



AIDA, a short overview

<https://espace.cern.ch/aida>

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AIDA for Advanced european Infrastructures and Detectors at Accelerators

Not a remake of DevDet,
Sort of an offspring of EUDET

After the success of EUDET intends to extend
the collaborative effort to a wider community:
LC, sLHC, B factories, neutrinos

The **AIDA** project
is coordinated by the RECFA Coordination Group for Detector R&D in FP7 programs
and responds to the FP7-INFRASTRUCTURES-2010-1 call from the European Commission.

AIDA addresses infrastructures
required for the development of detectors for future particle physics experiments.
In line with the European strategy for particle physics



AIDA targets user communities preparing experiments at a number of key potential future accelerators:

- SLHC (luminosity-upgraded LHC),
- future Linear Colliders (ILC and CLIC),
- future accelerator-driven neutrino facilities
- or future B-physics facilities (e.g. Super-B).

The infrastructures covered by the AIDA project are key facilities required for an efficient development of the future experiments, such as:

- test beam infrastructures (at CERN and DESY),
- specialised equipment irradiation facilities (in several European countries),
- common software tools,
- common microelectronics tools
- and engineering coordination offices.

The requests to EU concern improvements to existing infrastructures

The AIDA proposal is currently under preparation.

Submission deadline is 03/12/2009.

If project agreed, finalisation by end 2010
A 4 year project



The project is structured around 9 work packages resorting to management, coordination/networking, transnational access, joint research activities

It is managed through:

- A set of coordination contacts

- A set of national contacts

- A set of WP coordinators, generally 2 per WP of different origins

- A set of task coordinators

Notion of full partner and third party



Coordination contacts:

T. Behnke	DESY
C. Brandt	CERN
K. Büsler	DESY
M. Capeans	CERN
F. Forti	CERN
K. Kahle	CERN
L. Linssen	CERN
L. Serin	CNRS Chair.
C. Sheperd	RL
P. Soler Jermyn	Glasgow
S. Stapnes	CERN
S. Stavrev	CERN
H. Taureg	CERN
K. Ross	CERN



		National contacts
Switzerland	Pohl Martin	
Germany	Feld Lutz	
Spain	Lacasta Carlos	+ Vila Ivan
Portugal	Bordalo Paula	
Netherlands	Koffeman Els	
Israel	Mikenberg Giora	
Czech Republic	Vrba Vaclav	
Poland	Zarnecki Filip	+ Idzik Marek
Austria	Krammer Manfred	
Finland	Osterberg Kenneth	+ Tuominen Eija
Hungary	Bencze Gyorgy	
Sweden	Brenner Richard	
Norway	Stapnes Steinar	
Denmark	Hansen Peter	
Italy	Meroni Chiara	
UK	Long Ken	
Belgium	de Lentdecker Gilles	
Bulgaria	Stamenov Jordan	
France	Boudry Vincent	+ Colas Paul
Greece	Gazis Evangelos	+ Alexopoulos Theodoros
Malta	Sammut Nicholas	
Slovenia	Mikuz Marko	
Slovakia	Pikna Miroslav	
Finland	Härkönen Jaakko	
Bulgaria	laydjiev Plamen Stoianov	



The workpackages

● WP1 - Project management and coordination	F. Stavrev	500 k€
● WP2 - Development of software common tools	F.Gäde, P. Mato	1100k€
● WP3 - Micro electronics and detector electronics integration	H-G. Moser, V. Re	1100k€
● WP4 - Relation with industry	P. Sharp, R. Stapnes	300k€
● WP5 - Transnational access to DESY	I. Gregor	100k€
● WP6 - Transnational access to CERN	H. Taureg	150k€
● WP7 - Transnational access to EU irradiation facilities	M. Mikuz	450k€
● WP8 - Improvement and equipment of irradiation and beam lines	H. Taureg, E. Gschwendtner	3000k€
● WP9 - Advanced infrastructures for detector R&D	M. Vos, H. Videau	3000k€

Money amounts are still only indications ~10M€

The 10M€ correspond to a typical investment of about 30M€



Activity type COORD

WP2 Common Software Tools

Objectives

Task1: Coordination of Work package

- monitor the progress of the work in the work package
- coordinate and schedule the execution of the tasks and subtasks
- prepare progress reports – internal and on deliverables

Task2: Development of a geometry toolkit

- allow the description of complex geometrical shapes, materials and sensitive detectors
- provide interfaces to full simulation programs (Geant4), fast simulations, visualization tools and reconstruction algorithms
- allow for the misalignment of detector components
- provide an interface to calibration constants and conditions data

Task3: Development of generic reconstruction tools

- tracking toolkit based on best practice tracking and pattern recognition algorithms
- provide alignment tools
- allow for pile up of hadronic events
- calorimeter reconstruction toolkit for highly granular calorimeters based on Particle Flow algorithms

Participants: CERN, DESY, HEPY-Vienna, LLR, UCAM, RAL, UGLA



Activity type COORD

WP3 Network for microelectronics and interconnection technology

Participants: AGH, CERN, CEA, CNRS, CPAN, INFN, MPG

Objectives:

the main objective of the task is to establish a network of groups working collaboratively on advanced semiconductor technologies and high density interconnection processes for applications in High Energy Physics.

Task1: Coordination of Work package

Task 2: 3D Interconnection:

- Creation and coordination of a framework to make 3D interconnection technology available for HEP detectors
- Organisation of dedicated fabrication of sensors and electronics optimized for 3D interconnection
- Construction of demonstrator detectors using 3D technology to access this technology

Task 3: Shareable IP Blocks for HEP

- Creation and coordination of a framework for the design of low and medium complexity microelectronics libraries and blocks in advanced submicron technologies to be made available to the community of users in HEP
- Organization of the design and qualification of a set of blocks using selected and qualified technologies
- Distribution and documentation of the library of functional blocks
- Organization of regular Microelectronics Users Group meetings to exchange information, plan and coordinate actions related to the creation of a shared library of macro blocks.



Activity type COORD

WP4 Relation with industry

Objectives

Overall goal: address for the “our” projects – sLHC, ILC/CLIC, Neutrino Det., SuperB

- Technology needs, specifications, trends in several area (5-10 years perspective)
- Interactions with industry in development phase and during (large scale) constructions phase
- Transfer to industry, industry related spin-off, and collaboration and co-development with other fields where this is relevant.

Create WEB overview and report covering in a matrix key technologies and specifications (x-axis) versus the four projects mentioned (y-axis).

Industry can link to these nodes describing their capacities.

To be maintained longer term by the CERN TTnet.

Participants: STFC, Oslo, CERN, Helsinki, INFN, CNRS, Athens, ..



WP5

Transnational access to DESY

Essentially an amount of money to help people in needs in accessing to DESY facilities



WP6

Transnational access to CERN

Essentially an amount of money to help people in needs in accessing to CERN facilities



WP7

Transnational access to EU irradiation facilities

Essentially an amount of money to help people in needs in accessing to few identified EU irradiation facilities

Activity type RTD

WP8

Improvement and equipment of irradiation and beam lines

Objectives

Task1: Coordination of Work package

Task 2: Test beams at CERN and Frascati

- At CERN: Enlarge particle choice (K0), improve particle identification
Provide LC/CLIC like spill structure
- At Frascati: characterize BTF beam line for electrons and photons
provide and install permanent control and monitoring system for beam position, width and energy in the BTF beam line

Task 3: Upgrade of proton and neutron irradiation facilities at CERN

- Design splitter magnet
- Equip and test splitter magnet
- Design and test cooling infrastructure for electronics tests

Task 4: Qualification of components and common database

- Review experience from LHC
- Develop common data base for irradiation test results
- Qualify materials and components of detector systems
- Populate and maintain the common database
- Disseminate and publish irradiation results

Task5: Common DAQ infrastructure

Participants: CERN, LNF, UK univ., DESY



Activity type RTD

WP9

Advanced infrastructures for detector R&D

Objectives

Task1: Coordination of Work package

Task 2: Gas detector facilities (P. Colas, K. Desch)
under discussion

Task 3: Precision pixel infrastructure (M. Winter +)
under discussion

Task 4: Granular calorimeter studies infrastructure (F. Sefkow, H.V.)

A global test beam infrastructure, containing silicon tracker, lumi calorimeter, el-mgn and hadron for specific tests and understanding of the simulation and the particle flow
Under development

Participants: many



Some of the WP's (WP9) are far from ready

Next step, national contacts meeting on the 9th of November
A lot is expected to be almost final by that time

A tremendous effort in one month time span