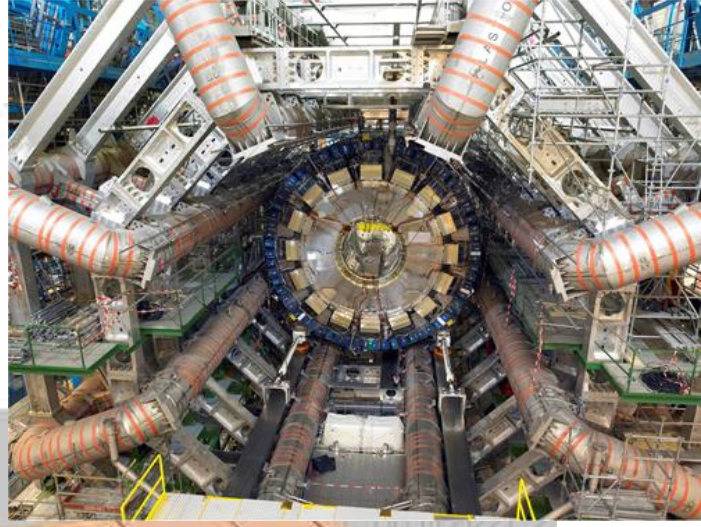
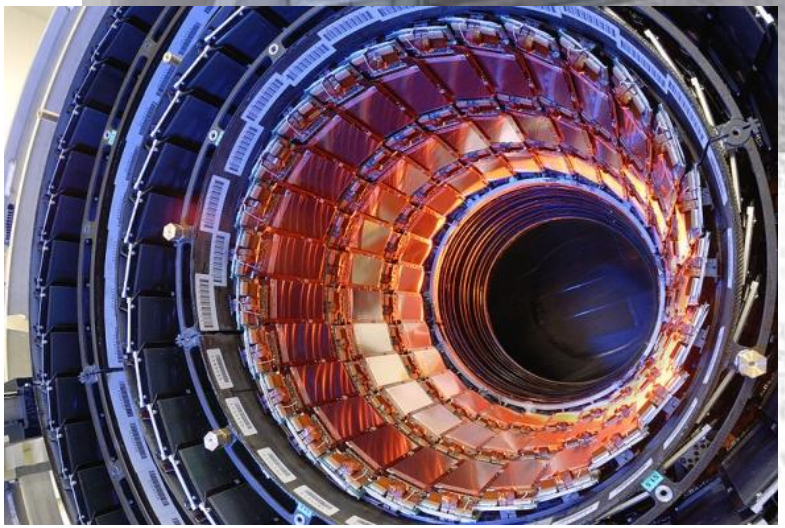


Joint Instrumentation and Energy Frontier session



Ulrich Heintz
Tom LeCompte
Andy White

agenda

- 8:30 intro (this presentation)
- 8:40 detector challenges for e+e- (Stanitzki)
- 9:00 detector challenges for mu+mu- (Mazzacane)
- 9:20 detector challenges for pp & EF summary white paper (Heintz)
- 9:40 discussion
- 10:30 coffee break
- 11:00 discussion
- 11:30 Instrumentation Frontier talk

questions InstrF→EF

- can you identify benchmark physics goals that push the technology of current detectors?
- what is the performance that you are assuming for simulations?
- which aspects of detector performance are critical for each of these?
- what improvements in the detector would be transformational for the physics reach?
- do you know how much the physics reach changes as certain detector properties are varied? Can you be quantitative: how much of an improvement is needed to make a difference?

questions InstrF→EF

- how important is fast time stamping of the signals from the detector? For which detector parts would this be most important?
- how important is the forward region?
- how important is high b-tagging efficiency at low pT/at high pT?
- what are the requirements for triggers? In particular: how important are tau triggers, missing ET triggers and missing ET resolution? How important are inclusive lepton trigger thresholds ?

questions EF→InstrF

- High luminosity running at a hadron collider will depend on efficient triggering in a difficult environment. Isolation requirements will likely be compromised, and, as a result, triggering on leptons may need to depend heavily on tracking. What are the most promising enabling technologies for electron/photon/tau triggers in this environment, considering luminosities up to 10^{35} $cm^{-2}s^{-1}$? What are likely R&D paths to realizing these technologies?
  - Wesley
- In the context of proposals of large tunnels that could host both pp and e^+e^- colliders, it is interesting to ask whether it is possible to design 4π detectors that can be used both for pp and e^+e^- experiments (perhaps with some interchangable inner tracking layers). Is there an optimal design of such a multi-purpose detector? What are the most important compromises required?
  - Marcel
- In a hadron collider environment, the ability to recognized displaced vertices and to trigger on them at level 1 would be a transformative technology. Can this be realized?
- In some studies for ILC and CLIC, the sophistication of particle flow calorimetry approaches the ability to resolve single hadrons. At what point does the evolution of particle flow calorimetry give a qualitative, rather than just a quantitative, boost to experimental capabilities? Can we realistically reach this point?