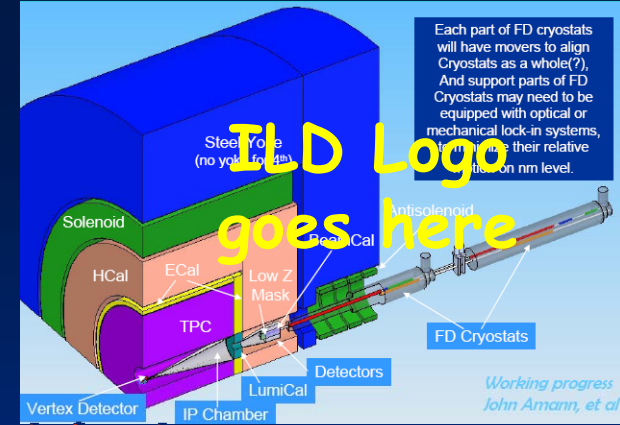
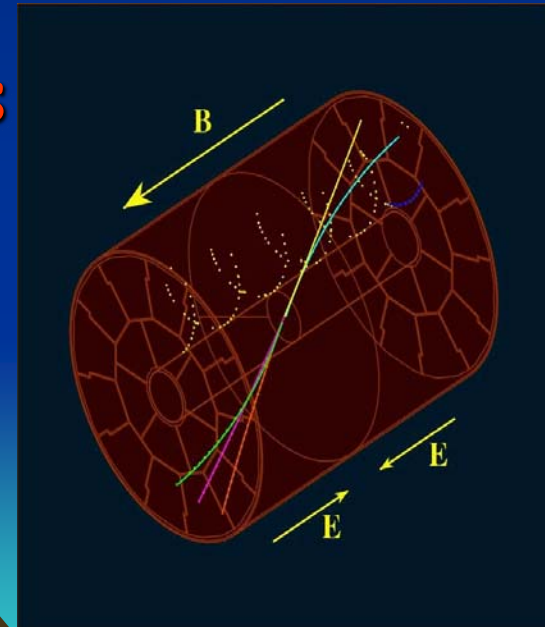


Worldwide Study of
the Physics and Detectors
for Future Linear
 e^+e^- Colliders



Alignment Meeting for the ILD LOI 28.05.2009

- TPC internal
- Tracking subdetectors



-TPC internal

All issues are covered in the LOI and are valid

- '30micron' criterion correct

- All E-field effects covered in
TPC section of LOI

- All B-field effects are covered in lcnote
by Werner Wiedenmann and me

- Should mention double-antiDID as future option

-Tracking subdetectors

Overall strategy as written

- Subdetectors fabricated to 10-20micron internal
- Subdetectors measured to 0.1-0.2mm external
- Bfield mapped to $\sim 1-3G$ accuracy a la lcnote
- Each subdetectors first aligned internally using tracks from Z or \sqrt{s} data
- In 2nd pass, subdetectors aligned wrt each other using same data
- Iterate until correct momentum is attained

-TPC/Tracking subdetectors

Takeshi question:

-How well can we measure the TPC sag/position?

-Alain Herve, Raphael Goudard, Christian Lasseur
(CMS) answer:

⇒using theodolite reference network,
all subdetectors meas. to ca. 0.3mm relative,
0.5mm absolute (0.3mm can be improved using
latest technology, e.g. LTD or photogrammetry)

-TPC/Tracking subdetectors

How do we measure the SET wrt TPC to 6micron
(Dan's number)

- SET must achieve the same resolution internally
- TPC-SET can be measured using 10^4 cosmics at outside ends of SET (small drift distance)
 - ⇒small drift distance because SET is also used to help calibration v_{drift} ; at small drift distance, accuracy of v_{drift} not important
- All steps will involve iterating until overall consistency is achieved.
- Answer to one of IDAGs 1st questions at tilc09:
 - ⇒this can be done in 1 week and monitored using \sqrt{s} data, and recalibrated if change detected