

Status of the DHCAL Simulation

Jan Blaha

Laboratoire d'Annecy-le-Vieux de Physique des Particules

> MicroMegas Physics Meeting LAPP, 16 Mars 2009

> > 1



New detectors

Geometries are based on CubNeter2 detector with 80 planes Different absorbers: Steel, Tungstate, Lead:

- CubMeter2_FeAbs
- CubMeter2_WAbs
- CubMeter2_PbAbs

Different cell size:

- CubMeter2_0.5cmRO
- CubMeter2_2cmRO
- CubMeter2_4cmRO
- CubMeter2_8cmRO

CubMeter2 with scintillator:

- CubMeter2Sci_FeAbs
- CubMeter2Sci_WAbs
- CubMeter2Sci_PbAbs

Directory format: ~\$ Is CubMeter2_FeAbs ~\$ aida events geom log plots root



Mass production

Automatic mass production works well

Data generated for energies: 3, 10, 50, 100, 120, 150, 180, 200 GeV

With events/run: 10000, 1000, 1000, 500, 500, 200, 200, 100 events

Data storage:

Last update : Mon Mar 16 19:05:02 2009

GROUP (unix)	USED (Go)	LIMIT (Go)	FREE (Go)
LC	410.34	600.00	189.66
RD_opera	372.08	500.00	127.92
ams	330.30	500.00	169.70
atlas	826.20	2000.00	1173.80
atlas_gr	0.00	NA	NA
calcul	4.81	50.00	45.19

How much space can we get and which statistic we need?



Data analysis

Analysis can be run independent of the JAS and results can be stored in root files (interface based on pyROOT written by Peter) → much more efficient and less time consuming



Example:

J. Blaha



Charge to DHCal offline software task force

1. Data treatment

- * What is a reasonable 'calibration and correction' target for DHCal data, which is independent of the technology and of conditional circumstances? Is this level reflected in the current LCIO data model?
- * What are the general algorithmic steps necessary to reach this level, and are there reasonable technology independent intermediate levels?
- * What information -beyond hits- needs to be propagated to the level of calibrated information for sensible analysis of the measurements?

2. Simulation

* What is a reasonable scheme for data-MC comparison for DHCals? Which are the general steps necessary for MC digitization of the various technologies?

3. Implementation

- * Identify those processing steps, both for data and simulation handling, which are candidates for common implementation. Propose interfaces between these modules and those which require individual solutions.
- * Propose a scheme to include non-hit information in the data stream passed to final analysis.
- * Propose a realistic time line and task sharing for coding of the interfaces and implementation of the common modules. Estimate the human resources needed, and try to identify mile stones.

17/03/09

J. Blaha