

Call for participation

European FP7 proposal on Integrated Activities for the High-Energy Astrophysics Domain (AHEAD)

There is an emergent need to coordinate efforts in high-energy astrophysics at the European level. In January 2008, an adhoc Steering Committee (SC), composed of several members of the high-energy astrophysics community, was formed to discuss the opportunity for a European Framework Programme #7 proposal entitled *Integrated Activities for the High-Energy Astrophysics Domain (AHEAD)*. This proposal will be submitted as a response to the Spring 2010 call for bottom-up integrated activities, in the frame of the FP7 Capacities Work Programme for support to existing research infrastructures. To ensure that the needs of the high-energy astrophysics community are adequately represented, the SC invites the community to respond massively to the present Call and to participate in the preparation and the definition of the proposal.

An initial structure for the Networking Activities (NA), Transnational and Service Activities (TNA/SA), and Joint Research Activities (JRA) was defined by the SC. The list of activities can be found in the following pages. The community is invited to send proposals in which it: a) states the activities it wishes to be active in, b) describes particular "work packages" within these activities that they would like to deliver, and c) provides an estimate of the financial needs required for the work package(s) (EU/own/total funds), in view of the financial boundaries for integrated activities funded in FP7. The community can also propose new activities in addition to the ones already defined by the SC. The proposal may be submitted by teams of more than one institute, if the proposed activity will benefit from collaborative efforts.

The SC will review the proposals in its September 23-24, 2008 meeting. It will select proposals that are deemed potentially most interesting for inclusion in the future AHEAD proposal. The selected proposers will be invited to present further the proposed activities at a meeting in January 2009. This meeting will be open to the community to increase the dialogue between all interested parties. After iterations with the community, the above work packages and activities should eventually be included in the FP7 proposal and be submitted to the EU.

Submission deadline: August 31, 2008

Format: \leq 5-page document, PDF format, minimum font: 11pt, less than 10MB

Content: Description of proposing institute(s); plan for participation; budget

Submission: <http://isdc.unige.ch/ahead/submit.html> (open after July 15, 2008)

AHEAD Website: <http://isdc.unige.ch/ahead/>

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Integrated Activities for the High-Energy Astrophysics Domain (AHEAD)

1 Rationale

There is an emergent need to coordinate efforts in high-energy astrophysics at the European level and to promote the development of future European facilities that will improve the competitiveness and increase the visibility of European high-energy astrophysicists at the international level. The success of FP6 Integrated Activities research infrastructures in the fields related to astrophysics shows that such a research infrastructure launched under the Framework Programme 7 of the European Commission can provide excellent added value for European high-energy astrophysics.

High-energy astrophysics is strong in Europe. Virtually every major university and research center uses space and ground facilities to study high-energy processes in astrophysics, from radio to gamma-ray wavelengths. However, while collaborations exist among some partners, there is a poor coordinated effort from the high-energy astrophysics community at large to promote future missions of the European Space Agency and of ground-based facilities. In addition, the different aspects of high-energy astrophysics are sometimes poorly connected and could benefit from networking activities. Finally, there is no coordinated discussion on the development of future detectors for high-energy astrophysics and their potential use in future ESA missions.

The success of FP6 Integrated and Coordinated Activities in astronomy and related fields (OPTICON for optical and infra-red astronomy, RADIONET for radio and millimeter astronomy, EuroPlaNet for planetology, HELAS for helio- and asteroseismology, ARENA for astrophysics research in Antarctica, ILIAS for astroparticle science¹) in coordinating their efforts at the European level and in emphasizing the strong interest of (potential) future facilities (e.g., ELT, SKA) shows the strong appeal that a FP7 Integrated Activity in high-energy astrophysics can have on the astronomical community versed in high-energy processes in the Universe. In particular, it is crucial to emphasize the need for high-energy space missions to succeed after current X-ray and gamma-ray space observatories, to avoid losing the expertise gained by European astronomers over the last decades.

Integrating activities in FP7 are designed to ameliorate and widen access to and use of *existing* research infrastructures. They also aim to structure better and integrate, on a European scale, the way research infrastructures operate and to foster their joint development in terms of capacity and performance. It is expected that several research infrastructures are put together to provide access of their facilities. Integrating activities follow the FP6 Integrated Infrastructures Initiatives (I3) model, and they include 3 *mandatory* modules: i) *Networking activities*, ii) *Trans-national access and/or service activities* (TNA/SA), and iii) *Joint Research Activities* (JRA). In FP7, there is an opportunity to propose a *bottom-up* proposal for an Integrating activity in any scientific and technological field. The next call will have a deadline in Spring 2010.

¹An FP7 proposal for integrated activities in high-energy astroparticle physics (HEAPNet) was submitted in early 2008; it has passed the evaluation step, but the funding status is unknown.

2 The Steering Committee

An initial meeting was organized at the ISDC Data Center for Astrophysics on January 28-29, 2008 with a number of members of the European high-energy astrophysics community to discuss the opportunity to submit an FP7 proposal for integrated activities in the high-energy astrophysics domain. The participants expressed the view that high-energy astrophysics needed its own integrated activities programme, in a parallel fashion as integrated activities in the optical/infrared, radio, and astroparticle domains. However, it was felt that such activities required the strong support of the high-energy astrophysics community to ensure success. A Steering Committee (SC) was, therefore, formally created to design, formulate, and promote the so-called *Integrated Activities for the High-Energy Astrophysics Domain (AHEAD)* proposal. The SC is currently composed of the following members:

Thierry Courvoisier (Project Coordinator, ISDC, Switzerland), Xavier Barcons (IFCA, Spain), Didier Barret (CESR, France), Jochen Greiner (MPE, Germany), Wim Hermsen (SRON, Netherlands), Iossif Papadakis (Univ. of Crete, Greece), Luigi Piro (INAF, Italy), Gregor Rauw (Univ. of Liège, Belgium), and Mike Watson (Leicester, United Kingdom)

The future AHEAD board committee will evolve from the above committee and will be enlarged by additional partners that will eventually participate in the FP7 proposal. The high-energy astrophysics community should indeed be included in the design process of the proposal and the present *Call for participation* offers the opportunity to interested parties to join in the proposed AHEAD activities. The SC has also defined an initial structure for the AHEAD proposal, which is reviewed below. Additional activities can be proposed if they cannot be included as a Work Package (WP) under one of the listed activities.

The SC will review the proposals in its September 23-24, 2008 meeting. It will select proposals that are deemed potentially most interesting for inclusion in the future AHEAD proposal. The selected proposers will be invited to present further the proposed activities at a meeting in January 2009. This meeting will be open to the community to increase the dialogue between all interested parties. After iterations with the community, the above work packages and activities should eventually be included in the FP7 proposal and be submitted to the EU.

3 Integrated Activities for the High-Energy Astrophysics Domain

The SC has defined the following potential activities for AHEAD. Clearly, the final structure may be different, based on inputs from the community, rules from the European Community, and financial boundaries for integrated activities (the estimated European Commission contribution is expected to range from 3 to 10 M€, with a hard upper limit of 15 M€). The initial duration of AHEAD should be 4 years, i.e., the maximum allowed for integrated activities in FP7.

3.1 Networking activities (NA)

NA1 Management of the project (Coordinator: ISDC)

NA2 Forum on requirements for future high-energy observatories

NA3 Coordination of research facilities

NA4 Co-ordination of Earth-based observations to support and complement space missions

NA5 Exchange of personnel

NA6 Meetings and conferences

NA7 Outreach activities

3.2 Transnational Access (TNA) / Service Activities (SA)

TNA1 Access to ground facilities for the benefit of high-energy astrophysics

TNA2 Access to “private” space missions or high-energy telescopes

SA1 Research grants (archival and/or guest observers)

3.3 Joint Research Activities (JRA)

JRA1 Enabling technologies and detectors for high-energy astrophysics

JRA2 Optics

JRA3 Laboratory astrophysics (atomic, nuclear) for high-energy astrophysics

JRA4 Data software and analysis

JRA5 Development of data center for high-energy missions

JRA6 Technological transfer

JRA7 Integrating databases

4 Call for participation

The high-energy astrophysics community is invited to participate in the design of the FP7 proposal and to join as potential contractors. The proposers should a) state the activities it wishes to be active in, b) describe particular "work packages" within these activities that they would like to deliver, and c) provide an estimate of the financial needs required for the work package(s) (EU/own/total funds), in view of the financial boundaries for integrated activities funded in FP7. The community can also propose new activities in addition to the ones already defined by the SC. The proposal may be submitted by teams of more than one institute, if the proposed activity will benefit from collaborative efforts.

The format of the proposal is overall loose, except that a page limit of 5 pages is requested, with a minimum font size of 11 pt, to ensure readability. The proposal should contain at least: i) a brief description of the proposing institute(s), ii) a plan for participation in one of the listed activities or a description of a new activity, and iii) a budget of the costs related to the work package. The budget should contain estimates of the total costs, costs that should be funded by the European Union as part of the FP7 proposal, and costs that will be provided by the proposing institute(s). Any high-energy astrophysics institute in the world can submit a proposal. However, legal entities *not* established in an EU Member State or associated country should provide a clear explanation of how they aim to fund their participation, according to the EU Rules of Participation for FP7. In general, interested parties are strongly encouraged to look at the European Union FP7 website (http://cordis.europa.eu/fp7/home_en.html). Of particular interest, the Rules of participation and Funding mechanisms for integrated activities in FP7 should be well examined.

The proposal should be submitted through <http://isdc.unige.ch/ahead/submit.html>, after July 15, 2008 but no later than August 31, 2008. The file should be in PDF format with less than 10 MB size. For any further information, please contact the project coordinator or the project scientist by e-mail: ahead@unige.ch or by phone.