

Tracking performance evaluation with the latest ECCE simulation production

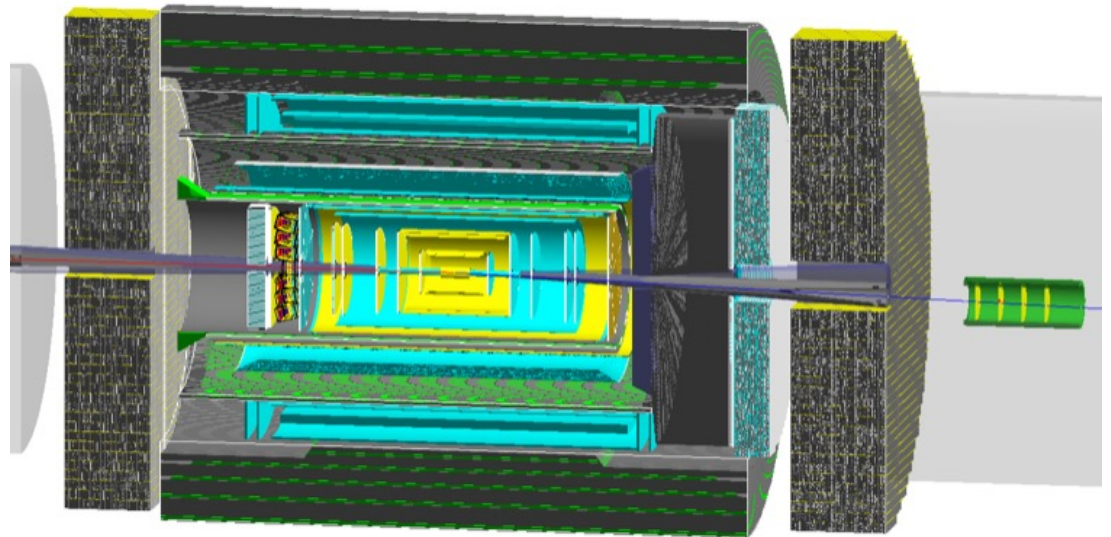
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Simulation sample and detector configuration

- Tracking performance evaluation with recent simulation production:
 - Single electron events done by the production, sample location:
eicS3/eictest/ECCE/MC/prop.1/4cafa64/General/particleGun
 - Simple events configuration: $8 \pi^-$ per event, enable displaced vertex.

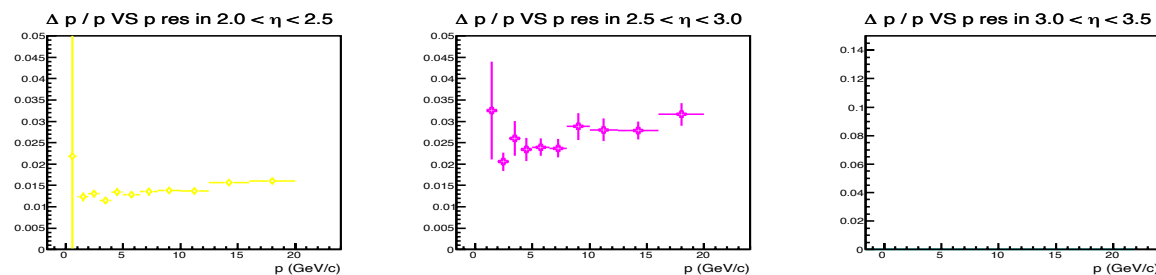
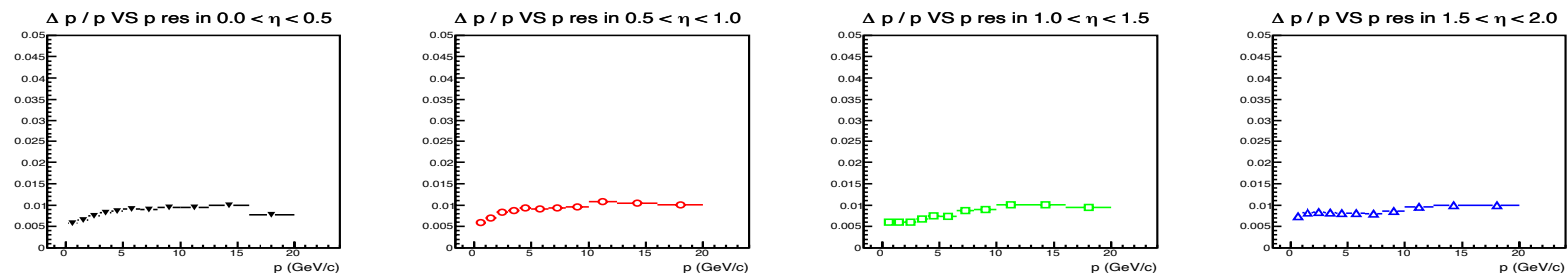
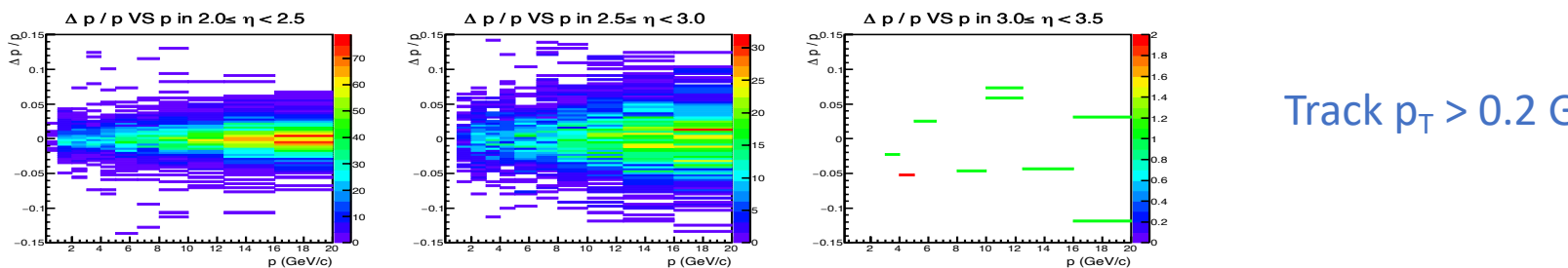
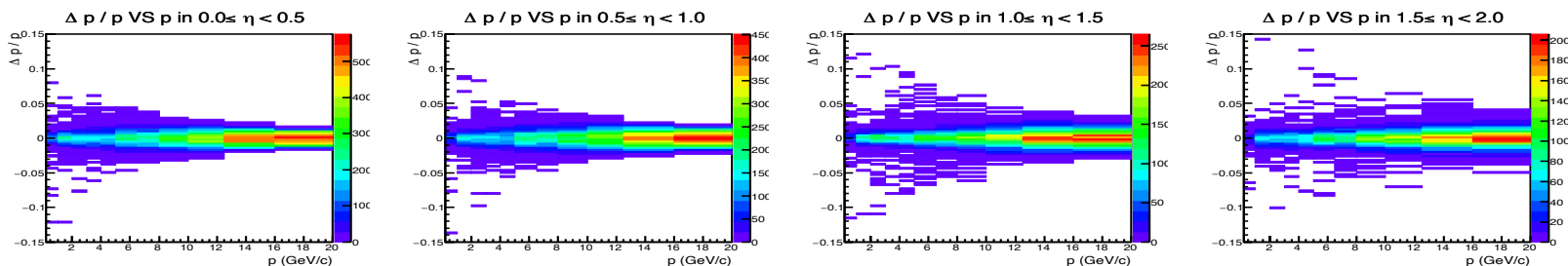
Latest ECCE detector configuration



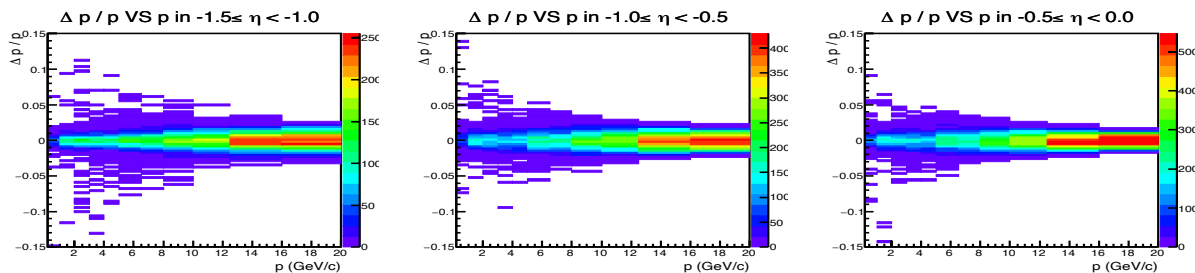
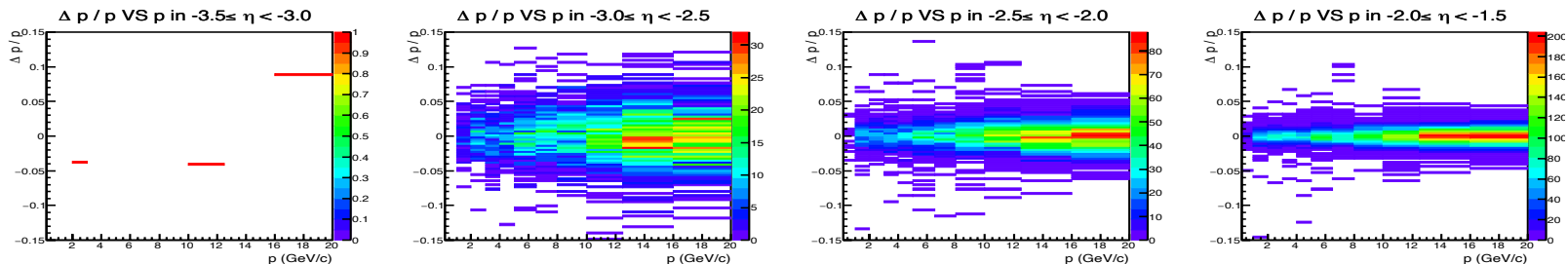
Thank the ECCE simulation team for their nice efforts!

Simple events

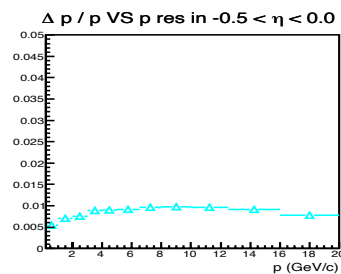
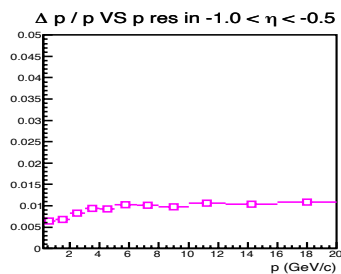
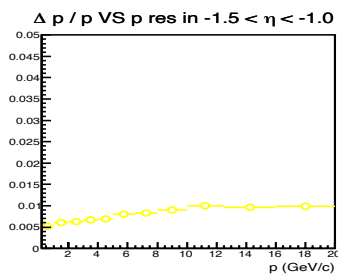
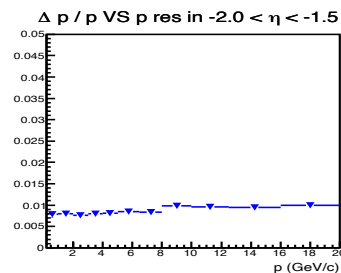
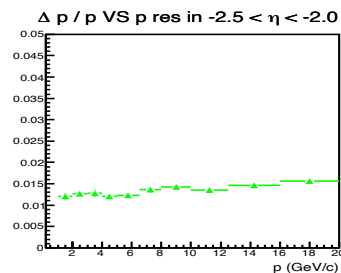
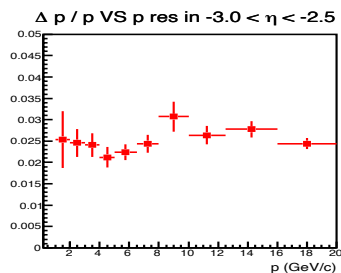
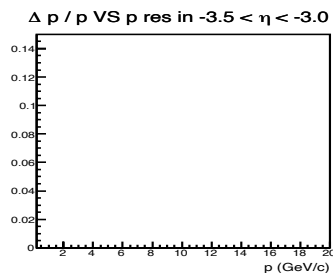
Momentum resolution VS momentum using multiple pion events ($\eta > 0$)



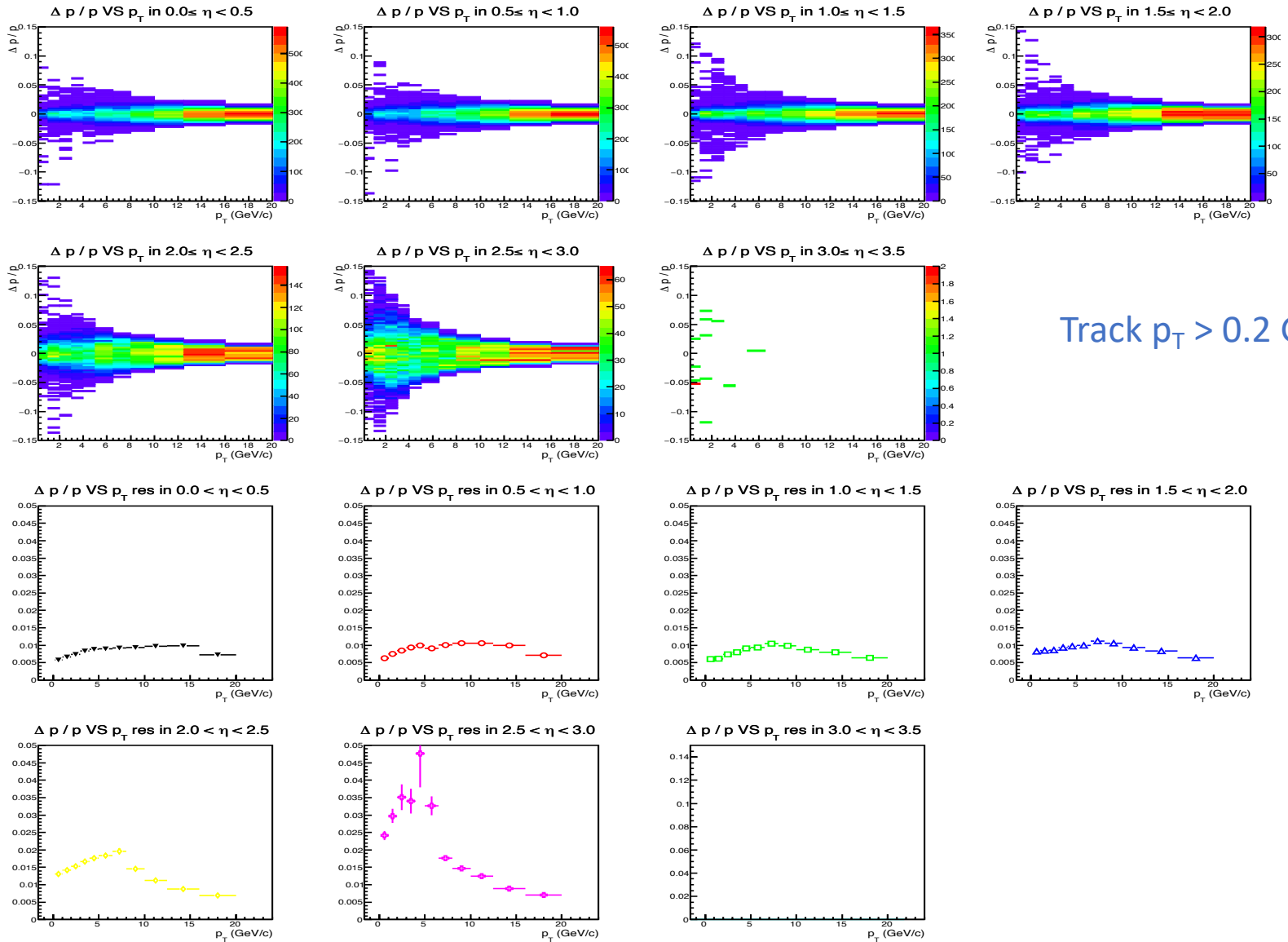
Momentum resolution VS momentum using multiple pion events ($\eta < 0$)



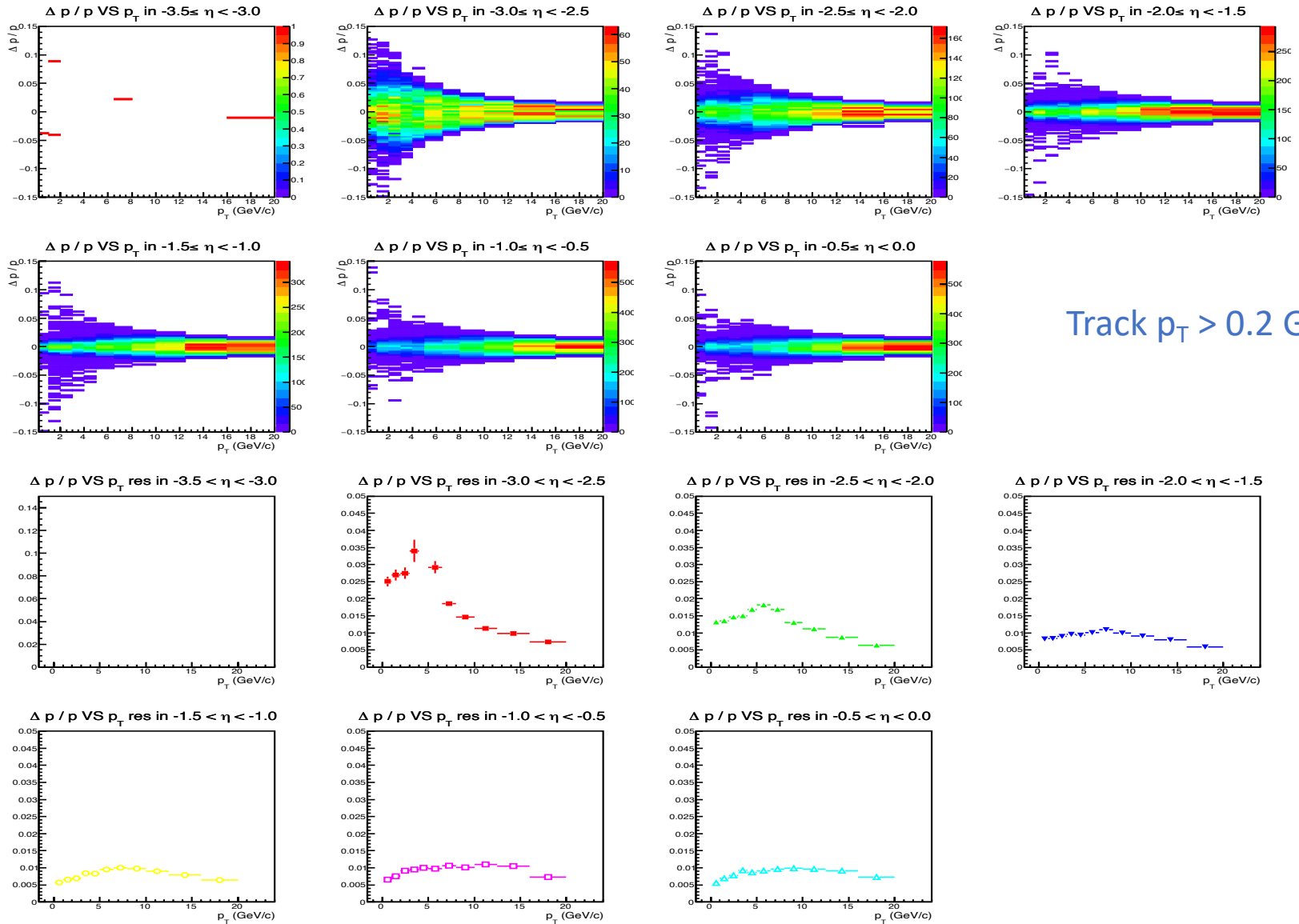
Track $p_T > 0.2$ GeV/c



Momentum resolution VS p_T using multiple pion events ($\eta > 0$)

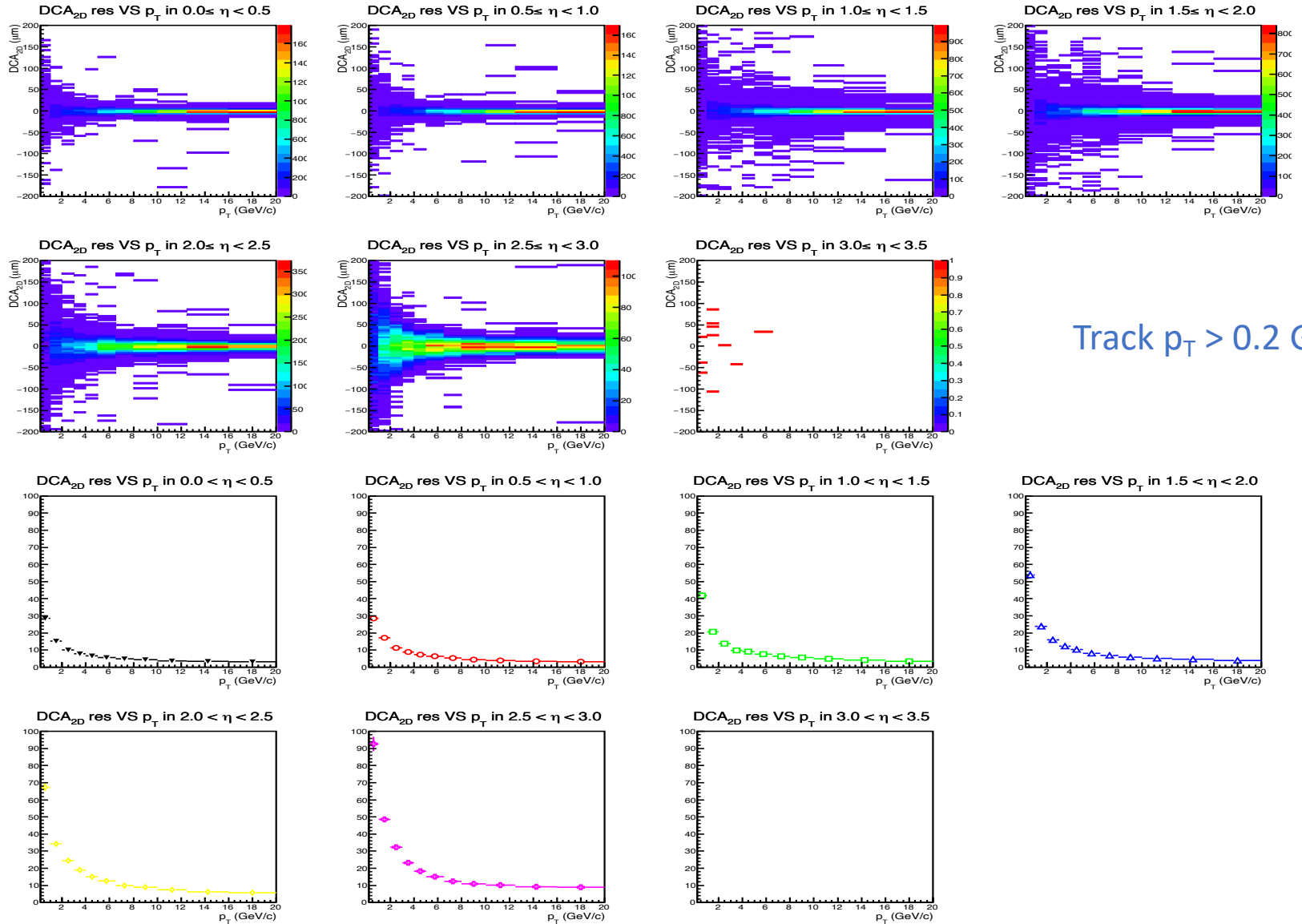


Momentum resolution VS p_T using multiple pion events ($\eta < 0$)

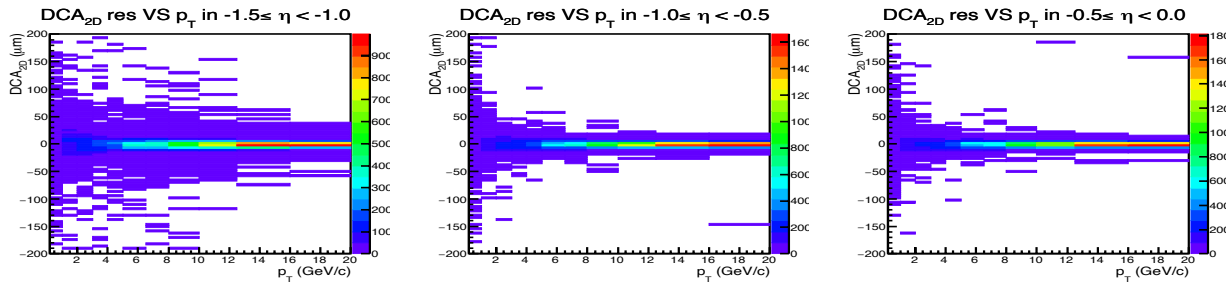
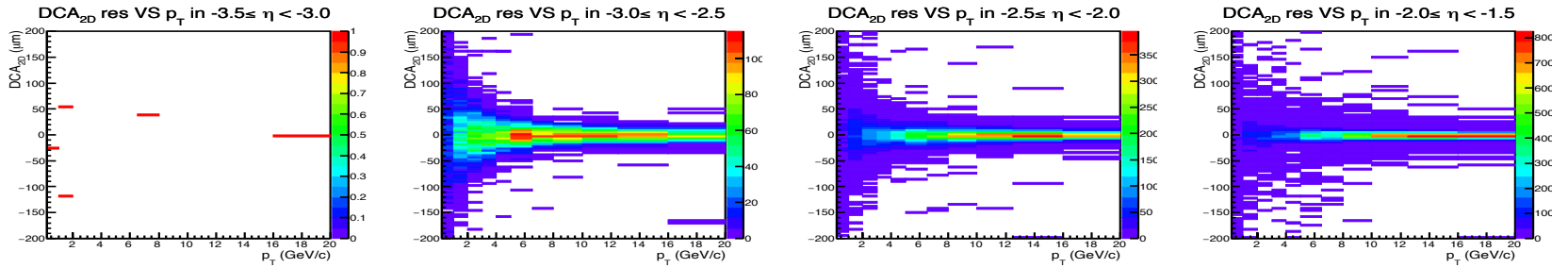


Track $p_T > 0.2$ GeV/c

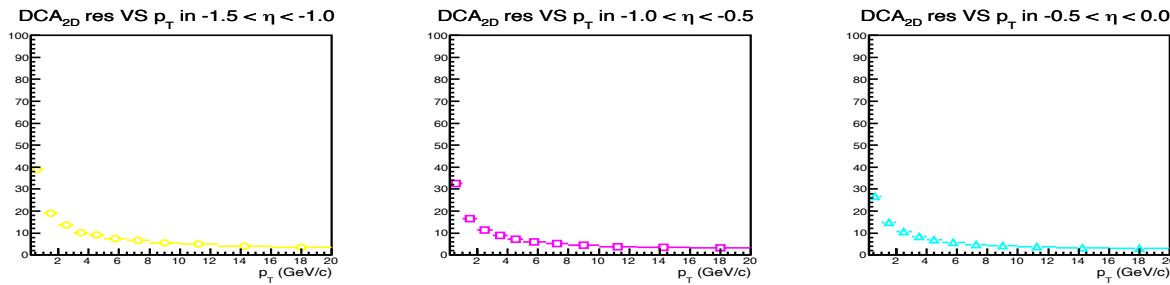
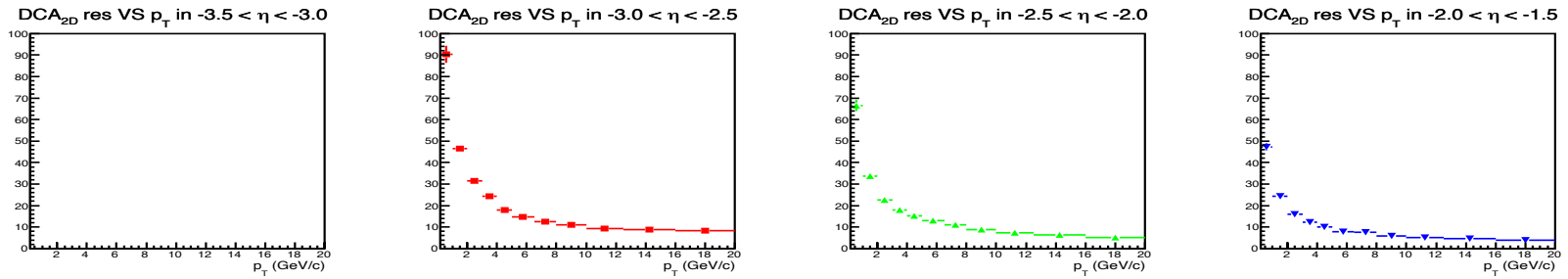
DCA_{2D} resolution VS p_T using multiple pion events ($\eta > 0$)



DCA_{2D} resolution VS p_T using multiple pion events ($\eta < 0$)

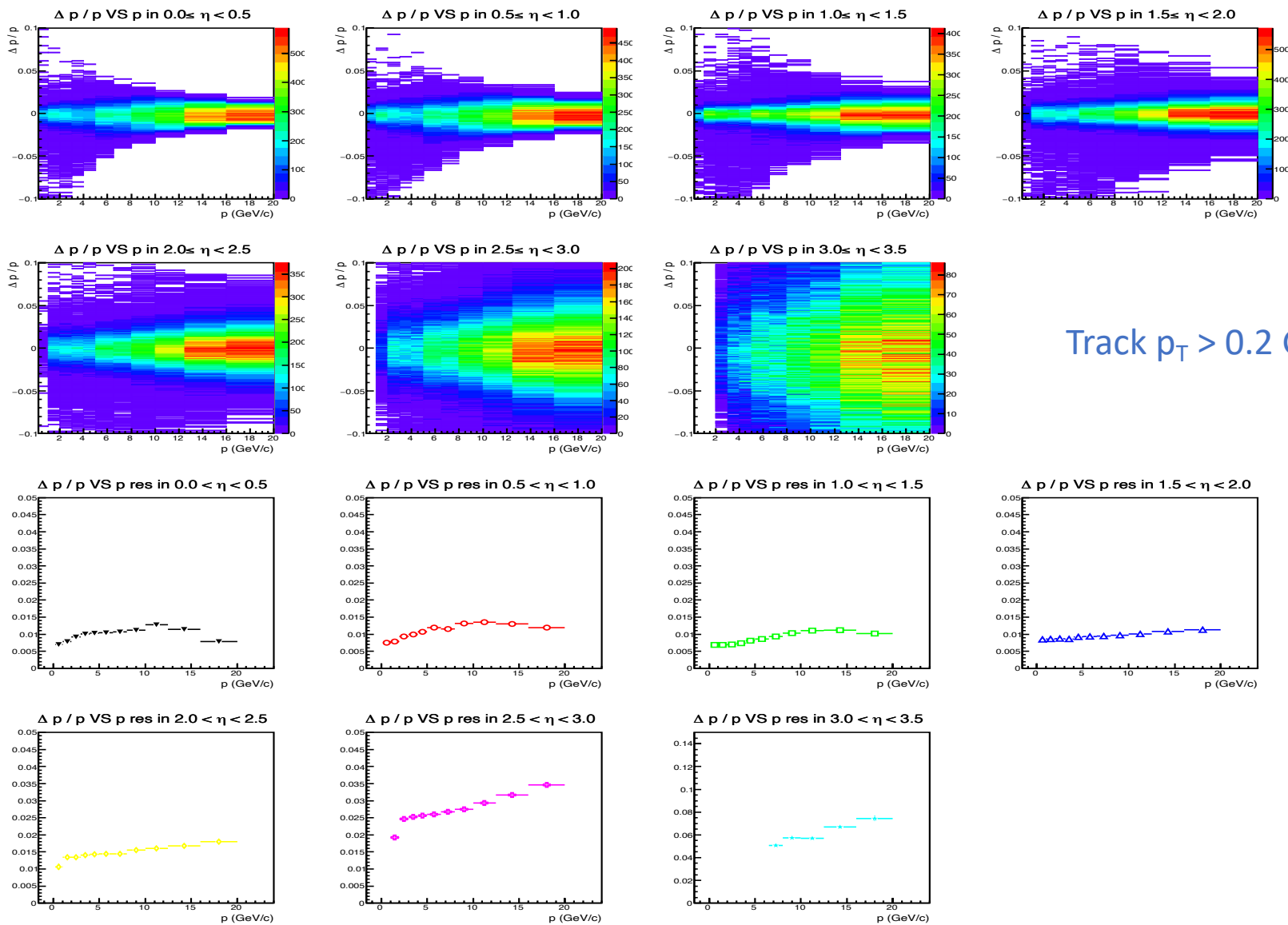


Track p_T > 0.2 GeV/c

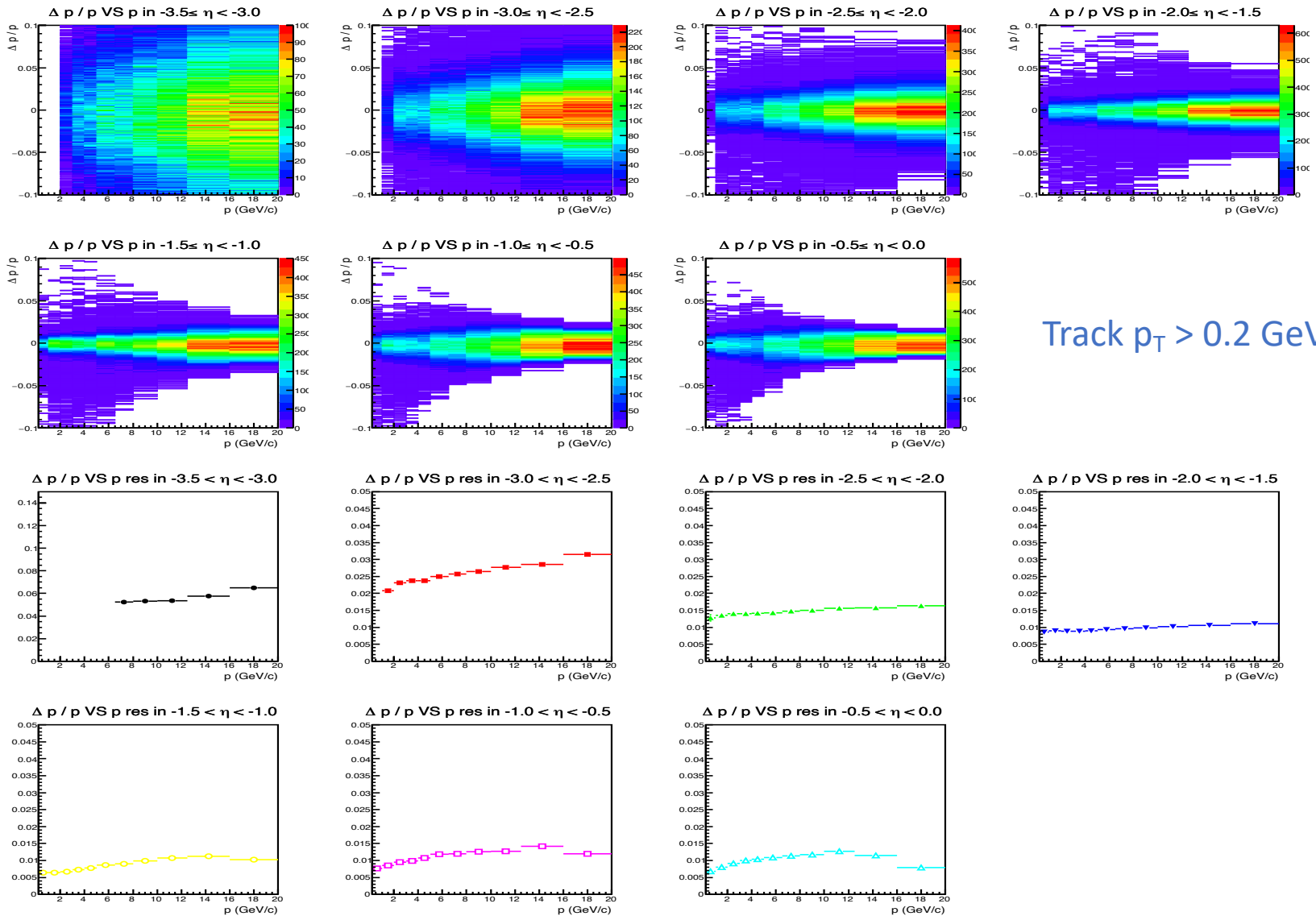


Single electron events

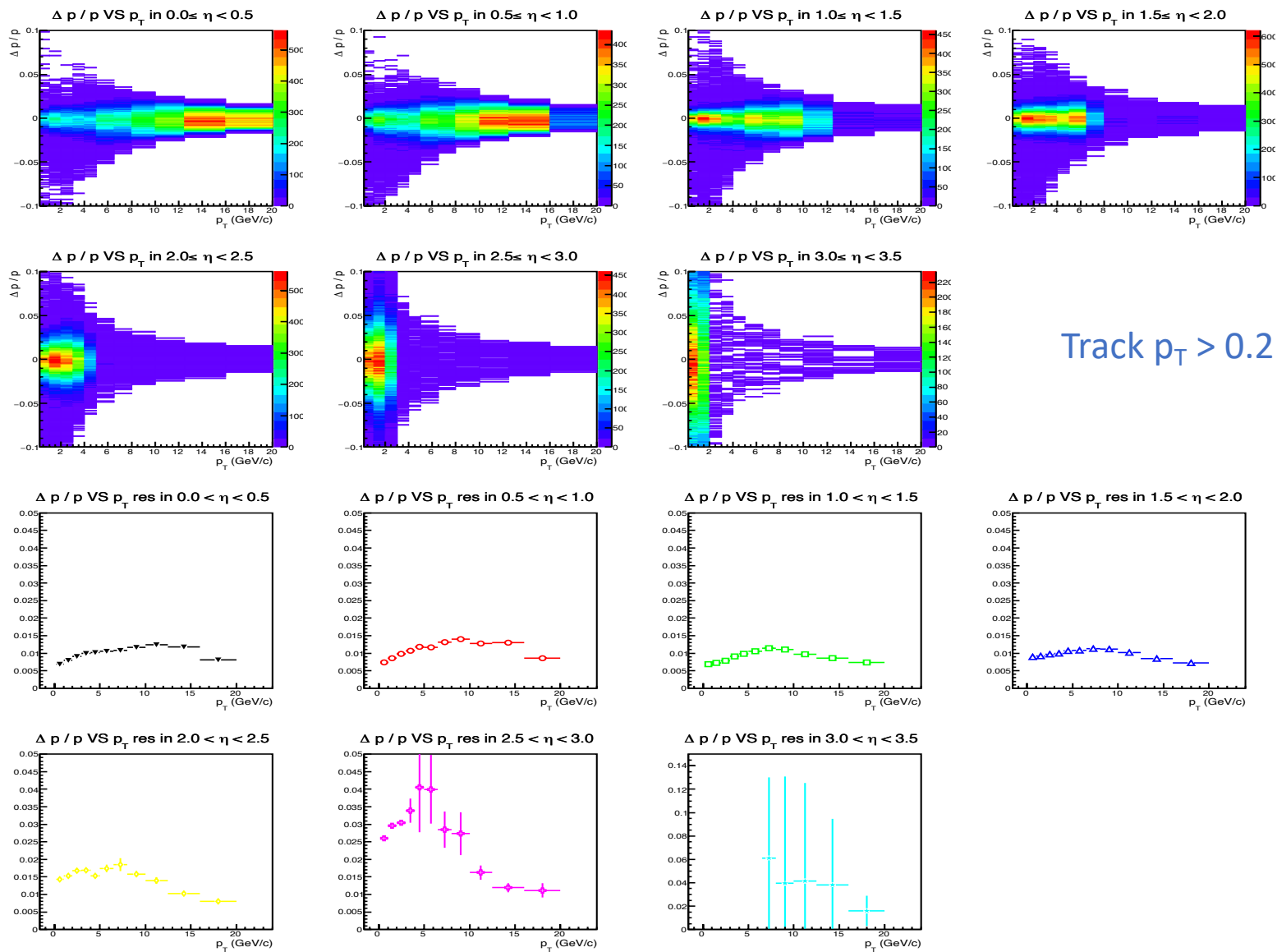
Momentum resolution VS momentum using single electron events ($\eta > 0$)



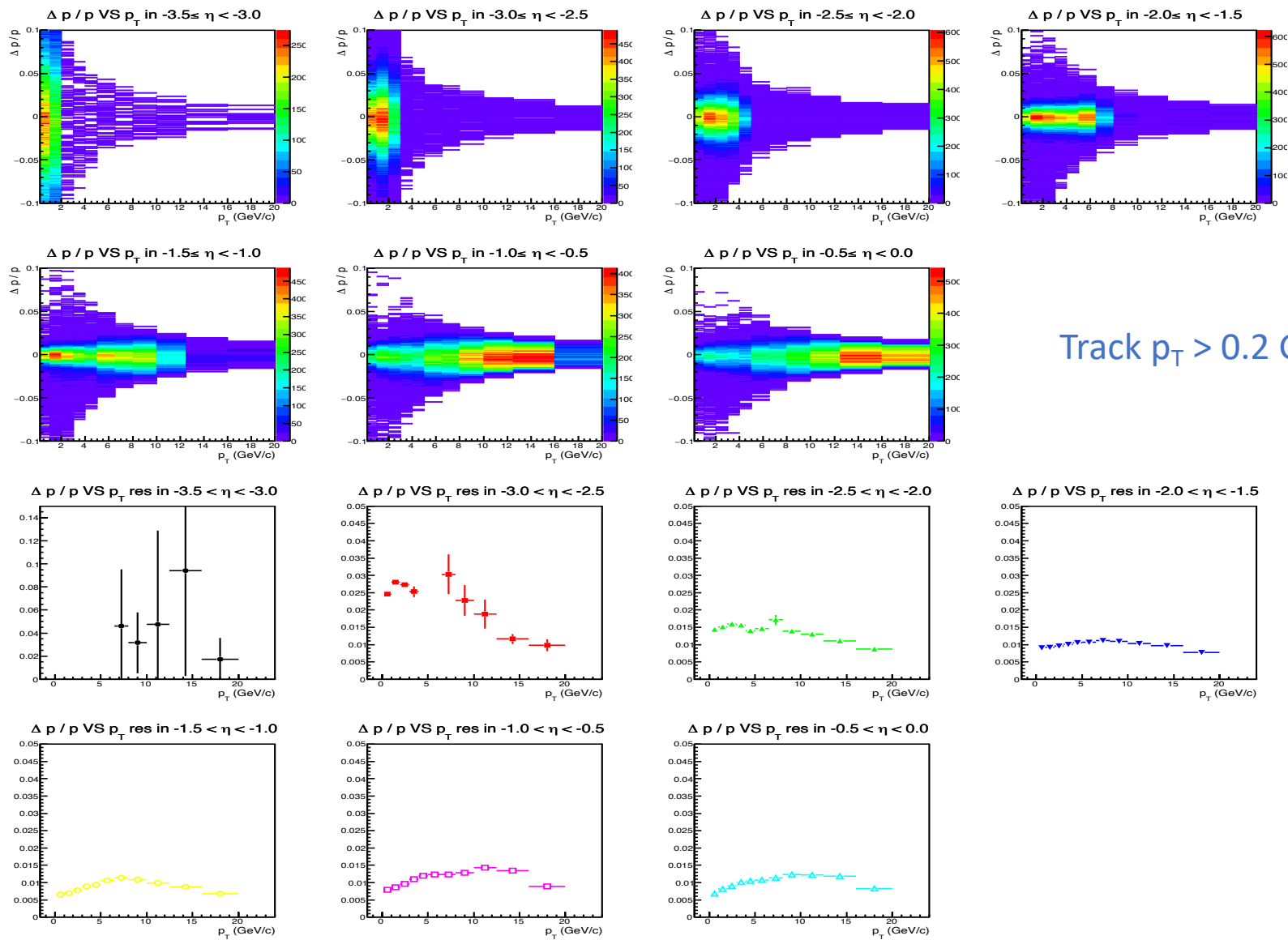
Momentum resolution VS momentum using single electron events ($\eta < 0$)



Momentum resolution VS p_T using single electron events ($\eta > 0$)



Momentum resolution VS p_T using single electron events ($\eta < 0$)



Summary and Outlook

- The tracking performance has been evaluated with latest ECCE simulation with the updated detector geometry and layout.
- Tracking momentum resolution and the DCA_{2D} resolution with the ECCE integrated detector look good.
- Will implement the updated tracking performance for heavy flavor studies.