

AIDA in H2020

IA consultation document, content of a new project,
a few issues...

ATTRACT initiative

What next : lobbying, time schedule, organization...

Text circulated to GB



Topic proposal for integrating and opening existing national research infrastructures

TABLE OF CONTENTS

1. Title.....	1
2. Contact person.....	1
3. Description of the research infrastructures covered and the trans-national access and /or services provided.....	1
4. Scientific domains served by the research infrastructures.....	2
5. Key potential partners.....	3
6. Scope and activities.....	4
7. Need for European integration.....	6
8. Expected impact.....	7
9. Projects previously funded under FP7 and FP6.....	7

1. Title

Advanced infrastructure for detector development for future High Energy physics project at accelerators

2. Contact person

- 2.a. **Family name:** SERIN
- 2.b. **First name(s):** Laurent
- 2.c. **Organisation:** Consortium of AIDA FP7 project (39 beneficiaries)
- 2.d. **Position in the organisation:** Scientific project coordinator
- 2.e. **Postal address:** 3 rue Michel Ange, 75794 Paris Cedex 16
- 2.f. **Country:** France
- 2.g. **e-mail address:** lserin@admin.in2p3.fr
- 2.h. Is your proposal representing your own personal view or are you responding on behalf of your organisation as a whole? **Organisation view:** consortium of AIDA FP7 project (39 beneficiaries)

3. Description of the research infrastructures covered and the trans-national access and /or services provided

The detector developments for High Energy Physics (HEP) experiments are going through well-defined stages that typically span over 10-20 years. Two kinds of infrastructures are needed to test prototypes in realistic conditions to qualify the technologies chosen and assess the performance: beam lines with low and high energy particles of various types and irradiations facilities providing high flux of particles as expected at the LHC future upgrade. Grouping all these infrastructures in a common Integrated Research Infrastructure guarantees a coherent use of these facilities, improving their synergy.

For test-beams, there are two main infrastructures available in Europe:

-CERN beam lines are unique in the world covering both the low and high energy spectra with different particle types. Some beam lines are providing magnet and precise position

Document was prepared a few iterations with the AIDA steering group

First draft sent to Governing Board on October 17th (no comments received !) and final version on October 26th

Slightly reduced version on EC server on October 31st (text limitation)

Text send to EC

Consultation on possible topics for future activities for integrating and opening existing national research infrastructures

Title	
Title of the proposal <small>-open reply-(compulsory)</small>	Advanced infrastructure for detector development for future High Energy physics project at accelerators
Contact person	
Family name <small>-open reply-(compulsory)</small>	Serini
First name(s) <small>-open reply-(compulsory)</small>	Laurent
Organisation <small>-open reply-(compulsory)</small>	
CNRS	
Position in the organisation <small>-open reply-(compulsory)</small>	Scientific Deputy Director
Postal address <small>-open reply-(compulsory)</small>	
3 rue Michel Ange 75794 Paris Cedex 16	
Country <small>-open reply-(compulsory)</small>	France
e-mail address <small>-open reply-(compulsory)</small>	serini@admin.in2p3.fr
Is your proposal representing your own personal view or are you responding on behalf of your organisation as a whole? <small>-single choice reply-(compulsory)</small>	Organisation view
Description of the research Infrastructures covered and the trans-national access and /or services provided	
Indicate the type of research infrastructures to be covered by the proposed topic, and list the research infrastructures in Member States, Associated Countries and Third Countries, that would provide transnational access and/or services to researchers, with brief descriptions of the state-of-the-art equipment and services offered to users that make them rare or unique in Europe. Outline the specific areas of research and scientific communities normally served by the Infrastructures, as well as new areas opening to users, if any. Indicate what would be the overall access modalities necessary to be developed. Text of maximum 4000 characters including spaces. <small>-open reply-(compulsory)</small>	
The detector developments for High Energy Physics (HEP) experiments are going through well-defined stages that typically span over 10-20 years. Two kinds of infrastructures are needed to test prototypes in realistic conditions to qualify the technologies chosen and assess the performance: beam lines with low and high energy particles of various types and irradiation facilities providing high flux of particles as expected at the LHC future upgrade. Grouping all these infrastructures in a common Integrated Research Infrastructure guarantees a coherent use of these facilities, improving their synergy. For test-beams, there are two main infrastructures available in Europe: CERN beam lines are unique in the world covering both the low and high energy spectra with different particle types. Some beam lines are providing magnet and precise position measurement devices (developed in FP6-EUDET and FP7-AIDA). The number of users' requests for beam time exceeds every year by a large amount the available time. - DESY operates a test-beam facility using the	

Document was prepared a few iterations with the AIDA steering group

First draft sent to Governing Board on October 17th (no comments received !) and final version on October 26th

Slightly reduced version on EC server on October 31st (text limitation)

Contents strongly based on present AIDA project (consolidation of present activity) **with new possible ideas**

IA project needs to contain NA, TA and JRA

Trans National Access (key ingredient of IA call) :

Was reduced to minimal budget in AIDA. (10%)

Reimbursement procedure quite complex for test beam but in fine heavily used.

Allocated budget per institute decided at the beginning of the project ?

Test Beam :

CERN

DESY

Frascati (presently under a different FP7 project)

Irradiation facilities :

Quality assurance/ Assembly European
common infrastructure

CERN PS (GIF++)

KIT

JSI

Louvain

Network Activity :

Software :

More focused activity on software parallelization and required expertise to be acquired (training ?) transversal to HEP projects than dedicated algorithm developed in experiment done anyway ?

Micro-electronics and integration :

Nano-scale micro electronics

Going on with 3D integration network (open also to non HEP community ?)

Extend to layer optimized for high rate optical transmission or integrated cooling channels ?

Relation with industry (will be further required by EC in H2020) :

Going on with academic workshops, and/or decide to associate industry partner on dedicated topic with common/practical development

Network Activity :

DAQ/trigger :

Presently DAQ development for ILC detectors in JRA. Move to NA with larger community to deliver common tools/software ? Is the community existing ?

Training : (quite a strong focus in H2020, should it be also in IA project ?)

Today only tutorials. Should we think about having more technical training for engineers /young researchers on instrumentation / computing : schools, short term staff exchange visits to acquire expertise ?

Joint Research Activity :

Novel irradiation and beam lines (part of present WP8) :
Improve infrastructure to ease access, reduce inefficiency
CERN low energy beam line

Enhance beam equipment (part of WP8 and WP9):

Particle ID devices, cooling, 3D mechanical tables...

New facilities for quality assurance :

Equipment of dedicated centers, development of screening/testing procedures

....

As usual, detector R&D is not the aim of IA and should be implemented as needed
inputs for the above activities

Organization :

Enlarge the project to some missing EU countries ?

Enlarge to non EU groups as associate partners (US) , commitments in internal consortium but not in EU Grant agreement ?

Enlarge to other communities ?

Include industry partners ?

But EC budget not expected to be larger (might remain limited to max 10 M€ EU contribution, even if we will try to argue that 15-20 M€ should be the target). **Reduce number of beneficiaries but increase associate partners ?**

Scientific aspects :

Detectors R&D in AIDA strongly focused on ILC detectors. As European strategy will be presented at Brussels in May 2013, need to be coherent with this roadmap.

Over the next year, ILC japanese initiative should hopefully be clarified while a possible new AIDA H2020 project could start mid 2015.

yes → from R&D to pre-construction or more technological R&D phase, suited for a IA ? Assembly infrastructure/ quality assurance

no → should identify the new European needs for R&D, more emphasis on LHC towards phase II, neutrinos.... ? More generic R&D ? Do not cover all detector technologies ?

Better to have more small JRA than big JRAs as WP9 and WP8

A possible new AIDA H2020 project would cover 2015-2019.

Physics : 53 answers with 34 duplicates → 19 topics
Ranking

- A – Topic with high potential for future Horizon 2020 Research Infrastructures actions for integration of and access to existing national research infrastructures;
- B – Topic with merit but with some limitations that would need to be overcome;
- C – Topic with low potential for future Horizon 2020 Research Infrastructures actions for integration of and access to existing national research infrastructures;
- D– Topic outside the scope of the Horizon 2020 Research Infrastructures actions for integration of and access to existing national research infrastructures (e.g.: not addressing research infrastructures, or supporting the operation of ESFRI projects).

Only topics ranked A and B made public but without exact ranking

Physical Sciences:

EUCARD2/TIARA

AIDA

Acronym	Topic title
PHY01	Integration of research infrastructures for particle accelerator science and technology
PHY02	Advanced infrastructure for detector development for future High Energy physics projects at accelerators
PHY06	Advanced Radio Astronomy in Europe
PHY08/PHY09	European Gravitational Wave Infrastructures Integration (including atom interferometry techniques)
PHY10	European Laboratory Astrophysics
PHY11	European Virtual Observatory
PHY13	Integrated Activities for High Energy Astrophysics Domain
PHY15	Optical-Infrared Coordination Network for Astronomy
PHY16	European Network for Solar Physics
PHY17	European Nuclear Science and Applications Research
PHY18	European Planetary Science Network
PHY19	Integrating activity in the domain of underground science

ENSAR2

Typically, taken into account expected H2020 I3 budget, ~half of these topics will be funded

THE ATTRACT INITIATIVE

Marzio Nessi, Markus Nordberg

What is ATTRACT?

- ATTRACT (breAkThrough innovaTion pRogrAmme for deteCtor / inrAstructure eCosysTem)
- A proposal for a dedicated EU-funded program to co-develop with industry new radiation sensor technologies for scientific purposes and for addressing societal challenges in the domains of health, sustainable materials and information and communication technologies (ICT)
- Bringing together (mostly) Small and Medium sized Enterprises (SME) and the detector R&D communities from the fields of physics, research, astronomy, space exploration, nuclear engineering, and medical imaging
- Part of the Horizon2020-programme, cutting across several DGs (research, energy, connect, sancu, enterprise)
- Note: This is not an ATLAS initiative, rather a collective effort launched by members of detector R&D communities, also outside HEP

Why ATTRACT?

- The radiation sensor R&D community or communities have found it difficult to find a suitable platform within the Framework (7) programme that facilitates the specific use of radiation detectors for addressing societal challenges
- The detector R&D community in e.g. HEP has many ideas of suitability of their technologies in other fields, but few contacts and mechanisms available to reach out
- Upgrading some of the present physics research facilities (e.g. LHC at CERN, CLIC) could make good use of complementary R&D funding possibilities offered by H2020 programme
- The European industry, in particular SMEs, do not have available the necessary supporting (scientific) infrastructure to support advanced technological innovation efforts

Why ATTRACT?

- The EU intends to **externalize 75%** of the financial and project management of the H2020 programme and is discussing how to implement it with its partners
- CERN could be ready to **help to administrate** such an effort, provided that
- **the detector R&D community at large requests it to do this**
- **The community is willing, together with industry, to govern the process** of work program definition, calls and the reviewing

Summary

- ✓ ATTRACT initiative as a practical proposal on how to bring together Small and Medium sized Enterprises and the detector R&D communities from the fields of physics, research, astronomy, space exploration, nuclear engineering, and medical imaging within the Horizon 2020 programme

Some personal comments :

- Such a project really focus on detector R&D with industry, different from our IA call
- Large scientific community well beyond HEP
- Hope for a large budget (1% of H2020 in 2021, a few hundred M€)

Not clear how it fits with EU project, and if not too late initiative with respect to H2020
AIDA view : Could a new AIDA project include a dedicated networking activity for Organisation/lobbying of such an initiative if strongly supported by EU partners ?

Physical Sciences:

EUCARD2/TIARA

AIDA

Acronym	Topic title
PHY01	Integration of research infrastructures for particle accelerator science and technology
PHY02	Advanced infrastructure for detector development for future High Energy physics projects at accelerators
PHY06	Advanced Radio Astronomy in Europe
PHY08/PHY09	European Gravitational Wave Infrastructures Integration (including atom interferometry techniques)
PHY10	European Laboratory Astrophysics
PHY11	European Virtual Observatory
PHY13	Integrated Activities for High Energy Astrophysics Domain
PHY15	Optical-Infrared Coordination Network for Astronomy
PHY16	European Network for Solar Physics
PHY17	European Nuclear Science and Applications Research
PHY18	European Planetary Science Network
PHY19	Integrating activity in the domain of underground science

ENSAR2

Typically, taken into account expected H2020 I3 budget, ~half of these topics will be funded

First list of targeted topics might appear in June/July :

-To ensure smooth continuation of AIDA, need to appear in this call

→ Lobbying over May towards national representative in EU program committee (but we should give a common/coherent message....)

-If ok, need to build/write a proposal. Expect EU call early 2014 so concrete discussions should start around summer

- If success, negotiation/grant agreement is taking ~1 year

Reminder AIDA proposal phase (started from DEVDET proposal community):

- Small team of 5-6 people from communities (SLHC, LC, neutrinos and B physics) + 2 for administrative support from CERN
 - Prepare the main objectives of the project,
 - Define the various WP leaders for the proposal writing
 - Define the budget sharing between WP and partners
 - Interaction with National Project representative with a few plenary meetings

Which organization for H2020 proposal ?

- Use AIDA bodies (steering group) or create dedicated committee with community representatives and/or GB representative
- Preparation meetings with GB members or whole AIDA community...

In any case, I would suggest we review first the communities needs/goals to build a coherent proposal, and then only discuss institute contributions

Now

Comments / Ideas are expected !!!!!

Discussion about organization will continue during Governing Board meeting