LDC discussion session

The LDC contact people, in particular results from a lunch discussion between Dean, Marco, Ties

What do we want:

- Redefine the LDC baseline in time for the detector outline documents expected from us in spring 2006
- At snowmass: get work started and people interested to work on these issues in the time after snowmass.

Optimising LDC

Try to summarise yesterdays and todays LDC sessions:

The starting point:

The driving force behind the LDC optimisation is optimal particle flow,

without forgetting about the capabilities to do specific extreme precision measurements (momentum resolution, secondary vertex resolution, others?)

A repetitive point was materials: both for particle flow, and for precision measurements

An inportant issues is the proper interfacing to the machine parameters

Particle Flow

Particle flow: Which size detector do we neeed? What is the "optimal" ECAL inner radius? What is the optimal length, position of the endcap?

Define proper benchmarks for this
Do studies of PFLOW performance as a function of radius
Which role does granularity play in this?

Material

Materials: Which role does dead or life material play for p;article flow, for other observables.

How harmful is material in the TPC endcap. Can this be recovered by additional detectors (FCH)?

How important is material in the barrel region for PFLOW? Relevants systems are the TPC fieldcage, the SIT material, others?

Redundant Tracking?

The role of "SI" tracking in LDC

How important are full tracking detectors in addition to the TPC?
In particular how important is a "complete" SI coverage in addition to the TPC?
Which role do other "supporting" detectors play? How important are they?

Linking versus measuring is the commonly voiced question.

Magnetic field

Magnetic field requirements:

What are the requirements on the magnetic field from the detector?

What level of imperfections can the detector live with?

What is the impact on the detector performance by superimposed fields like the DID?

Very forward region

Instrumentation of the very forward region

What is the optimal layout of the forward region, how can be respond to the challenges posed by a realistic machine.

Mask design

What we like to see

If possible: form small groups around each of these questions, try to come up with a structure how to answer them, collect arguments, see what can be done, ..

Start this work here at snowmass, now, in this room

Continue this work through snowmass

After snowmass, learning from the experience here, try to continue and have a more in depth discussion.

Remember: the goal is the detector outline document sping 2006

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Steve McGill, Graham Wilson, Mark Thompson + ...

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Steve Aplin, Ties Behnke, ...

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Aurore Savoy-Navarro, Lee Sawyer, Rick v. Kooten

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Dan Peterson, Ron Settles

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Mask design

Wolfgang Lohmann, Karsten Buesser, ...