Number of Tracks with HFE cuts and HFE AOD discussion

MinJung Kweon
University of Heidelberg
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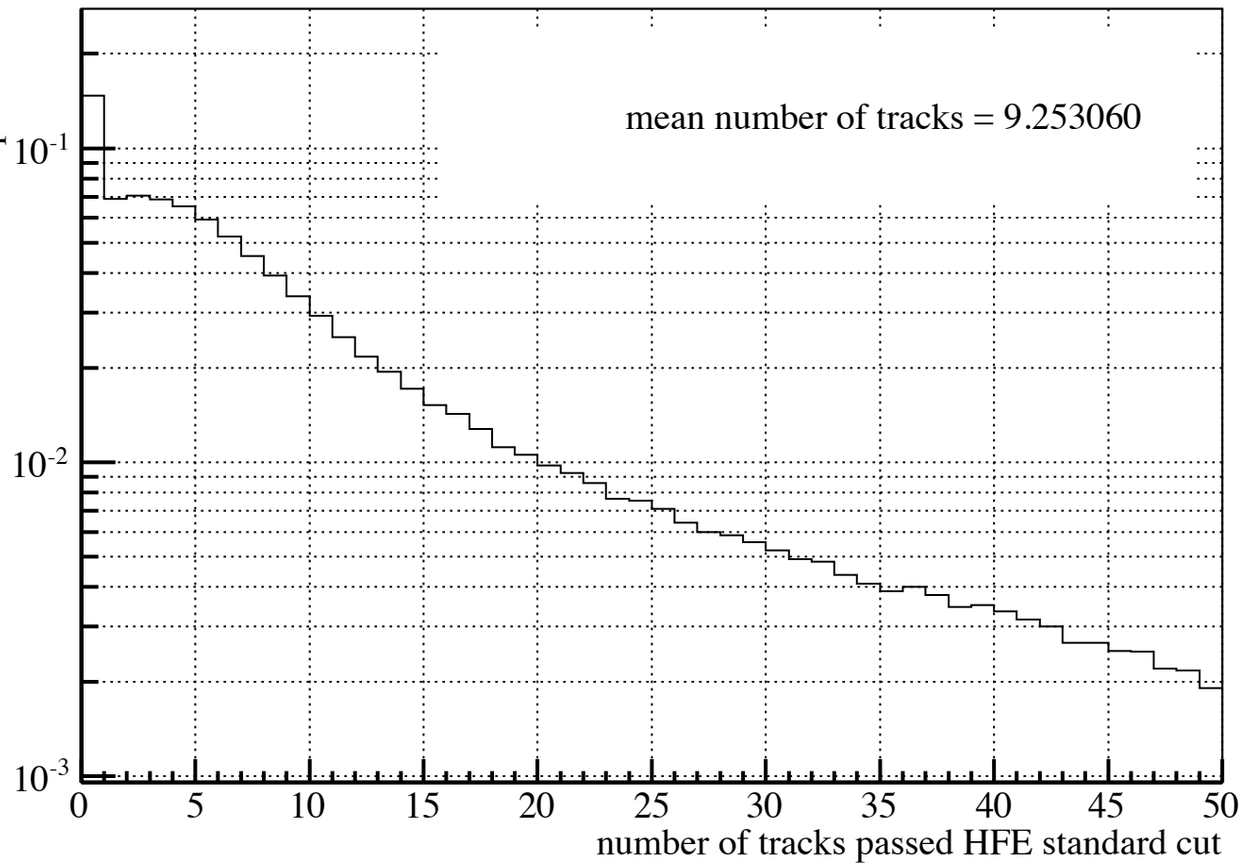
HFE AOD?

- We are considering HFE AOD, then how do we proceed?
- The question will be if we want to use standard AOD(with more information) or generate HFE dedicated AOD.
- If we want to generate HFE dedicated AOD, the number of tracks we will end up would be the question. However, first guess is that we will end up with a lot of tracks if we don't make any PID cut or minimum impact parameter cut due to the primary pions.

Number of tracks passed HFE standard cuts



HFE standard(current) cuts applied

- Variances:

  y: 2, z: 2, sin(phi): 0.5, tan(theta): 0.5, 1/pt: 2
- RefitRequired: ITS, TPC
- Min. Number of Clusters in TPC: 50
- Min. Cluster ratio in TPC: 0.6
- Chi2 per TPC cluster: 3.5
- Reject kink daughter
- SetRequireProdVetrex();

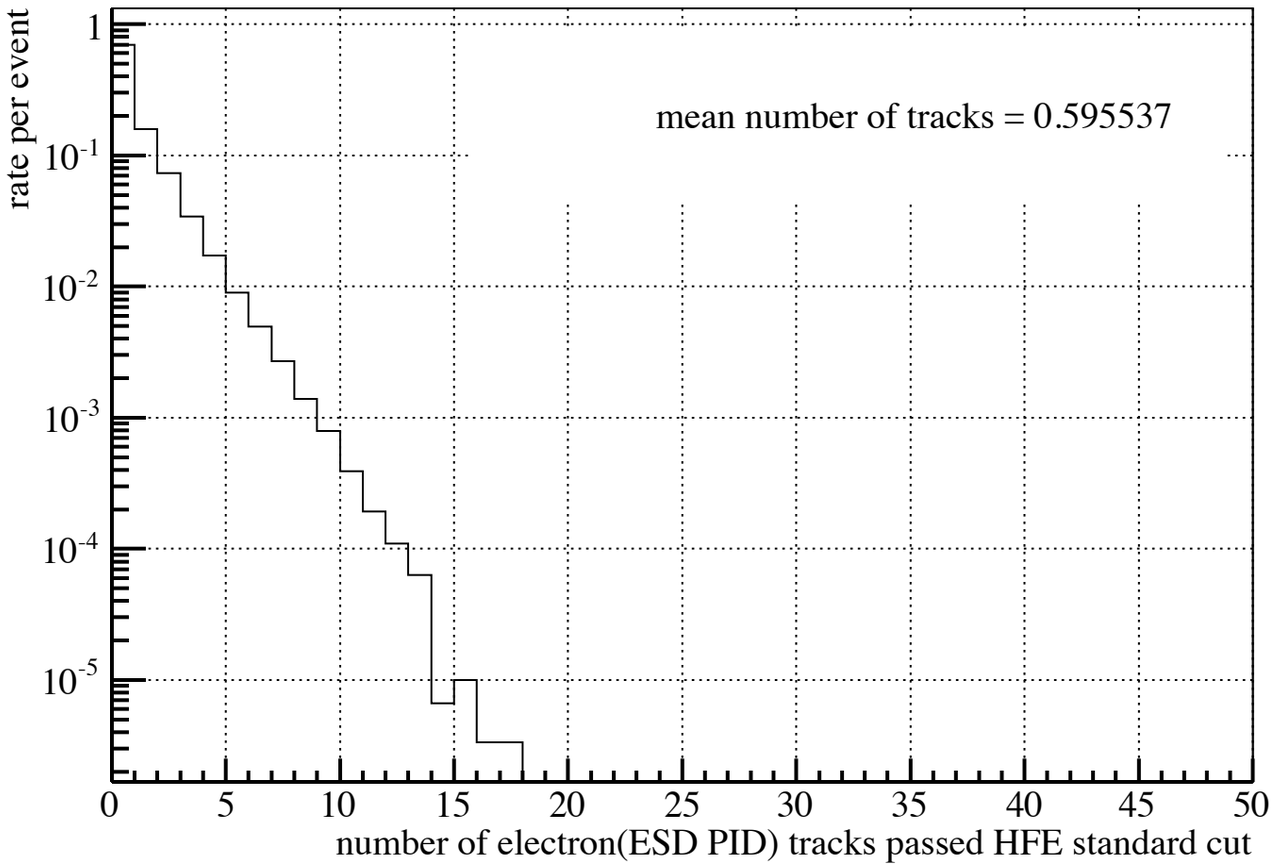
  fProdVtx[1] = 1;

  fProdVtx[3] = 1;
- Min. number of Tracklets in TRD = 6;
- ITSPixel hit requirement: at least one
- Pt Min. = 0.1, Pt Max. = 20.;
- SigmaToVtx = 4.; ← ?
- SetRequireMaxImpactParam();

  fMaxImpactParamR = 3.;

  fMaxImpactParamZ = 12.;

Number of electron tracks passed HFE standard cuts



HFE standard(current) cuts applied

- same as the cuts in the previous slide

ESD PID with likelihood cut of 0.5

However, I don't think we want to make PID selection for AOD, so this plot doesn't give any information.

Selection in the Standard AOD (I)

from Rossela's talk at GSI analysis meeting

Cuts in the standard AOD : A track has to satisfy at least one of the requirements

- **primary tracks**

```
esdTrackCutsL->SetMinNClustersTPC(50);
esdTrackCutsL->SetMaxChi2PerClusterTPC(3.5);
esdTrackCutsL->SetMaxCovDiagonalElements(2,2,0.5,0.5,2);
esdTrackCutsL->SetRequireTPCRefit(kTRUE);
esdTrackCutsL->SetMaxDCAToVertexXY(3.0);
esdTrackCutsL->SetMaxDCAToVertexZ(3.0);
esdTrackCutsL->SetDCAToVertex2D(kTRUE);
esdTrackCutsL->SetRequireSigmaToVertex(kFALSE);
esdTrackCutsL->SetAcceptKinkDaughters(kFALSE);
```

Selection in the Standard AOD (II)

- **ITS standalone tracks:**

  esdTrackCutsITSsa->SetRequireITSStandAlone(kTRUE);

- **V0 selection:** same selection as in ESD reconstruction

  esdV0Cuts->SetMinRadius(0.2);
  esdV0Cuts->SetMaxRadius(100);
  esdV0Cuts->SetMinDcaPosToVertex(0.05);
  esdV0Cuts->SetMinDcaNegToVertex(0.05);
  esdV0Cuts->SetMaxDcaV0Daughters(0.5);
  esdV0Cuts->SetMinCosinePointingAngle(0.99);

- Additional cuts for hadronic charm (SPD required):

  esdTrackCutsHF->
  SetClusterRequirementITS(AliESDtrackCuts::kSPD,AliESDtrackCuts::kAny);

Open Issue

- Can we merge HFE tracks into the Standard AOD?
- If yes, what are we missing?
- If we want to create HFE dedicated AOD with PID cut, one should hardly think about PID criteria.