Weekly Report

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Big issues in this week

Congratulations!

- Yu got married!
- Maosen, and also Xuewei, passed their thesis defense!

QT

- Perparing Merge request
- Egamma experts updated several requirements
  - use calculateKine to add layer energy in the forward topoclusters
  - then continue to fit with GSF
  - need more work, but finally get feedback from egamma part

Recap up to here.

– We need copies made with calculateKine with last argument true , and these is what we now pass around
– The 4 deltaEta , deltaPhi can now be calculated.
There is a question on if for tests we modify this
https://gitlab.cern.ch/kazhang/athena/blob/master/Reconstruction/egamma/egammaAlgs/src/egammaForwardBuilder.cxx to add track matching or we do it in the main line. For tests I would have gone with this as it does not have selectors yet that depend on being "central". So lets say you want to attach deltaEta, deltaPhi to ForwardElectrons (they are separate collection in the output which also helps for testing in isolation).

Then in both master and 21.X there is this code
https://gitlab.cern.ch/kazhang/athena/blob/master/Reconstruction/egamma/egammaAlgs/src/egammaForwardBuilder.cxx

– You modify this code to do copies with the correct CalculateKine
– You then call the EMExtrapolationTools
– You store the deltaEta, deltaPhi like here
https://gitlab.cern.ch/kazhang/athena/blob/master/Reconstruction/egamma/egammaAlgs/src/topoEgammaBuilder.cxx#L348

The moment you have attached deltaEta , deltaPhi to the fwd electrons one would stop more or less ...

So recap number 2:

- At some stage you need to call CalculateKine in a copy to add layer energies
- Call the EMExtrapolation from the forward builder.
- Store the deltaEta,deltaPhi thus calculatated to the ForwardElectrons (different collection) when there

The real question from an end user prospective at the end will be how many ForwardElectron 2.5-3.2 have track match now. i.e the end user for an analysis usually sees the end collection so one can summarize the improvement in the form that XX.X % of the forward electron now have a track match , with YY.Y% correct charge prediction. Therefore we can improve ZZ.Z% when trying to find Z with one leg in the fwd region.

To do

- CEPC for higher energy run: meeting in July
  - 350 or 365; lumi;
  - tt bar
  - sample
  - width
  - WW fusion
  - code for fit, from Zhen
- ATLAS multi lepton
  - res MC request