



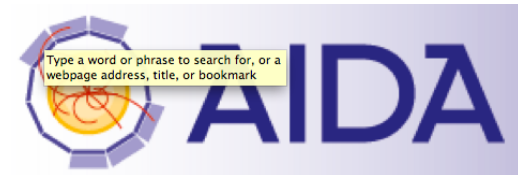
3D in AIDA2

*G. Darbo – INFN / Genova
3D ATLAS-CMS
Vidyo, 3 April 2014*



Material from:

- *Silicon Activity meeting 21/3/2014:*
<https://indico.cern.ch/event/307650/>
- *AIDA Talks in 3rd Annual meeting:*
<https://indico.cern.ch/event/282487/session/12/contribution/213/material/slides/5.pdf>



Indico agenda:

<https://agenda.infn.it/conferenceDisplay.py?confId=7881>

• *AIDA (Advanced European Infrastructures for Detector Accelerators)*

• *Previous Infrastructure Initiatives:*

- FP6: EUDET: 2006-2010
 - Total budget 21M, EU contribution 7M
 - 31 partners + associates
 - detector development for a linear collider
 - pixel telescope, TPC magnet and field cage, calorimeter absorber and electronics, software, transnational access to test beams
- FP7: AIDA: 2011-2014
 - Total budget 26M, EU contribution 8M
 - 80+ institutes, 40 (direct) beneficiaries
 - detector development for LHC upgrades, ILC, CLIC, neutrino physics and Super-B
 - TA to test beam and irradiation facilities, DD4HEP, more telescopes, 3D integration, etc pp

• *AIDA Web site:*

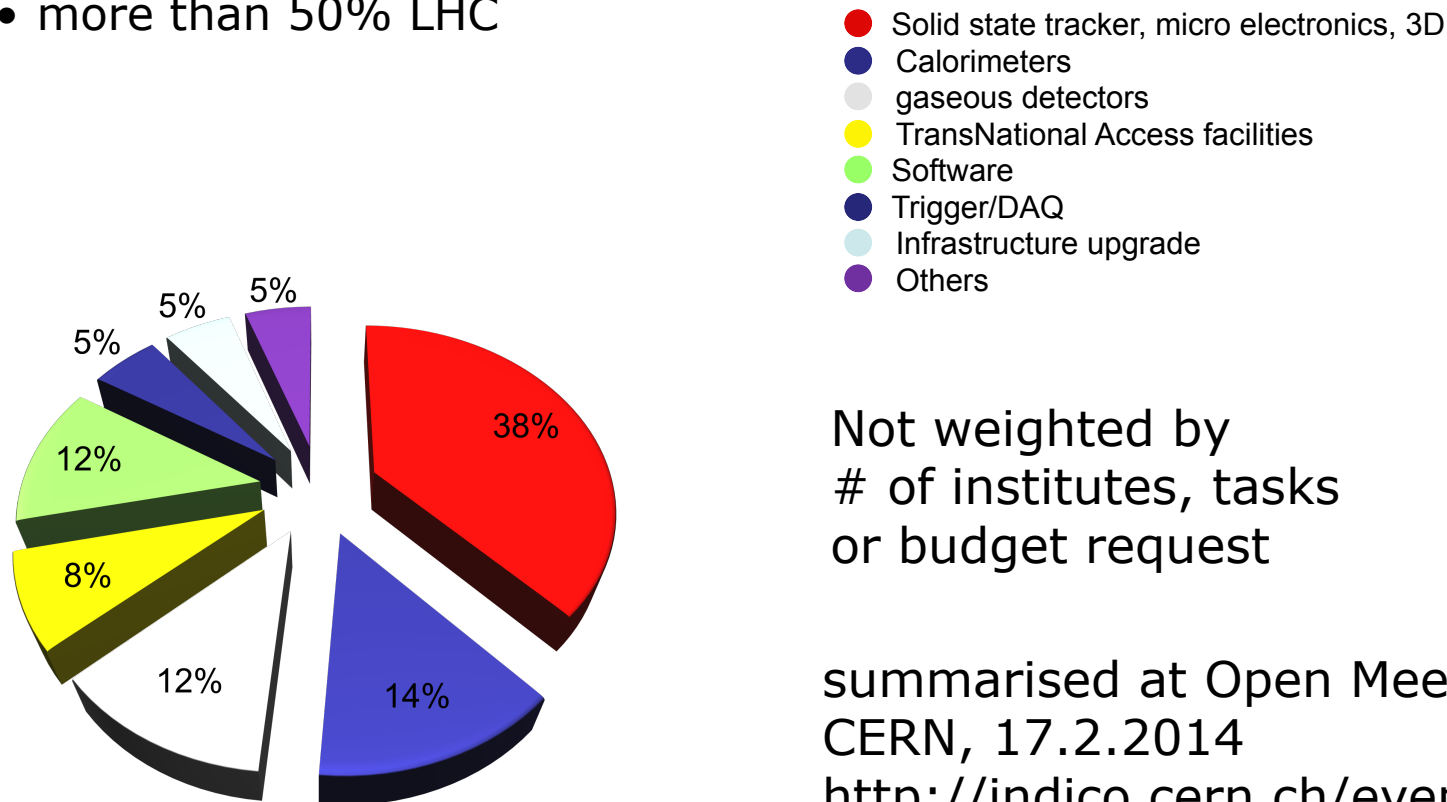
- <http://aida.web.cern.ch/aida/index.html>

• *AIDA 3rd Annual Meeting – Vienna 16-28 March 2014*

- <https://indico.cern.ch/event/282487/overview>

AIDA-2 Content

- End of 2013: call for “Expressions of Interest”
 - more than 50 EoIs received
 - more than 50 institutes
 - more than 50% LHC



Not weighted by
of institutes, tasks
or budget request

summarised at Open Meeting
CERN, 17.2.2014
<http://indico.cern.ch/event/289451/>

Silicon Tracking & Vertexing

- The largest community
- The biggest challenge for the LHC upgrade
- Four contacts charged to define structure
- First meeting took place last Friday, > 45 participants
 - Communities represented: LHC, ILC, CLIC, Belle
- Proposal:
 - ① Networking Activity: Capacitively coupled HV/HR CMOS Pixel Sensors
 - ② Networking Activity or Joint Research Activity: Light Support Structures and μ -channel cooling for Silicon Sensors
 - ③ Networking Activity: Network of European Companies for HEP Si Sensor Production

17	Industrialization of the production of large-area silicon tracking detectors	Bergauer	HEPHY, KIT, Freiburg, Liverpool
18	Standardization of common test structures to qualify HEP SI-detectors	Bergauer	HEPHY, KIT, Freiburg, Liverpool
7+8 (only sensor part)	Development of a beam monitor based on Ultra Fast Silicon detector	Cartiglia	INFN (Turin, Trento), Ljubljana, CNM, Freiburg, HEPHY
42	Infrastructure for the development of 3D sensors and Pixel modules suitable for HL-LHC upgrade of ATLAS and CMS	Darbo	INFN, IFAE
54	3D silicon detectors	Da Via	Manchester, Oxford, Trento
4	Development of pixel modules with reduced inactive edges	Macchiolo	MPP, IN2P3(LAL,LPNHE)
13	Development of 3D Diamond detectors	Oh	Manchester, RBI, CEA
58	Pixel AC connectivity	Casse	Liverpool, CERN
n.a.	Silicon detector technology common access plus design framework	Lozano	D+T Microelectronica, A.I.E. and/or CNM

17	Industrialization of the production of large-area silicon tracking detectors	Bergauer	HEPHY, KIT, Freiburg, Liverpool	Large area commercial foundries
18	Standardization of common test structures to qualify HEP SI-detectors	Bergauer	HEPHY, KIT, Freiburg, Liverpool	
7+8	Development of a beam monitor based on Ultra Fast Silicon detector	Cartiglia	INFN (Turin, Trento), Lubljana, CNM, Freiburg, HEPHY	Hybrid pixels with MEMS technologies
42	Infrastructure for the development of 3D sensors and Pixel modules suitable for HL-LHC upgrade of ATLAS and CMS	Darbo	INFN, IFAE	
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Move to "Contact with Industries" Work Package



Reorganization of the Eols in a single NA:

- Network of European Companies for HEP Si Sensor Production

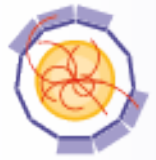
Suggested tasks:

- Establish European suppliers for large area production of silicon sensors (strips and pixels) , possibly in cooperation with groups interested in the development of Si/W calorimeters
- Promote actions to build a pool of European companies able to produce pixel sensors with MEMS technologies (3D, thin planar with active edges, LGAD) for the inner layers of tracking systems at HL-LHC and CLIC
 - Development of common technologies
 - Common R&D and procurement of thinned substrates
- Promote common sensor wafer submissions across experiments
- Open access design and simulation tools

Possible contribution of INFN 3D, also as Beneficiary



Fit well a Networking Action (NA)

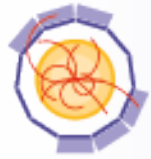


AIDA-2

Indicative budget for AIDA-2 Silicon activities

- Indicative AIDA-2 budget (EU contribution) for Si/ Pixel/ cooling activities: [1.6-2.1] MEuro
- Typical ratio of commitment : 40% from EC in case of NA and JRA
- Given the similar size of the groups in the three proposed activities we suggest to share the budget in equal parts: [500-700] kEuro
- NA (Networking Activity) has as deliverables results of new technology investigation; **financial support is mainly for post-docs and traveling, limited for material.**

JRA (Joint Research Activity) has as tasks developments to improve infrastructures (like accelerators, beam lines and similar); **financial support is mainly for material or manpower to be employed in related facilities** (not for R&D).



- Below 50 k€ EC contribution in AIDA-2 probably an institute will not be accepted as beneficiary
- If not defined as beneficiary, an institute can be an associate partner to the activity without committing, and thus receiving, resources from AIDA-2
- The proponents appearing in more than a WP should focus on the activity where they foresee to give the larger impact.
- For groups working together it's more effective to decide in which institute to allocate the budget, while the other participants could be members of the WP without being beneficiary.

 *Next meeting of Silicon activities 16 April (probably)*

- Must present what are our interests...