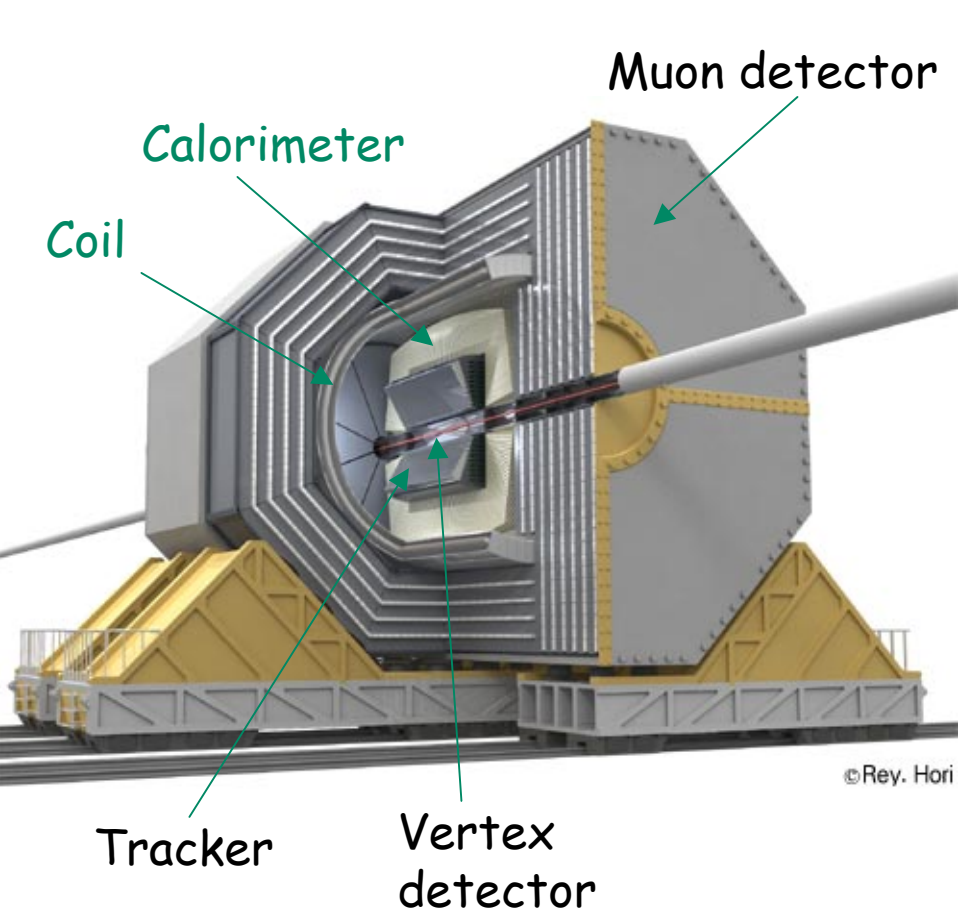


R&D Activities for ILC @ Tsinghua University

GAO Yuanning
TUHEP

Detector for ILC experiments

Detector design Philosophy:



Good jet energy resolution
→ calorimeter inside a coil

Highly segmented calorimeter

Efficient & High purity b/c tagging

→ Thin VTX, put close to the IP

Strong solenoid field

Pixel type

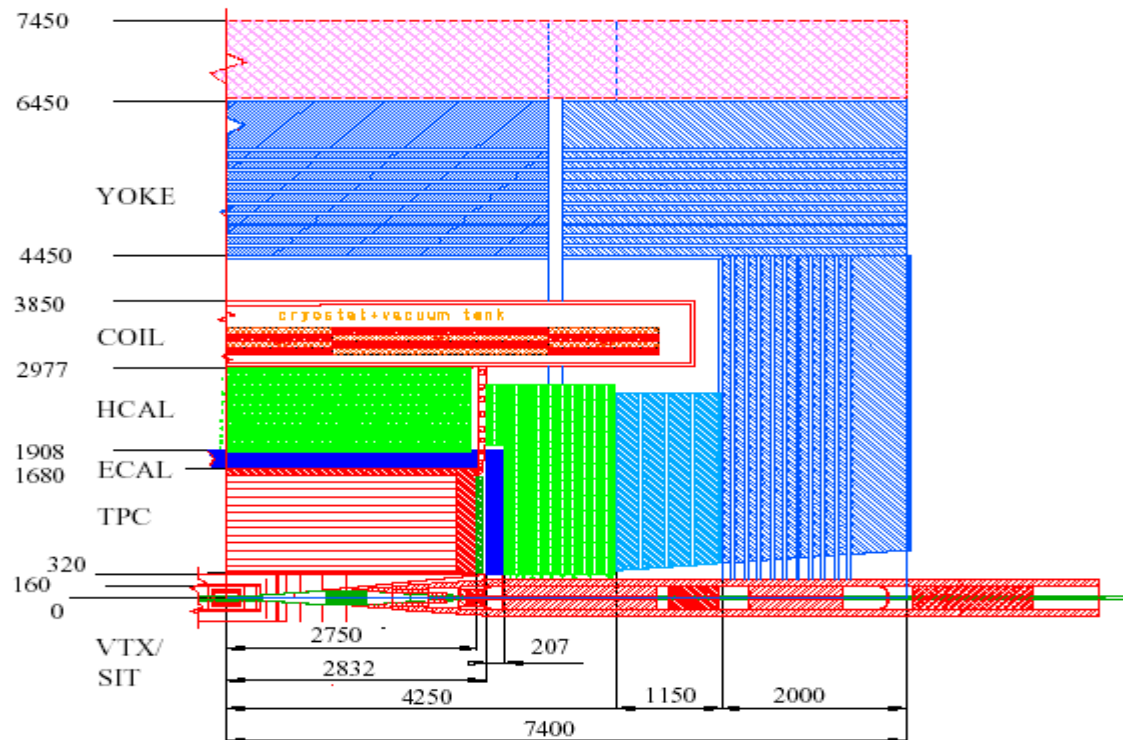
High momentum resolution

"Large" Detector example

- Flavor tag $\delta(\text{IP}) \sim 5\mu\text{m} \oplus \frac{10\mu\text{m} \cdot \text{GeV}/c}{p \sin^{3/2} \theta}$
- Track momentum $\delta(1/p_t) \sim 6 \times 10^{-5} \text{ GeV}/c^{-1}$
- Particle Flow $\delta E/E \sim .30 / \sqrt{E}$

Energy flow

- granularity
- hermeticity
- min. material inside calor
- calor inside 4 T coil



Regional R&Ds

- GLD (Asia)
 - LDC (Europe)
 - SiD (North America)
-
- Provide many good opportunities for us to participate

R&D on GEM @ TUHEP

- GEM is one of a few options for TPC readout.
- Activities funded by TUHEP
- Could be firstly used by Lan Zhou

Test Beam for Calorimeter

- A student of Tsinghua, funded by China-France exchange program, participated the Test Beam for ECAL.

Plan for Software

- Software packages installed at TUHEP's computer farm;
- The student now at Orsay will be responsible for maintaining the software for physics studies once he is back on Feb. 2006.

Conclusions

- No conclusion. Real work just starting.
- Detector R&D activities should be better organized inside China, and join the global efforts for ILC
- TUHEP will provide software platform. Need manpower for simulation/reconstruction so that to bridge theory and experiment