Preparation of BT DESY-2020-03

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TNA support + WP14

Set-up & Goals

Technical:

- Validation of CompactDAQ on ≥ 4 layers (max)
- Validation of FEV12-COB with full wafers
  - Calibration with mips, response to showers
- Preparation of running with maximum number of layers
  - Full calorimeter:
    - **8–9** FEV11–320 µm
    - **5** FEV13 (1 × 320µm + 4 × 650µm)
    - **2** FEV12–COB–500 µm
    - **2** FEV12–500 µm
    - 16 – 18 layers ⟶ 2 stacks.

Physics:

1. Calibration to mips :
   1) Stability of old layers, Calib of new layers.
   2) Comparison of S/N ≠ Si thickness + angles (30° ?)
      1) Estimation of effective thickness
      2) Estimation of thresholds

   • Movable stage
   •
2. Optimisation of S/N:
   1) HV curve on mips:
      1) noise and mip curves:
         At the center to hit 4 wafers; beam as large as possible
3. Response to EM Showers
   1) Comparison of profiles ⟶ response to higher energy density (core of showers)
      1) Complete shower profile (calo)
      2) Put W for max of showers (~5 X_0) + nothing:
         ⟶shower core in most layers (ign. disperstion)

W configurations

GeV	Max_gerbe EM/X0
1.0	3.9
3.0	5.0
6.0	5.7

Positionnement «idéaux» à 3 GeV (max intensité)

Wanted Position/max	0,5	1	1,5	2	3
X0 @ 3GeV	2,5	5	7,5	10	15
	2,5	2,5	2,5	2,5	5
mm of W	8,75	8,75	8,75	8,75	17,5
Épaisseur de 2,1	4,0	4,0	4,0	4,0	8,0
Matériaux (1=2,1)	1+2+1	1+2+1	1+2+1	1+2+1	2,5 cm Pb
Effective X0	2,4	2,4	2,4	2,4	4,6
int du début	2,4	4,8	7,2	9,6	14,2

Plaques W dispo:

- 10 plaques de 2.1 ($0.6X_0$) → $6X_0$
- 4 plaques de 4.2 ($1.2X_0$) → $4.6X_0$
- Briques de Pb (2.5cm / 0.56cm = $4.6X_0$)
- Plaques de Pb 1cm ($1.8X_0$)

Technical

Refurbishing of 1st stack

- Additional layers + security.
  - Holders & spacers for FEV13's + FEV11's

Re-test of FEV11's before modifications

- Redo passports
- Update of DIF's FW
- Upgrade of PYRAME (incl. DIF ID)
  - Adapt to CompactDAQ

Open questions:

- How many PS HV ?
- How many PS BT ?
- Grounding scheme
- Mechanical holding ?

2 DAQ à synchroniser

- Fequence ? 50 MHz, 5 MHz, ILC SK2 = 40MHz, 5 MHz
- Spill Number → Re-config à chaque début de run
- Timeout ? StartAcq ?
- Busy ?

SW sync.

- EUDAQ2 ? Pyrame ?
- CCC/TLU ? même polarité

SW = config active!

- en %
- FW : 50 ou 40 MHz ?

Organisation

LLR:

- Technical coordin: Jérôme
- On site:
  - Jérôme (all week) + Fred (2 days ?) + Thibault (2 days) + Rémi Guillaumat (2 days)
  - Fabricio (all week) + Jonas (all week) + VB (≤Thursday)