DIRC@ATHENA

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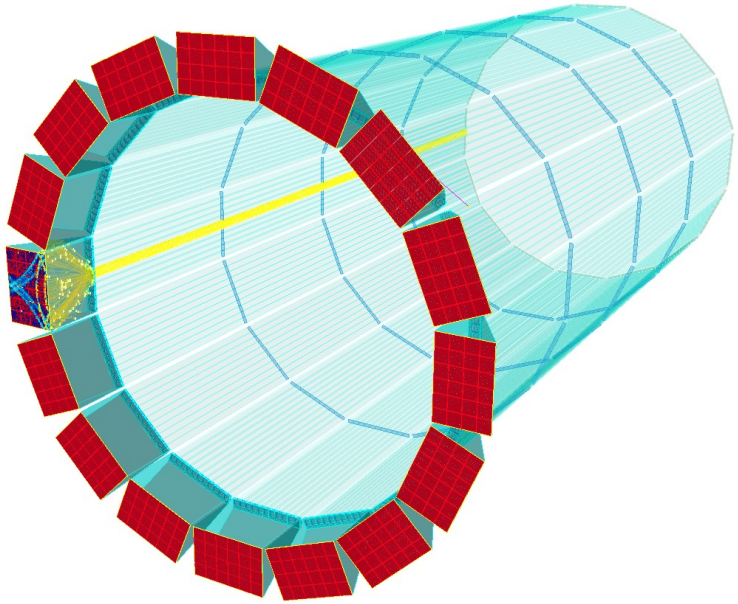


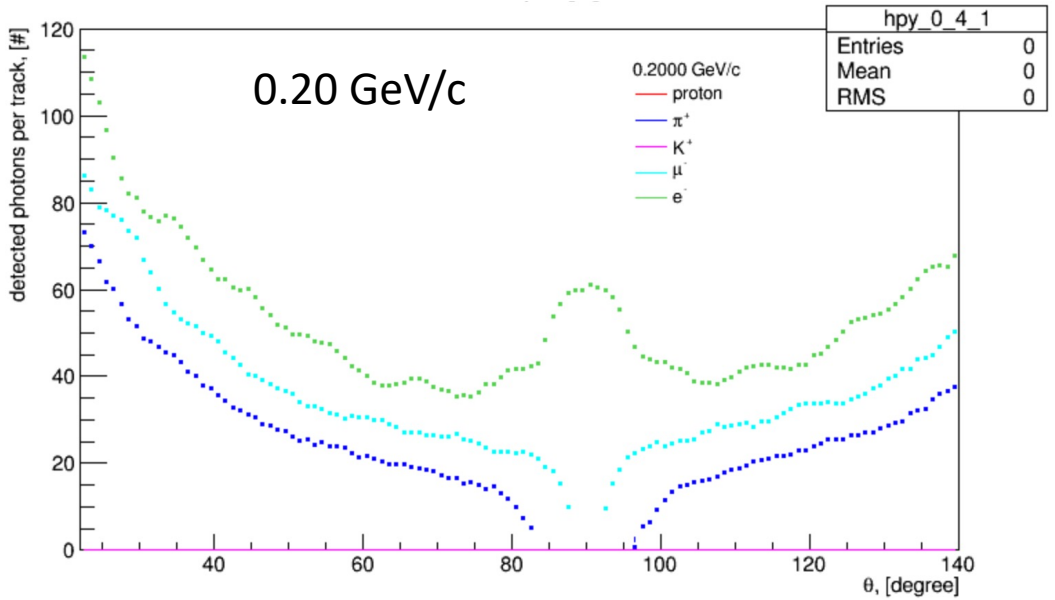
- Veto Mode for lower momentum

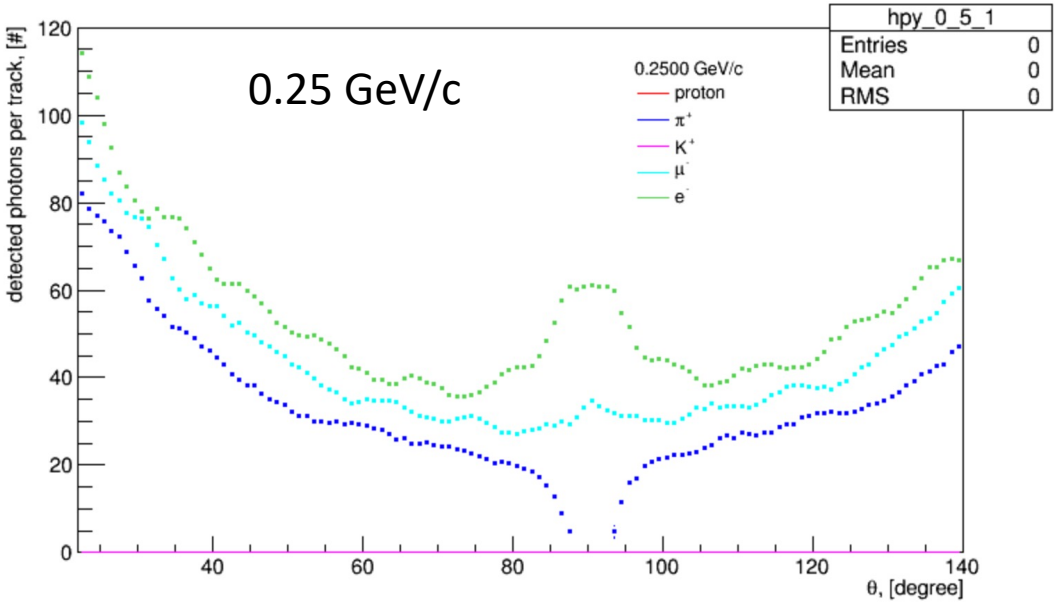
August 9 2021

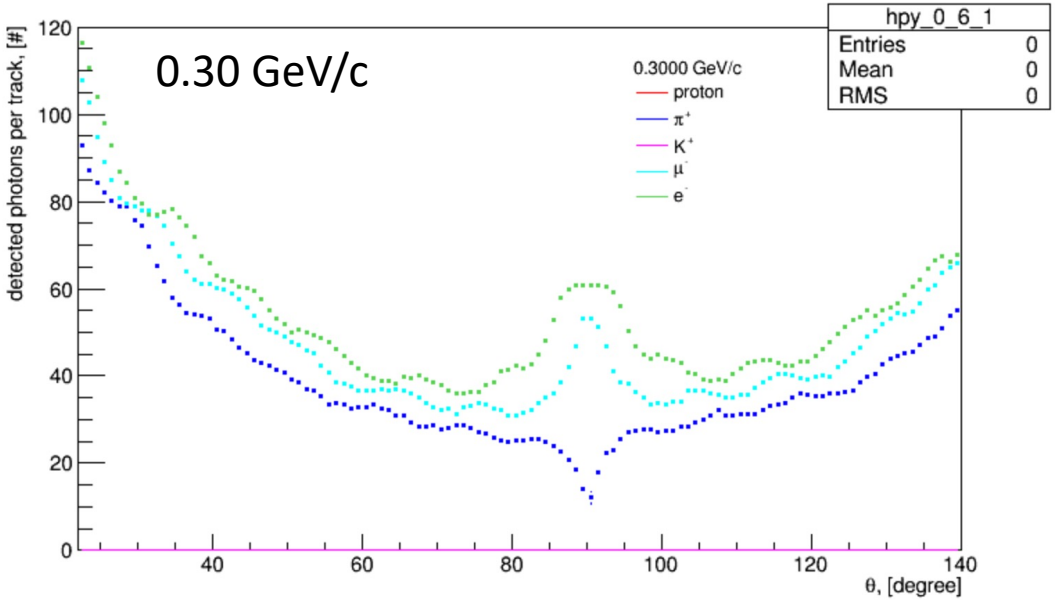
HPDIRC VETO MODE

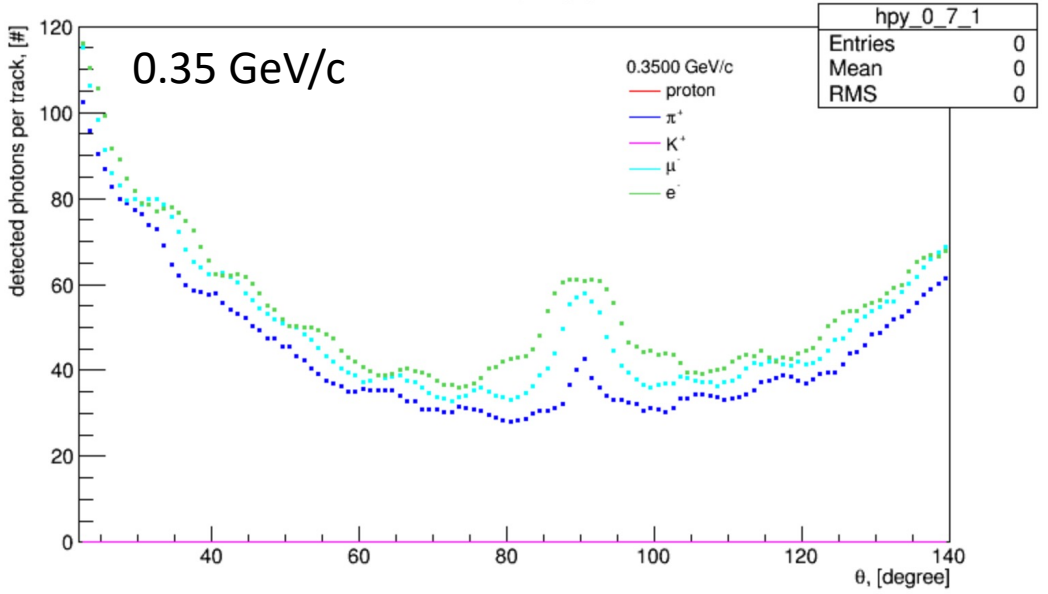
- Cherenkov detectors perform π/K separation below the kaon threshold, in "veto mode”:
  - if the track in the radiator is below the kaon threshold, any signals produced must be from low-mass particles such as pions. (ex. COMPASS RICH, LHCb RICH)
- For hpDIRC at 0.3 GeV/c, pions reaching the DIRC barrel radius will create a strong Cherenkov signal (more than 10 detected photons) for all polar angles while kaons are still below Cherenkov threshold.
- Even at 0.2 GeV/c, the full Geant simulation predicts that this veto mode will work for all angles except for a small gap in pseudorapidity from -0.15 to +0.15.
- Studies done for PANDA geometry without magnetic field! Have to be updated for ATHENA.

HPDIRC VETO MODE









HPDIRC VETO MODE