AHEAD 2020

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

AHEAD2020

The EU infrastructure for High energy astrophysics

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AHEAD2020 in a nutshell

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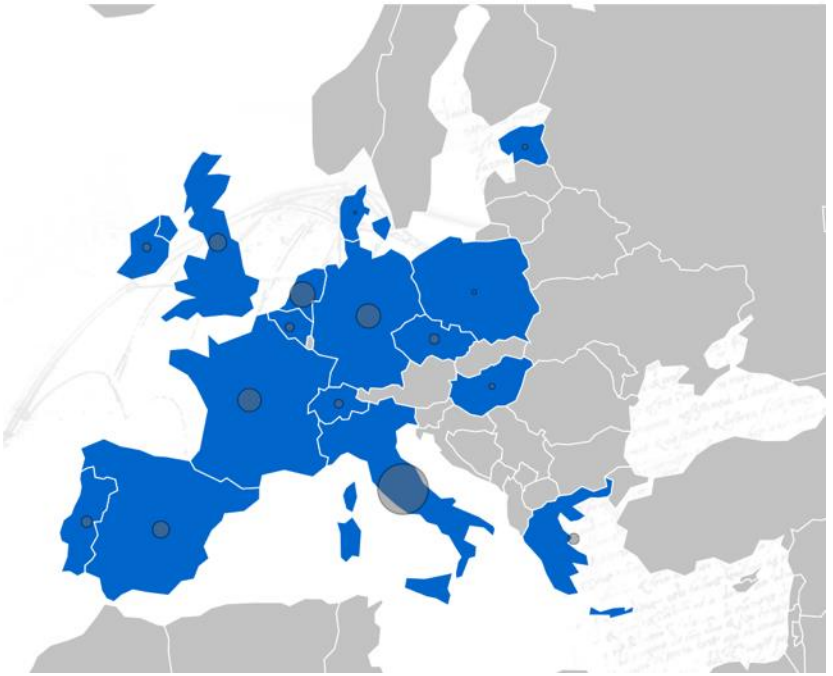
- AHEAD2020 (Integrated Activities for High Energy Astrophysics Domain) is the research infrastructure for High Energy Astrophysics selected as advanced community in the EU Horizon 2020 program.
- AHEAD2020 builds on our previous program, funded in H2020 as starting community, that allowed us to qualify now as advanced community. Its main goal is to improve the level of integration reached by the previous AHEAD program, while broadening its impact to include the new multi-messenger science and the European GW community.
- Started on 2 March 2020; initially scheduled to end 1 March 2024 (duration: 4 years); now extended for Covid mitigation to Dec.1, 2024
- Overall budget: 9.98 M€
- The Consortium is coordinated by INAF (coordinator: L.Piro) and includes 38 European institutions, including 3 SMEs



Comments from AHEAD2020 on next call for Horizon Europe

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- Major change in HE:
  - Present call INFRA-SERV (TNA+connected RD) foresees a general topic: Astronomy and Astroparticle
  - Split long term R&D in another call
- Preliminary discussion in AHEAD2020 Executive Committee & INAF HQ's
- Total budget is 1/3 of the sum of the related EU infrastructure programs: does not favour merging process & ambition
- Focus on selected keyword(s) to be effective vs inclusiveness (but let EU understand the implication of their choice)

AHEAD2020 Assets and activities for the next call

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- IN AHEAD 2020 TNA (+JRA/NA connected) based on **small to large scale portfolio of facilities**: Access to observing facilities (e.g. HE satellites) and data archives, including VA; computational models through expert training; experimental facilities with interdisciplinary applications. Successfully employed and evaluated by EU. 7 Open Calls (one per semester)
- TNA-connected **R&D and services/tools fundamental for improved and standardized access** (e.g tools for MM data exploitation(e.g alerts, MM data modelling,..), improved calibration for HE satellites, laboratory astrophysics, infrastructure for nanosat constellations**): this approach is in line with the content of the call and should be kept**
- AHEAD2020 Assets and activities for the next call & merging
  - **Multimessenger** => already important part of AHEAD2020 (from EM to GW and neutrinos), should be extended including e.g. radio & optical, (several tools & facilties)
  - New **HE astrophysical satellites being operated in the time-frame of the INFRASERV call (Time domain &Spectroscopy (equally relevant for MM**): XRISM, Einstein probe, SVOM, nanosats: improve services and support community access
  - **Experimental facilities (space environment, X-ray synch beams, PIXE sample diagnostics,..)**: used **across the board**, including SME => interdisciplinary, highly considered by EU
  - Future MM large facilities: Einstein Telescope, Athena,..

AHEAD 2020

Multimessenger

HE and Time Domain satellites

AHEAD2020 WPs

Work package No	Work Package Title	Lead Partic. No	Lead Participant Short Name
WP1	AHEAD Management	1	INAF
WP2	NA1- General Networking for High Energy Astrophysics	6	UA
WP3	NA2- Networking activities for the synergies between the Gravitational Wave and High Energy Astrophysics community	7	EGO
WP4	NA3- Public Outreach	4	NOA
WP5	TA1- Access to experimental facilities	1	INAF
WP6	TA2- Access to Data Analysis	5	ULEIC
WP7	TA3- Computational Astrophysics	11	UNIGENEVE
WP8	VA1- Access to Gravitational Wave Science Archive and Tools	7	EGO
WP9	JRA1- Technologies and Techniques for Microcalorimeters	2	SRON
WP10	JRA2- Optics for next generation X-ray observatories	3	MPG
WP11	JRA3- Space Experiments for HE Astrophysics & Multimessenger Astronomy	16	NUID UCD
WP12	JRA4- Multimessenger Astronomy exploitation & tools	10	GSSI
WP13	JRA5- Laboratory Astrophysics	9	CNRS
WP14	JRA6- Advanced Tools for Data Analysis	1	INAF
WP15	JRA7- Technology Innovation and Exploitation for Society	15	TAS

3 Networking Activities (NA)

3 TransNational Access (TA)

1 Virtual Access (VA)

7 Joint Research Activities (JRA)

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