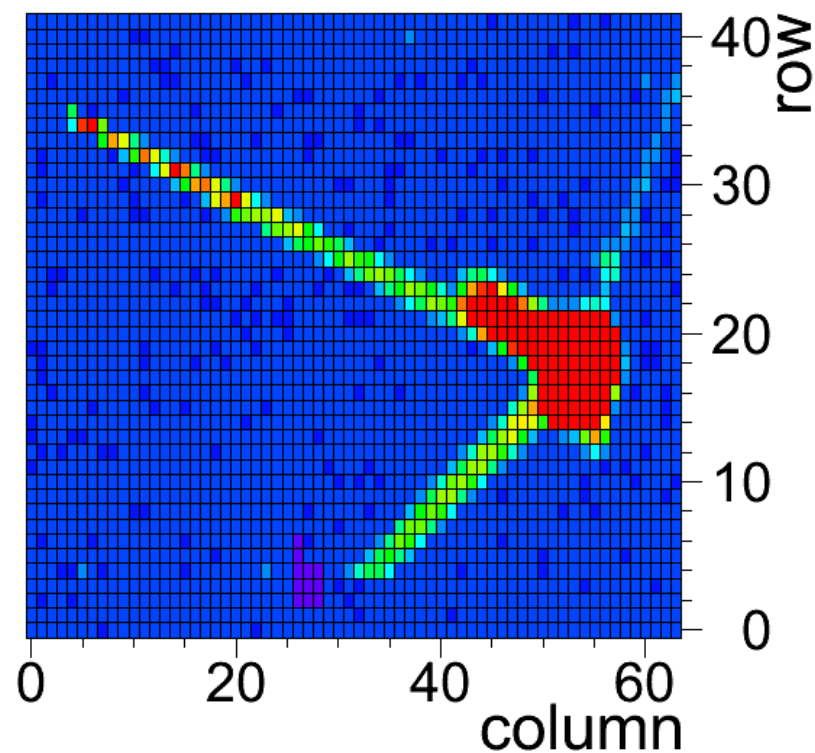


● TB for Si VXD and TRK R&D

TB for Si VXD and TRK R&D Session Summary

Jaap Velthuis, Bristol
for

Marcel Vos, IFIC Valencia
Ron Lipton, FNAL
Tim Nelson, SLAC

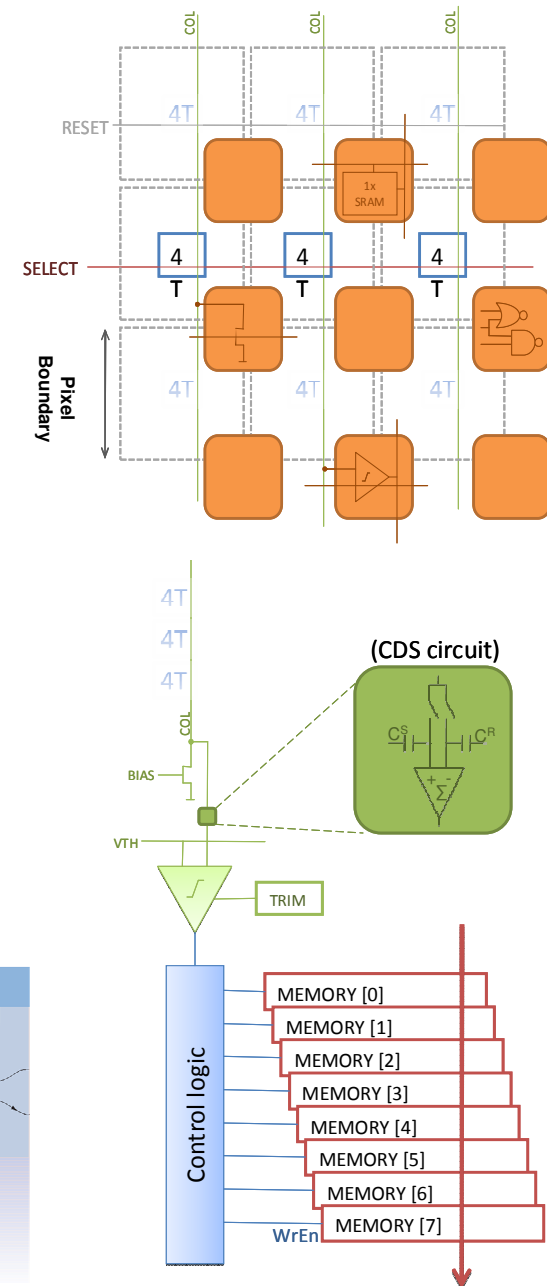
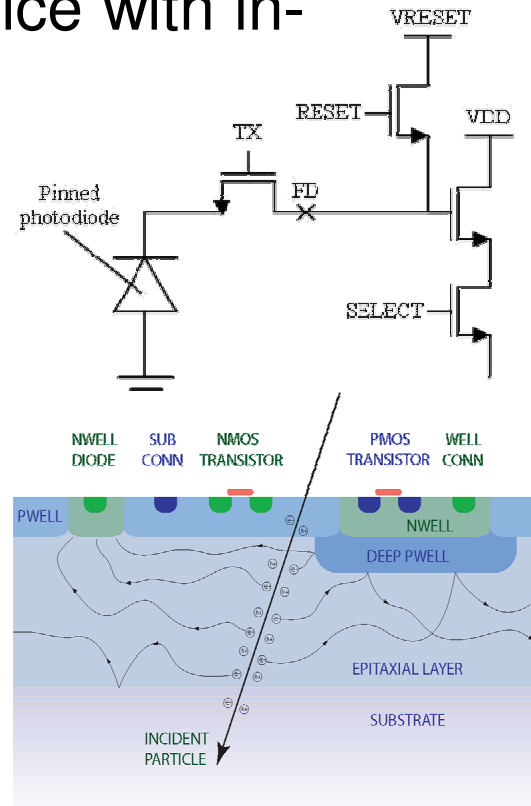
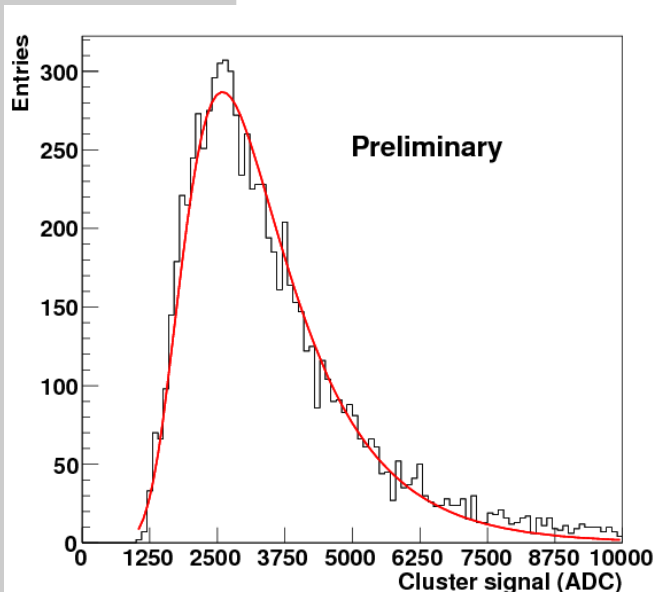


SPIDER

Spider presented the first beam test results of a 4T MAPS device:

- S/N~50
- deep Pwell technology

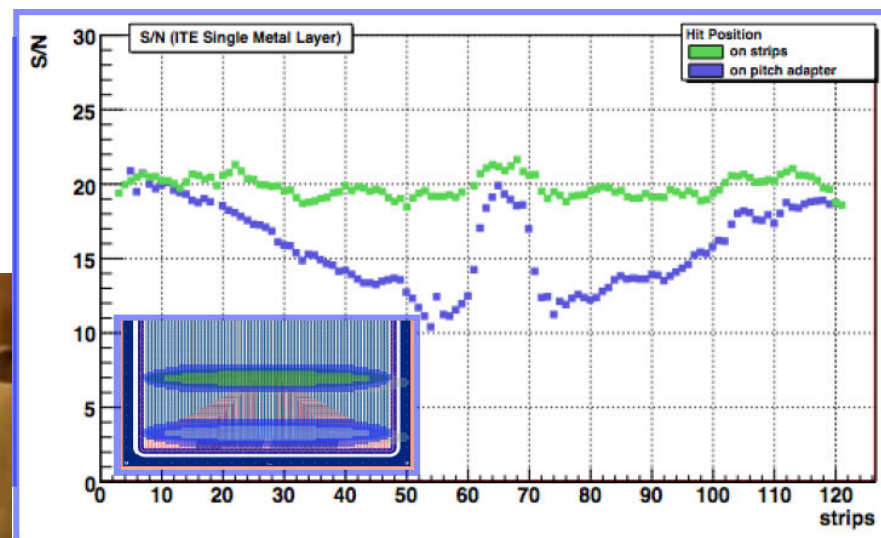
Spider works towards device with in-stixel data processing



● SiLC TB activities

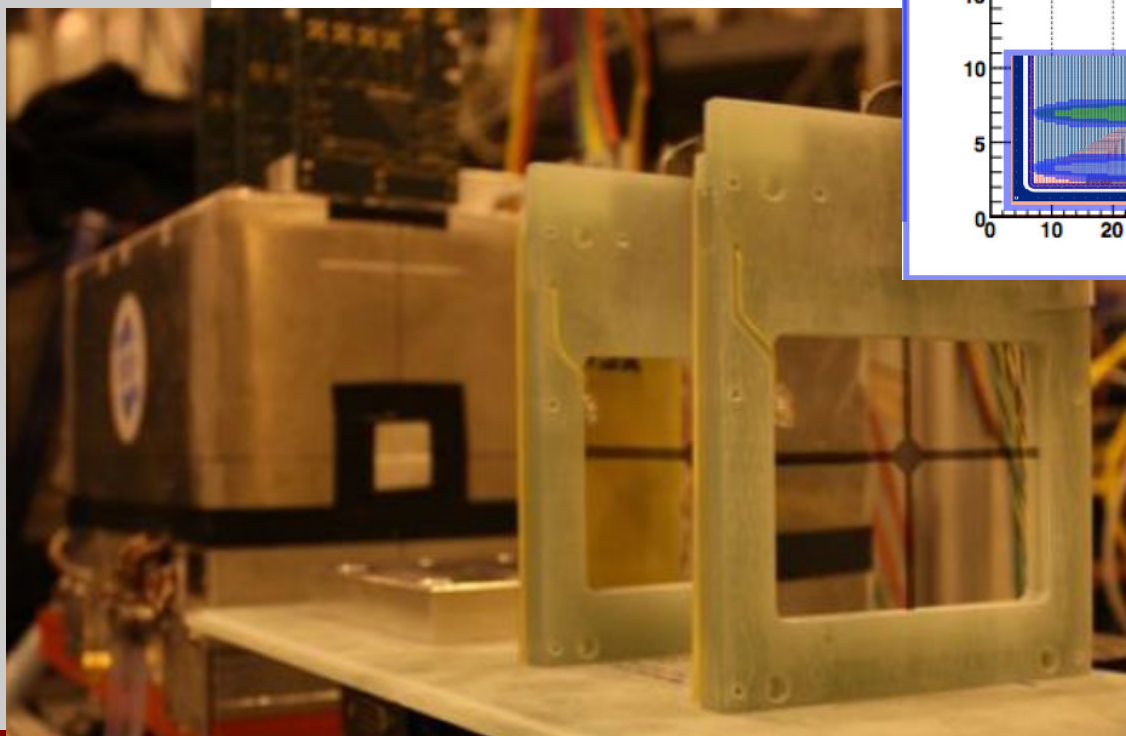
SiLC test beam activities – Alexandre Charpy
(LPNHE/UPMC/CNRS/IN2P3) for the SiLC collaboration

A wide variety of results
From standalone TB



Integrated Pitch adapter
in additional metal layer
on sensor

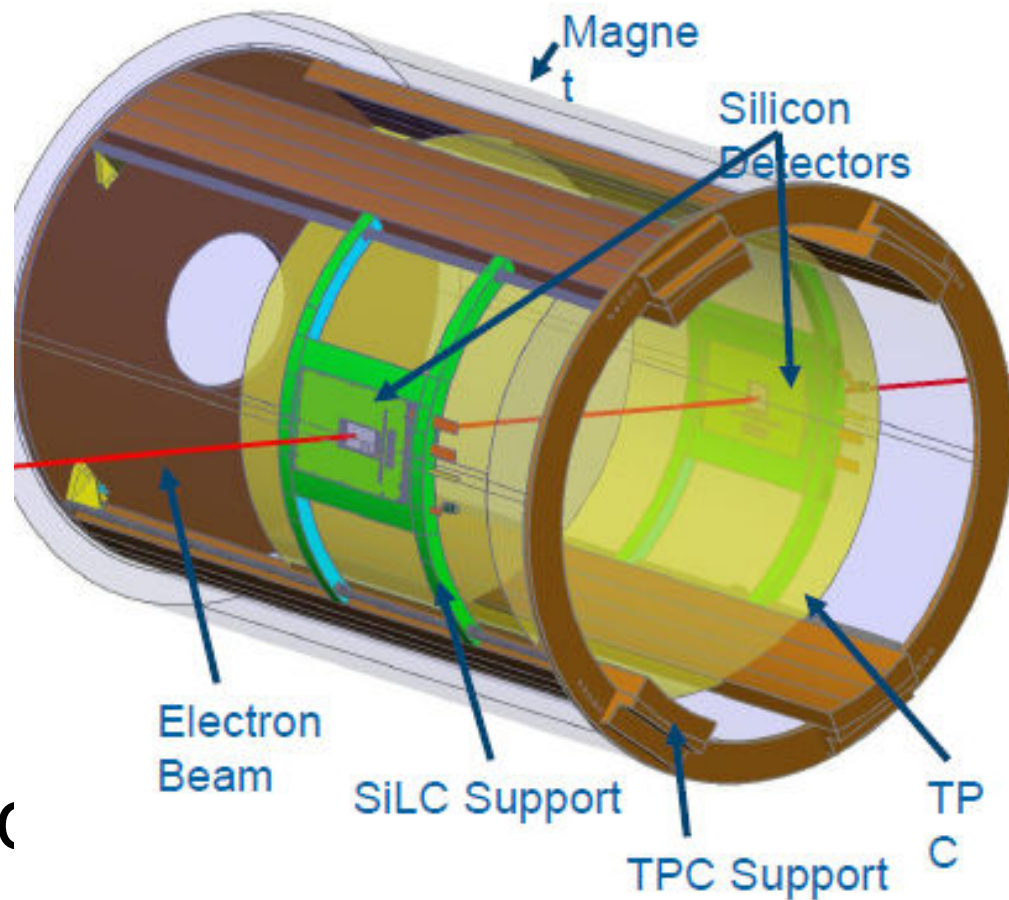
IR transparent sensors for
laser alignment



● SiLC TB activities

Combined TB

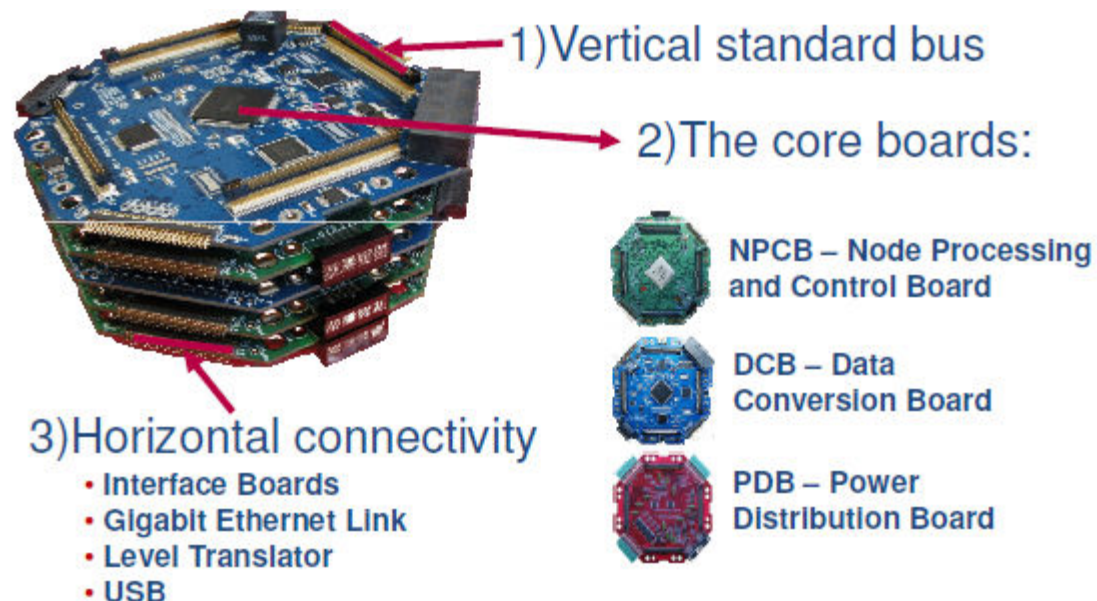
Si micro-strip detector
LCTPC prototype at DESY



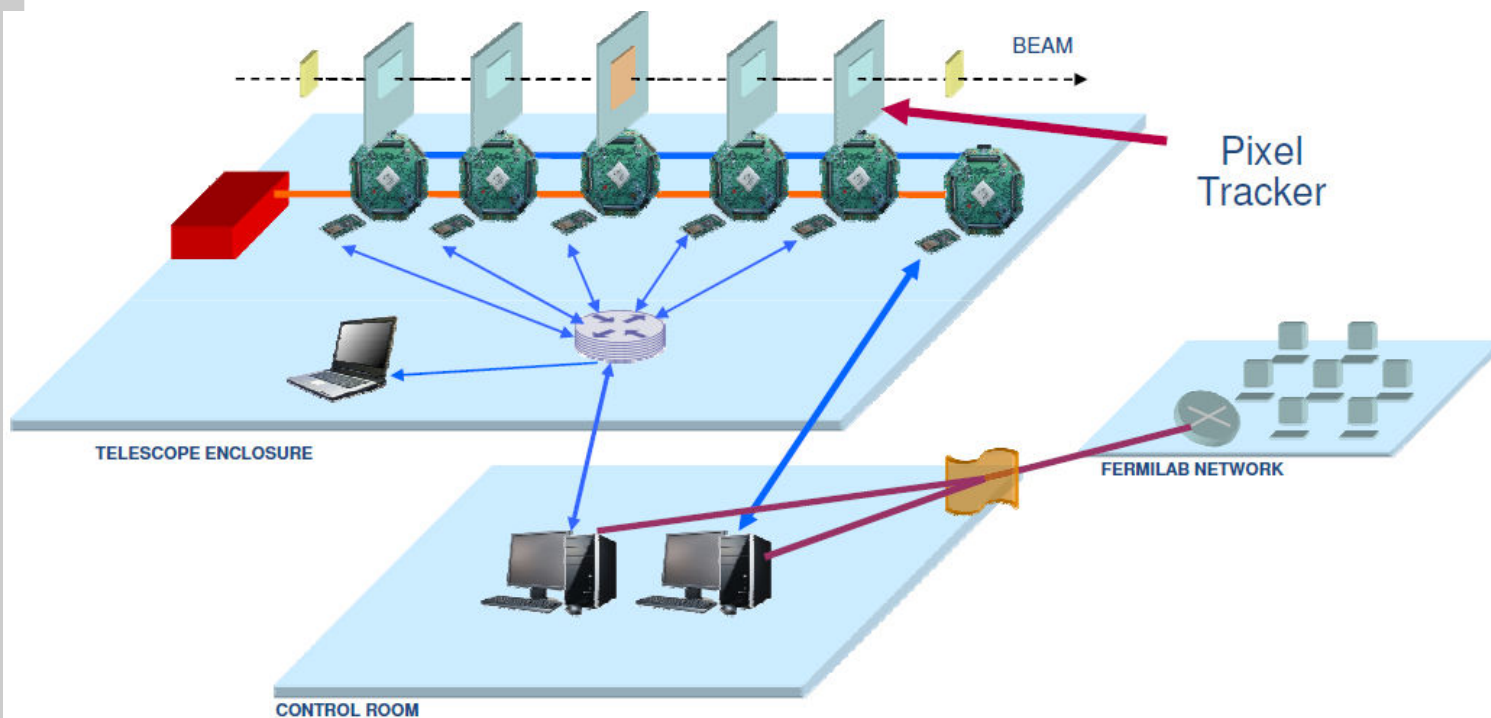
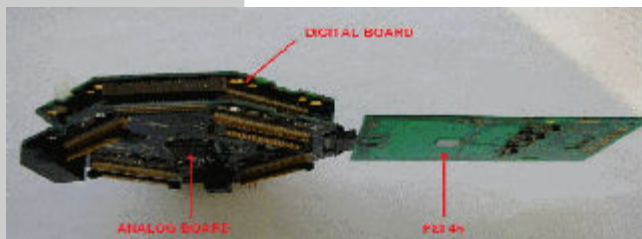
● CAPTAN

Ryan Rivera, FNAL computing division/electronic systems engineering, CAPTAN – a generic readout environment for prototype pixel detectors

CAPTAN, compact and programmable data acquisition node



● CAPTAN



● VXD and TRK TB requirements

We need:

Extremely precise devices require reference position to be known to $< 1 \mu\text{m}$ \rightarrow high energy beam + ultra-precise telescope required

Extremely low-mass/transparent devices require studies of deformations on few micron level \rightarrow infrastructure wanted

Very small devices \rightarrow trigger

Two-track resolution \rightarrow intense beam/jetty TB

Many different collaborations \rightarrow much too gain from centralizing some of the effort (a la EUDET)

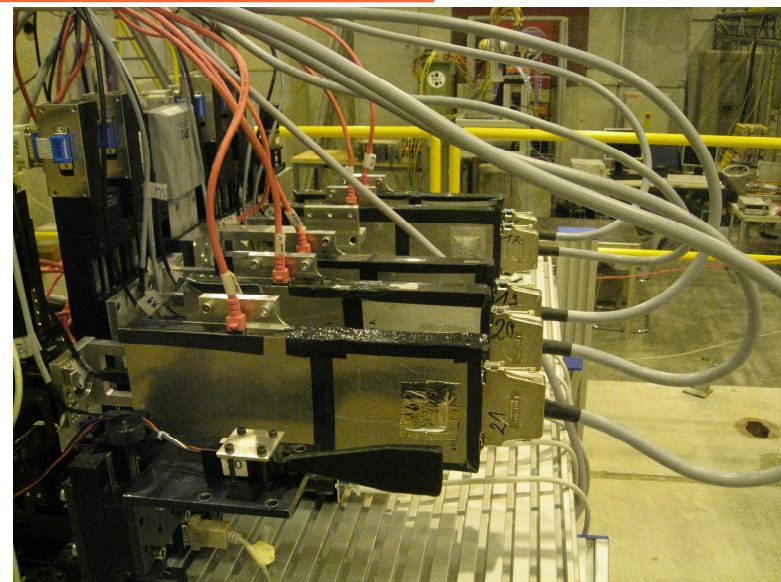
We offer:

Ultra-precise telescope

Moderate area Si μ -strip to give entry point to calorimeters and TPCs

● EUDET or Bring-Your-Own?

EUDET: Detector R&D towards the International Linear Collider, <http://www.eudet.org/>.



DEPFET telescope 2009

● AIDA WP9.2

<https://espace.cern.ch/aida/default.aspx>

Objectives of task:

(I. Gregor, M. Winter, H. Pernegger)

Telescope:

- To build a versatile modular precision pixel telescope operated by a common infrastructure and “user configurable” reference planes to cover a wide range of sLHC and ILC relevant measurements
- Modular reference system to meet specific user requirements for ILC and sLHC users: Reference planes are based on different Pixel FE-chips (Timepix, Atlas FEI4, Mimosa)
- Telescope Station for DUT includes infrastructure for cold operation (a cold box for testing irradiated silicon structures) or alignment study box [access to CO2 cooling plant, M.V.]
- The telescope can be operated in combination with a target to be used in front or behind the telescope (high rate/ high occupancy/jet studies)

Off-beam infrastructure:

(M. Winter, I. Vila)

- Metrology, thermal characterization under realistic load

