

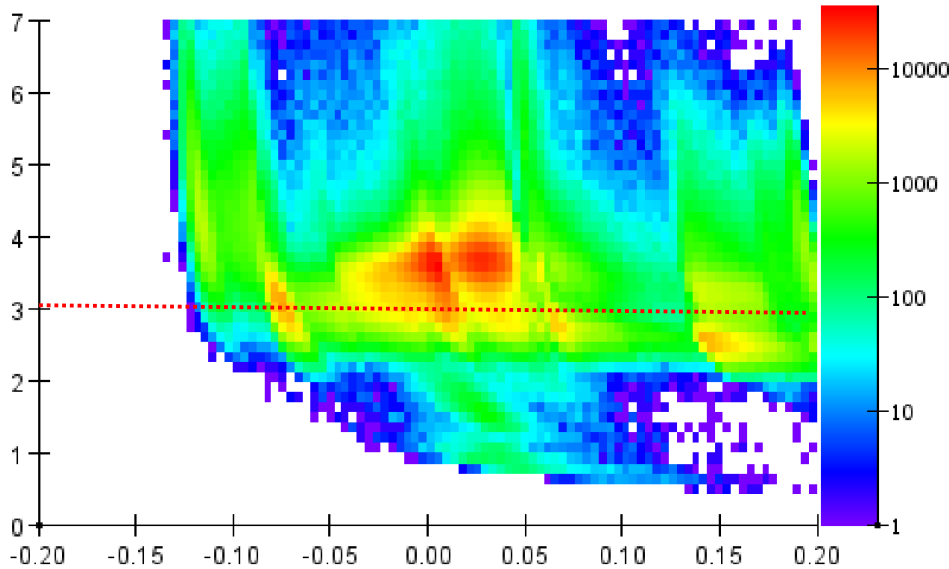
A Closer Look at HPS_Run2021Pass1_v3

Cameron Bravo (SLAC)

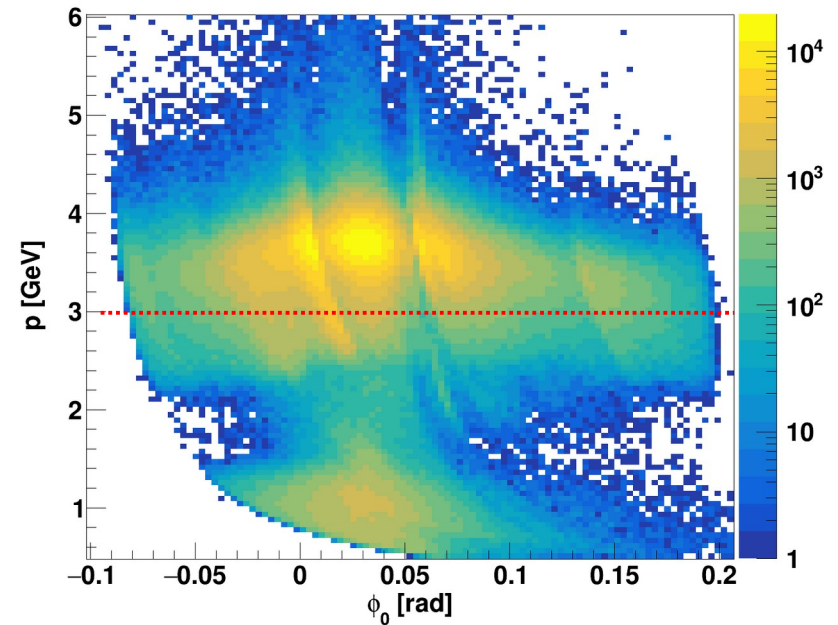
- Working towards producing a new 1% pass
 - Is it critically important what we call it? pass1 vs pass0b
 - Have some tasks we would like to complete before running
 - SVT hit timing alignment (Matt G)
 - Use all offline baselines (Rory)
- Looking into what Norman scratched the surface of
 - Slides from 2 weeks ago
 - Momentum bifurcation in the top seen shortly before 1.92 GeV running and shortly after with little change
- Looking at some more runs here to try to track down further what is going on, because I don't see this in 14168

What is the issue?

Norman 14685 14688



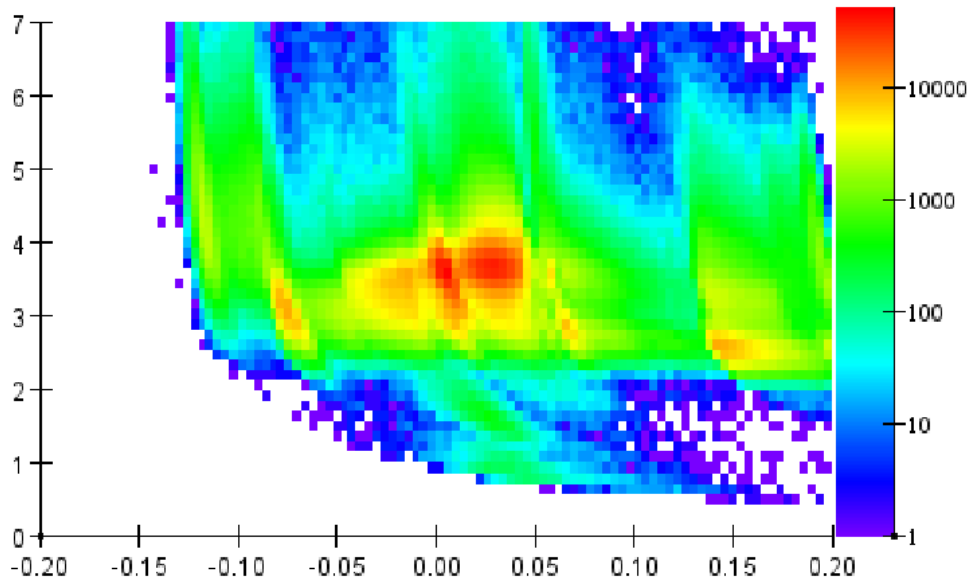
p_vs_phi_top_neg 14168



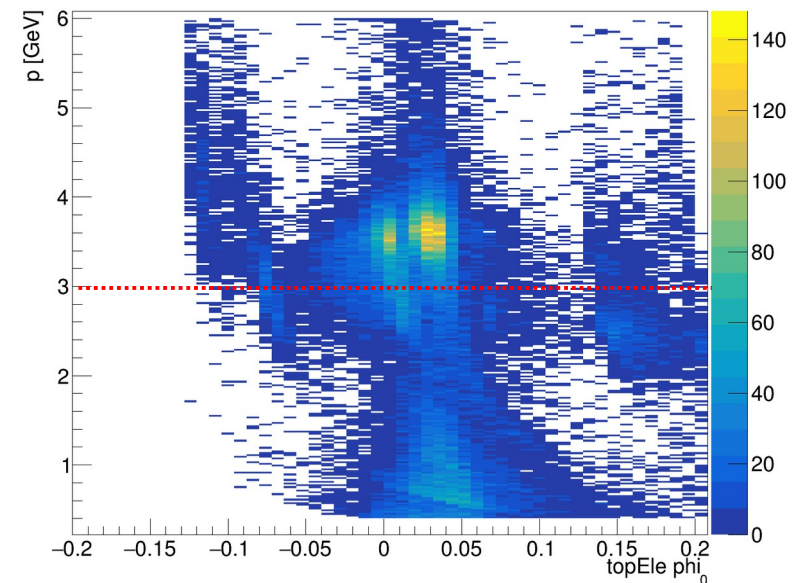
- Momentum bifurcation seen in later FEE skims, not seen in early low lumi FEE run
- Let's look around a bit more and see if we can systematically determine (when/where/why?) this happens

Reproduce Issue

Norman 14615 14621

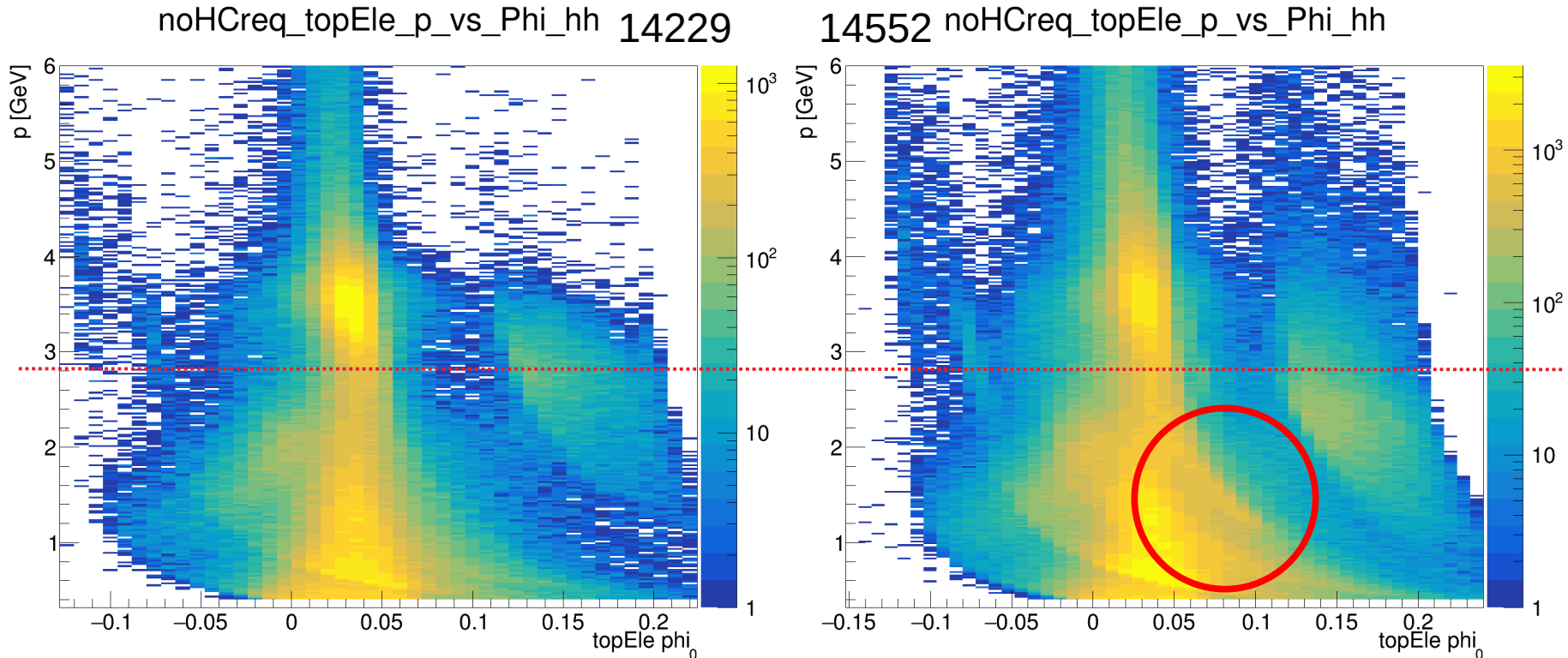


noHCreq_topEle_p_vs_Phi_hh 14615



- Took a look at tracks in FEE skim copied to SLAC by Norman from run 14615
- My stats are smaller but you can see same peak below 3 GeV

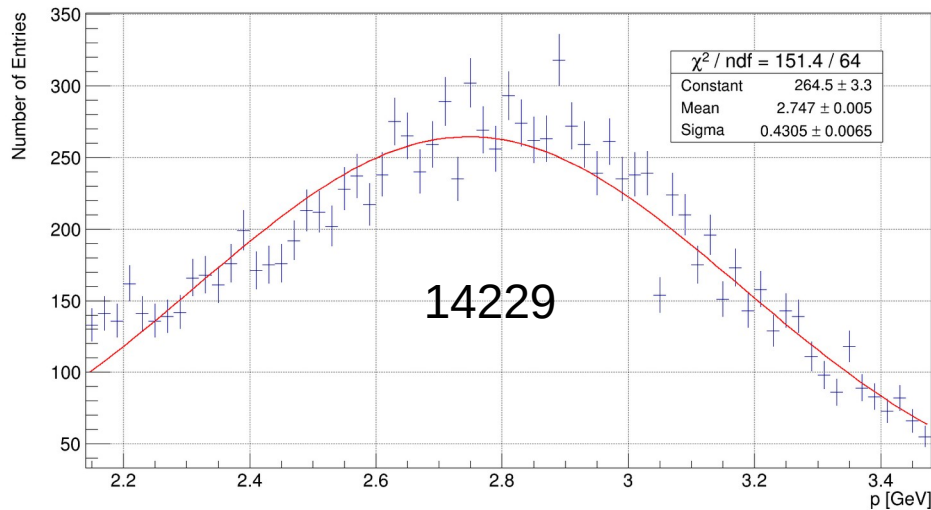
Try to narrow down when it happens



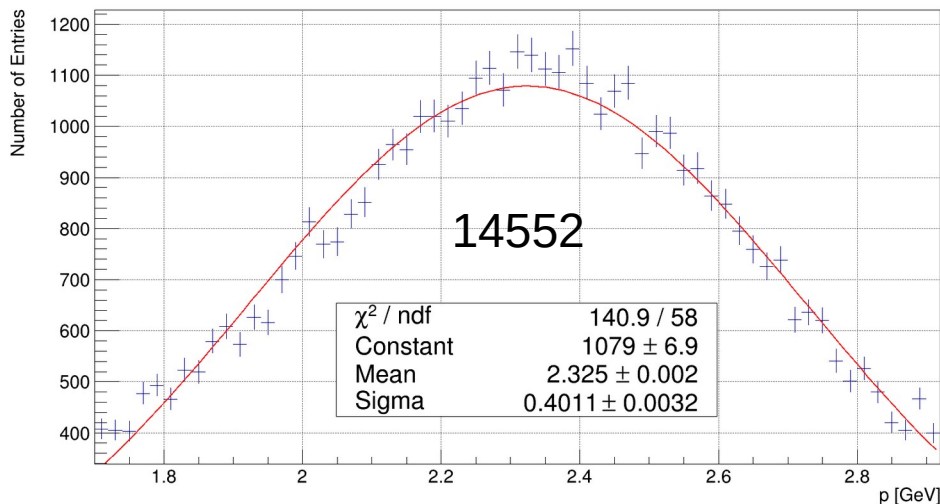
- Runs before 14229 (high lumi physics) look like it
- Runs after 14552 (high lumi physics) look like it
- Don't have any runs between currently

Where does it peak at high phi0

ProjectionY of binx=[65,74] [x=0.112..0.192]



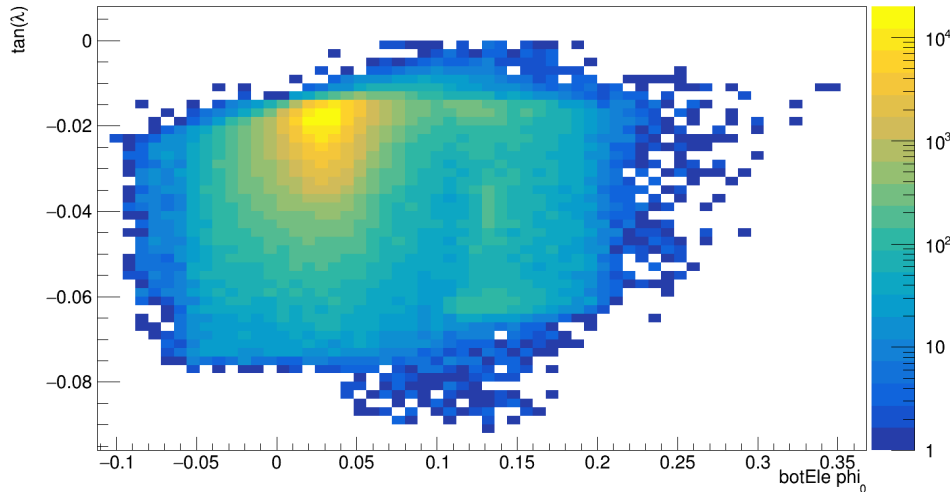
ProjectionY of binx=[65,74] [x=0.112..0.192]



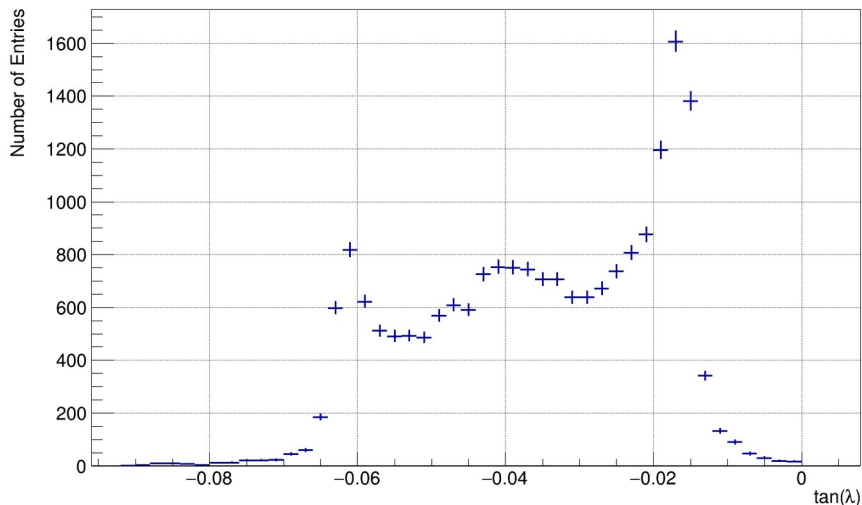
- Momentum projection for phi0 between 0.112 and 0.192
- Later run peaks about 15% lower in momentum
- Should look run by run and determine exact run when it happens
- Magnet quench?

Bonus Issue

noHCreq_botEle_TanLambda_vs_Phi_hh



ProjectionY of binx=[65,74] [x=0.112..0.192]



- Strange shape seen in $\tan \lambda$ distribution at high ϕ_0
- TanLambda projection for ϕ_0 between 0.112 and 0.192
- This looks similar in top and bottom, in early physics runs and late physics runs
- Shape is from trigger somehow?
- More than just FEEs?

- Discussed some other things with Tim this week about the phi of FEEs where the slot/hole crack should be
- Will show more thorough investigation of this at a future meeting, more of a global alignment issue so we should finish with these internal alignment issues before digging into that
- If I could run on 1% of the data without all these rubber stamps would have had exact run number nailed down today!
- Can we compromise somehow?
- Don't keep slcio files, doesn't go on tape, no "official" pass number, there has to be something we can do so we can use this tool in a calibration situation like this and not slow things down for rubber stamping
- Only asking to be able to do 1%, not 10% or 100%