

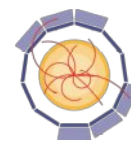
Journée Projet IN2P3 CALICE

Vincent Boudry

École polytechnique, Palaiseau

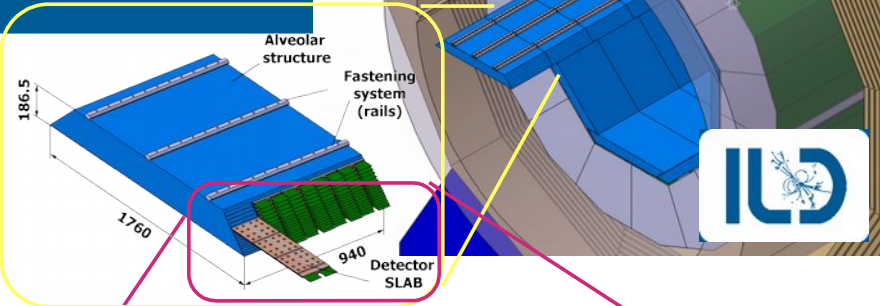
A red handwritten signature, likely of Vincent Boudry.

16 oct 2017
Michel-Ange

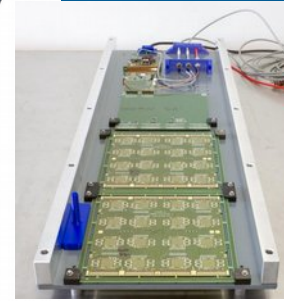
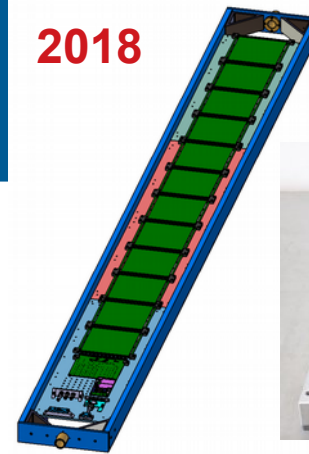


Prototypes

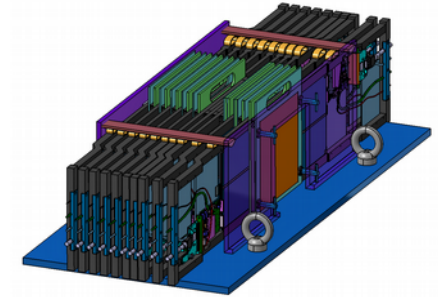
ILD & SiW-ECAL barrel



2018



2018

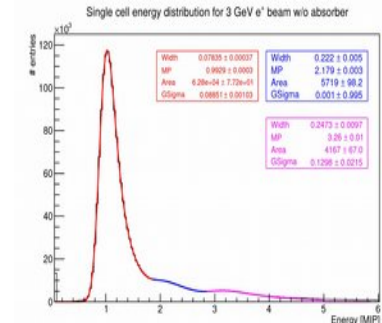
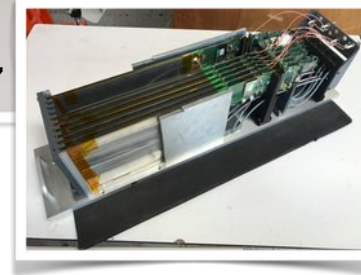
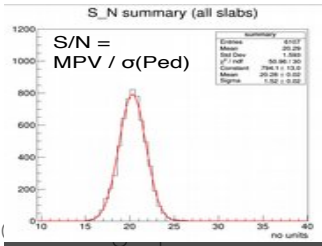
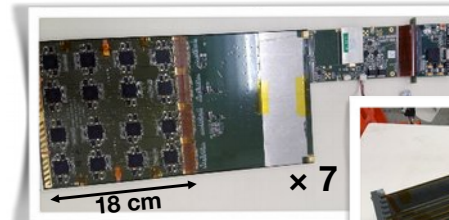
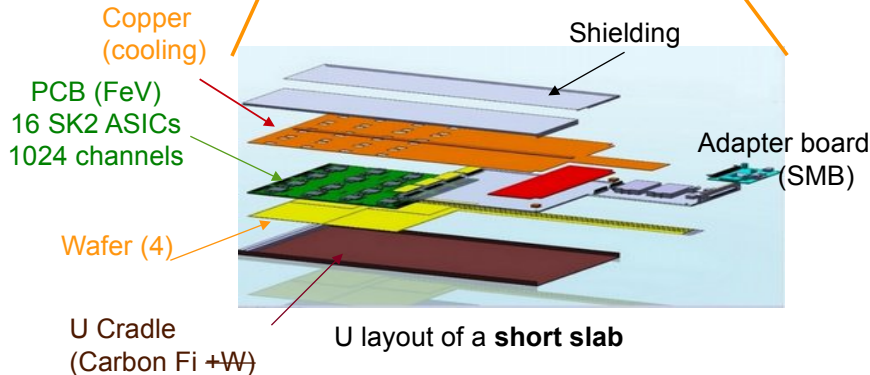
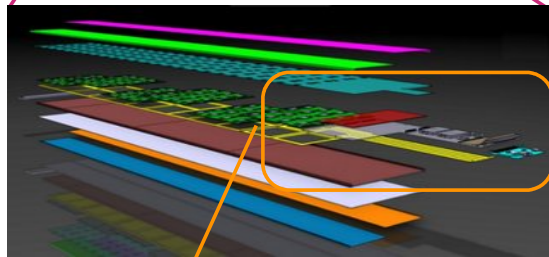


SLAB « long » (≤12 ASU)

- Partie électronique + Baby W. (Signals, Power P.,)
- Design Realistic SLAB

Prototype technologique (1 ASU)

- Test au DESY (Juin 2017)
- « perfect beam tests »

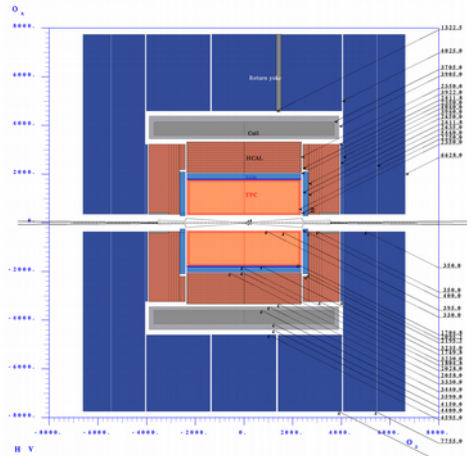


Cumulated « Mip » spectrum in 3GeV e-

ILD: Integration & Outils

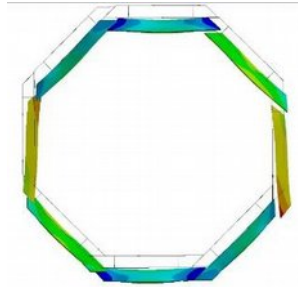
ILD (re)Design

- Cost reduction
- ICD & TDD



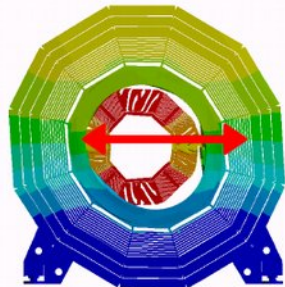
Input for CEPC CDR

LLR + LPSC + LAL



Statique
Dynamique

Mode 2 @ 3,05Hz

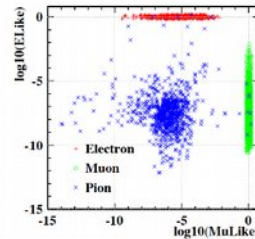


Particle Flow Algorithms

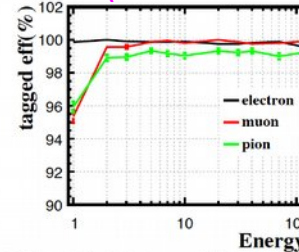
“Lepton identification at particle flow oriented detector for the future e+e- Higgs factories,”

Eur. Phys. J. C77 no. 9, (2017) 591, arXiv:1701.07542

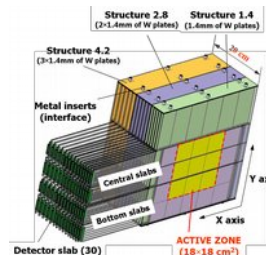
Thèse de Dan Yu
(co-tut LLR-IHEP)



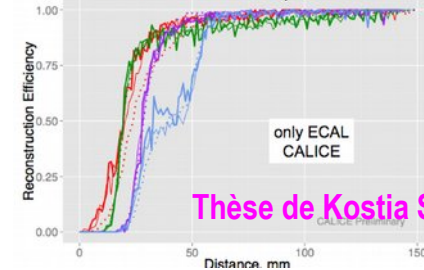
BDT method using 4 classes of 24 input discrimination variables.



“Separation of overlapped showers in CALICE calorimeter prototypes using Pandora, Garlic and Arbor Particle Flow Algorithms » **CAN-057**



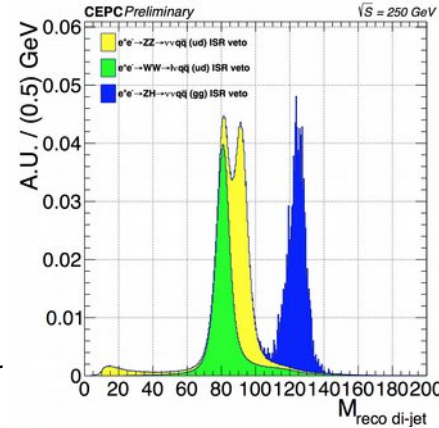
EM+EM: 12+04 GeV separation in TB



Thèse de Kostia Shpak

Visite M. Ruan (1.5 mois)

ARBOR performances
@ CEPC (~ILD)



Ressources (Fin, perso)

Personnel 2018

5 [2.3 FTE] physiciens + 8 [3.3] IT ~ Stable sauf :

- (1/4) PD (A. Lobanov)
+1/6 PD (K. Shpak)
- 2 → 0 PhD

Priorité 2018-19

⚠ **Analysis work**
⚠ **HGCAL**

Besoins

- 2 an PD ⊕ Bourse Doct.
- Missions (20–30k€) :
 - CALICE (Cn) + ILD (Jp) + LCWS (Jp) + Confs
 - BT CERN vs US
- Matériels ~ 2018: AIDA + HiGTEC
 - FE optimisation ~ 50k€ (2018) + 30k€ (2019-20)
 - Méca SLAB long (H Carbone+Tungstène) ~ 15k€

Activités 2018

Validation **SLAB long**

- Partie “électronique” ~ Q1 2018
 - Test au DESY “fin de slab”
- Design complet

Complétion **Prototype** → 18–20 couches ~ Q3 2018

- Amélioration design (ASU, SK2a, DAQ)
 - Wafers 525 μm vs 320 μm; timing
 - Production diversifiée (Japon)
- (Structure flexible)
 - tests du PFA CERN (?) / SLAC/FNAL

ILD:

- Validation (simulation) nouveau design @ 250 GeV
- Documents “techniques”
- Mise en place organisation

SUPPORTS

Details personnel

Groupe ILC LLR

jan 2018

Total	13	5.6 ETP	
Physiciens	5	2.3 ETP	
V. Boudry	EQUIPE** + CALICE + ILD + PFA	90% Perm.	90%
J-C. Brient	ILD + CALICE + PFA	10% Perm.	10%
H. Videau	ILD + PFA	50% Perm.	50%
V. Balagura	ILD* + CALICE + PFA	50% Perm.	50%
A. Lobanov	CALICE	25% CDD	25%
ITA	8	3.3 ETP	
Électronique	3	1.5 ETP	
J. Nanni	CALICE	75% I.R.	
R. Guillaumat	CALICE	65% A.I.	
F. Gastaldi	CALICE	10% I.R.	
Mécanique	4	1.3 ETP	
M. Anduze	ILD	10% I.R.	
T. Pierre-Émile	ILD	20% I.R.	
G. Fayolle	CALICE	80% I.E.	
E. Edy	CALICE	20% T.R.	
Informatique	1	0.5 ETP	
F. Magniette	CALICE (Mana + DAQ)	50% I.R.	

Spin-Offs

CALICE – CMS

- Thermo-Mechanical integration
 - Solution Structure “à la LLR” (non retenue)
 - Cassettes en cours d’étude
- Bancs d’études ASIC SK2, SK2a, HGROC
 - DAQ, FW
 - Analyses
 - BT avec SK2
 - FE design ?

CALICE DAQ & PYRAME

- Beam Test CALICE SiW-ECAL
 - intégration EUDAQ ↔ SHCAL, AHCAL
- Autres : HARPO, CTA, WAGASHI, PEPITE, ...
 - High Perf, Low level SW
 - HW: GigaDCC + DIF

Collaborations

