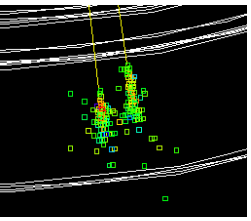


DBD Planning: ECal

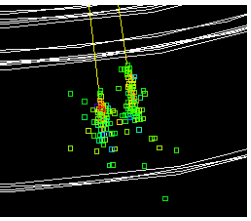
R Frey, M Stanitzki

LOI section still a good starting point

Guiding principles based on optimizing physics performance constrained by technological feasibility and cost

- multi-jet final states (PFA)
- tau id and analysis
- photons (4-vector)
- electron id
- Bhabhas and Bhabha acollinearity
- Hermiticity

$\Rightarrow$ Imaging ECal



“official” guidance on DBD content

Outline of Detailed Baseline Design
Updated 6/30/11 A0057

Electromagnetic Calorimetry

- Introduction (Requirements, capabilities)
  General Layout
  Physics Rationale
  changes since the LoI (mainly R&D)
- Global ECAL design
  motivate Layer thickness (plot)
  description of mechanical design (we are missing design for endcap – possibly Marco can work on this?)
  optimization of the layout
- Baseline Technology
  Describe Sensors (we need design for size/shape of endcap sensors
  KPix Readout (there will be a separate Electronics and DAQ outline section. Here we talk about the specifics of KPiX for the ECal: bonding chip/sensor/cable)
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  some test beam results
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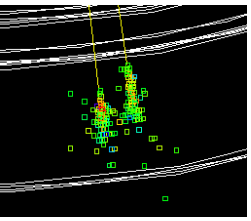

the biggie

Completing the initial R&D goals for the baseline design

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  - General Layout
  - Physics Rationale
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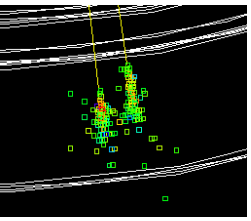
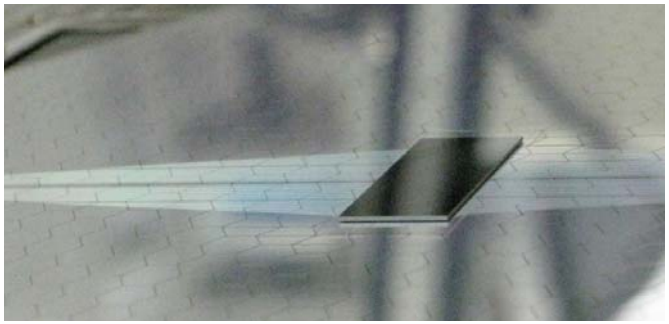
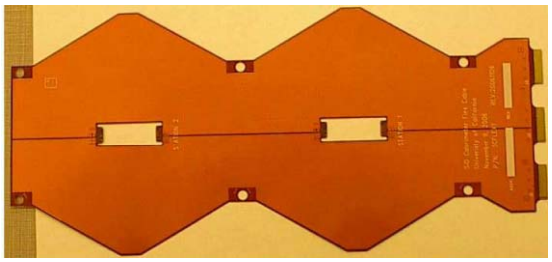
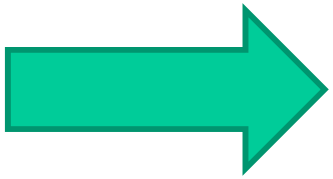
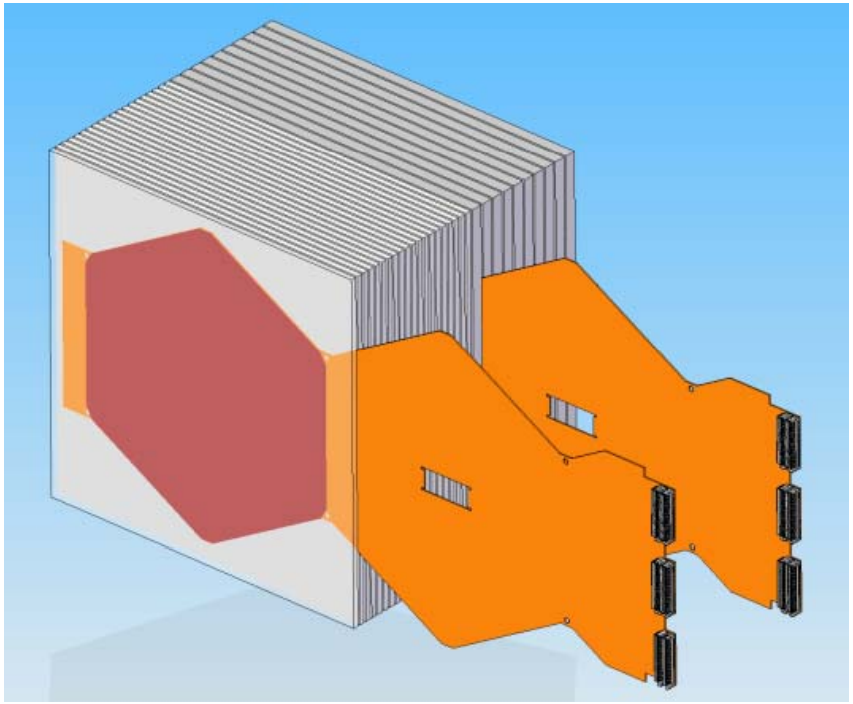


Completing the R&D

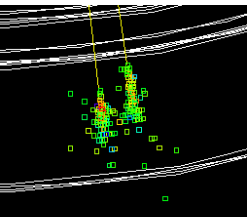








- Goal: Complete the component R&D (done), build a test stack, and evaluate performance in a test beam.
- See Mani Tripathi's talk yesterday…
- If we clear the bump-bonding hurdle soon (!), we should have a module ready for (SLAC) test beam by early summer.



missing

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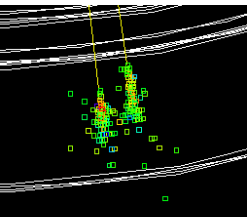
Endcaps!
Only initial mechanical drawings so far (Marco)



swept under the rug

Calibration and alignment:
Needs to be discussed in DBD

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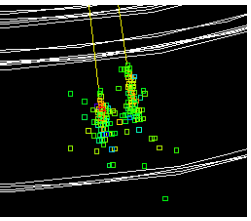

technical option

MAPS option was discussed in LOI.
More or less in DBD??

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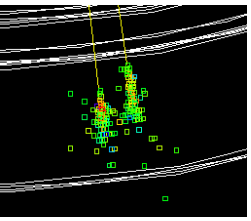

would be nice

physics related performance studies

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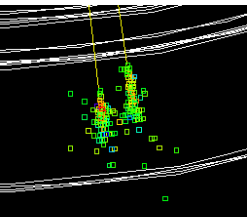
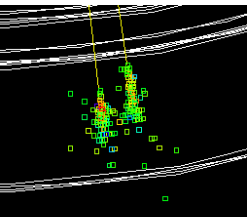


possible performance results

- Photons
  - Reconstruction efficiency in jets (in taus), e.g. efficiency as a function of separation from charged tracks or other photons
  - Photon vertexing
  - (energy resolution)
- Taus
  - Identification of π° (separate the decay modes for tau pol)
- Jets
  - Presumably already included in PFA performance in physics processes
- Who will do it?



summary

- Demonstrate the feasibility of the baseline ECal by completing the fabrication of the R&D module and getting some test beam results !

- Everything else (hopefully taken up in parallel):

  - Endcaps (mechanical and sensor “design”)
  - Calibration and alignment
  - MAPS
  - Performance studies