Forward Calorimetry (FoCal) at ALICE test beam at T9

Elena Rocco

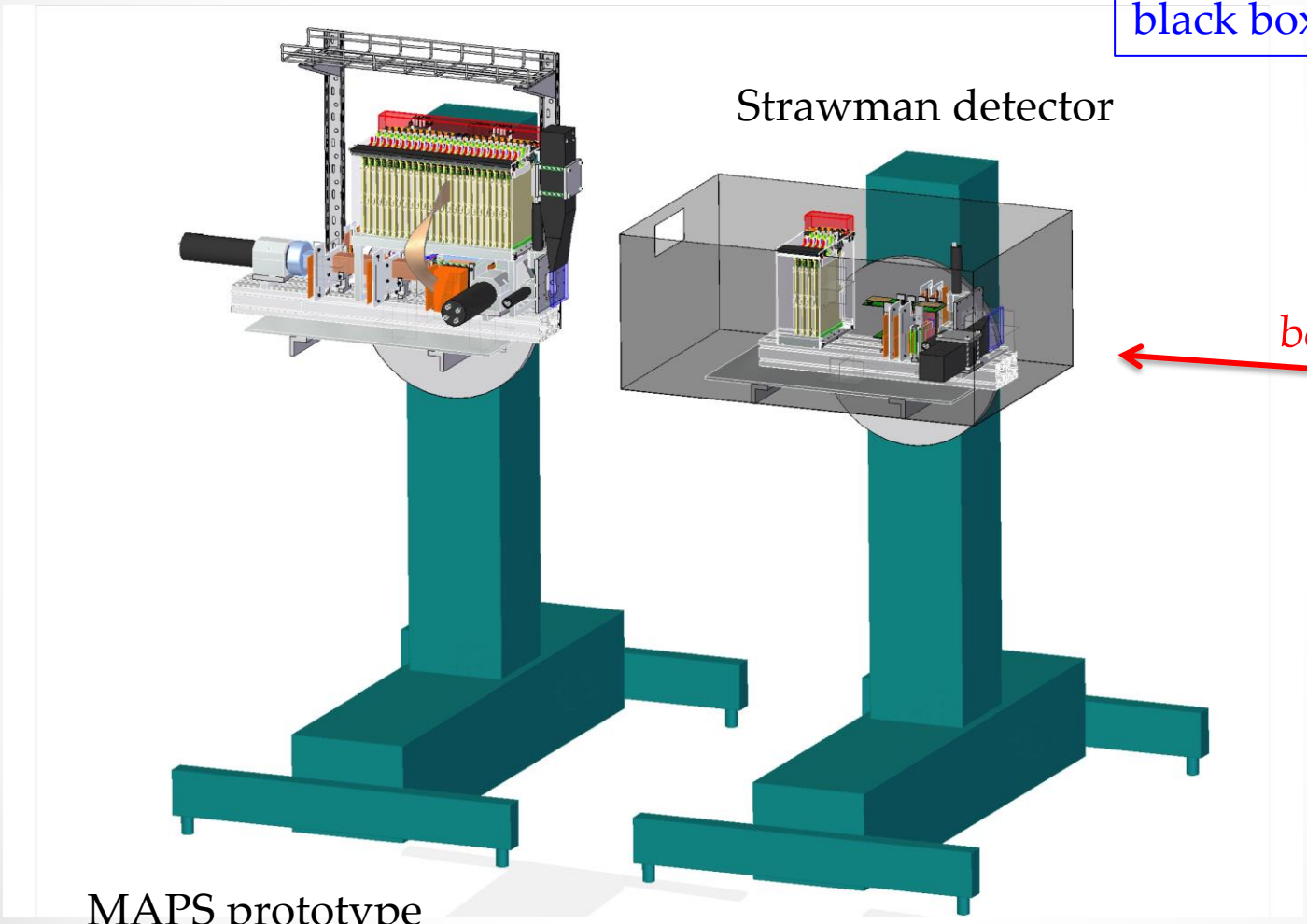
26th September 2014

H8 users meeting

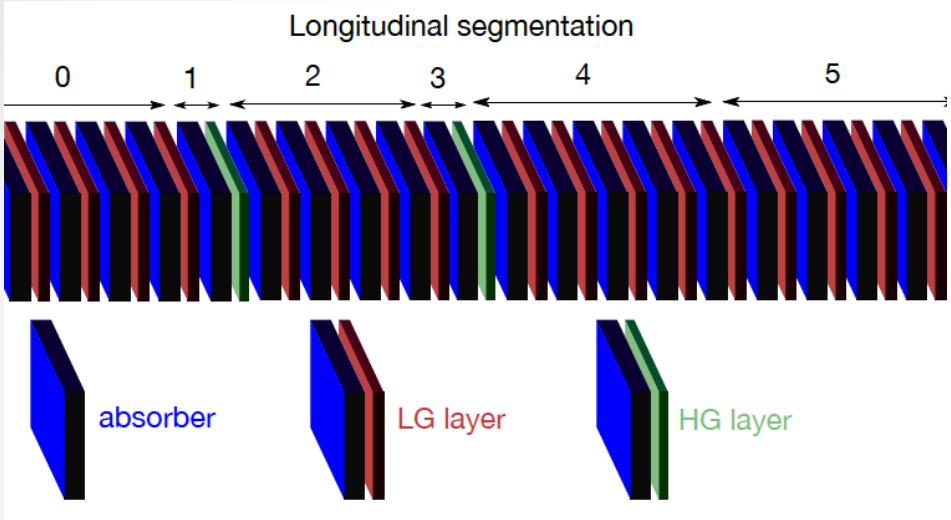
Setup on the SPS: H8

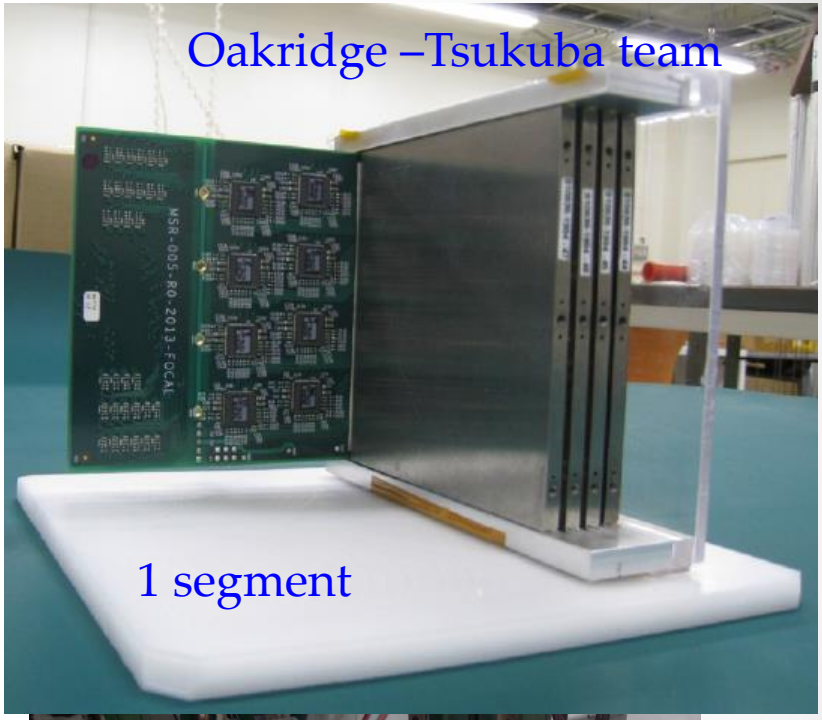
1 weeks Test beam

The strawman detector will be positioned in a black box



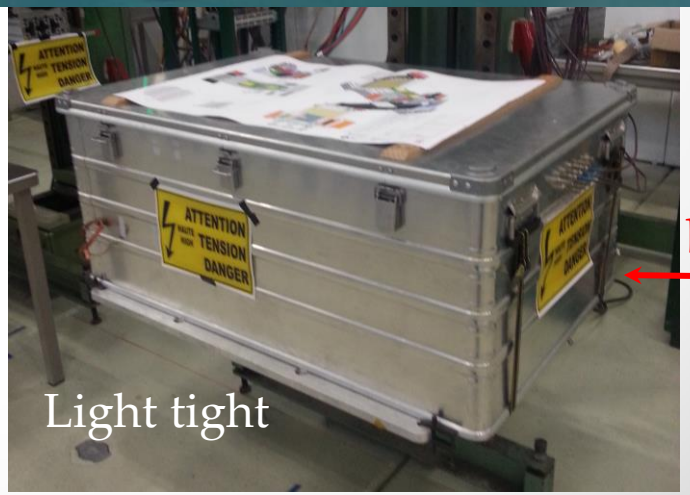
1.DUT: THE STRAW MAN DESIGN





24 layers silicon-tungsten calorimeter

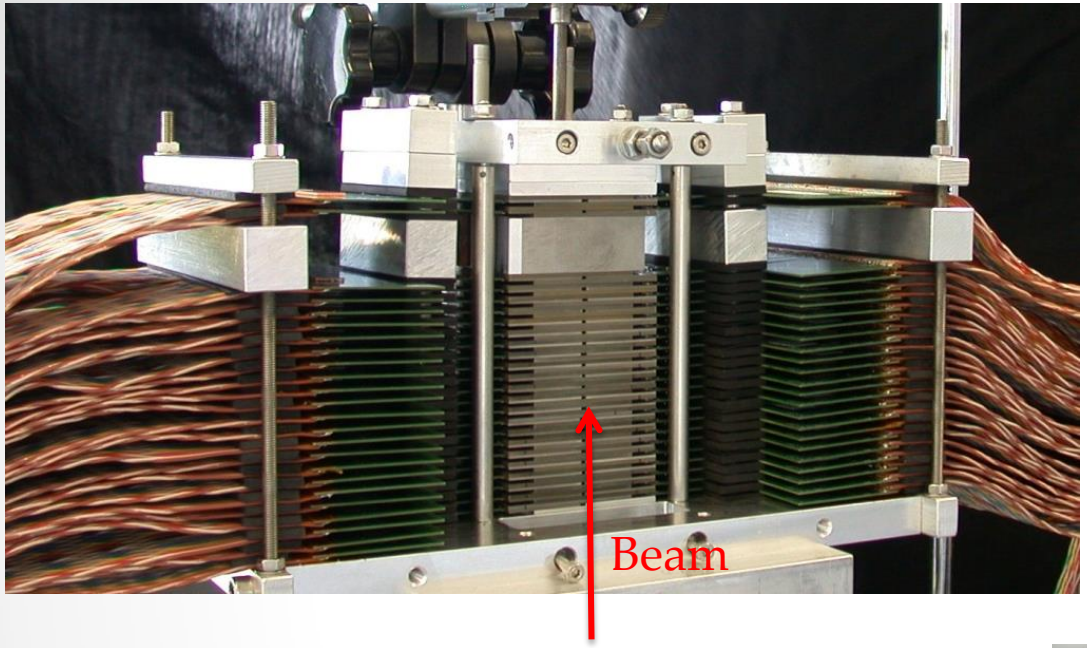
- 3.5 mm of W absorber (≈1X_0)
- 2 types of Si layers :
  - Low granularity (1 cm^2 pad) and analog r/o (APV+SRS)
  - High granularity (30 micron pixel summed in 1 mm^2 macro-pixels) and digital r/o



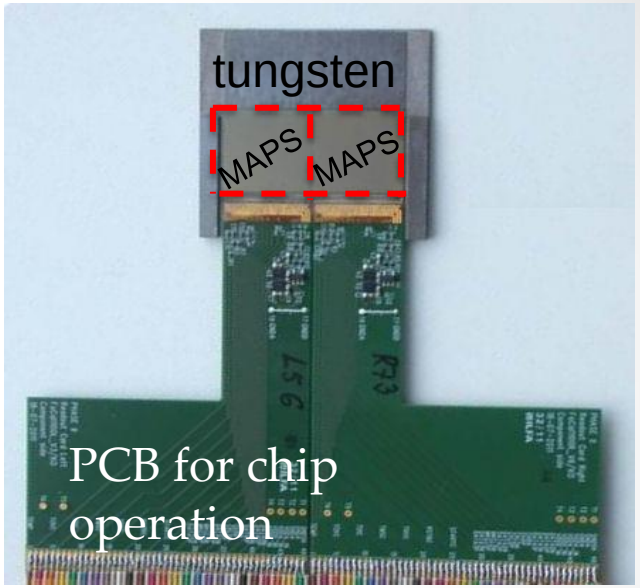
2. DUT: THE MAPS PROTOTYPE

Monolithic Active Pixel Sensor

Assembly w/o cooling

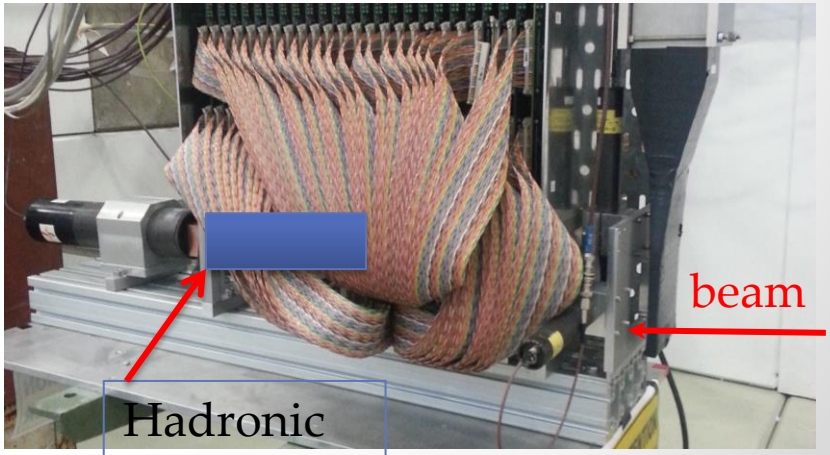


Half module



- 96 MAPS (MIMOSA23)
- 39 M pixels -> 1pixel = 30 micron square
- r/o by 4 FPGA (Spartan and Virtex)

Perfomance studies and preliminary results of the test beam in 2012 and 2014 presented at RD11, CALOR2014 and ICHEP2014 conferences



Planned measurements

- Straw man detector
  - Dedicated runs for calibrations (pions)
  - measurements at electron energies (30, 50, 100, 150, 200 and 200+)
- MAPS prototype
  - 30, 50, 100, 150, 200 and 200+ (300?)
  - Pions at 1 energy (if time is left)

Participants

Bergen University: K. Austreim

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Utrecht University/Nikhef: J. Bloemkolk,A. Van Brink, N. Deelen, M. Dietze, M. Van Leeuwen, G. Nooren, M. Van Radan, E. Rocco, H. Wang, C. Zhang