LHCb ECAL Upgrade II

SPS H2/H4 user meeting

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30th March 2022

Scope of the experiment:

4 technologies will be tested for 4 LHCb ECAL regions:
1.5 x 1.5 cm^2 cell size SPACAL:
with tungsten absorber (small Molière radius) and crystal scintillator (GAGG, GFAG, … radiation hardness)
2x2 cm^2 cell size SPACAL:
with tungsten absorber/ polystyrene scintillating fibres
3x3 cm^2 cell size region SPACAL:
with lead absorber / polystyrene (Pb/Poly) scintillating fibres.
higher than 3x3 cell -> Shashlik
lead + organic scintillating tiles and WLS fibers

Properties tested:

- **electron time resolution**
- **electron energy resolution at different angles**
- **New PMTs to be tested and new light collection technique (rad hard).**
- **New readout electronic.**
- **Long cable tests.**
- **Response to hadrons and muons excitation.**

Beam requirements:

Rate: < 5 khz
Purity requirements:

- expected 70% in T2-H4 (NA61 constraint), purity needed **> 90% between 20 - 100 GeV**.
  To be negotiated with parallel users. 23rd of June, 1 week
- expected 90-95% purity for T2-H2, purity needed **> 90% between 20 - 100 GeV**.
  To be negotiated with parallel users. 19th Oct, 2 weeks.

Particles: electrons (20 - 40 - 60 - 80 - 100 GeV). Pions and muons beam configurations also needed.

Additional information needed:

- shower in the beam
- beam divergence
- beam purity

Infrastructure needs:

- 1 DESY table in the area and 1 DESY table controller in the control room
- 1 crate equipped with rails
- 1 table
- ~ 20 plugs
- 1 Ethernet cable between the control room and the H4/H2 experimental area
- Lead/steel bricks
- Experimental box crane transport in the area