AHCAL integration challenges towards a TDR

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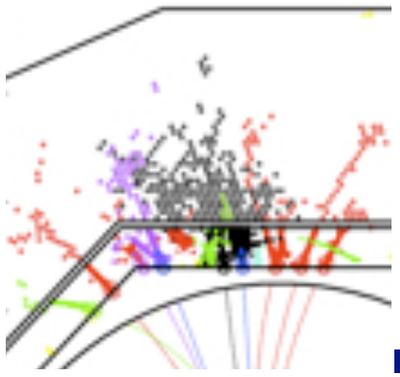
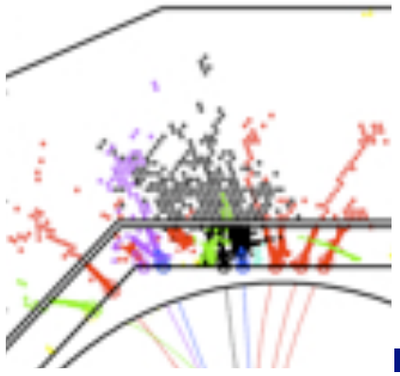
ILD workshop
Cracow, 24.-26. September 2013



Outline

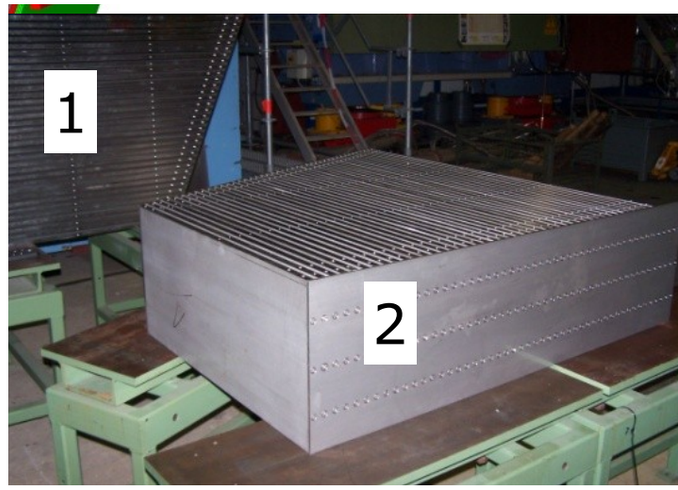
- Site dependent
- Integration into ILD
- Internal integration

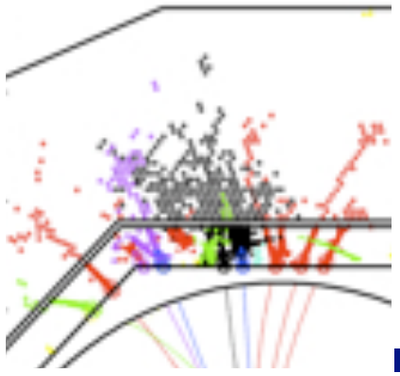


AHCAL Site dependent

- Installation sequence:
  - detailed plan for mountain site and tunnel access already exists
  - unit = sub-module (half-octant), weight = 20t
    - plus pre-configured cable trees and module data concentrator
  - transport tool exists

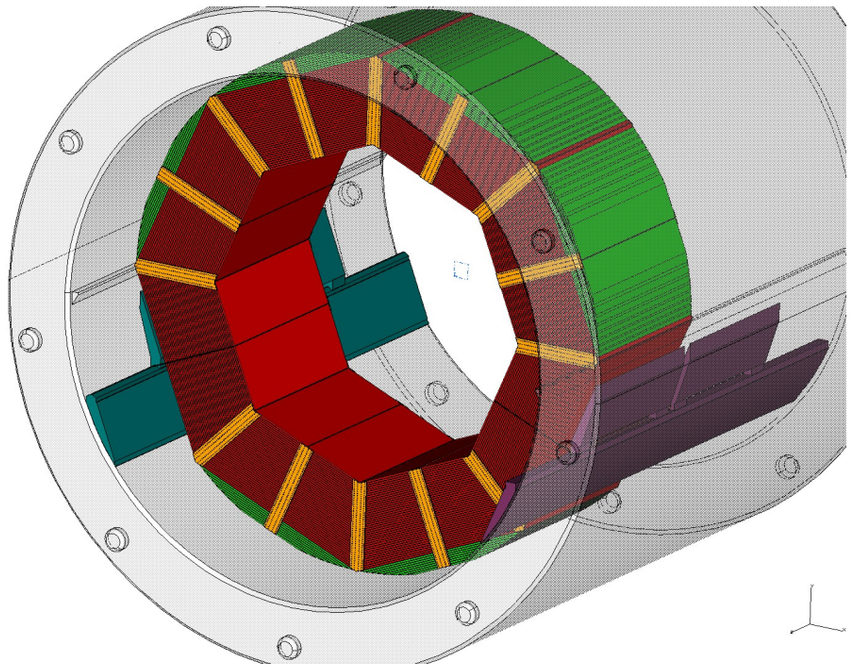
- Earthquake safety of absorber structure
  - need quantitative input: amplitude, acceleration and direction of motion
  - calculations
  - measurements
    - can be done with existing two EUDET stacks
    - need to conceive an build measurement set-up
  - **need to first clarify open issues in integration into ILD**





AHCAL integration into ILD

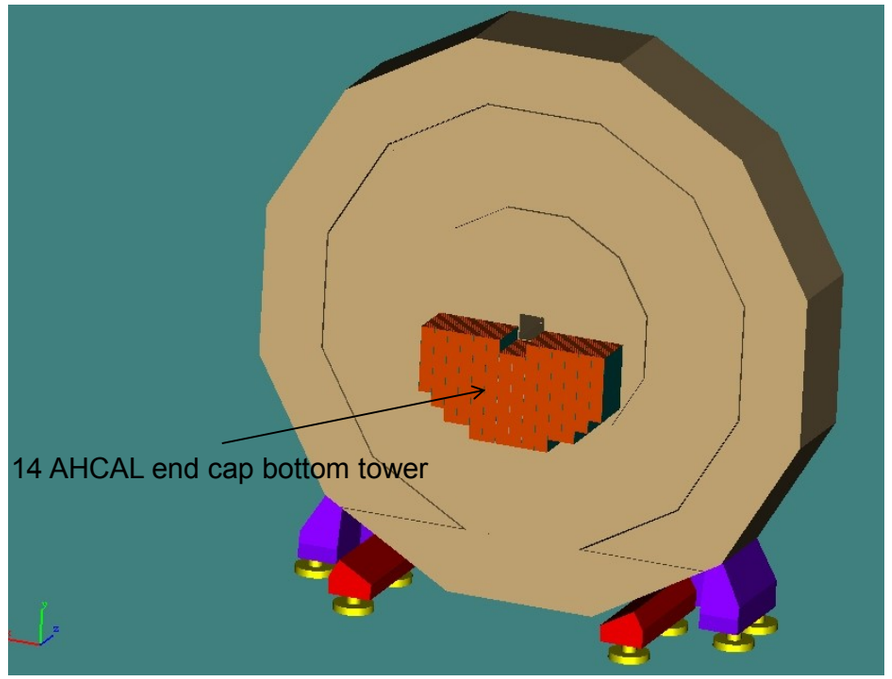
- Unresolved issues from pervious phase:



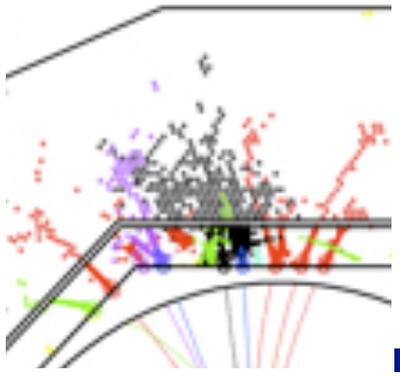
- ECAL HCAL fixation
  - 2 vs 3 rails , first HCAL layer thickness

- HCAL barrel cryostat fixation
  - at 4 and 8 o'clock

- HCAL rotation
  - bottom is a corner and not a a plate, i.e. corners are 0, 45^{o}, 90^{o} and not 22.5^{o}, 67.5^{o}

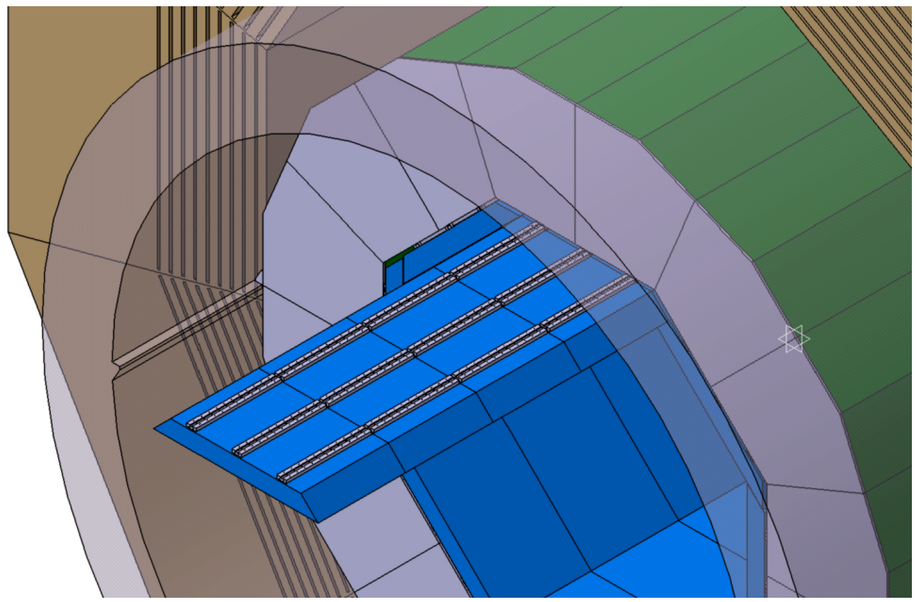


- HCAL endcap yoke endcap fixation
  - needs final yoke design

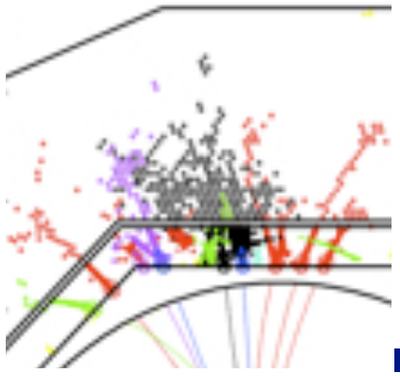


ECAL HCAL

- Fixation

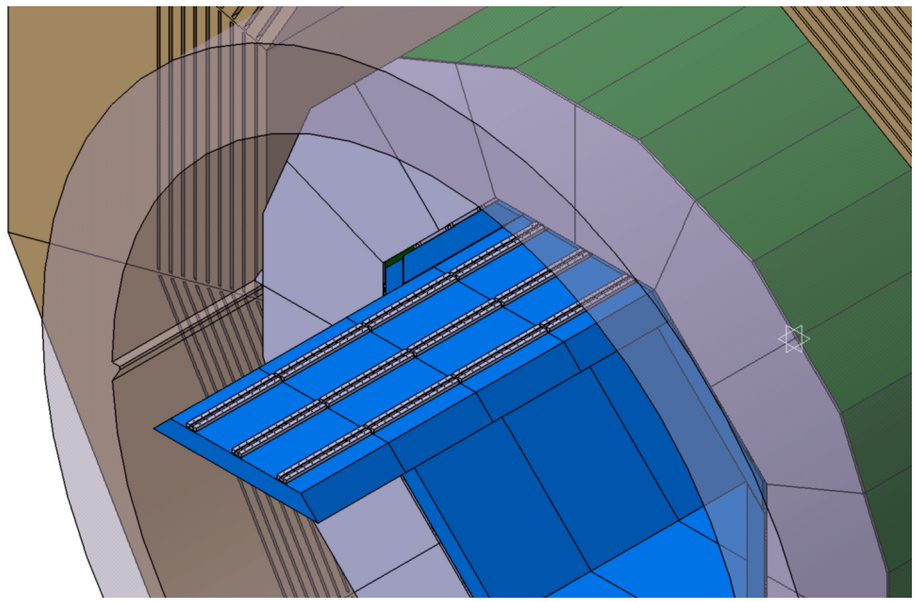


- Rotation

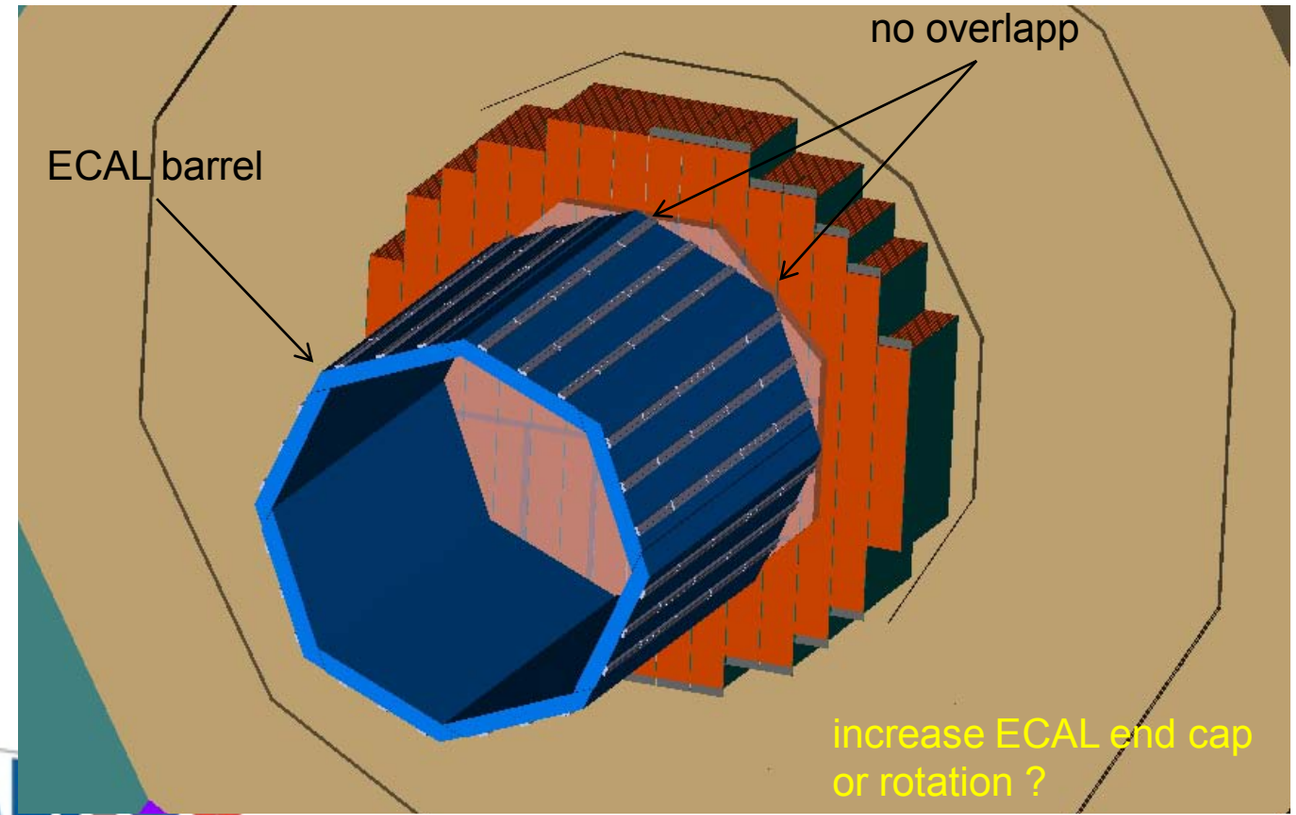


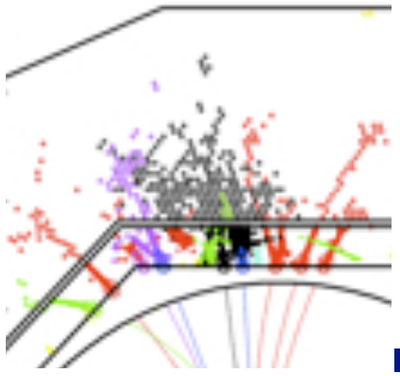
ECAL HCAL

- Fixation



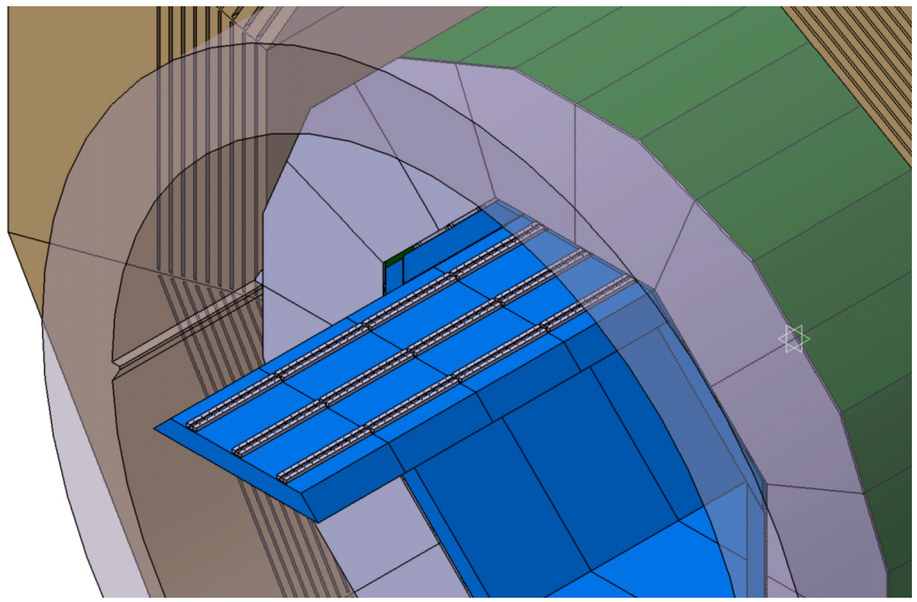
- Rotation



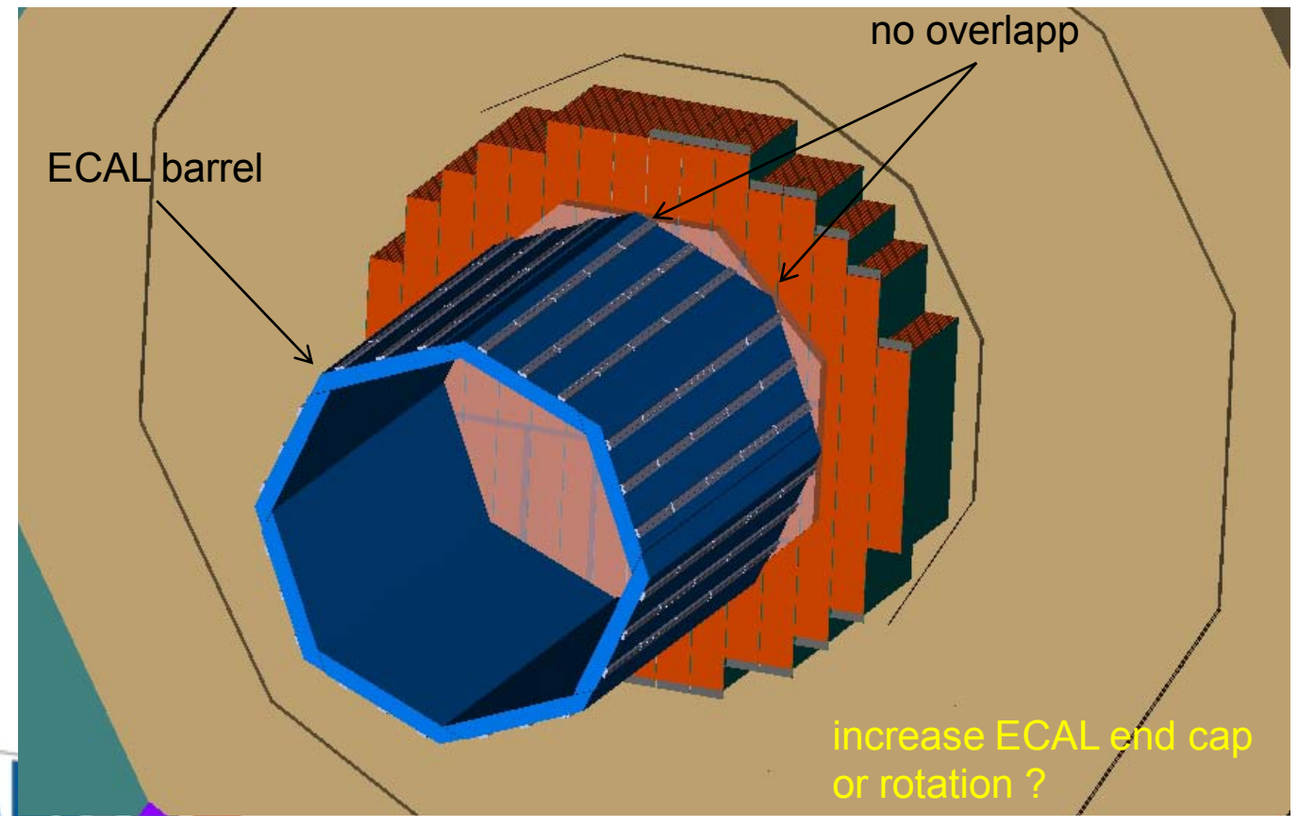


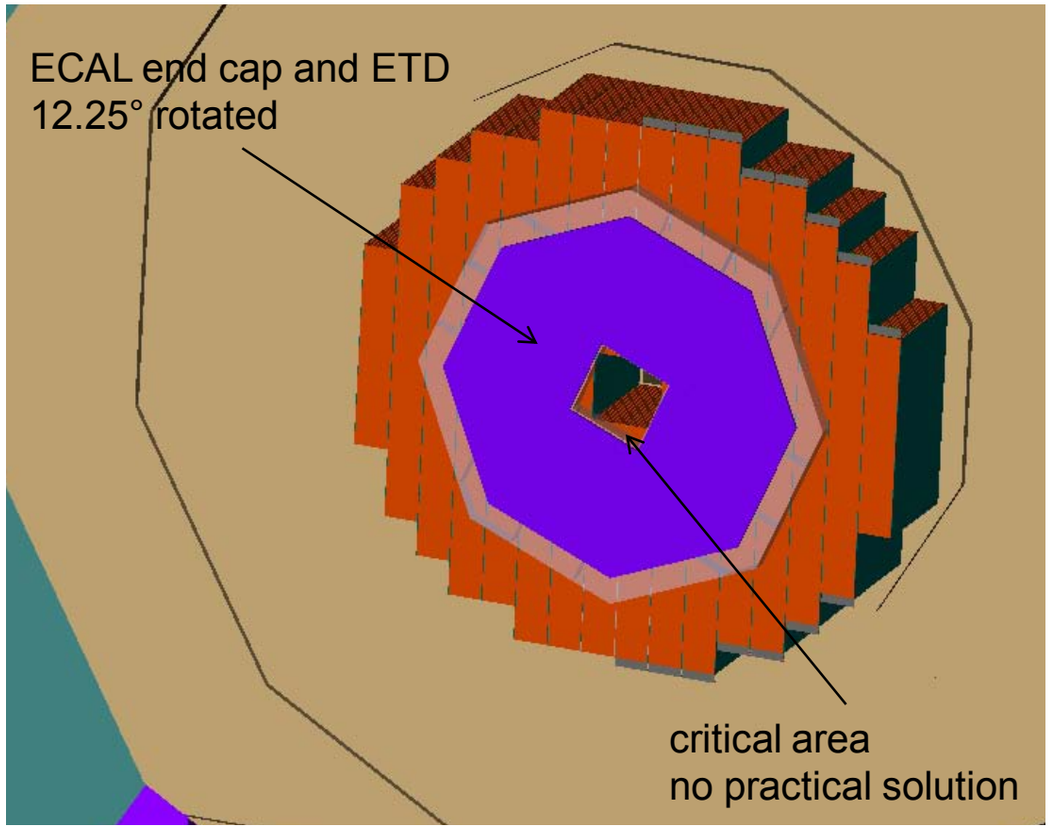
ECAL HCAL

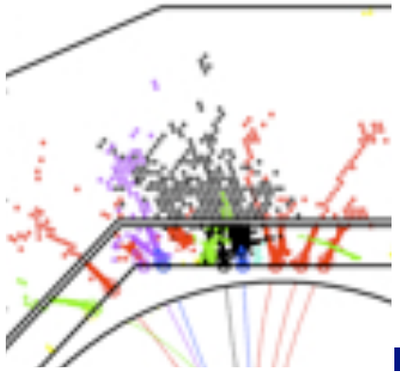
- Fixation



- Rotation







AHCAL internal integration

- HCAL base unit: PCB with ASICs, scintillator tiles and SiPMs
  - HBU design details independent from further integration
- HBU design for varying layer sizes to be done
- Cassette assembly, tooling
  - on the way
- Module data concentrator and module power distribution
  - on the way
- Module cooling
  - design and prototyping to start 2014