



Comparison between Jan14 and Oct14

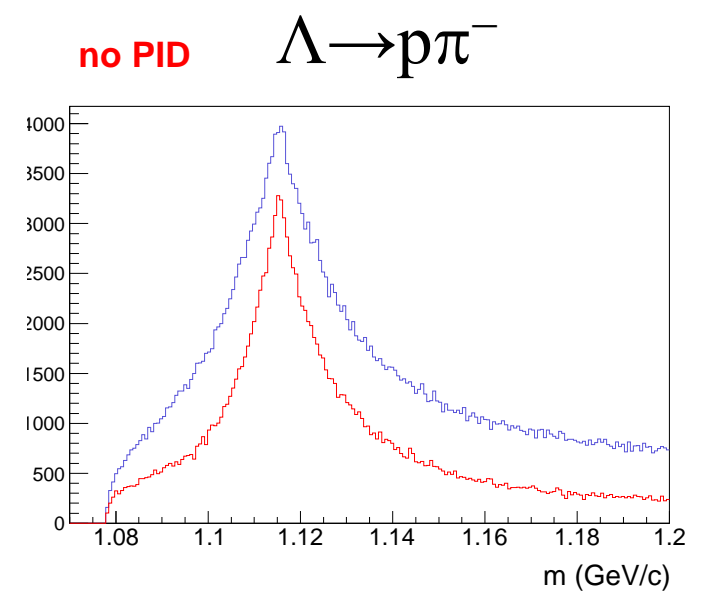
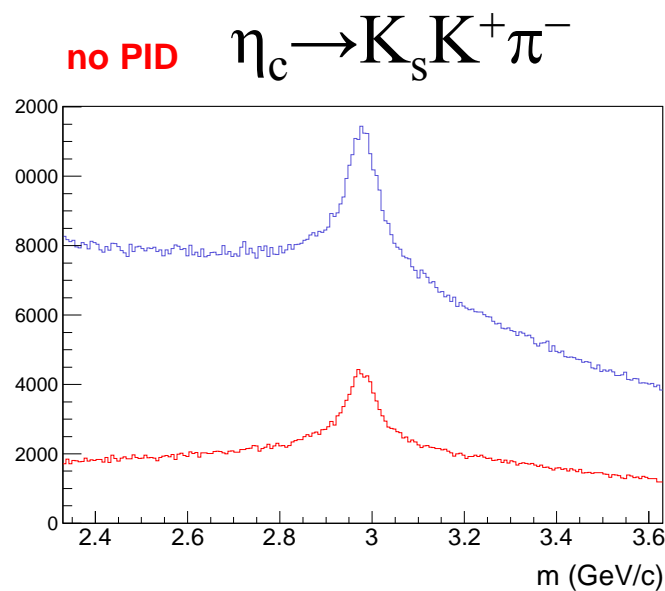
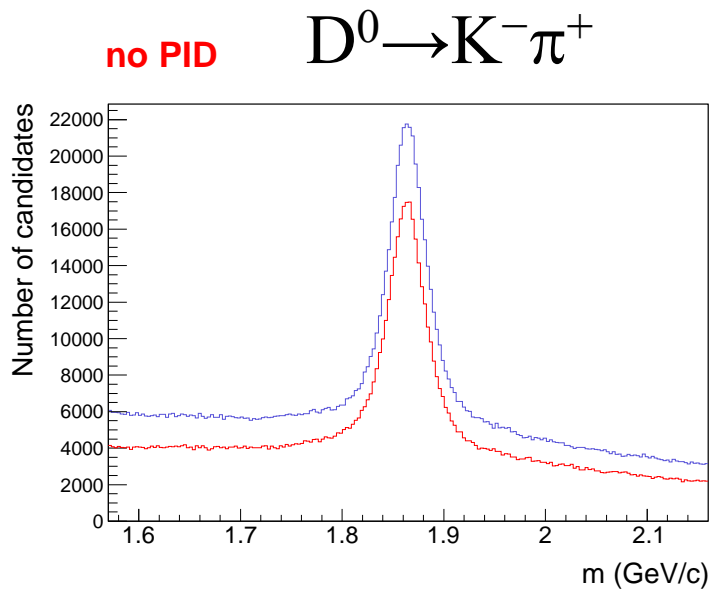
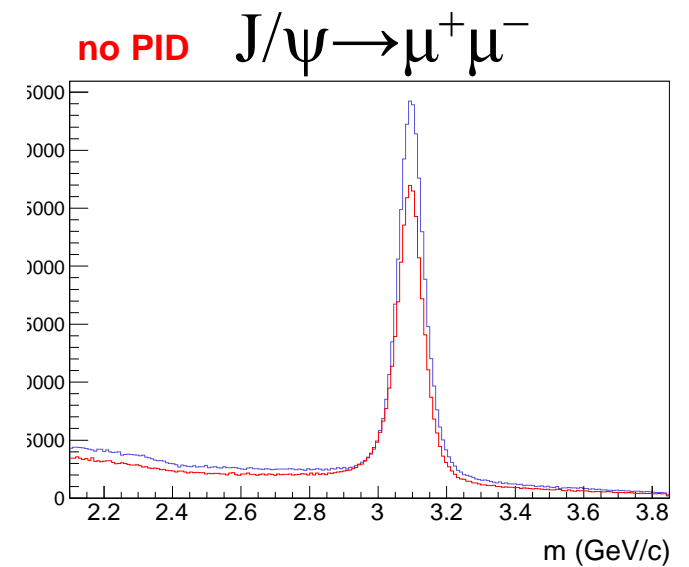
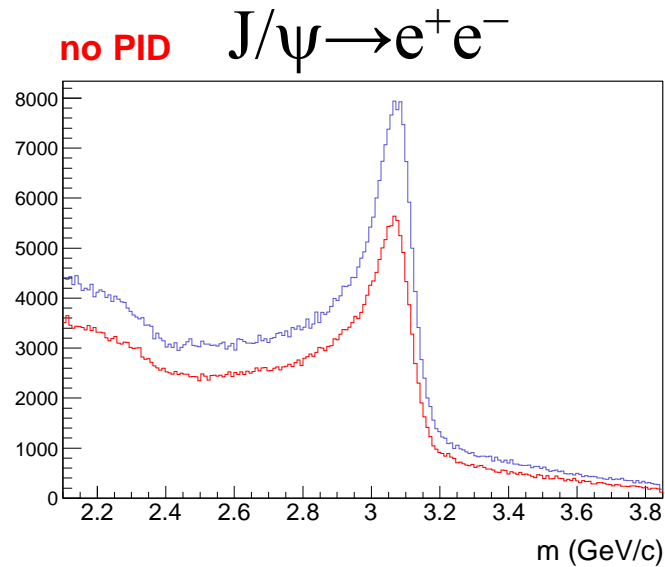
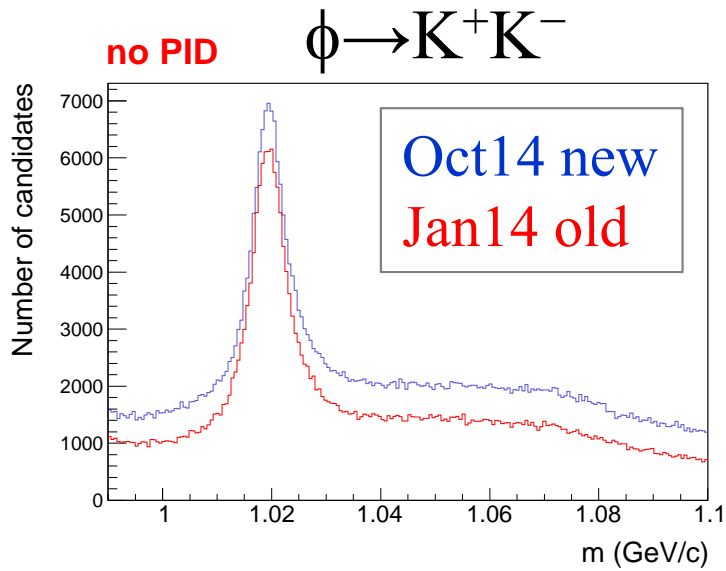
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Comparison between old vs new version of PANDARoot

- Simulation with PANDARoot
 - old** : rev.24281 release jan14 (20 Feb. 2014)
 - new** : rev.26329 release oct14 (29 Oct. 2014)
- Total 0.5M events for each physics channel
- $\sqrt{s} = 5.5 \text{ GeV}/c^2$ ($p_{\text{beam}} = 15.1 \text{ GeV}/c$)
- Test of invariant mass distribution for few physics channels after full reconstruction
- no PID apply in order to compare purely track reconstruction level





Comparison between old vs new version of PANDARoot

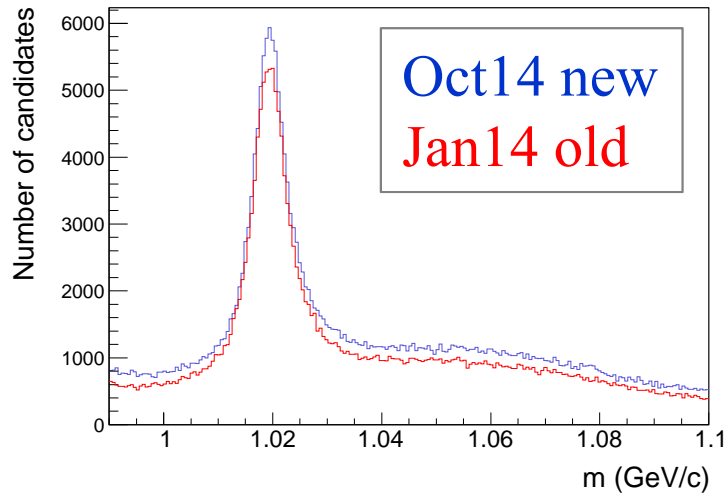
- Simulation with PANDARoot
 - old : rev.24281 release jan14 (20 Feb. 2014)
 - new : rev.26307 trunk (24 Oct. 2014)
- For the case of PID cut application, used following PID Algorithms

PidAlgoEmcBayes; PidAlgoDrc; PidAlgoDisc;PidAlgoStt;PidAlgoMdtHardCuts

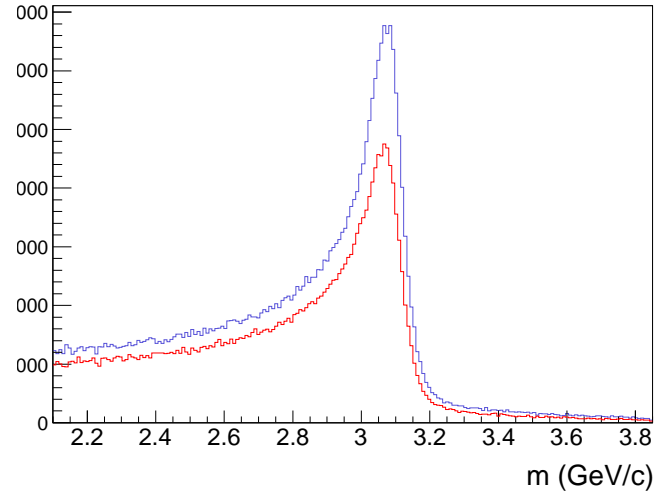
without PidAlgoMvd in order to compare with jan14 under same condition
MVD parameterization @ jan14 was not completed



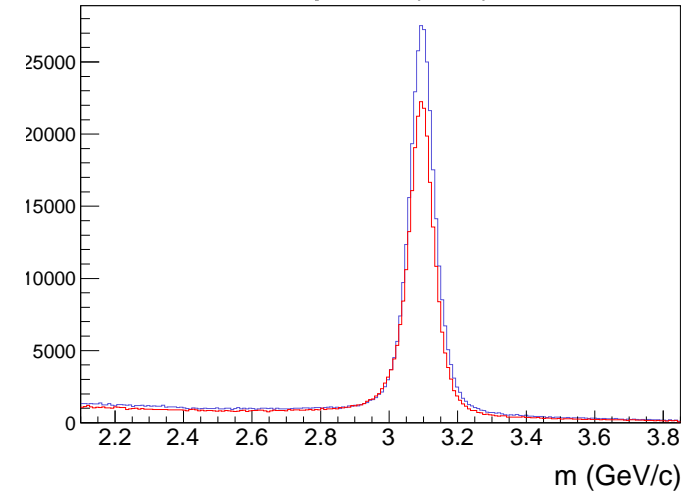
PID > 0.1 $\phi \rightarrow K^+ K^-$



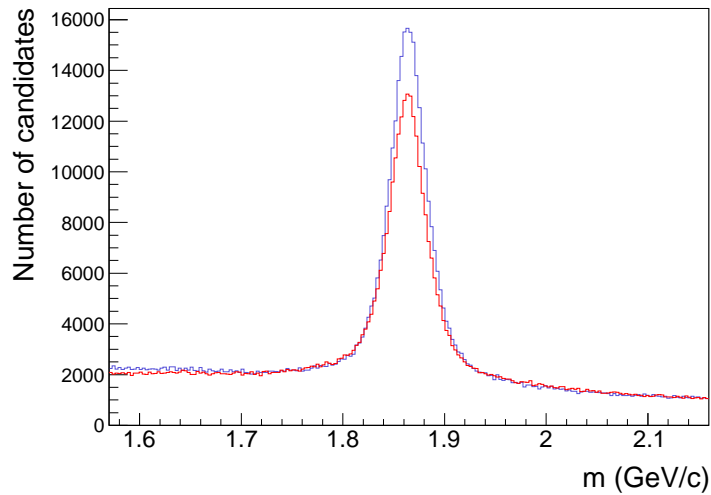
PID > 0.1 $J/\psi \rightarrow e^+ e^-$



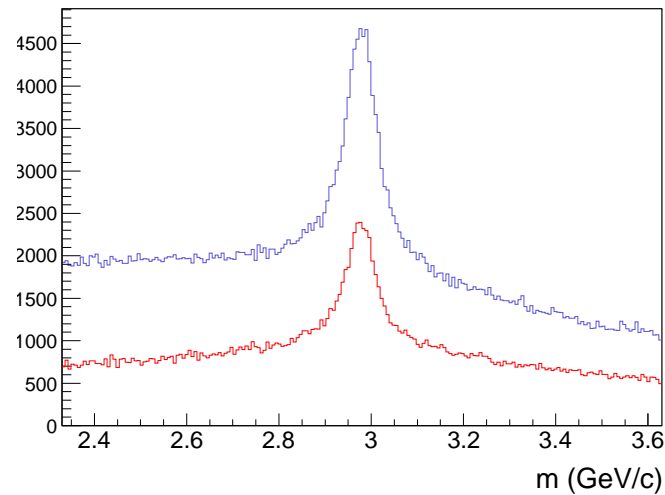
PID > 0.1 $J/\psi \rightarrow \mu^+ \mu^-$



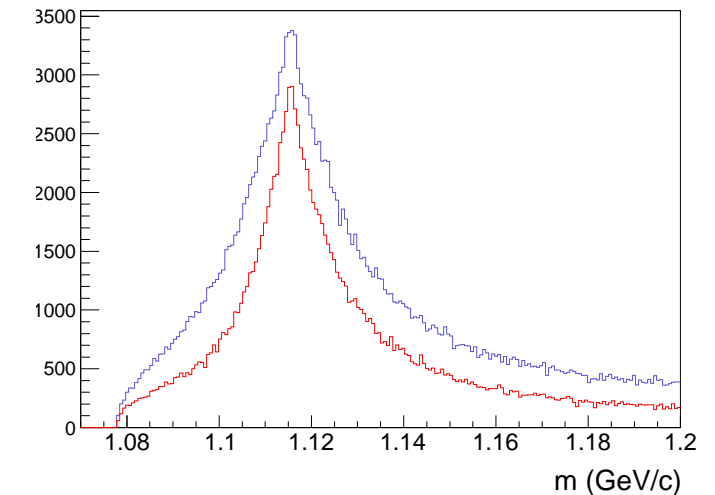
PID > 0.1 $D^0 \rightarrow K^- \pi^+$



PID > 0.1 $\eta_c \rightarrow K_s K^+ \pi^-$

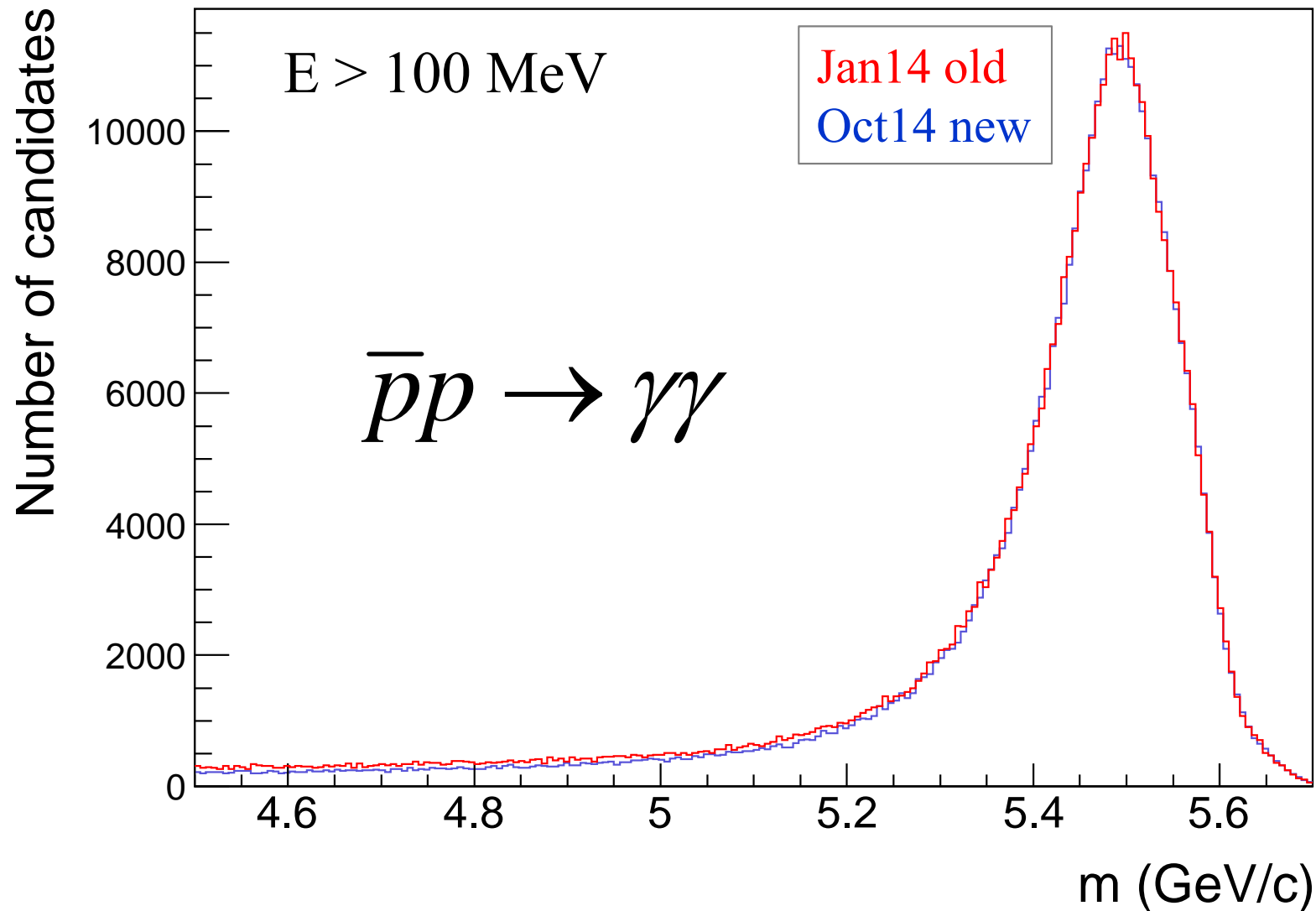


PID > 0.1 $\Lambda \rightarrow p \pi^-$





- observed increasing the reconstruction efficiency of charged track, however neutral candidates are similar with both released version



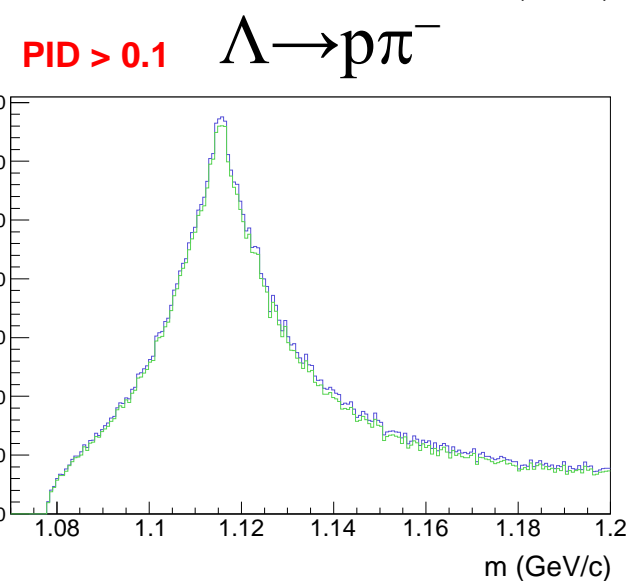
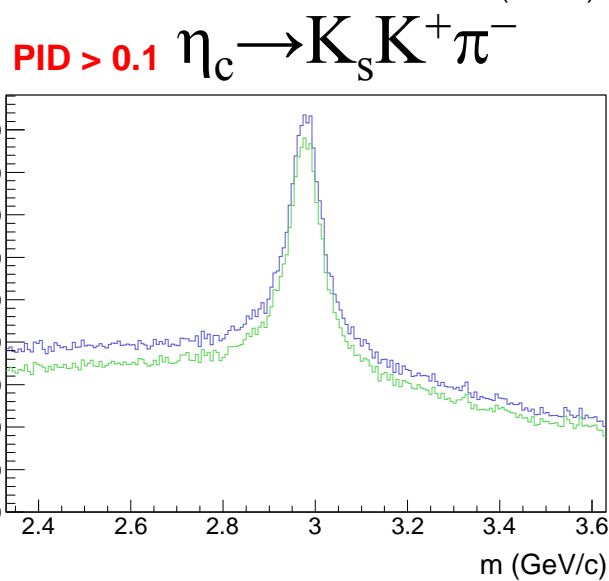
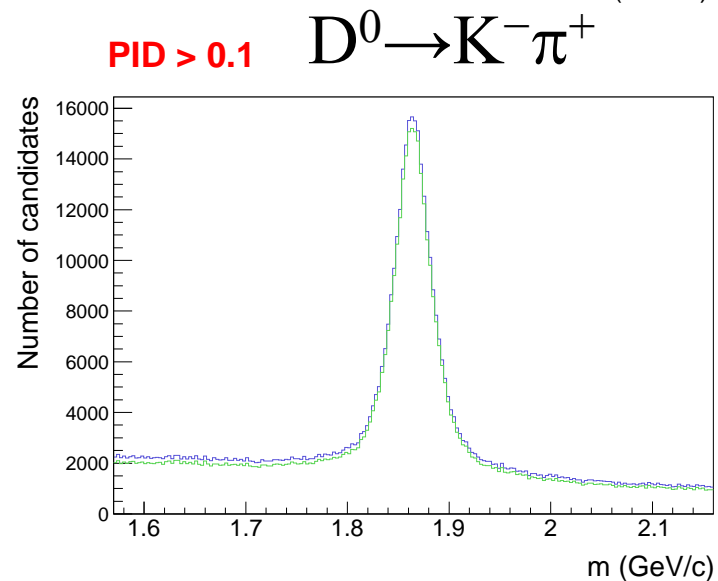
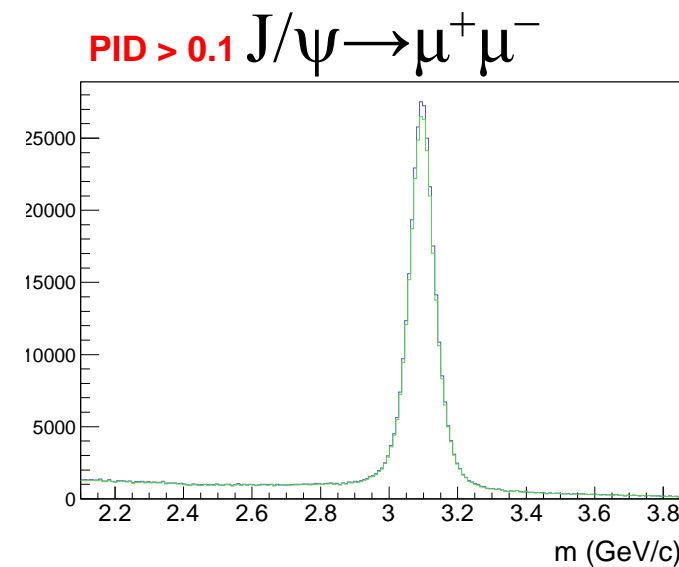
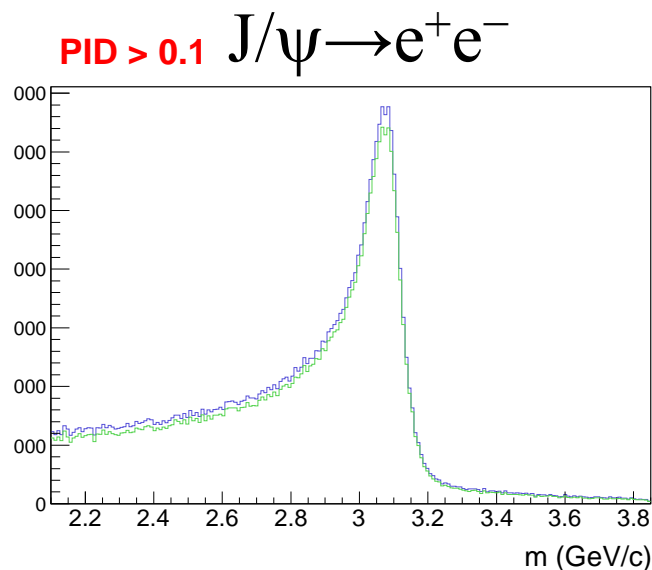
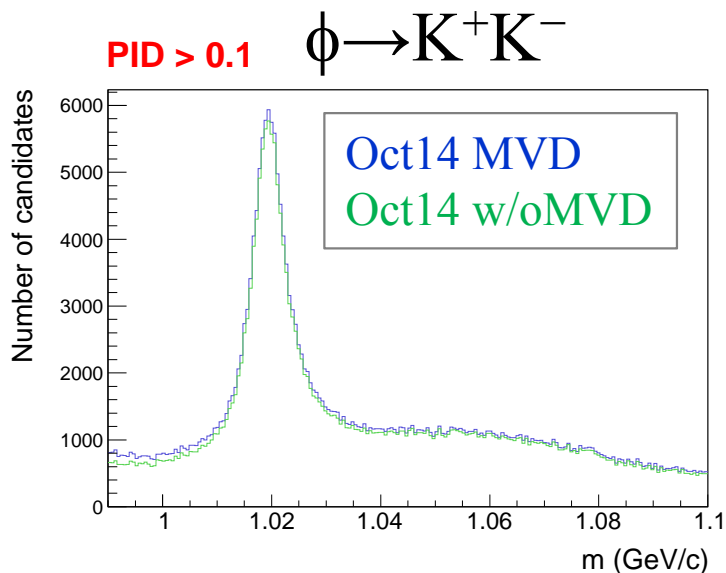


Influence of the correction for MVD parameterization

PidAlgoMvd; PidAlgoEmcBayes; PidAlgoDrc; PidAlgoDisc; PidAlgoStt; PidAlgoMdtHardCuts

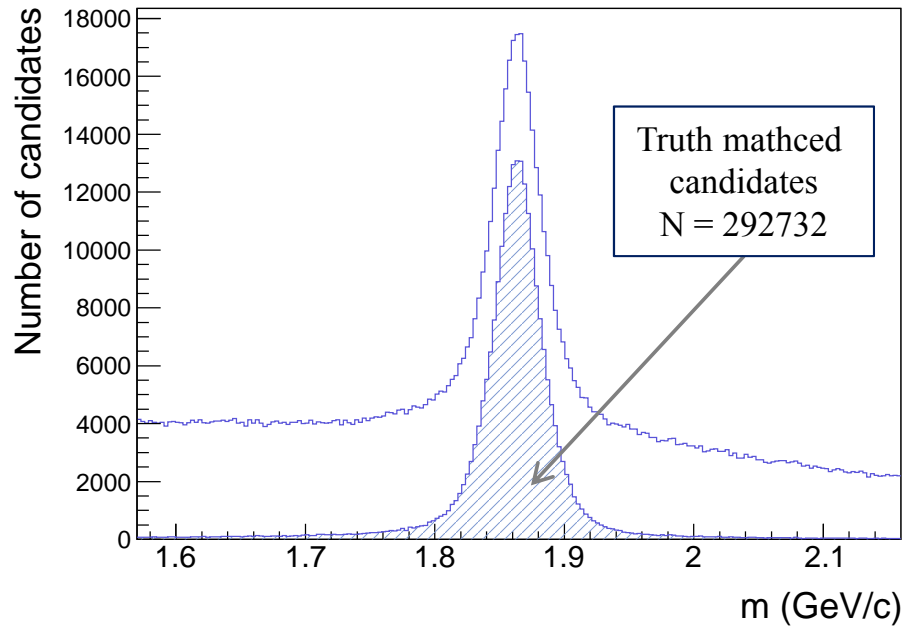
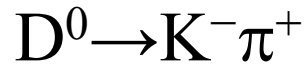
VS

PidAlgoEmcBayes; PidAlgoDrc; PidAlgoDisc; PidAlgoStt; PidAlgoMdtHardCuts





Oct14, NoPID

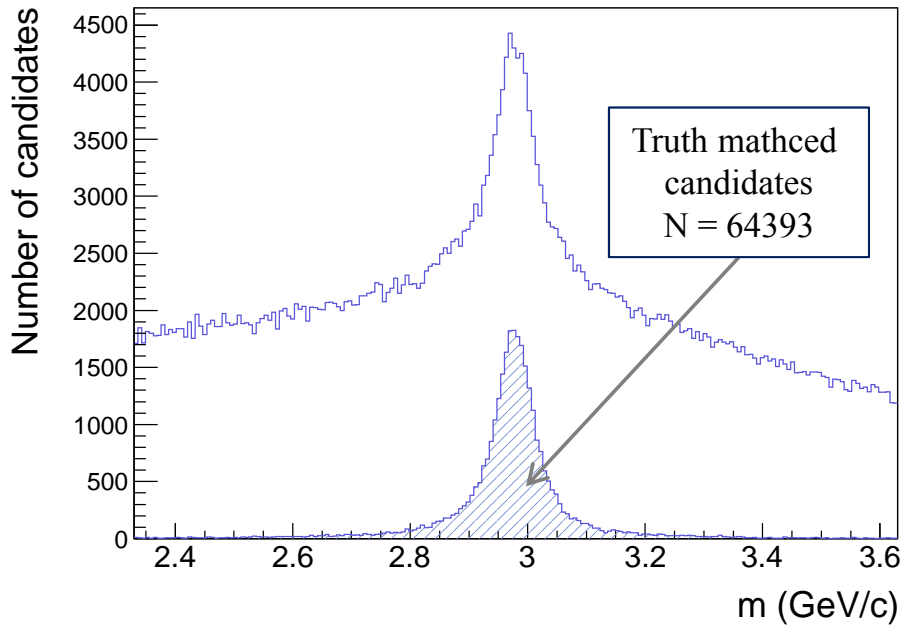


- Theoretically MC truth matched candidate must to be 1 in each event and also matched candidate is equal to matched event
- But sometimes MC truth matched candidate are more than 1

	# of Events
Input events	500000
MC truth matched=1	268725
MC truth matched=2	11548
MC truth matched=3	285
MC truth matched=4	14
MC truth matched=5	0
Σ truth matched events	280572
Σ truth matched candidates	292732



Oct14, NoPID



- Theoretically MC truth matched candidate must to be 1 in each event and also matched candidate is equal to matched event
- But sometimes MC truth matched candidate are more than 1

	# of Events
Input events	500000
MC truth matched=1	58133
MC truth matched=2	2994
MC truth matched=3	24
MC truth matched=4	5
MC truth matched=5	0
Σ truth matched events	61201
Σ truth matched candidates	64393



For $D^0 \rightarrow K^- \pi^+$, a list for containing 2 MC truth matched event

	Type	Rec.Px	Rec.Py	Rec.Pz
No.1	D^0	1.776	-0.636	6.607
	K^+	1.276	0.178	5.299
	π^-	0.499	-0.814	1.307
No.2	D^0	1.821	-0.632	6.783
	K^+	1.321	0.182	5.476
	π^-	0.499	-0.814	1.307

One of Kaon
is not perfectly
cleaned up !

2-3% of double tracks are always involved to MC truth matching