ZEUS Status

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HERA Scheduling
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- Status of 4 major upgrades -
  Beampipe area,
  Lumi. Monitor,
  Straw Tube Tracker (STT),
  and Si. Microvertex detector (MVD)

- Overview of schedule implications -
  will be enlarged on by B. Loehr,
  who will also give a very brief summary of
  of progress of the other, more routine,
  shudown work in the ZEUS hall.

Beam Pipe Region

- Central Beam Pipe
  This has been a major saga. We specified 100% weld penetration - attempts to provide it resulted in 120% penetration, i.e. beam pipe being welded to the mandril!

- Visits to B-W by ZEUS&DESY experts recovered the situation. Pipe was separated from mandril, rewelded and distortions introduced in separation cured in oven. Pipe leak-tight and was delivered to DESY before Christmas.

- This significant delay caused us to change the strategy for the MVD to delivery in two halves and later insertion on beam pipe on DESY site.

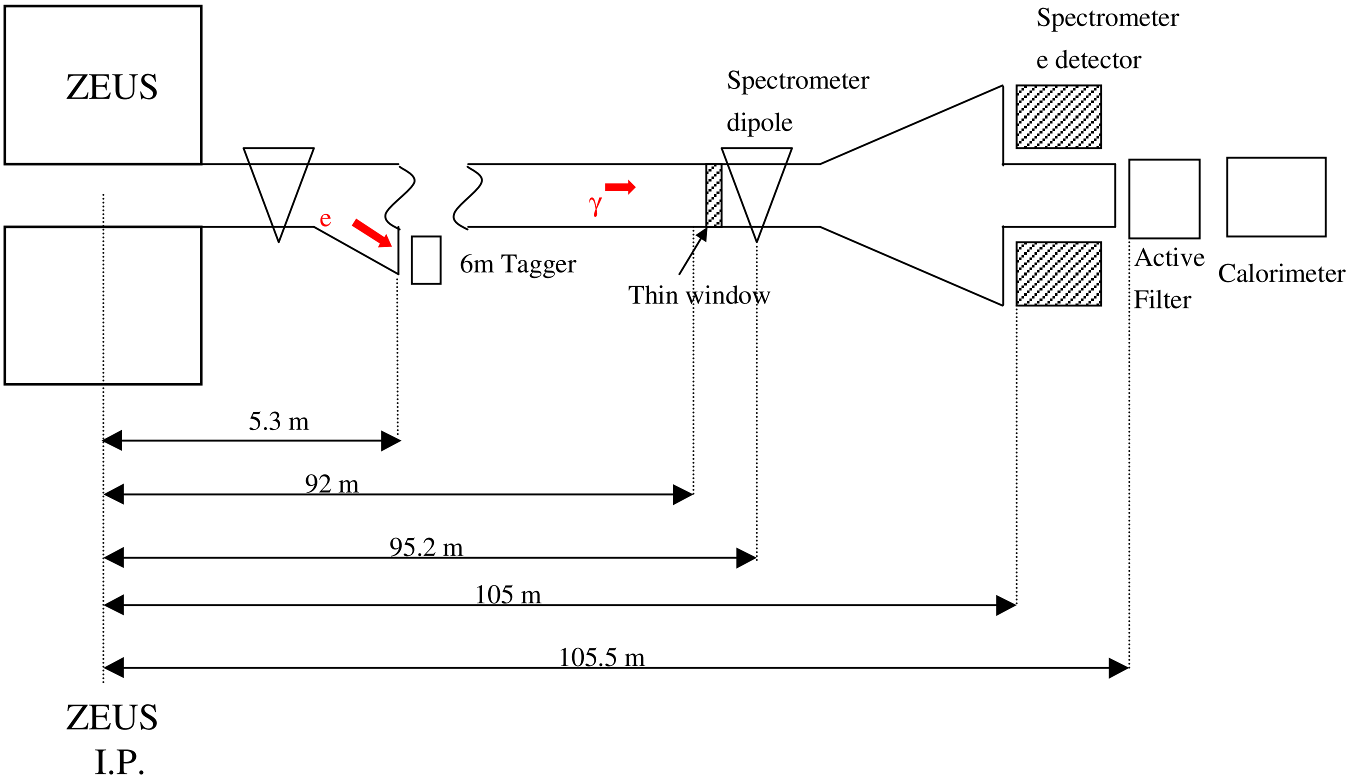
Beam Pipe Region

- Beam pipe in Acropolis pumping & under test - still quite some H_2O inside.

- Still concerned about the heat-leak in GO and risk of dripping water into CAL, although current solution seems OK. Otherwise, all other beam pipe area work on schedule.

Lumi Detector

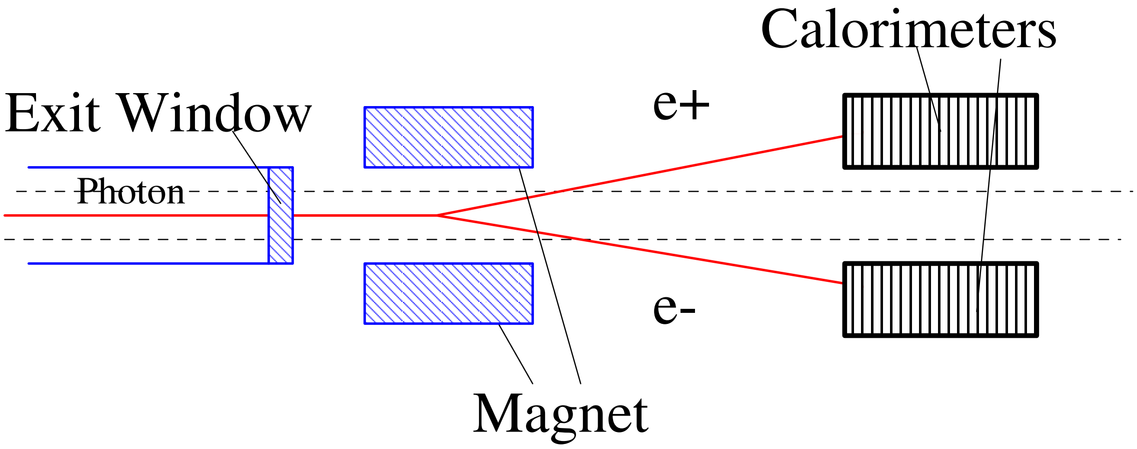
- Upgraded ZEUS lumi system


ZEUS
Spectrometer
e detector
Spectrometer
dipole
e
γ
6m Tagger
Thin window
Active
Filter
Calorimeter
5.3 m
92 m
95.2 m
105 m
105.5 m
ZEUS
I.P.

- Calorimeter - similar to current one+ Aerogel "active filter". Both mechanically complete - "position detector" (scintillator fingers) being constructed at Cracow - will be complete mid-February. Test beam has been very successful - further test beam in March prior to installation in tunnel.

Lumi Detector

- Spectrometer


Calorimeters
Exit Window
e+
Photon
e-
Magnet

Dipole magnet here for several months - field will be measured in Feb.
Both calorimeters (ex-BPC) now refurbished and PMT testing under way ready for DESY test beam run now starting.
Shielding design from sync. photons complete.
He bag design ~ finished, for const. in Feb.

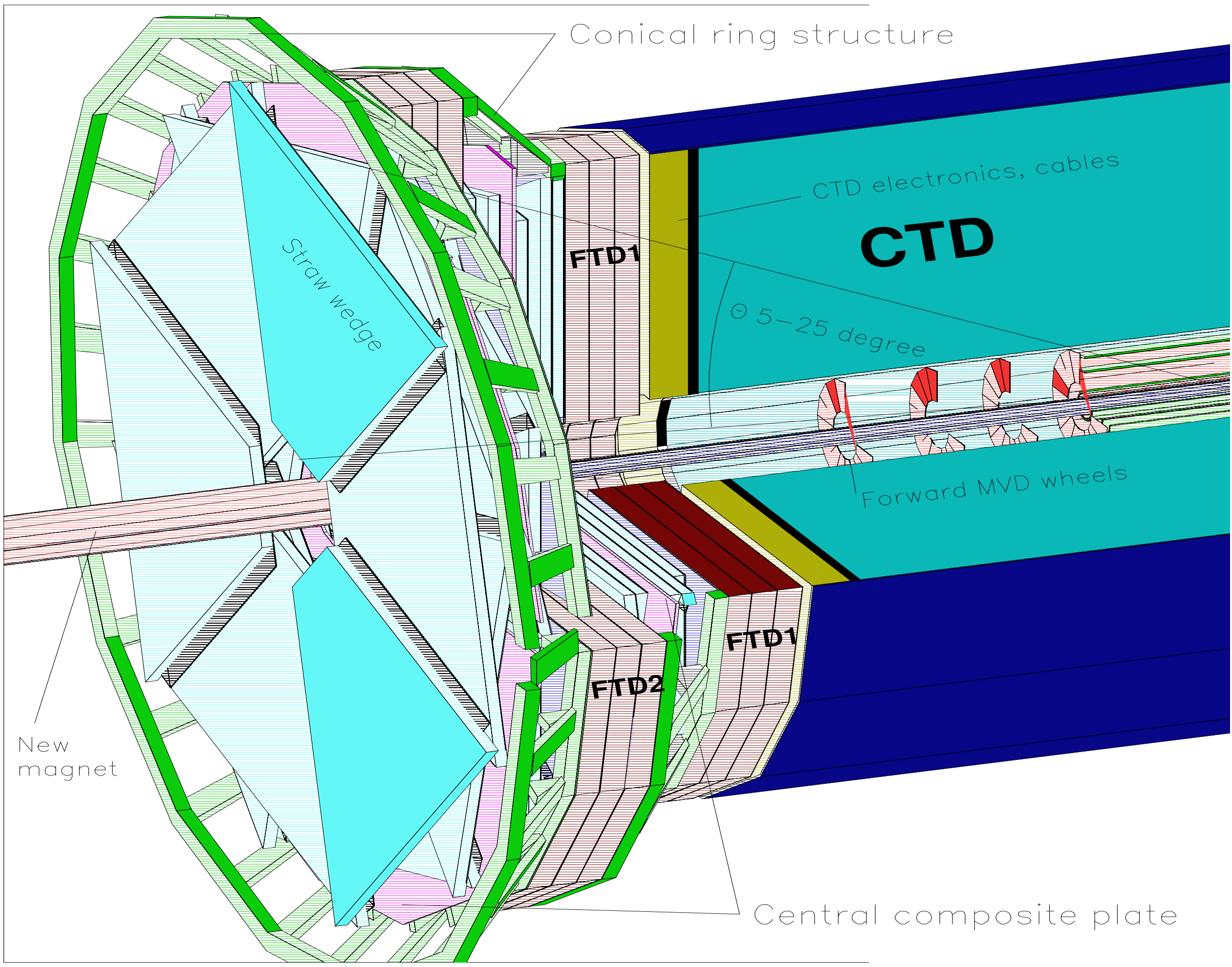
Lumi Detector

- 6m tagger

- Fibres for final construction arrive next week. Device will be constructed in Feb. We will do test installation in May but then leave “dummy” detector there until August - final det. can be installed in a regular monthly access period.
- Common electronics for all lumi. components: excellent progress despite staff shortage - in-tunnel front ends will be complete ~end April. Some problems with in-Hall DAQ memory board - some boards very complex - but all electronics on schedule for end May completion.

Straw Tube Tracker

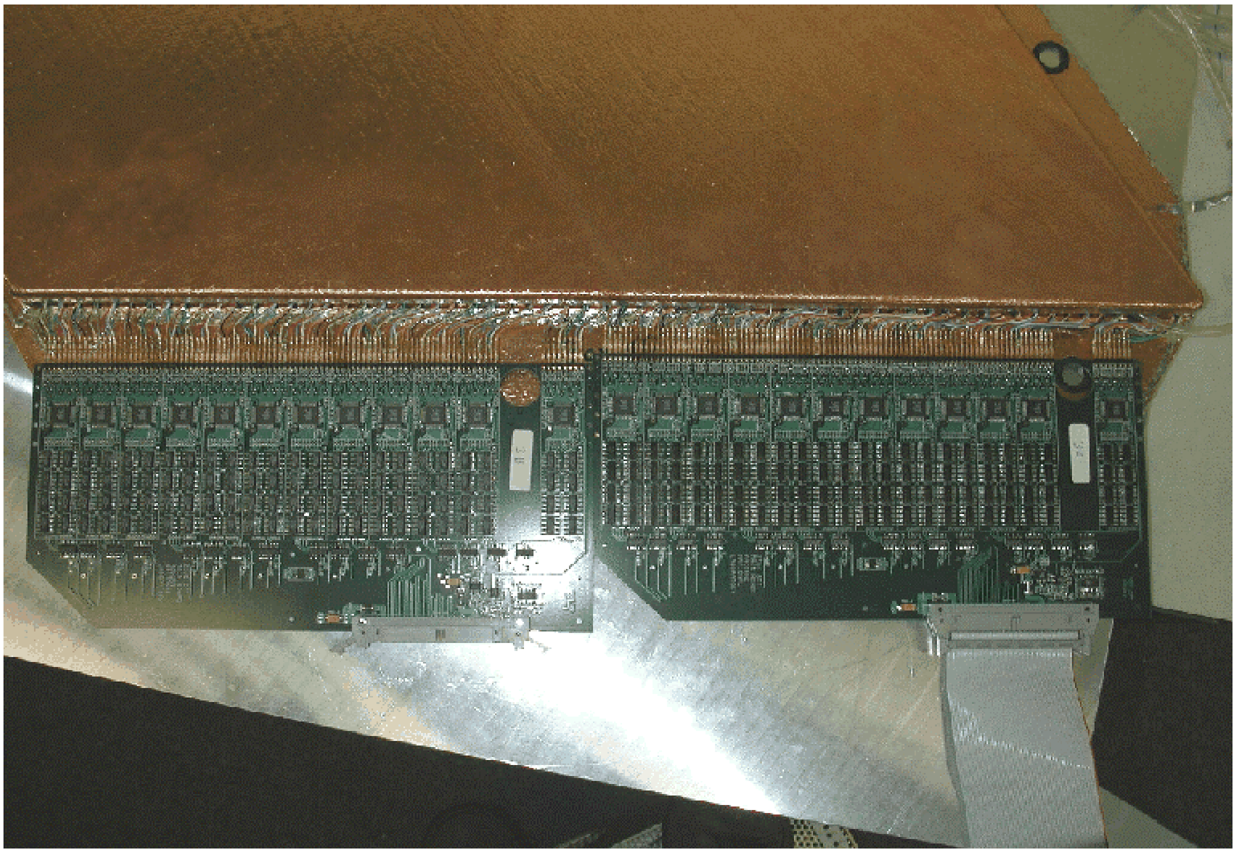
- Two new straw tube planes under construction: 25 large, 25 small ‘wedges’


Conical ring structure
CTD electronics, cables
CTD
Straw wedge
FTD1
Θ 5−25 degree
Forward MVD wheels
FTD1
FTD2
New magnet
Central composite plate

- Work split between DESY, MEPHI, Freiburg and York, Ca. All sectors complete mechanically and all (except 16 large sectors +1 large sector box stuck in Russian customs) are at DESY.

Straw Tube Tracker

- At DESY, each straw is connected to readout electronics by hand-soldered individual connections.



This has gone much quicker than expected !

Straw Tube Tracker

- Electronics - Argonne & Tel Aviv:

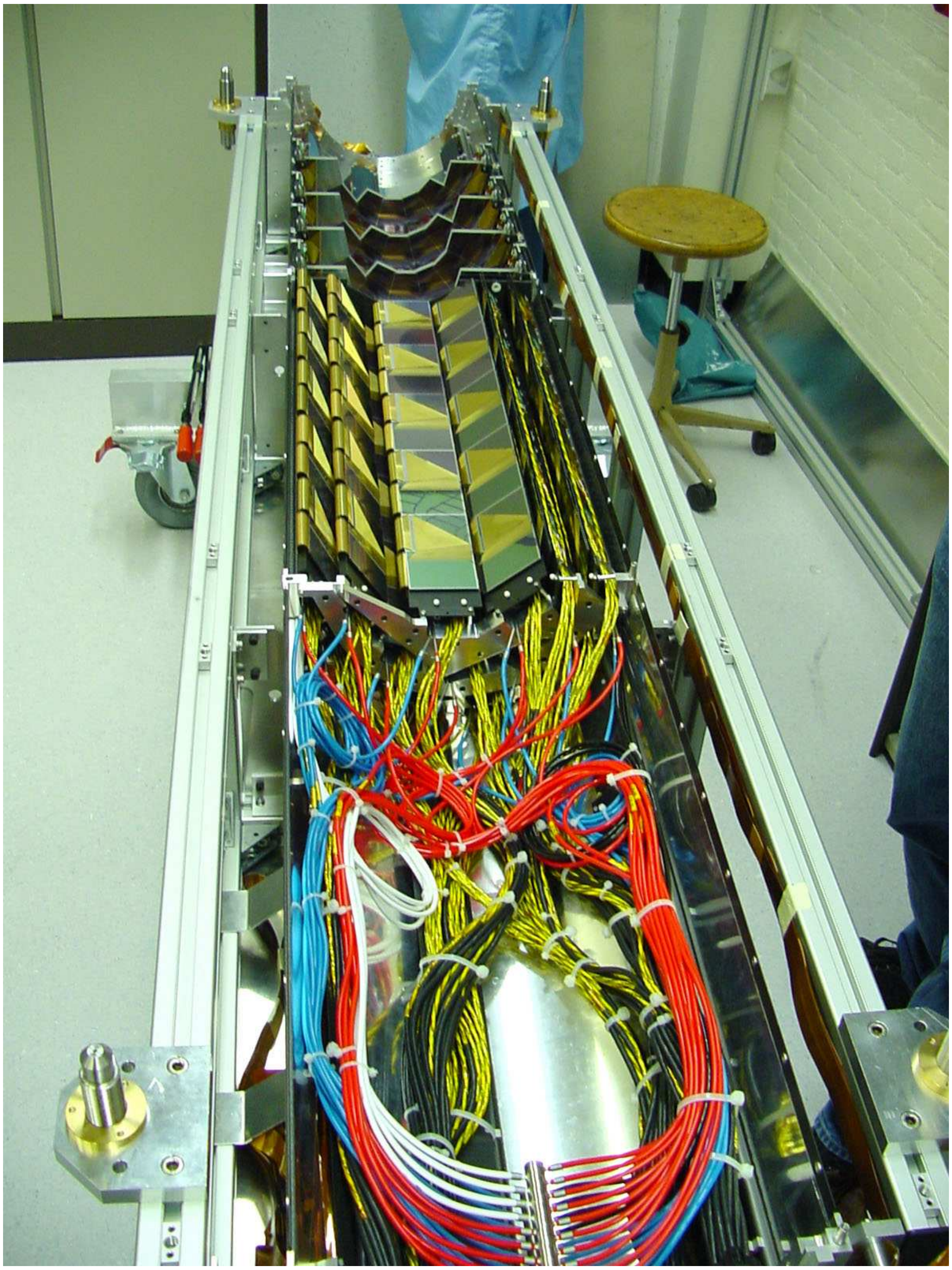
  Front-end channels mpx *6 via time delay ~ 200 nsec/channel, mounted directly on straws. 2 problems found after 1st production run - had to be redone => 1 month delay. 150 new boards now produced and in assembly - expected next week. All should be assembled & tested by start Feb.

  Cable driver boards mounted on support frames - under test in Tel Aviv. Expected to be delivered on 15th January.

- Schedule is to mount electronics Jan - Feb - mount STT into repaired FDET Feb & install in ZEUS in Apr. Remaining uncertainties Russian customs & MPX electronics delivery.

Microvertex Detector

- First half complete, at DESY in JADE hall, under test!



Microvertex Detector

- ~ All (except 1/2 of C&C modules, due imminently) electronics available and will be used to readout first half in next few days.
- However, the 3 weeks delay I reported to Nov. PRC has not got any smaller. There remain problems with the "Combo" cables from ladders which are completely outside our control & with manufacturer. The whole construction of second 1/2 of MVD now waits on cable delivery. The current schedule from the manufacturer represents a further 2 week delay, i.e. 5 weeks, in MVD construction, which now drives schedule to close ZEUS.
- However, as Bernd will discuss, we think that by using last flexibilities in our schedule, and giving up some testing time directly after installation, we can regain ~ all these 2 extra weeks delay.

Summary

- Enormous progress and hard work since last HERA Coordination meeting on all aspects of upgrade, but particularly MVD.

- Delays in MVD cables have prevented us regaining any of the 3 week delay that we have known about since November. However, we think we have held the line against further delays. We can now be sure that we WILL be three weeks late; but the potential for further delays beyond this is now (relatively) limited.