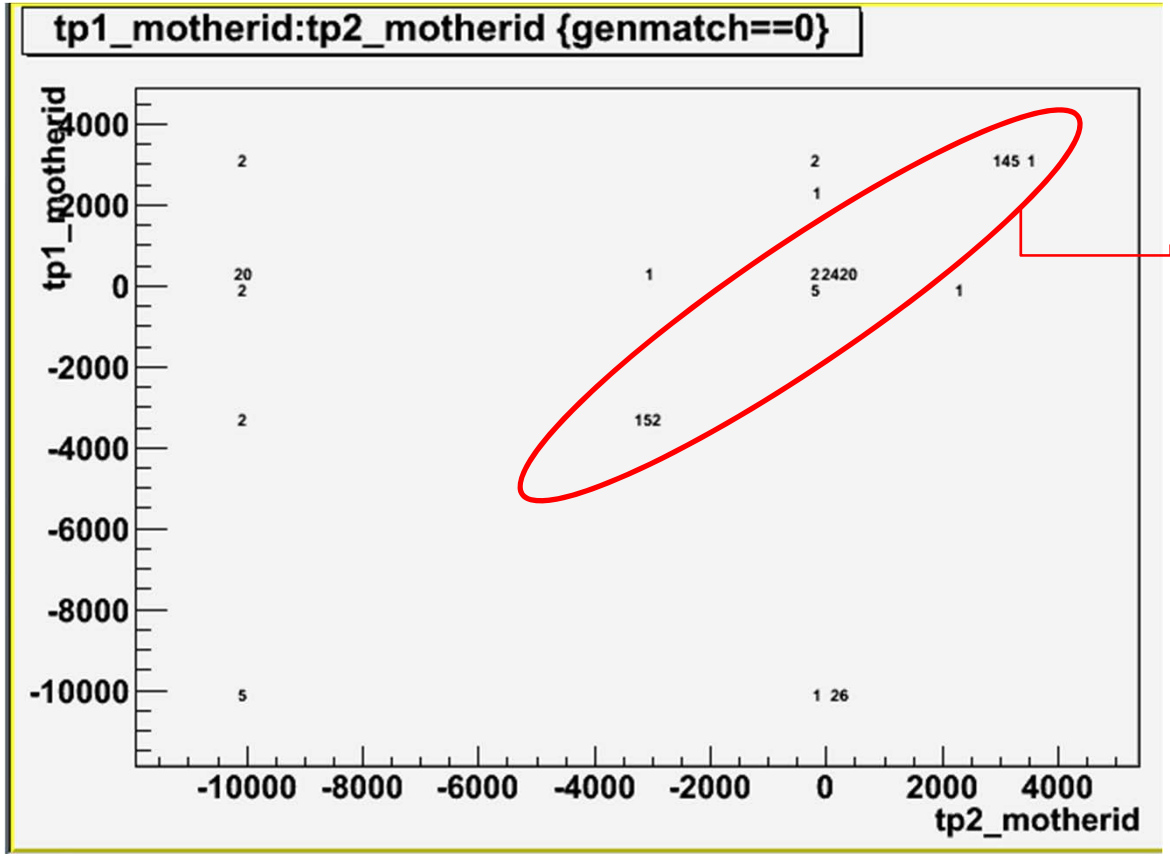
Unmatched K0s

Only those V0s enter this study, which passed all V0 reco cuts.
K0s are those V0s whose mass hypothesis have the largest chi2 probability and the probability is larger than 0.05



2788 (3%) unmatched K0s out of 97250:

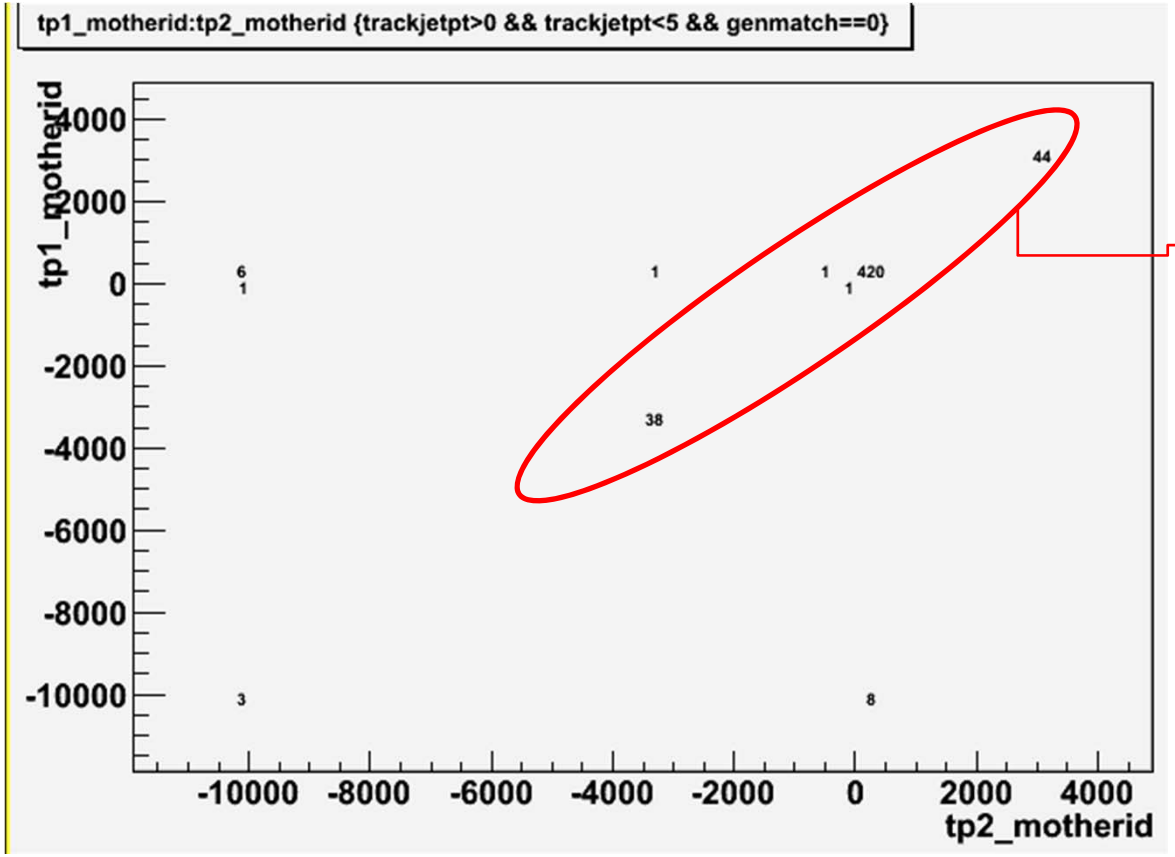
2420x (87%) mother id = 310 = K0s
145x (5%) Mother Id = 3122 = Lambda
152x (5%) mother id = -3122 = antilambda

69 (2%) mother ID different for track1 and track2:
Track IDs: electrons, pions, not associated
Mother IDs: neutrons, k0s, pions, gammas, not associated

Plot shows ID of mother to track1 (tp1_motherid) and track2 (tp2_motherid)
- In 2% cases, the two associated trackingparticles show different mothers

Unmatched K0s: Ptjet < 5 GeV

TrackJetPt < 5 GeV



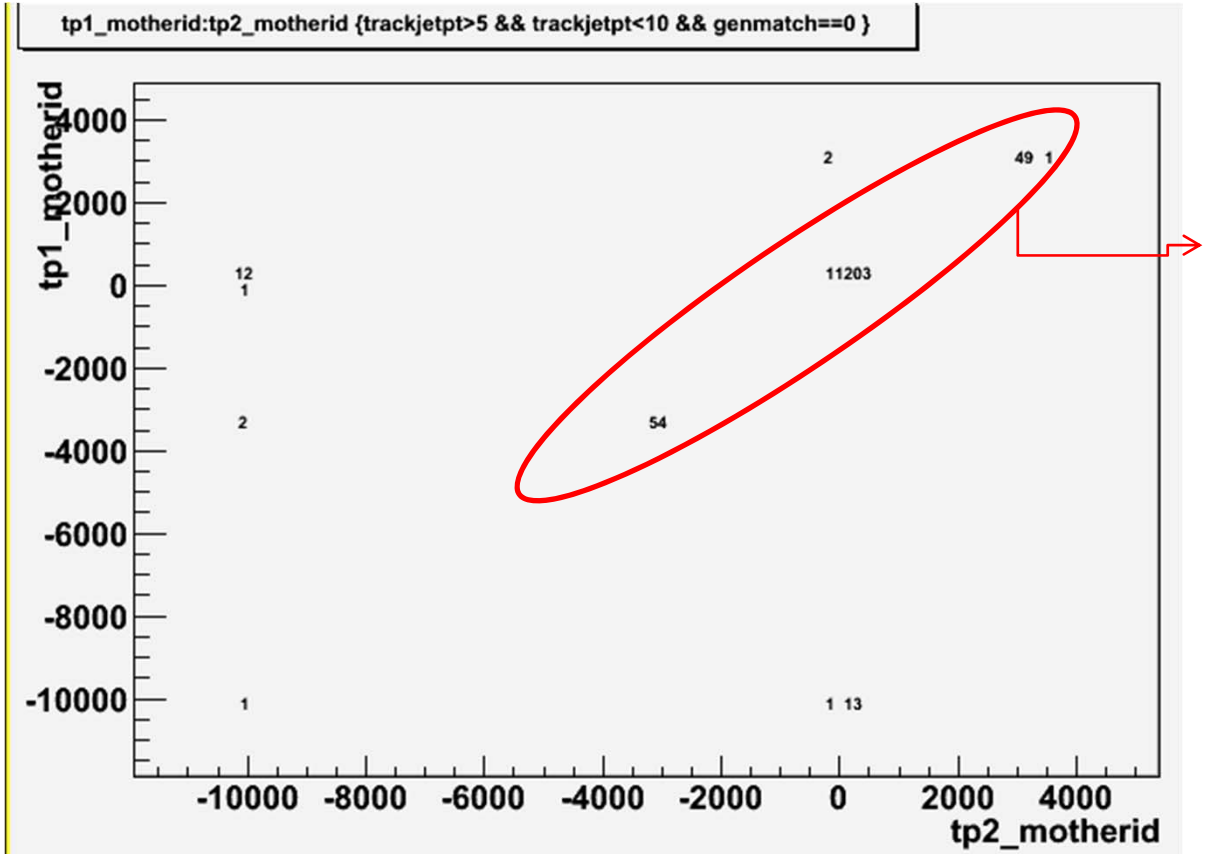
523 (2%) unmatched K0s out of 29139:

420x (80%) mother id = 310 = K0s
44x (8%) Mother Id = 3122 = Lambda
38x (7%) mother id = -3122 = antilambda

19 (4%) mother ID different for track1 and track2

Unmatched K0s: Ptjet > 5 GeV

5 < TrackJetPt < 10 GeV



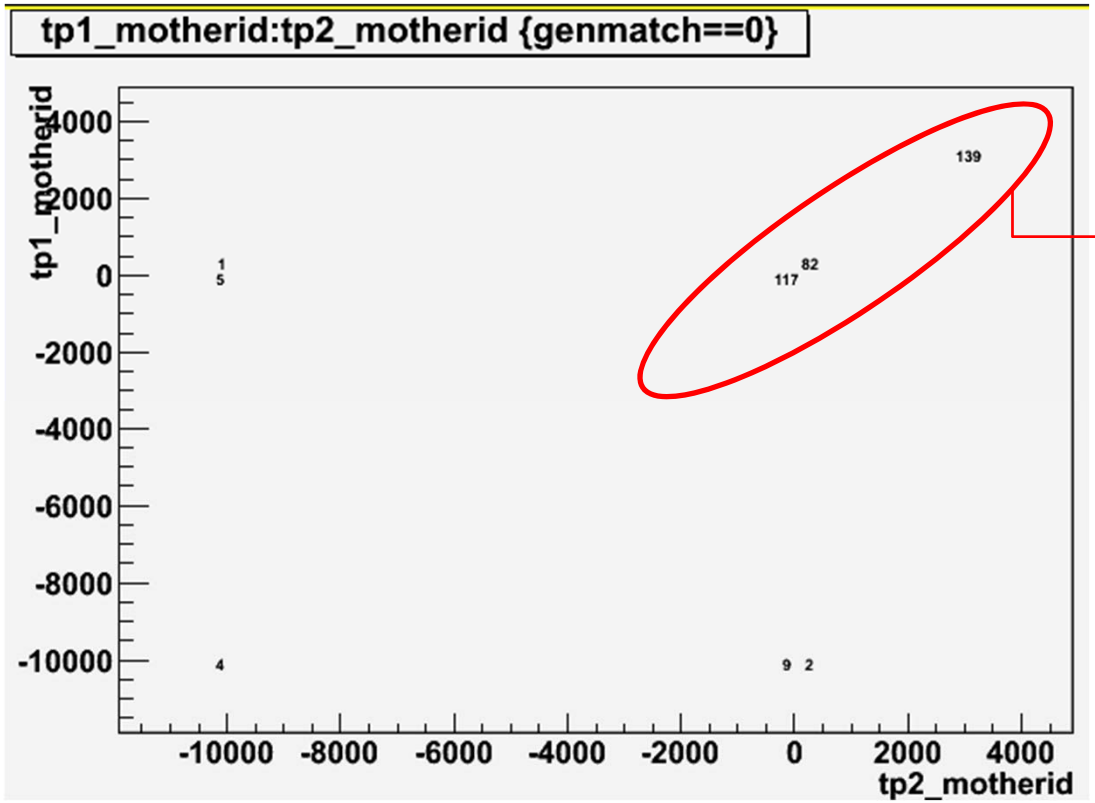
1340 (6%) unmatched K0s out of 23033:

1203x (90%) mother id = 310 = K0s
49x (4%) Mother Id = 3122 = Lambda
54x (4%) mother id = -3122 = antilambda

37 (3%) mother ID different for track1 and track2

Unmatched Lambdas

Lambdas are those V0s that have largest chi2 probability and probability > 0.05



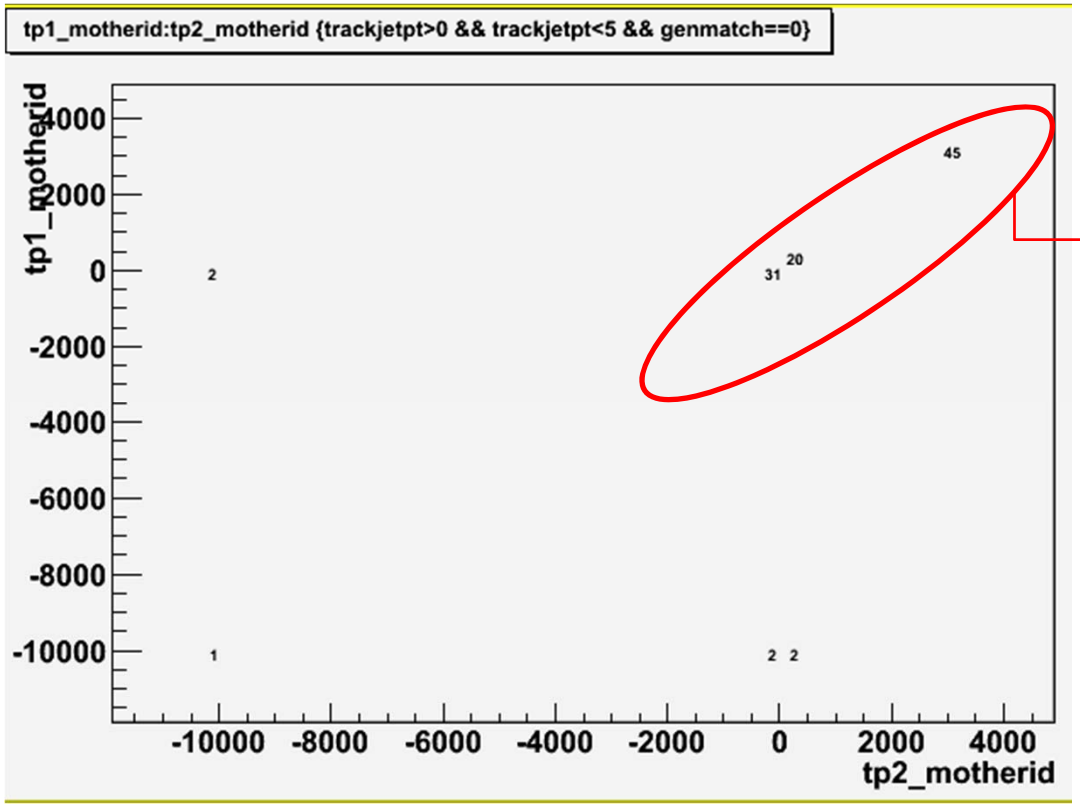
359 (6%) unmatched Lambdas out of 5960:

139x (39%) mother id = 3122 = Lambda
117x (33%) mother Id = 22 = gamma
82x (23%) mother id = 310 = K0s

17 (5%) mother ID different for track1 and track2:
Track IDs: electrons, pions, not associated
Mother IDs: gammas, K0s, not associated

Unmatched Lambdas: Ptjet < 5 GeV

TrackJetPt < 5 GeV



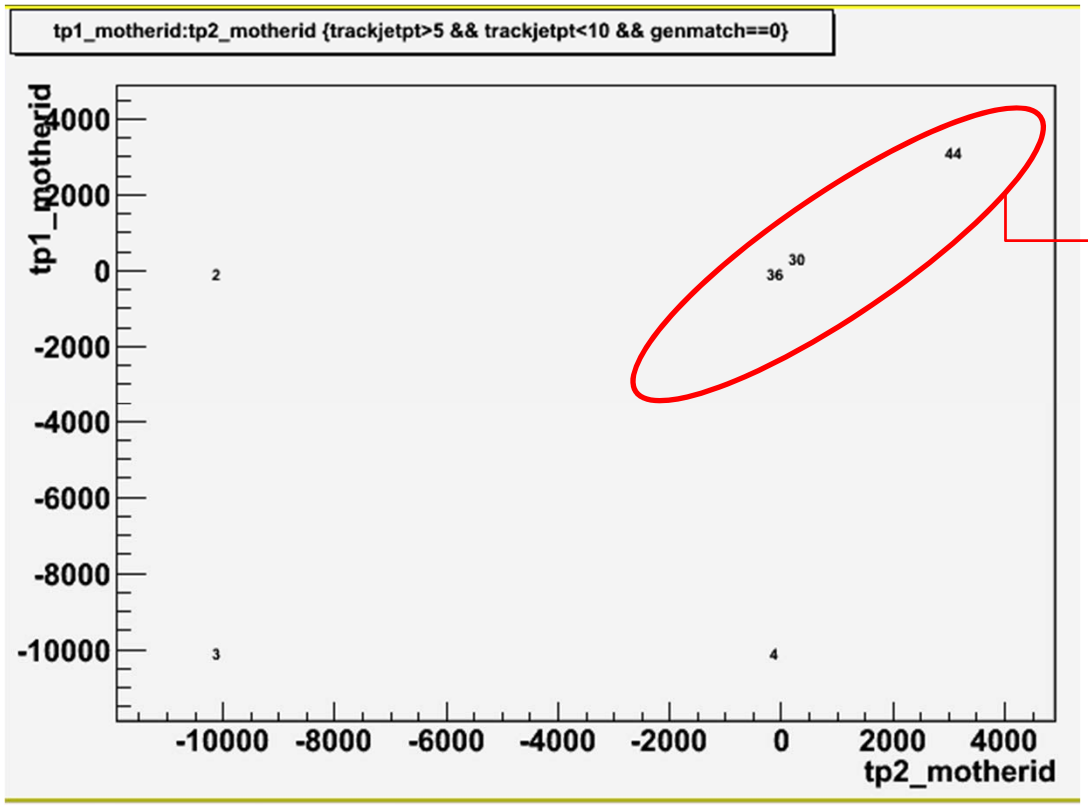
103 (5%) unmatched Lambdas out of 1881:

45x (44%) mother id = 3122 = Lambda
31x (30%) mother Id = 22 = gamma
20x (19%) mother id = 310 = K0s

6 (6%) mother ID different for track1 and track2

Unmatched Lambdas: Ptjet > 5 GeV

5 < TrackJetPt < 10 GeV



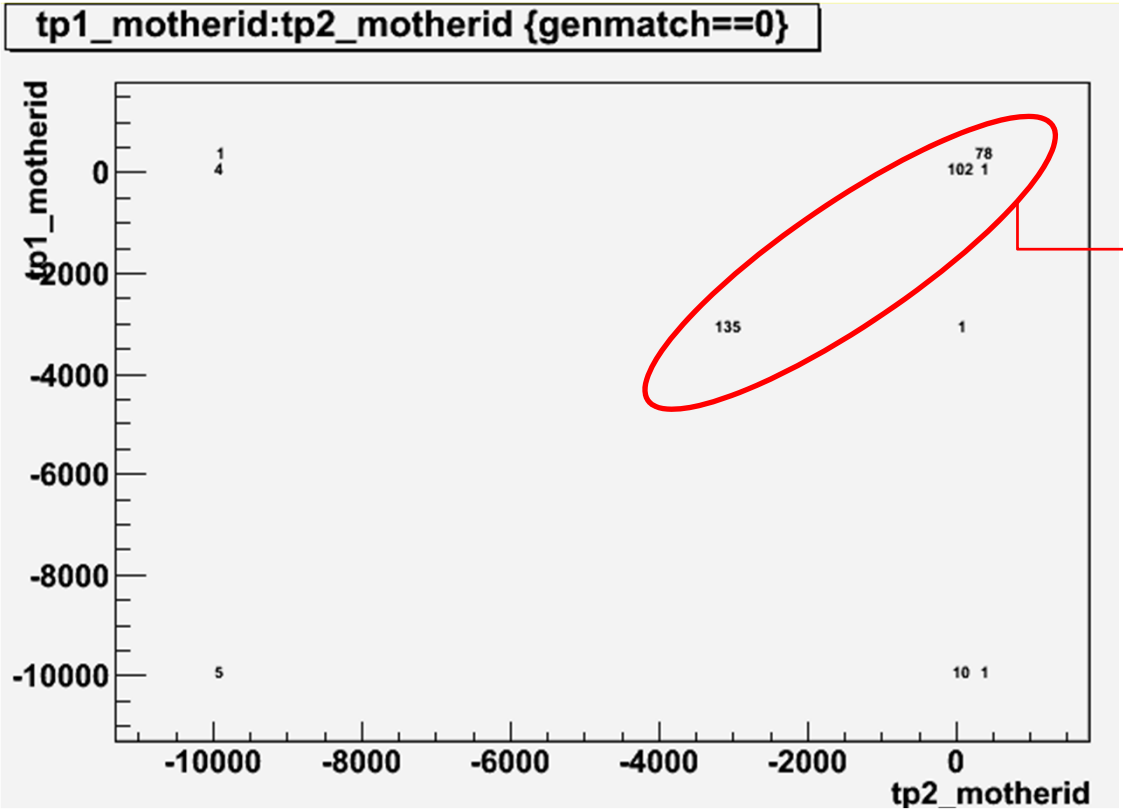
119 (7%) unmatched Lambdas out of 1753:

44x (37%) mother id = 3122 = Lambda
36x (30%) mother Id = 22 = gamma
30x (25%) mother id = 310 = K0s

6 (5%) mother ID different for track1 and track2

Unmatched Antilambdas

Antilambdas are those V0s that have largest chi2 probability and probability > 0.05



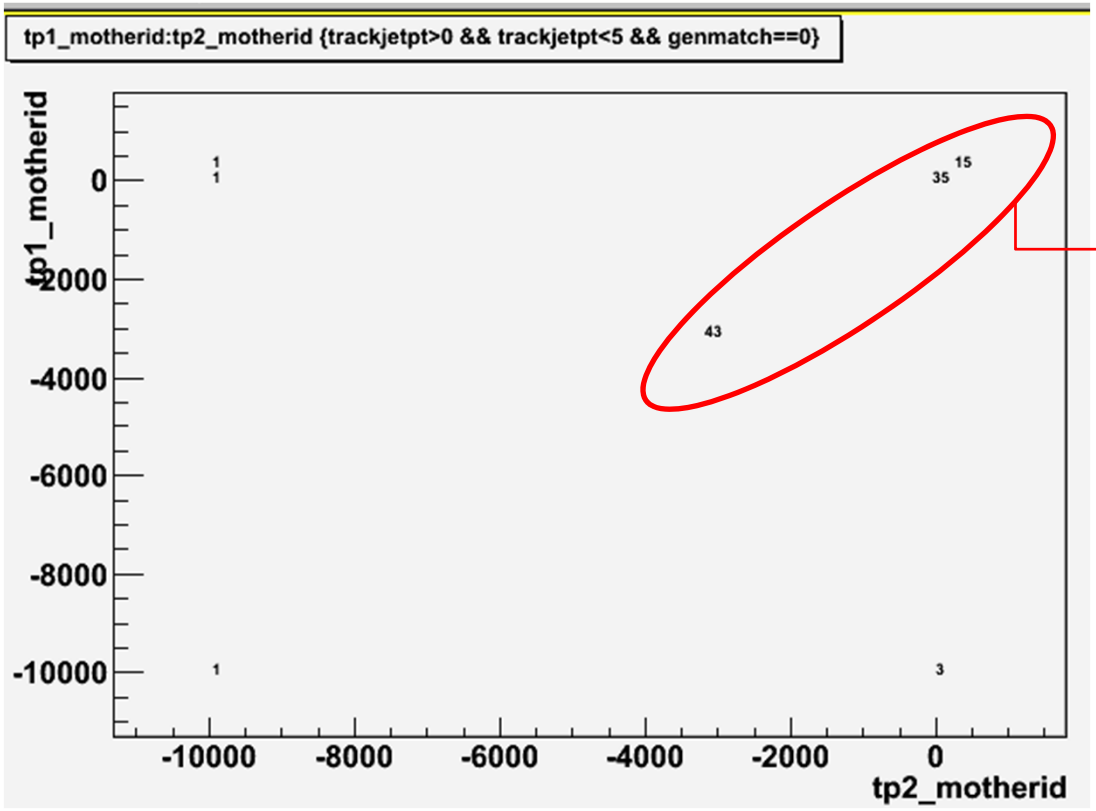
338 (7%) unmatched antilambdas out of 4652:

135x (40%) mother id = -3122 = AntiLambda
101x (30%) mother Id = 22 = gamma
78x (23%) mother Id = 310 = K0s

16x (5%) mother ID different for track1 and track2:
Track IDs: electrons, pions, protons, not associated
Mother IDs: gammas, pions, K0s, not associated

Unmatched Antilam: Ptjet < 5GeV

TrackJetPt < 5 GeV



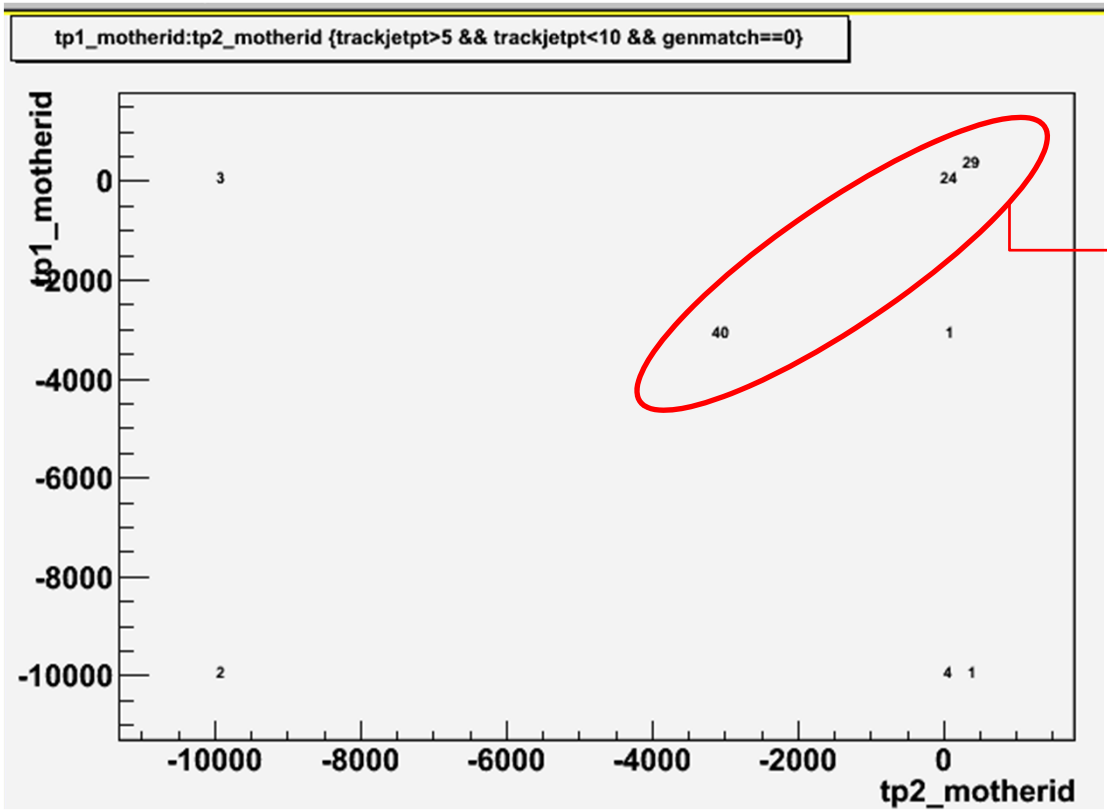
99 (7%) unmatched antilambdas out of 1469:

43x (43%) mother id = -3122 = AntiLambda
35x (35%) mother Id = 22 = gamma
15x (15%) mother Id = 310 = K0s

5x (5%) mother ID different for track1 and track2

Unmatched Antilam: Ptjet > 5GeV

5 < TrackJetPt < 10 GeV



104 (7%) unmatched antilambdas out of 1388:

40x (38%) mother id = -3122 = AntiLambda
24x (23%) mother Id = 22 = gamma
29x (28%) mother Id = 310 = K0s

9x (9%) mother ID different for track1 and track2

Summary

- Fraction of unmatched K0s is larger at higher trackjet Pt (2% -> 6%)
- Fraction of unmatched Lambdas/Antilambdas does not change with trackjet Pt
- High fraction of unmatched V0s have the correct ID
  - chi2probability is still the highest for the given mass hypothesis
  - need to check if there is different V0 matched at the gen level, than the one suggested by the kinefit probability