

DEPFET TB workshop

Goettingen, 15 & 16 April 2010

Marcel Vos, IFIC Valencia



Attendants

Benjamin Schwenker /14. April / 16.April

Christian Geisler / 14. April / 16. April

Marcel Vos / 15. April / 16. April

Carlos Mariñas / 15. April / 16. April

Peter Kvasnicka / 14. April / 17. April

Julia Furletova / 15 April /16 April

Thomas Weiler / 14 April / 16 April

Carmen Iglesias / could not attend

Javier Caride / could not attend

Christian Koffmane / 15 April / 16 April

Manuel Koch / 15 April / 16 April

Jelena Ninkovic / 15 April / 16 April



Uniform software/algorithms

A long session was devoted to a hands-on tutorial (Christian, Benjamin) of the DEPFET TB analysis chain in the ILC/LCIO/EUDET framework.

Even if we do not want to impose a single software environment, more uniformity among the algorithms is desirable: baselines were defined and possible deviations discussed.



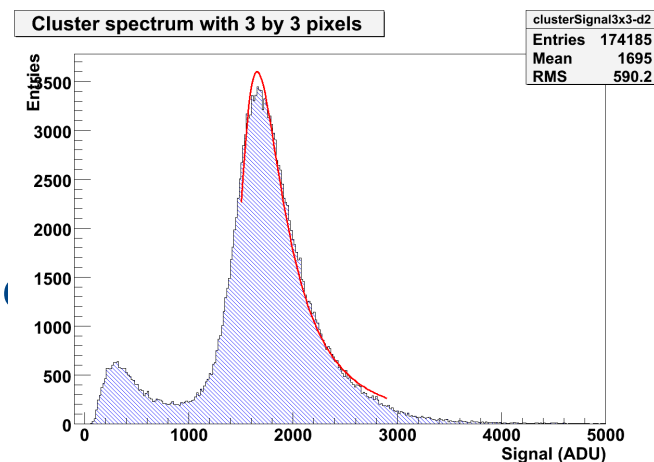
Results

Results I: charge collection (depend only on clustering)

- g_q , S/N
- gain uniformity
- cluster size (vs. angle)

Compare to lab measurements

Translate into prediction for ILC/SuperBell
(50 μm thickness)



Results II: resolution

Single-plane resolution of 1.2 micron, approaching the 1 μm barrier. Quite a challenge to achieve and to measure!

Results II

A detailed in-pixel charge collection study has been performed (Lars Reuen, Prague). Can be matched to laser studies. Need final results!

Gain variations in PXD5 devices. Peter Kvasnicka to summarize all results (source, laser and TB) in Ringberg. Compare to expectations (sensor design, process variations, Rainer Richter)

The main outstanding mystery from the TB is the edge effect. Several analyses (Prague, Goettingen, Bonn) agree on magnitude of the effect. Not understood. Laser measurement suggested by Rainer to be performed (at Prague?)



Links to the outside world

Digitizer validation: need to decide on a GEANT4 step size. Otherwise, the hard work is done, just needs continuation to make sure new information makes its way into the digitizer.

DHP algorithms: implement algorithms in the offline software framework that can be run in the DHP. See how they behave in a realistic environment (in the presence of voltage fluctuations, hits from particles, etc.). Will become more relevant as soon as DCDB-based devices are in the beam.



A paper on TB2008/2009:

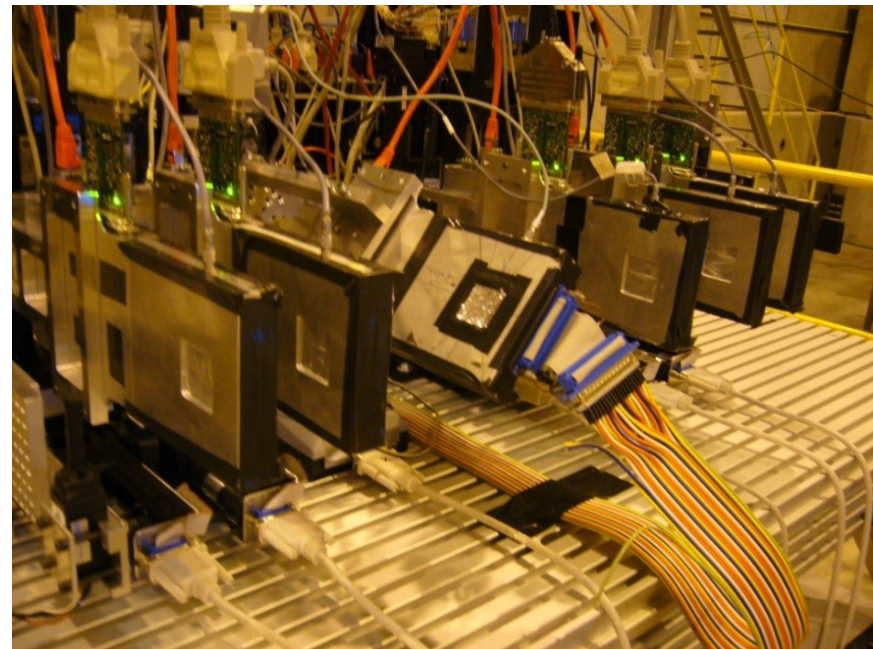
Long notes have been written
(Prague, Bonn)

Spin-off results by
Julia/Sergey

Digitizer study (Benjamin,
Zbynek, M.V.)

Belle-II TDR

I believe that, given
the results are all on
The same PXD5/Curo system,
a single paper akes more sense



TB2010

Asked for a single week in November (the last week of the SPS)

- After SiLC (possibility to run “parasitically”)
- With EUDET (possibility to use MIMOSA telescope)
- Minimize manpower in this busy period

To be decided:

A: PXD6 is on time, DCDB-based module is prepared on time
Prepare to read out a thin, small, ILC-style sensor (bench supplies)

B: PXD6 is on time, but DCDB-system is not ready for TB
?

C: PXD is late, DCDB is available
Adapt board to read out well-known PXD5 sensor at full speed
(bench supplies, DEPFET telescope?)

D: PXD is late, DCDB is not ready
Hand in our slot, go to DESY early 2011, or wait for May

(my summary of Jelena/Christian/Manuel's review)

Conclusions

In summary:

The TB workshop has seen a lot of useful discussion (that normally does not fit in the agenda)

Thanks to all participants, and especially to the local organizers

