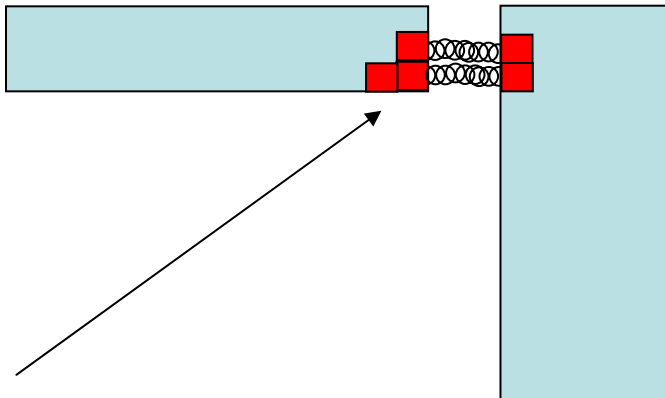


LDC Meeting in Valencia

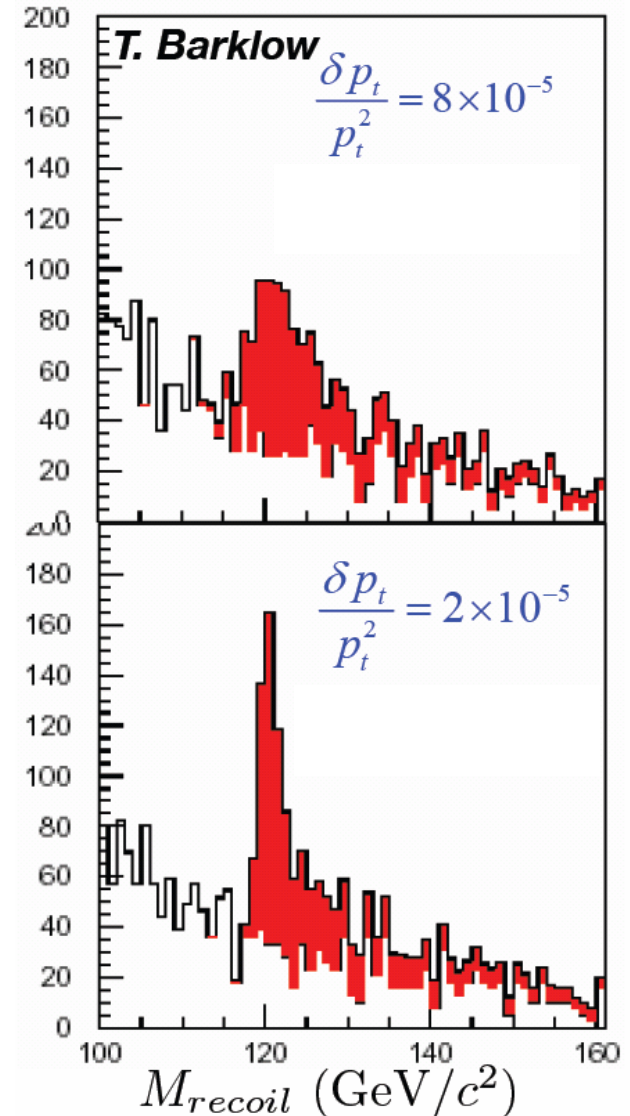
- Presentations:
 - ◆ Particle flow.
 - ◆ Tracking.
 - ◆ Si Tracking.
 - ◆ Gaps in calorimeters.
 - ◆ LDC HCAL status and plans.
 - ◆ LDC and 14 mrad crossing angle.
 - ◆ LDC integration, push/pull etc.
 - ◆ LDC costing.
- Studies of performance of particle flow algorithm as function of:
 - ◆ B-field.
 - ◆ Outer radius of TPC.
 - ◆ Size of pads in HCAL.
- Now see expected improvements in performance as B-field increases and as radius of TPC increases.
- Dimensions of LDC appear to be “about right” for B field of 4T.
- HCAL pad size $10 \times 10 \text{ cm}^2$ appears too large, no significant improvement in particle flow performance if decrease pad size from $3 \times 3 \text{ cm}^2$ to $1 \times 1 \text{ cm}^2$.
- Effects like SiPM saturation included?

LDC in Valencia

- Tracking
 - ◆ Discussion on resolution.
 - ◆ Results already presented →
- Gaps in calorimeters
 - ◆ Specific problem between endcap and barrel:



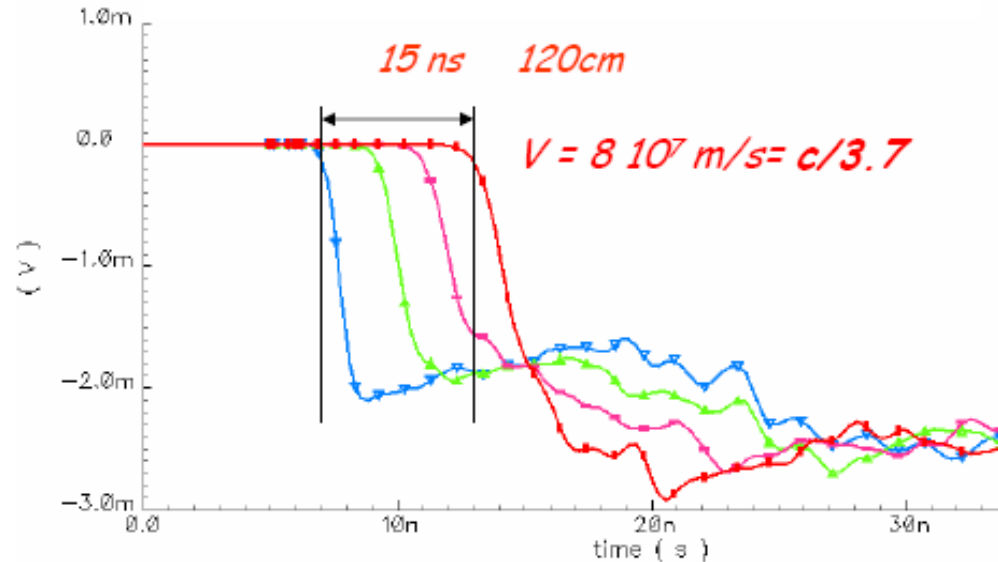
- ◆ Discussion of what gap is needed, alternative cable layouts etc.



LDC at Valencia

- Si tracking
- Propose to use strips:
 - ◆ 10 to 60 cm long.
 - ◆ Thickness 200...500 μm .
 - ◆ Pitch 50...200 μm .
 - ◆ Single-sided AC coupled (move to DC coupled as cheaper?).
- Readout electronics with two shaping times.
 - ◆ “Slow” $\sim 2 \mu\text{s}$, get centroid of hit strips, aim for few μm resolution.
 - ◆ “Fast” $\sim 500 \text{ ns}$, get coordinate along strip from timing.
- Beam tests underway.

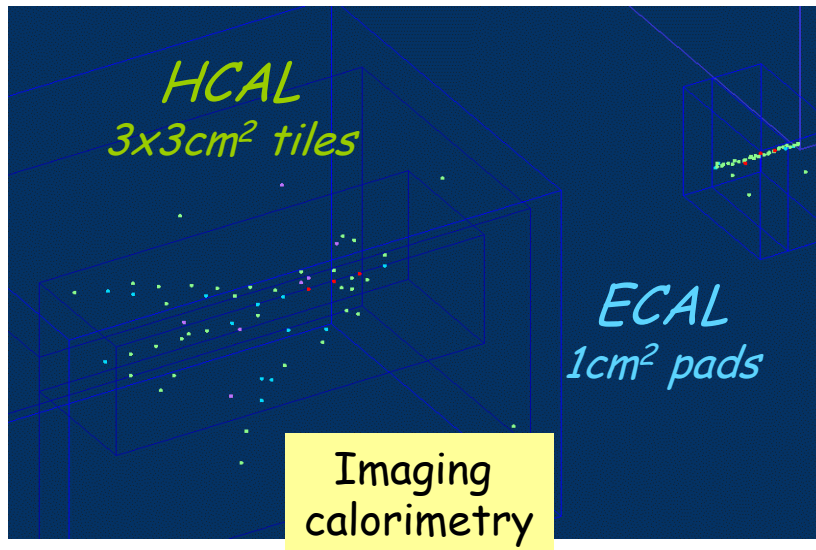
- Simulations:



- 1 ns time resolution corresponds to 8 cm precision in “longitudinal” coordinate.
- Verified in test measurements

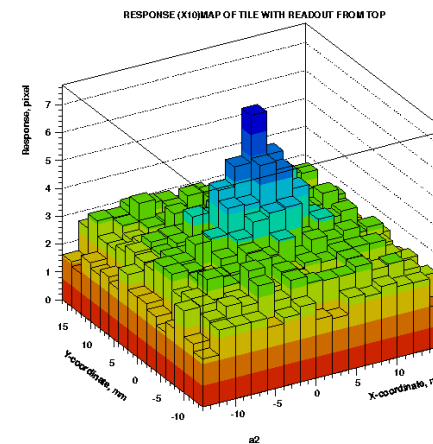
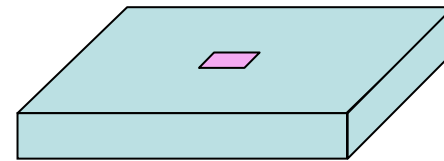
LDC at Valencia

- HCAL status and plans
 - ◆ Reports on performance of 1 m³ test calorimeter, 8000 tiles with SiPMs.



- Direct attachment of SiPM?

Tile 30x30x5 mm³



- Uniformity not good, but easily improved.

LDC at Valencia

- LDC and crossing angle of 14 mrad
 - ◆ Symmetry implies reduced cost.
 - ◆ No particular problems for LDC.
 - ◆ Backgrounds calculated for nominal and low P option.
 - ◆ Nominal 450 hits/BC on VXD inner layer increases to 1000 hits.
 - ◆ 2×10^8 n/cm² per 500 pb⁻¹ Lumi increases to 6×10^8 n/cm².
- LDC on push-pull
 - ◆ Two detectors of very high importance.
 - ◆ Detectors should be operated on an equal footing.
- ◆ Preliminary study, no show stoppers if enough effort and money put into realisation...
- ◆ Time needed for switch estimated at few days, rather than ~10 hours (preliminary study!).
- ◆ Must have magnet power supply and dump resistors on movable platform
- ◆ Additional surveying infrastructure may be needed.
- Some consideration of hall space needed underground and on surface.
- First costing of detector.
- How much will it cost to build VXD?