



# Introduction to AIDA WP2 Meeting

Frank Gaede, DESY

Pere Mato, CERN

AIDA Annual Meeting

LNF-Frascati, April 10-12, 2013

# goal of WP2 – 'Common Software'

**develop core software tools that are useful for the HEP community at large** and in particular for the next big planned projects: sLHC and Linear Collider (ILC/CLIC)

## Objectives

### Task 2.1: Coordination and communication

- 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

### Task 2.2: Geometry toolkit for HEP

- 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

### Task 2.3: Reconstruction toolkit for HEP

- 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

# WP2 partners and association

## CERN

CLIC, ATLAS

- DESY

ILC, CLIC

## HEPHY, Vienna

ILC, CMS

- LLR, Paris

- ILC, CMS

- University of Cambridge

- ILC, LHC

- RAL-STFC

- ILC, CMS

- University of Manchester

- LHCb

- INFN-Bari

- CMS

- KFKI-RMKI

- CMS

Person-Months per Participant

Participant number <sup>10</sup>	Participant short name <sup>11</sup>	Person-months per participant
1	CERN	60.00
2	OEAW	24.00
8	CNRS	61.00
9	DESY	71.00
14	NTUA	4.50
15	MTA KFKI	17.00
18	INFN	31.00
31	STFC	38.00
32	UCAM	47.00
33	UNIGLA	43.00
Total		396.50

funding: 1/3 EU 2/3 partner

# Workpackage organization

- Workpackage coordinators:
  - Pere Mato, CERN
  - Frank Gaede, DESY
- Subtask Coordinators:
  - **Geometry**
    - Gabriele Cosmo, CERN
  - **Tracking**
    - Steven Aplin, DESY → **new: Christoph Rosemann, DESY**
  - **Particle Flow**
    - Mark Thomson, UCam
  - **Alignment**
    - Chris Parkes, UniMan
  - **Pile-up**
    - Lucia Silvestris, INFN

# Deliverables for WP2

Deliverable Number <sup>61</sup>	Deliverable Title	Partners (lead beneficiary)	Cost <sup>62</sup>	Start	Dissemination level <sup>63</sup>	Delivery date <sup>64</sup>	
D2.1	Project web infrastructure to document software packages	CERN	5.00	O	PU	3	done
D2.2	Central code repositories and other infrastructure required for the software development	DESY	5.00	O	PP	4	done
D2.3	Software design for geometry toolkit including the interfaces for the reconstruction toolkits	CERN, DESY, LLR, UniGla, STFC			PU	12	done
D2.4	Software design for tracking toolkit	DESY, CERN, OeAW, KFKI				12	done
D2.5	Software design for PFA tools	Ucam, LLR, CERN,			PU	12	done
D2.6	Design for handling the pile-up in sLHC	INFN, NTU, KFKI			PU	23 <del>17</del>	next
D2.7	Software toolkit for detector geometry, materials and detection technologies	CERN, DESY, LLR, UniGla, STFC			PU	38	
D2.8	Software toolkit with tracking algorithms	DESY, CERN, OeAW, KFKI				38	
D2.9	Particle Flow software tools	Ucam, LLR, CERN,			PU	38	
D2.10	Alignment tools software tools	UniGla	30.00	O	PU	38	
D2.11	Trigger simulation software tool	STFC	20.00	O	PU	38	
		Total	350.00				

# WP2 - Milestones

Milestone number <sup>59</sup>	Milestone name	Partners (lead beneficiary)		Comments	
MS10	Running first prototype of the particle flow algorithm.	Ucam,LLR,CERN	10	Application to LC detector (Task 2.3)	done
MS11	Running prototype of tracking toolkit including some algorithms	DESY	18	Application to ILD-TPC simulation (Task 2.2)	done
MS12	Running prototype of the geometry toolkit	CERN, DESY, LLR	26	Application to ILD detector simulation (Task 2.2)	next
MS13	Running prototype of the tracking code for the pile-up	INFN, NTU, KFKI	26	Application to sLHC simulation (Task 2.3)	next
MS14	Integration of tracking toolkit into LC software framework	DESY, CERN, OeAW	44	Validation of physics performance (Task 2.3)	
MS15	Application of PFA tools to sLHC detectors	Ucam, LLR	44	Demonstration of concept (Task 2.3)	
MS16	Application of alignment tools to sLHC	UniGla	44	Validation of performance (Task 2.3)	
MS17	Integration of pile-up tracking code in sLHC software frameworks	INFN, NTU, KFKI		Validation of tracking efficiency (Task 2.3)	

# AIDA WP2 visibility

- web site for documentation of WP2 sub tasks and software projects:
  - <http://aidasoft.web.cern.ch>
  - created svn code repository
    - <https://svnsrv.desy.de/viewvc/aidasoft>
  - CDash server for nightly tests
    - <http://aidasoft.desy.de/CDash>

• consider using these for your AIDA related projects

- also: don't forget to register AIDA related talks and papers with the AIDA project website

The screenshot shows the AIDA Common Software Tools website at <http://aidasoft.web.cern.ch/>. The page features a navigation menu with 'Home', 'Project', 'Packages', and 'Forum'. A 'Shibboleth login' and 'CERN SSO Login' section is visible. A list of sub-projects includes 'eUtil', 'cmake4hep', 'streamlog', 'ATest', 'aidaExample', and 'aidaNightly'. A 'WebSVN' section is also present. Below the website screenshot is a screenshot of the CDash server interface for 'General.aidasoft - Rev 64'. The interface shows a table of subversion repositories and a table of builds. The build table has columns for Site, Build Name, Update (Files, Min, Error, Warn, Min), Build (Error, Warn, Min), Test (NotRun, Fail, Pass, Min), and Build Time. The table shows four builds for 'grid-lhc-pa0' on 'LHUXC++', with one build failing. The 'Totals' row shows 4 builds, 0 errors, 0 warnings, 0 fails, and 7 passes.

Site	Build Name	Update				Build			Test			Build Time		
		Files	Min	Error	Warn	Min	Error	Warn	Min	NotRun	Fail		Pass	Min
grid-lhc-pa0	LHUXC++			0	0	0	0	0	0	0	1	1	0	2011-06-17T17:20:24 CEST
grid-lhc-pa0	LHUXC++			0	0	0	0	0	0	0	0	2	0	2011-06-17T17:19:45 CEST
grid-lhc-pa0	LHUXC++			0	0	0	0	0	0	0	0	2	0	2011-06-17T17:17:47 CEST
grid-lhc-pa0	LHUXC++			0	0	0	0	0	0	0	0	2	0	2011-06-17T17:08:19 CEST
Totals	4 Builds			0	0	0	0	0	0	0	1	7	0	

# Today's agenda

<b>Introduction</b>	<i>Frank-Dieter GAEDE</i>
<i>Aula Seminari, LNF Bldg 36</i>	09:30 - 09:40
<b>Development status of USolids Library</b>	<i>Marek GAYER</i> 
<i>Aula Seminari, LNF Bldg 36</i>	09:40 - 10:00
<b>Status of DD4Hep</b>	<i>Markus FRANK</i> 
<i>Aula Seminari, LNF Bldg 36</i>	10:00 - 10:20
<b>New Developments for Mokka</b>	<i>Vincent BOUDRY</i>
<i>Aula Seminari, LNF Bldg 36</i>	10:20 - 10:40
<b>Status of Pile Up Task</b>	<i>Lucia SILVESTRIS</i>
<i>Aula Seminari, LNF Bldg 36</i>	10:40 - 11:00
<b>New Developments for Particle Flow</b>	<i>Prof. Mark Andrew THOMSON et al.</i>
<i>Aula Seminari, LNF Bldg 36</i>	11:30 - 11:50
<b>Status of Tracking task</b>	<i>Christoph ROSEMANN</i>
<i>Aula Seminari, LNF Bldg 36</i>	11:50 - 12:10
<b>Status of (LHCb) Alignment</b>	<i>Christoph HOMBACH</i>
<i>Aula Seminari, LNF Bldg 36</i>	12:10 - 12:30
<b>Clustering, energy loss, and vertexing tools for Si detectors</b>	<i>Ferenc SIKLER</i>
<i>Aula Seminari, LNF Bldg 36</i>	12:30 - 12:50
<b>tkLayout - A Tracker Layout Modeling Tool"</b>	<i>Dr. Jelena ILIC</i>
<i>Aula Seminari, LNF Bldg 36</i>	12:50 - 13:10
<b>PFA activities at LLR</b>	<i>Manqi RUAN et al.</i>
<i>Aula Seminari, LNF Bldg 36</i>	13:10 - 13:30