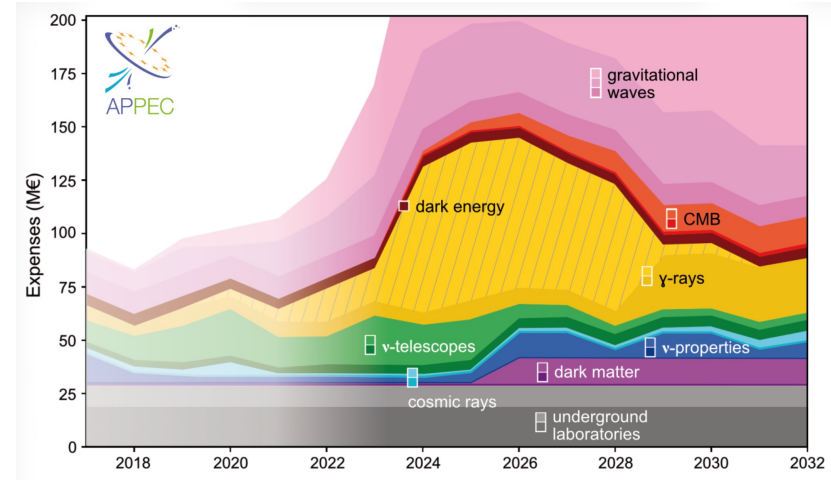
General Secretary: Julie Epas (CNRS)



Scientific topics



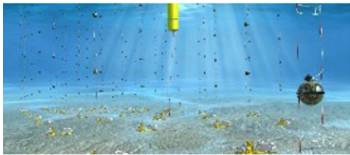
- High-energy gamma-rays
- High-energy neutrinos
- High-energy cosmic rays
- Gravitational waves
- Dark Matter
- Neutrino mass and nature
- Neutrino mixing and mass ordering
- Cosmic microwave background
- Dark Energy
- Astroparticle theory
- Detector R&D
- Computing and data policies
- Unique infrastructures



Ongoing preparation for the new **European Astroparticle Physics Strategy (2027–2036)**

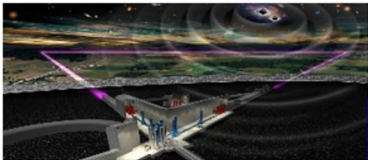
Research infrastructures - dynamic list

[construction KM3NeT 2020-]



ESFRI

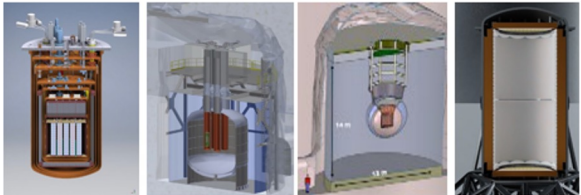
HE Neutrinos



ESFRI

[construction ET

Gravitational Waves



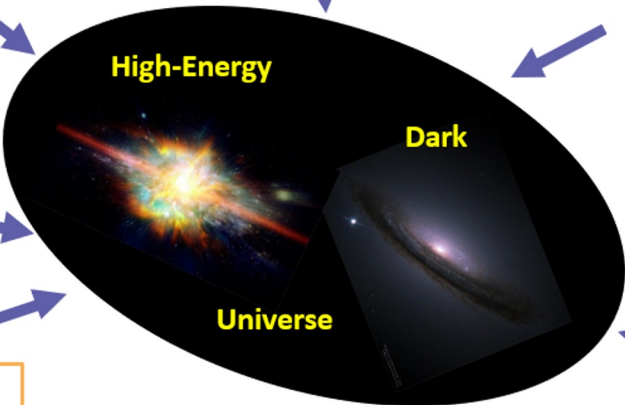
[construction LEGEND-1000, CUPID, nEXO, NEXT, 2023-

Neutrino Properties

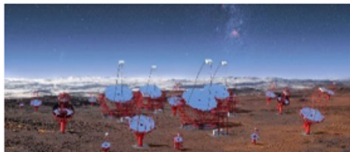
[construction AugerPrime 2019-]



HE Cosmic Rays

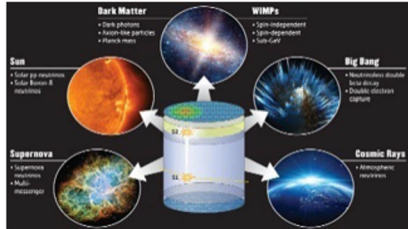


[construction CTA 2021-



ESFRI

HE Gamma rays



[construction DARWIN, ARGO 2024-

Dark Matter

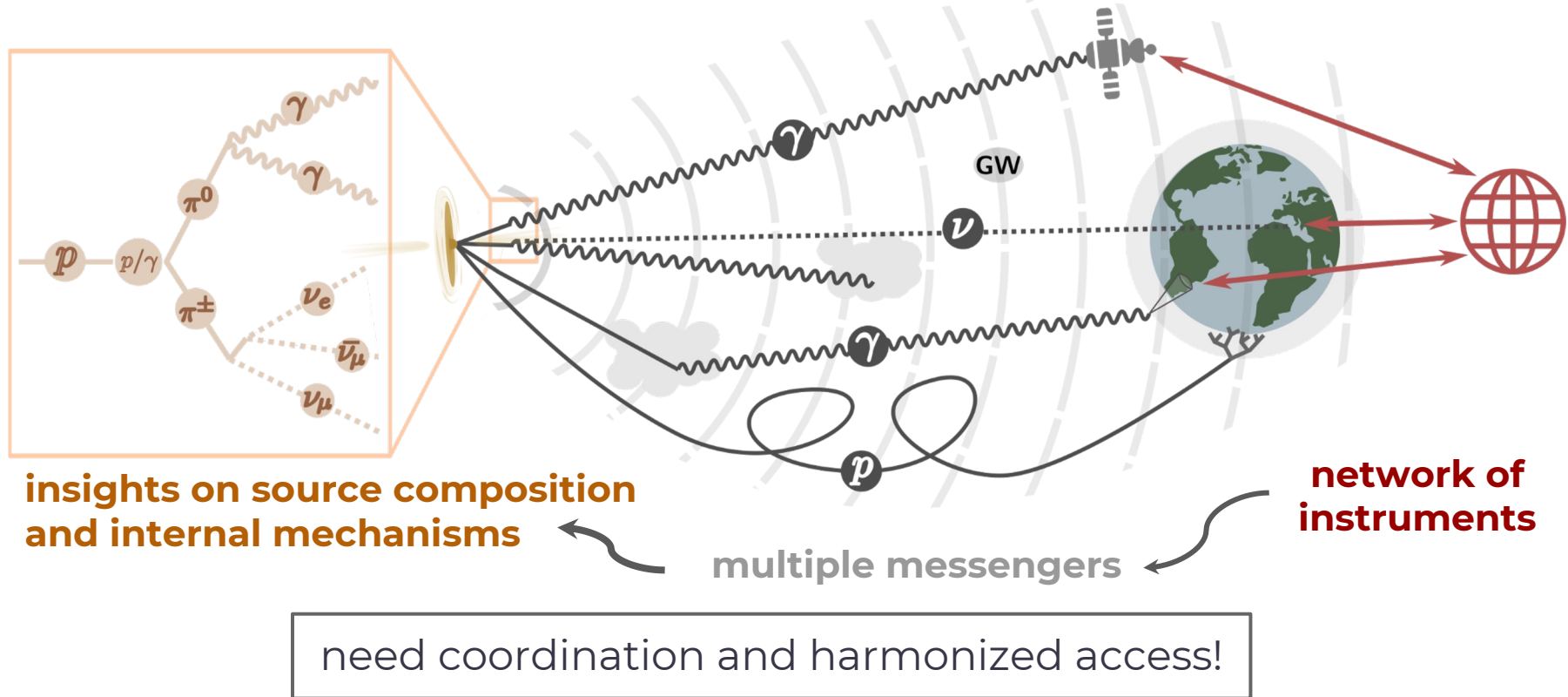
APPEC Events & upcoming Town Meeting 2026



- IUVSTA Workshop 109 & APPEC Tech Forum 2025: <https://indico.cern.ch/event/1514758/>
- APPEC Town Meeting 2025: <https://indico.cern.ch/event/1516919/>
- APPEC Town Meeting 2026 - September 2-3, Geneva: <https://indico.cern.ch/event/1648605/>
- Register to the newsletter: <https://www.appec.org/latest-news/newsletters/>



Multi-messenger Astronomy



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

Objective: improve access to research infrastructures for multi-messenger science.



1. **Coordinate** the activities
2. Harmonized **transnational/virtual access** to RIs
3. Develop **centres of expertise**
4. Improve **science data products** 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)**

Research infrastructures providing access

WP2

❖ **Nine instruments** covering radio, optical, γ , neutrinos, and cosmic rays.

❖ Those with existing processes:
access **from Year 1**

❖ KM3NeT/Pierre Auger: access
from Year 2

Ongoing calls:

➤ KM3NeT, PAO



CFHT



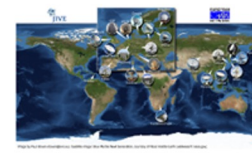
CTAO



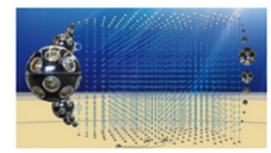
e-MERLIN



Effelsberg



EVN



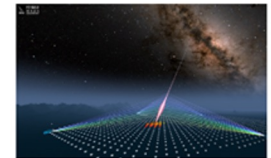
KM3NeT



LOFAR



MAGIC



Pierre Auger
Observatory

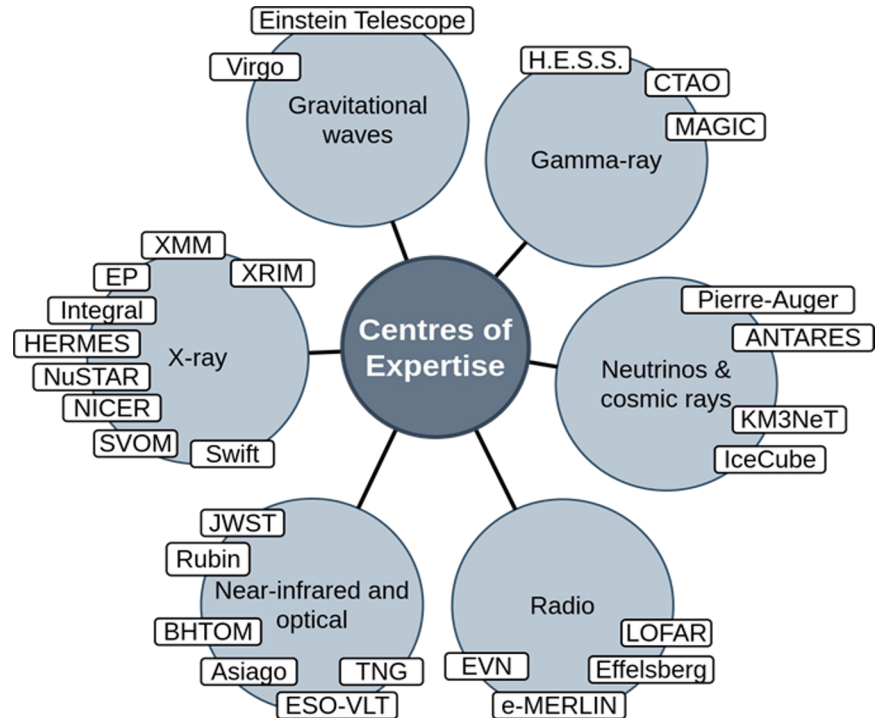
Research infrastructures providing access

WP3

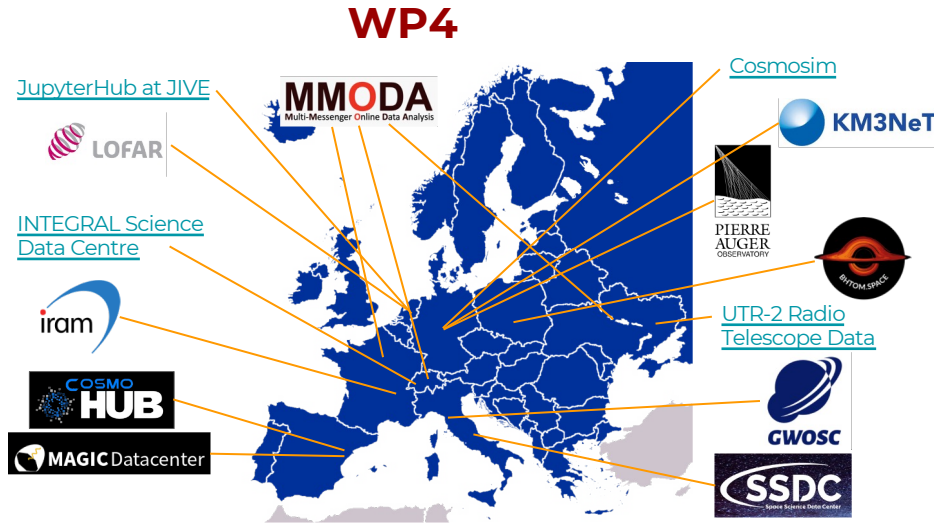
❖ **Access to expertise** on infrastructures, observations, data analysis and interpretation, joint MM analyses.

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

❖ Implementation: hands-on sessions, help desk user support, visits to the Centres of Expertise.



Research infrastructures providing access



❖ Provide **Virtual Access (VA)** to **online services**:

- combination of the data products of various instruments

- multi-messenger data analysis workflows (including models).

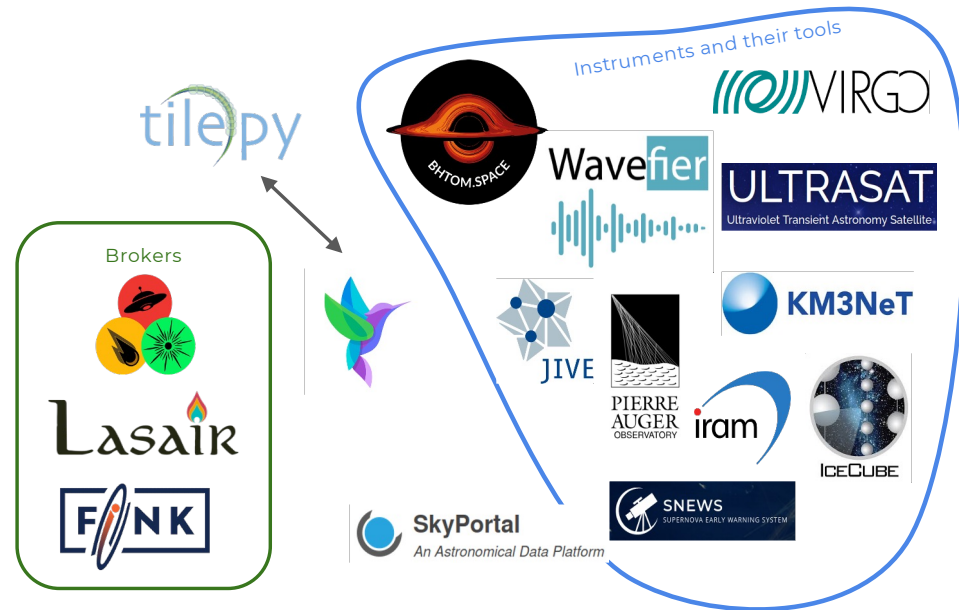
❖ Lower the barrier of learning practices of the other communities via **harmonization of standards for data access and analysis tools**.

❖ Planning of follow-up observations via provision of services for **on-the-fly analysis of archival multi-messenger data**.

Research infrastructures providing access

WP5

- ❖ Realtime ecosystem for improved alerts streams
- ❖ Tools for management and analysis of the streams
- ❖ Tools to visualise the data and organise follow-up observations based on detections made in near real time





ACME data access, expertise and workshops

- ❖ **Regular calls for transnational access:**
 - Ongoing WP2 call for access to data from Auger and KM3NeT .
 - Next call for visits to institutes (WP3) in Fall 2026.
- ❖ **Online support** through [hands-on sessions](#) and [ticket system](#).
- ❖ **Many workshops and training schools (WP 6)**. Next events:
 - [European Radio Astronomy School](#) (Italy, Sep 2026)
 - [LOFAR Data School](#) (Netherlands, Sep 2026)
 - [Hands-On Observational School in Optical Follow-Up of Transients](#) (Italy, Oct 2026)
 - [Cherenkov Astronomy Data School](#) (France, Nov 2026)
 - [Inter-Disciplinary UG Science and Tech conference](#) (France, Nov 2026)
 - Neutrino Astronomy Bootcamp (France, Dec 2026)
- ❖ **Outreach and open science (WP 7)**
- ❖ **Training materials centralised** [here](#).

WP 6 leaders: Natalie Webb, Heidi Korhonen

WP 7 leaders: Gwenhaël De Wasseige, Stephen Serjeant



www.acme-astro.eu

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the newsletter](#)



[@acme-astro](#)

Take home message

- Coordination between communities in Europe is crucial
- ACME with support from APPEC and ASTRONET strives to
 - Bridge the astroparticle and astrophysics communities
 - Provide access to RI and data to a large community, including theorists

