L2 chains for single-beam menu

Muon full reconstruction
T2Calo starting from MBTS

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Status report

- The goal is to exercise trigger algorithms using single beam data

- Most events will be empty
- Beam-gas : can look like an event with CM frame hugely boosted wrt the lab
- Beam-halo : it's beam-gas upstream of ATLAS; looks like muons parallel top the beam

- Would like to use these topologies to run calorimeter and muon algorithms at L2
  - Where to start from (L1 item)
  - How to produce RoIs
  - What chains to configure?

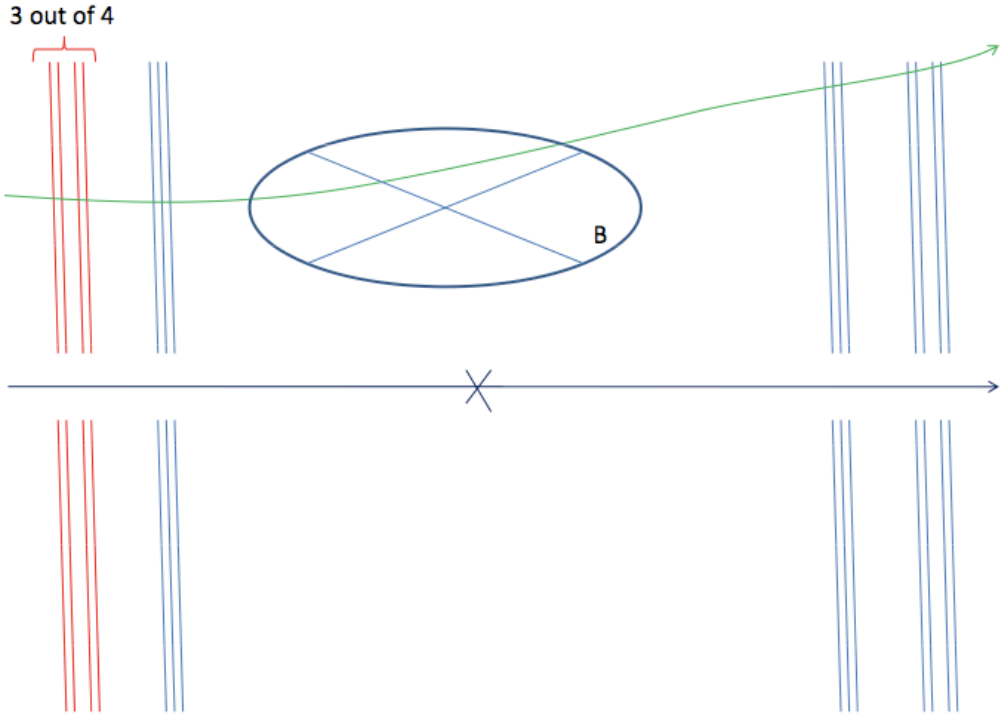
- Pretty much starting/ongoing work and not much to show yet
  - Will shamelessly use this meeting to get some opinions and then implement what seems sensible

L2 muon full scan

- A muon trigger from the endcap is possible (see talk by Masaya) in the last Core & Slices meeting http://indico.cern.ch/conferenceDisplay.py?confId=24854

- Plan to use a chain modified from mu4_dimu_fs
- Starts from L1_MU4
- HLT chain counter 390
  - L2_MU4_DiMu_FS
  - EF_MU4_DiMu_FS
- Uses TrigDiMuonFast at L2

- Plan to use existing L2 setup in new chain



T2Calo_egamma starting from MBTS

- For cosmics
- Start from any MBTS_Ax or MBTS_Cy L1 items
- Use AllTE algorithm by Alex Cerri to combine the MBTS TEs
- Start one chain for side A and one for side C
- RoI forced to be big chunk of endcaps
- Chain proceeds as normal for photons
- Add ID part when possible?
- Initial prototype built by Denis and submitted to Alex

- For regular menu:
  - Two chains starting from either MBTS_A or MBTS_C.
  - MBTS_A one starts EndCapA (positive eta) egamma chain.
  - MBTS_C does the same for a negative eta egamma chain.
  - Still missing chain names definition?
  - Again T2Calo in forced positions.
- OR:
  - All TE to generate RoI position from MBTS id (16 MBTS scintillators on each side)
  - Changes to Electron.py?
  - Need some data sample which has MBTS information for the default menu and calorimeter (Will? Regina? David?)
  - Rates? (well…luminosity?)

Egamma chain

- Plan for egamma single-beam:
  - Starting from L1_EM3 (?)
    - e5_allTracking
    - e5_SiTracke
    - 5_IDSCAN
    - e5_TRTSegFinder
  - These could be the chains starting from MBTS
    - e5_unseeded – with L2 tracking
    - g5 (ie, e5_noTrack)

- The cleanest way would be to have AllTE algos to start off the unseeded chains
- Alternative to start 2 chains from MBTS_A and MBTS_C
- Event Filter egamma with AllTE from Phillip (see next talk)
- L2 tracking not yet ready – experts busy

Conclusions

- Not very much to show yet, work ongoing
- Finding best way to create these chains
- Expect to have something next week

backup

Single beam trigger from Muon-EC

- Mostly similar setup which is used now for cosmic-run
- 3 out of 4 coincidence (including Pivot-station)
  - No special timing parameter is required for particle coming from large |z| to IP (TOF < 2nsec , 40cm)
- Information to be sent
  - RoI is sent to MuCTPI properly
  - PT-level (MU1 – MU6) does NOT make sense
    - Fixed value (like MU1) would be distributed
- Timing
  - can be adjusted with MBTS for 1-side (upstream side)
- Worries …
  - S/N ratio (single-beam v.s. cosmic-ray 40Hz / side)