SIMULATION OPEN ISSUES (UPDATED ON JAN 19TH)

Simulation

- 100 GeV muons wrt 180 GeV muon data reference
- 0.5 kV/cm drift field therefore we need to use data reference distributions accordingly
- DATA/MC mismatch without resistive simulation: at theta=0 deg 2.6 fired strips (MC) vs 5 fired strips (DATA).
  Studies reported by Riccardo today:
  - *Drift: transverse diffusion is different between PARSIFAL and GTS*
  - *Gain: in Parsifal 30% of the electrons has zero gain. In GTS this number is 4% (Transparency)*
  - *Cluster charge: we are loosing 50% of the charge both on strip x and y*
- Resistive simulation: software code written by Gianfranco Morello. *Implement APV shaper function from Riccardo Farinelli*
- Define materials to insert in Geant4. We need to identify the area in DD4HEP devoted to CGEM geometry and material description and ask our TPC colleagues the code that was used for the soft pion study.
  Geometry of 2 small gap B2B detectors implemented and Geant4 hits saved. Erika De Lucia together with Lia Lavezzi.

Reference Data

- Measure noise level and threshold in data ref as input for MC.
  Matteo Giovannetti sent reference plots and values to Riccardo Farinelli