

ALICE Focal

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Requirements for SPS Beam Tests 2022

Max Rauch for the ALICE Focal collaboration

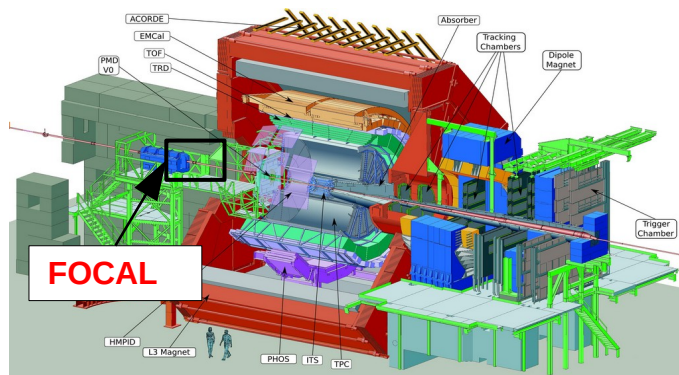
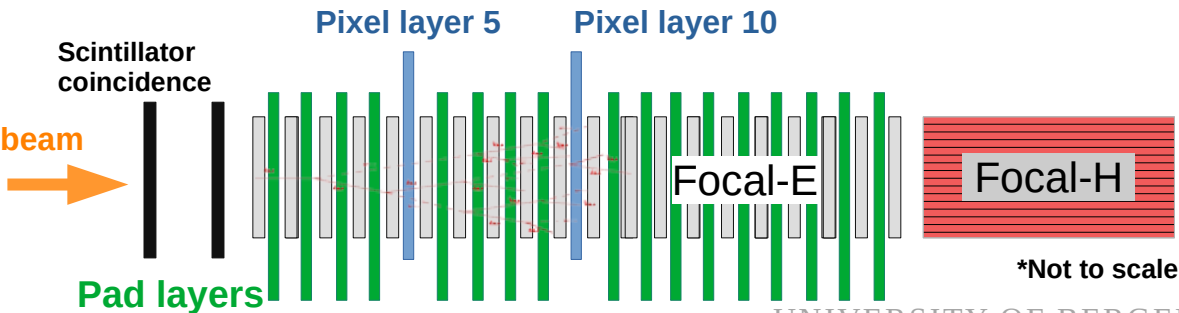
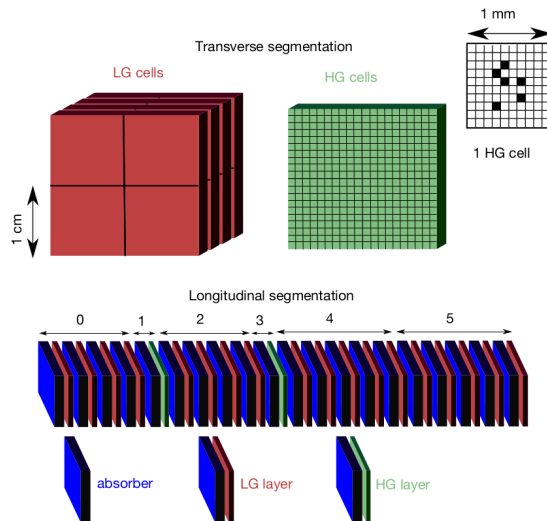
30th March 2022

UNIVERSITY OF BERGEN



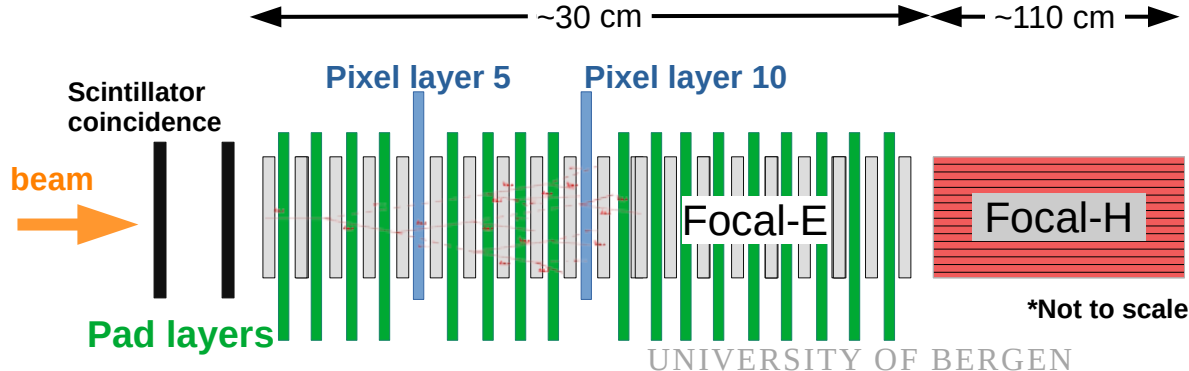
ALICE Forward Calorimeter (FOCAL)

- Granular Si+W electromagnetic calorimeter (FOCAL-E)
 - 20 layers of of 3.5mm tungsten absorbers
 - 20 radiation lengths ($20 \cdot X_0$)
 - Two high-granularity silicon pixel layers (HG)
 - ALPIDEs, $\sim 30 \times 30 \mu\text{m}^2$
 - 18 low-granularity silicon macro-pixel sensors (LG)
 - $\sim 1 \times 1 \text{ cm}^2$, HGCROC
- Copper hadronic sampling calorimeter
 - 2.5mm diameter copper tubes («straw tubes») with scintillating fiber core, read-out with SiPMs, full length 110cm
- Test of full detector prototype in **Week 44 at H2**

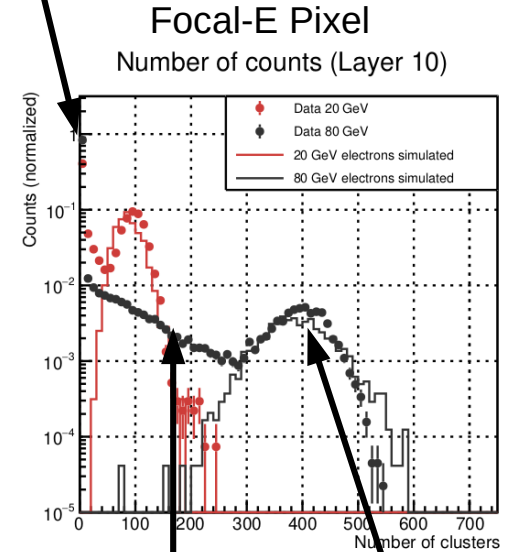


Beam requirements

- Both **electron (or positron)** and **hadron** beam required for characterization of Focal-E and Focal-H
- From last year's experience: electron fraction as high possible desired
 - **Tertiary beams 20 – 80 GeV**, but also secondary beam ~ 120 GeV
- Beam rate of **\sim few hundred events/spill** is fine for us
- Beam spot of $\sim 2 \times 2$ cm² or $\sim 1 \times 1$ cm² is fine for us
- Beam polarity (electric charge) is not very important
 - However: possibility of running with opposite charge sign can be interesting for us



Muons,
Non-showered hadrons



Infrastructure requirements

- **One DESY tables and one XSCA table needed**
 - Focal-H: 9 modules à ~40kg with transverse dimensions of $6.5 \times 6.5 \text{ cm}^2$ and length of 11cm
 - Focal-E: one tungsten «tower» with modular tungsten plates
- **19-inch rack** for electronics installation
- **Additional desks/boards** needed for power supplies, PC, and other equipment
- Control room with 5 or more working desks desirable

