LHCb Calorimeter Upgrade

Introduction and News

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LHCb calorimeter upgrade meeting

Today's program

Calorimeter upgrade meeting

chaired by Frederic Machefert (Laboratoire de L'Accélérateur Linéaire (LAL), Orsay), Iouri Guz (Institute for High Energy Physics (RU))

Friday, 12 April 2013 from **09:00** to **13:00** (Europe/Zurich)
at **CERN (14-4-030)**

Video Services Vidyo public room : Calorimeter_upgrade_meeting_indico_235108 More Info | **Join Now!**

Friday, 12 April 2013

09:00 - 09:10 Introduction *10'*
Speaker: Frederic Machefert (Laboratoire de L'Accélérateur Linéaire (LAL), Orsay)

09:10 - 10:20 Analog electronics
- 09:10 **Shaping** *15'*
  Speaker: Eduardo Picatoste Olloqui (University of Barcelona (ES))
- 09:25 **COTS status** *10'*
  Speaker: Guillermo Lostau
- 09:35 **Delay Chip** *15'*
  Speaker: Juan Mauricio Ferre (University of Barcelona (ES))
- 09:50 **Analog electronics performance and test beam results** *20'*
  Speaker: Olga Kochebina (Universite de Paris-Sud 11 (FR))

10:20 - 10:30 Digital electronics
- 10:20 **Front-end architecture** *10'*
  Speaker: Olivier Duarte (Universite de Paris-Sud 11 (FR))

10:30 - 10:50 LLT-Calo implementation *20'*
Speaker: Patrick Robbe (Universite de Paris-Sud 11 (FR))

MC Simulations

Calorimeter implementation

The default geometry of the calorimeter for the upgrade is implemented

- SPD, PRS ands lead absorber are removed
- No specific problems observed on test samples

MC sample requests

I requested the production of 3 MC samples

- The decay produced is $B_s \rightarrow \phi\gamma$
  - $\mathrm{E} = 14\mathrm{TeV}, \mathcal{L} = 10^{33}\mathrm{cm}^{-2}.\mathrm{s}^{-1}$
  - $\mathrm{E} = 14\mathrm{TeV}, \mathcal{L} = 2x10^{33}\mathrm{cm}^{-2}.\mathrm{s}^{-1}$
  - $\mathrm{E} = 14\mathrm{TeV}, \mathcal{L} = 3x10^{33}\mathrm{cm}^{-2}.\mathrm{s}^{-1}$

The intermediate stage of the production are kept :

- should be able to adapt the digitization (to test with realistic electronics performances)
- should be able to run the reconstruction and test different algorithms

Treatment of spill-over not realistic, but difficult to implement in the simulation.

Calorimeter review

- LHCb management would like to have a review of the architecture of the electronics of each sub-detector
- Need to write a (short) document that gives details on the implementation

Natural outline of the document / review

1. Architecture overview
2. Electronics
   - Analog
   - Digital
3. LLT-Calo (FE implementation)
4. Control and monitoring
   - HV
   - LED
   - Current integrators
   - Radioactive source

Did I forget anything ? Please send me your comments/suggestions. . .