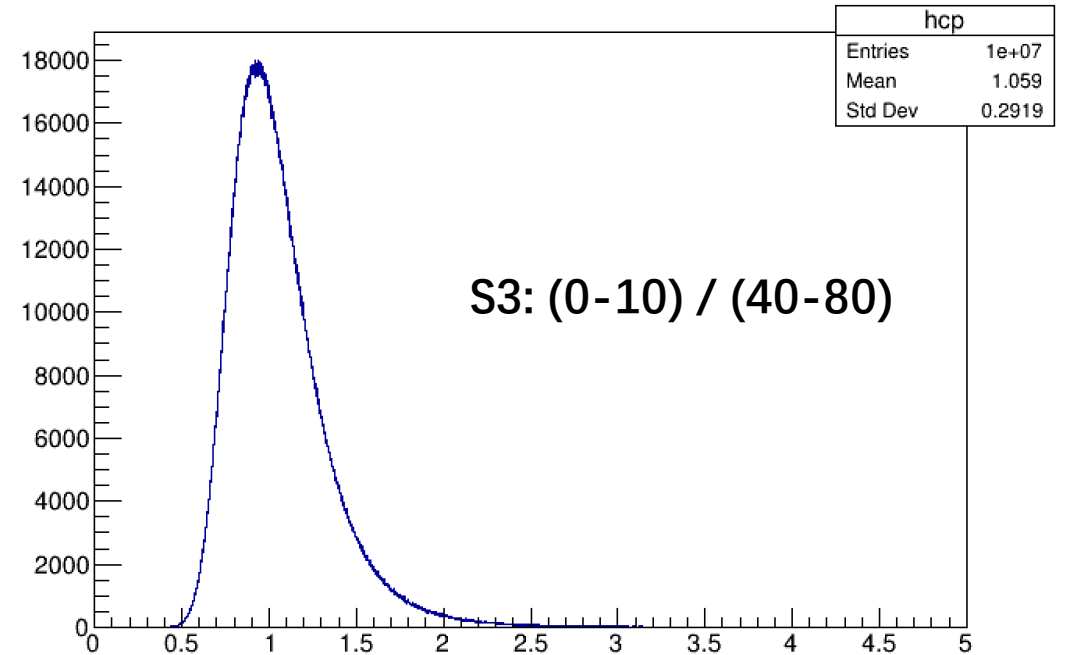
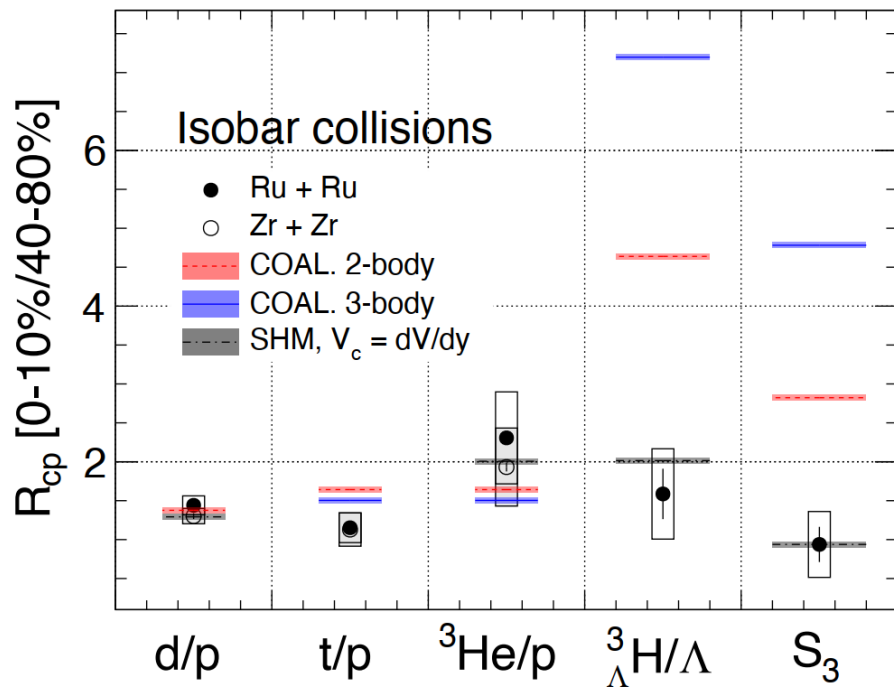


rcp

- $rcp = (0-10\%)/(40-80\%)$ of different particle ratios need careful treatment
 - Stat. error
 - Use bootstrap
 - Asymmetric stat. error on rcp

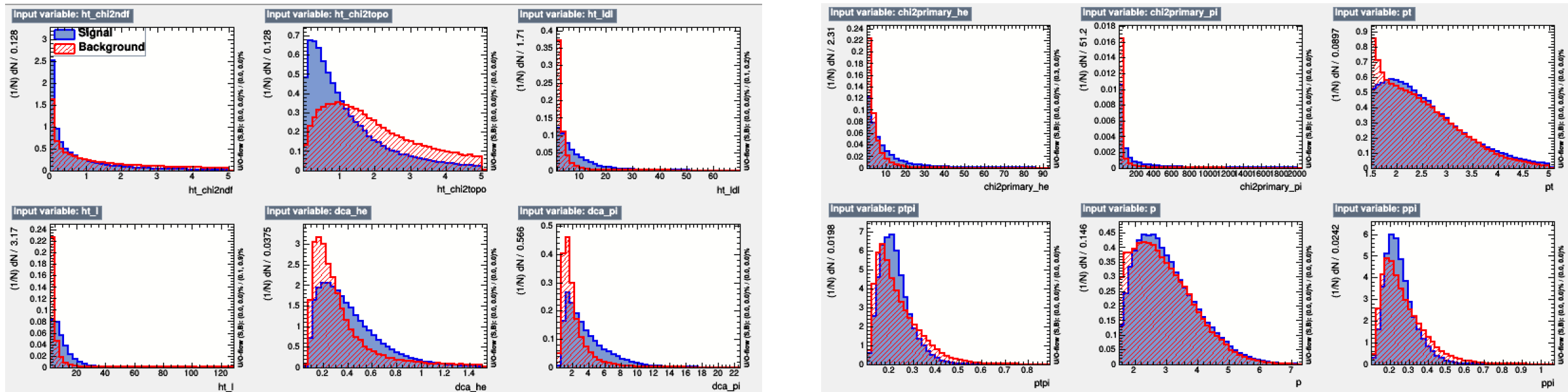


rcp

- $\text{rcp} = (0-10\%)/(40-80\%)$ of different particle ratios
 - Sys. Error
 - First calculate rcp of different particles with different extrapolation function
 - Systematic error mostly canceled
 - Then $\text{rcp}(\text{H3L}/\text{Lambda}) = \text{rcp}(\text{H3L}) / \text{rcp}(\text{Lambda})$
 - $\text{rcp}(\text{Lambda}) = 8.87 \pm 0.03 \text{ (stat.)} \pm 0.17 \text{ (sys.)}$
 - Stat. err $\sim 0.3\%$
 - Total sys. err $\sim 1.9\%$ = cut variation $\sim 1\%$ & extrapolation $\sim 1.6\%$
 - But for $\text{rcp}(\text{H3L})$, we use different analysis cuts in 0-10% and 40-80%
 - Then $\sim 15\%$ err cannot be canceled like Lambda
 - First way is to tune cuts, we hope to use same cut in all centralities
 - Another way is to recalculate 0-10% with 40-80% cuts

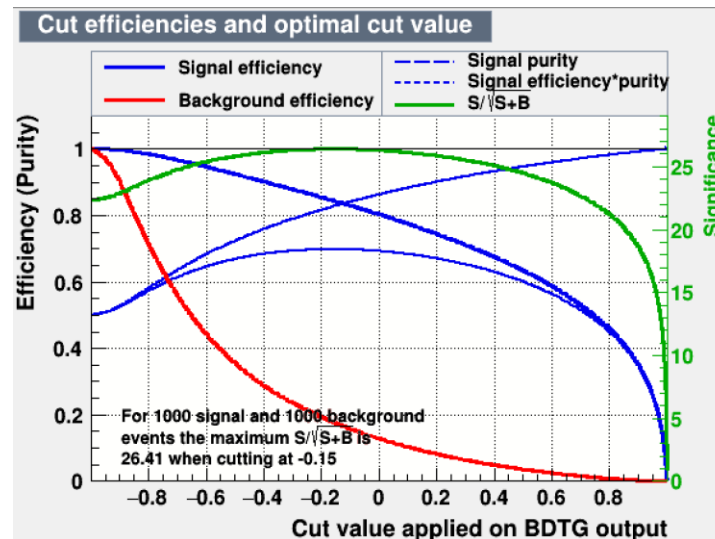
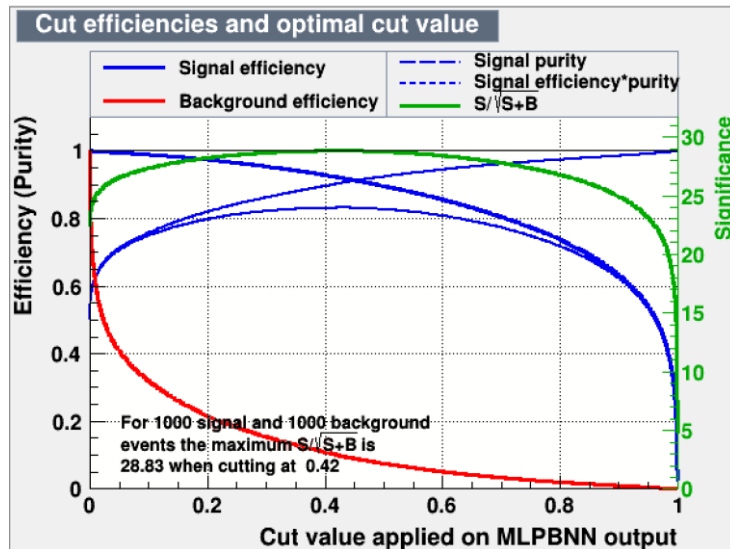
Tune H3L with TMVA

- There are many classification methods in TMVA package
 - Tried BDTG and MLP
 - Signal sample from H3L embedding, weighted with measured spectra ($\# \text{evt} = 750000 * 2$)
 - Background sample from H3L mixed-event ($\# \text{evt} = 250000 * 2$)



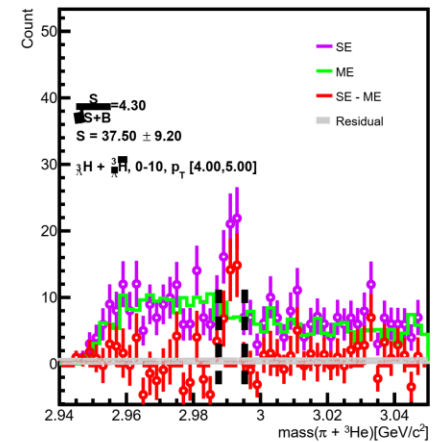
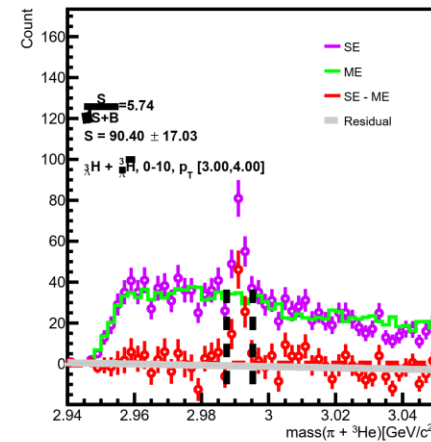
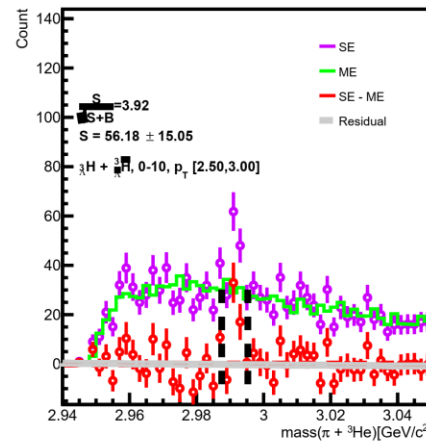
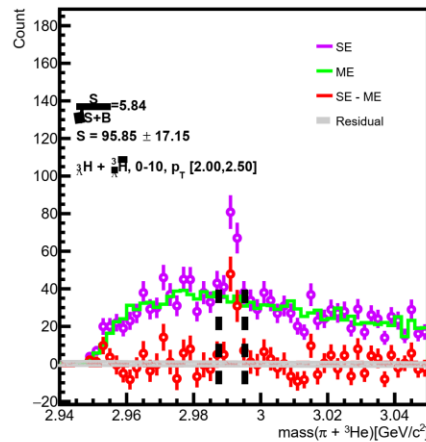
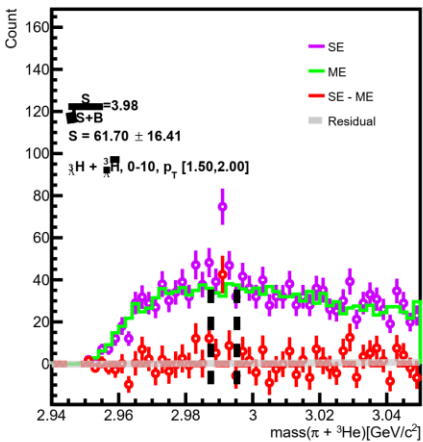
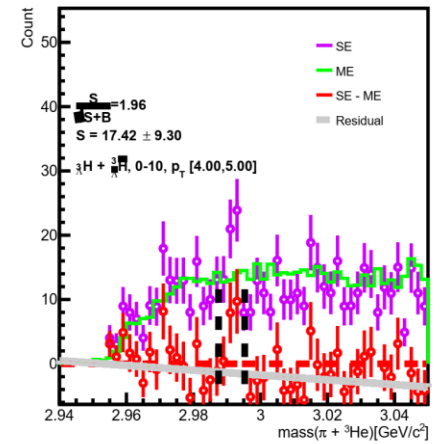
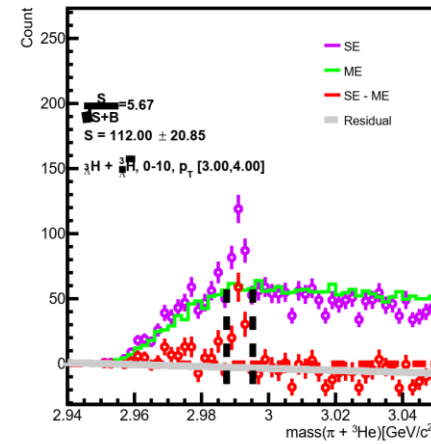
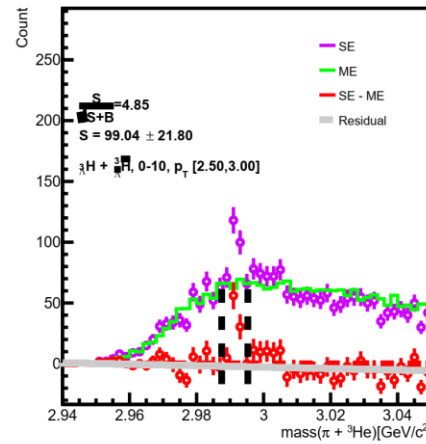
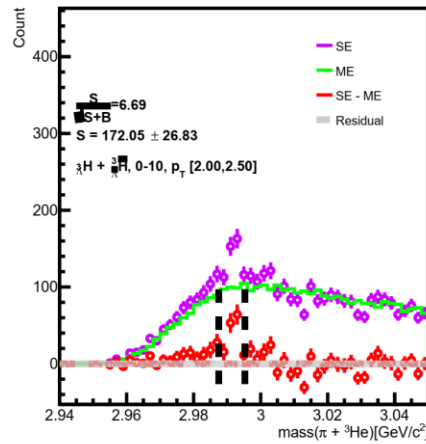
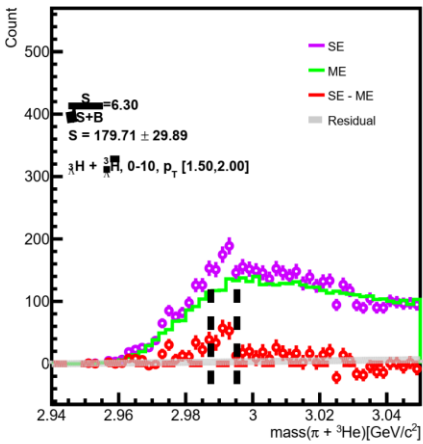
Tune H3L with TMVA

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 - Signal sample from H3L embedding, weighted with measured spectra (#evt = 750000 * 2)
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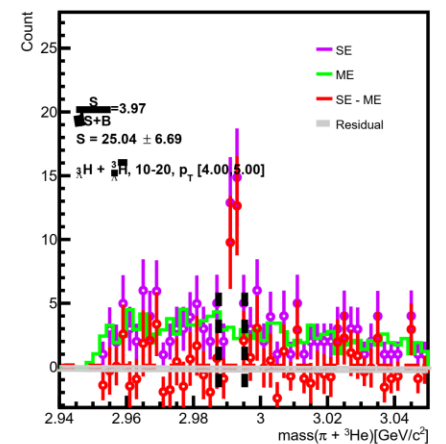
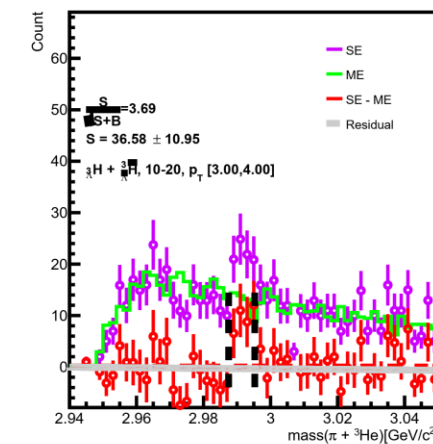
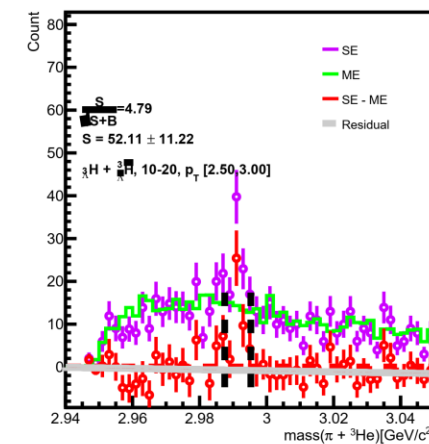
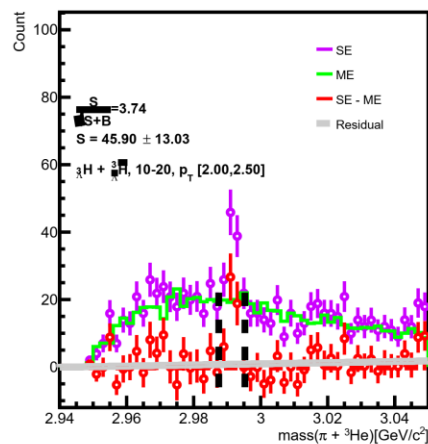
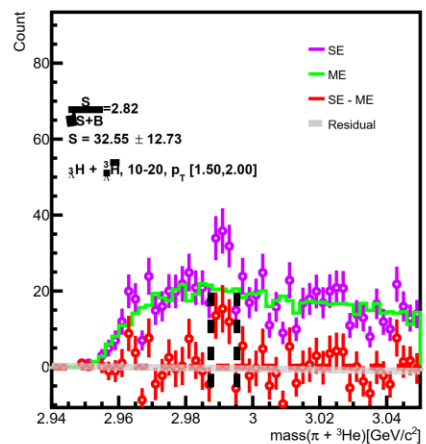
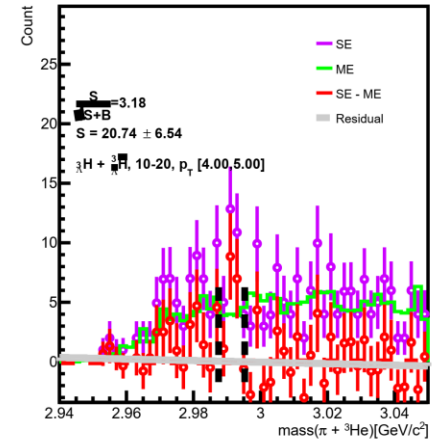
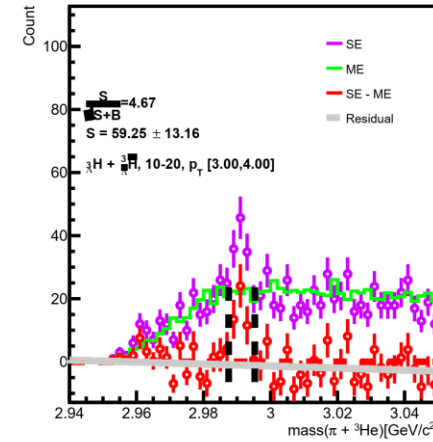
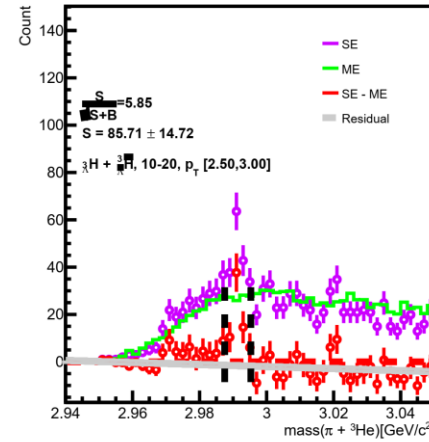
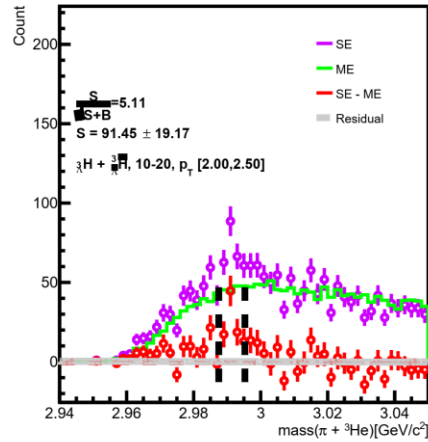
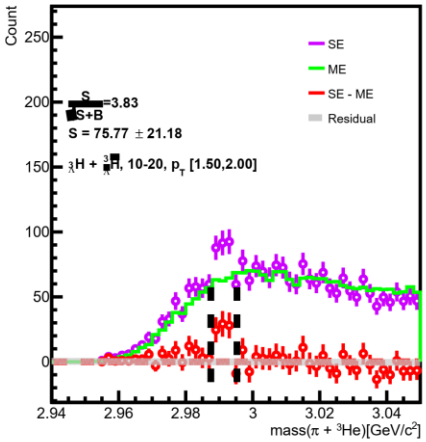
Tune H3L with TMVA

- BDTG (response > -0.1): top: new bot: old



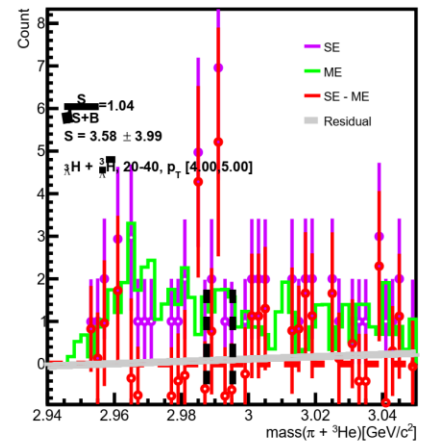
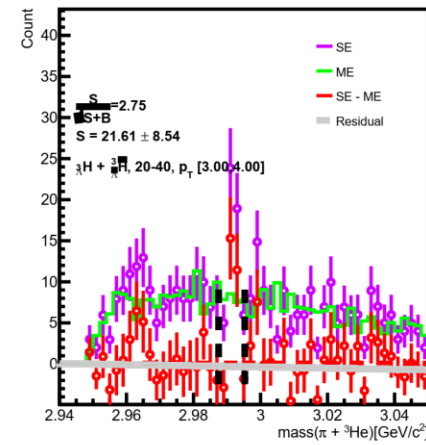
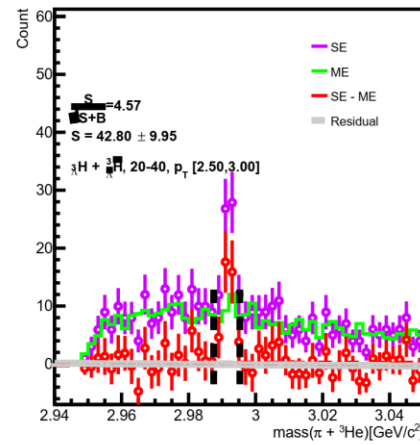
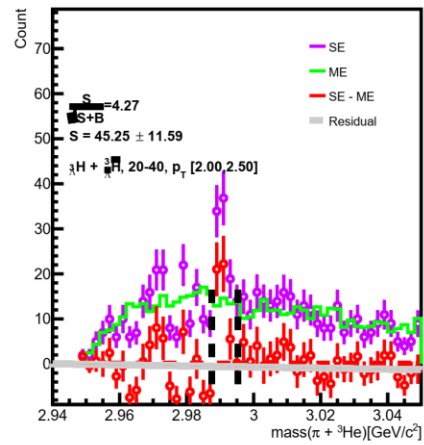
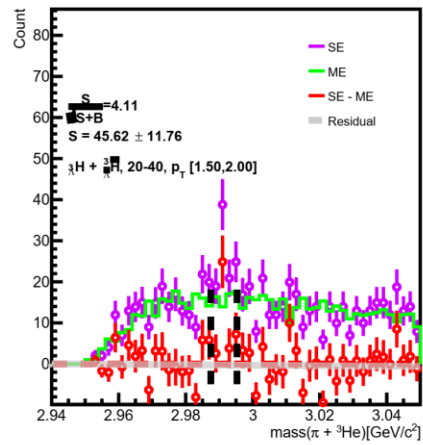
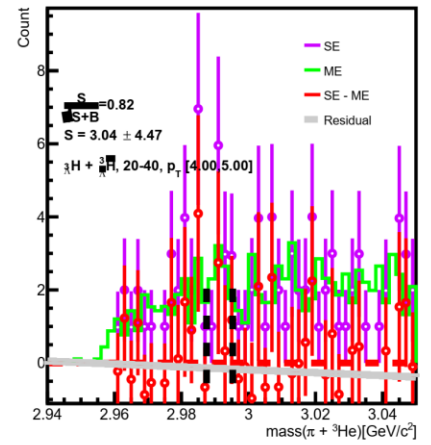
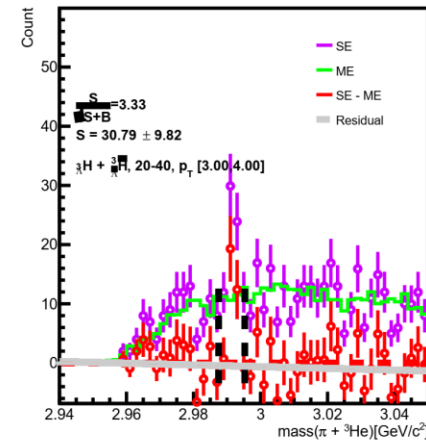
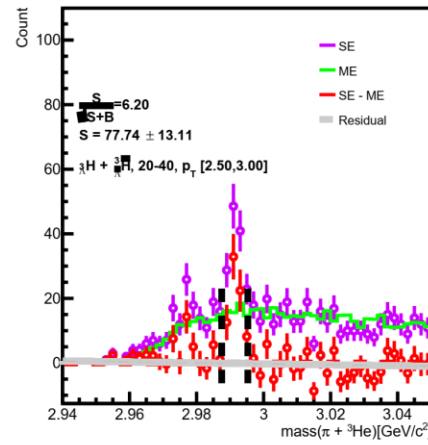
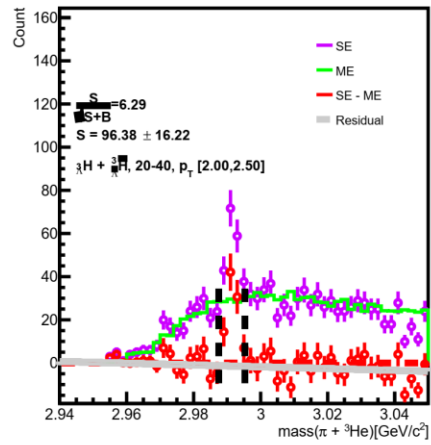
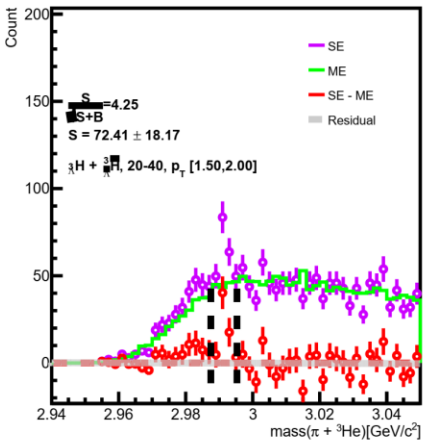
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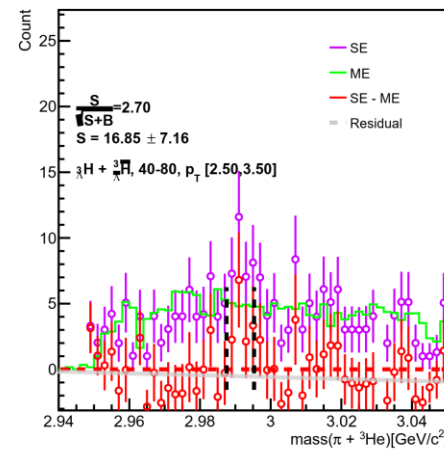
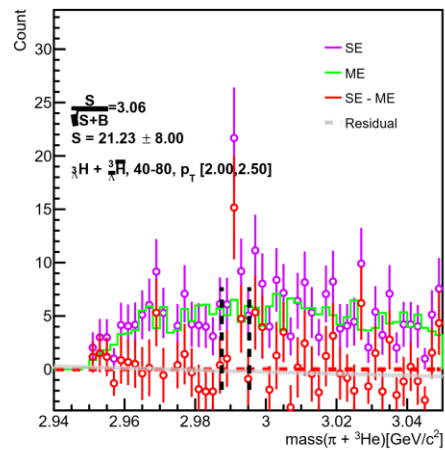
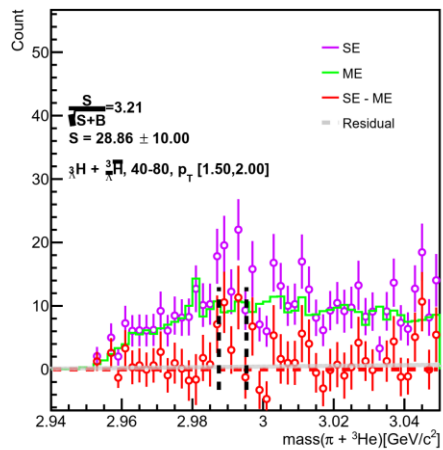
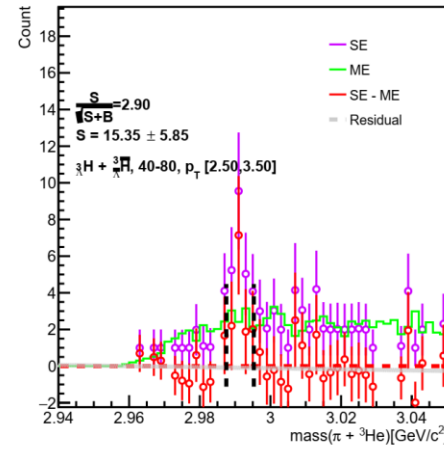
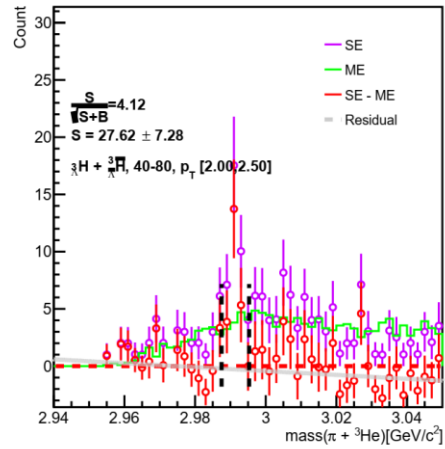
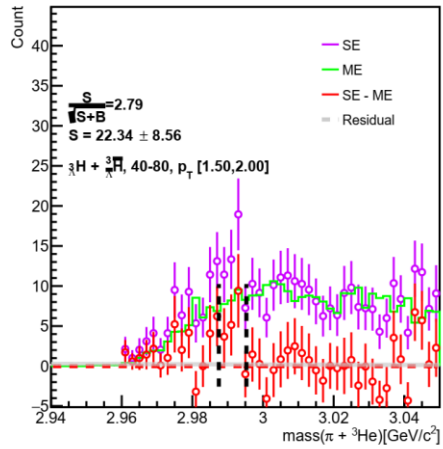
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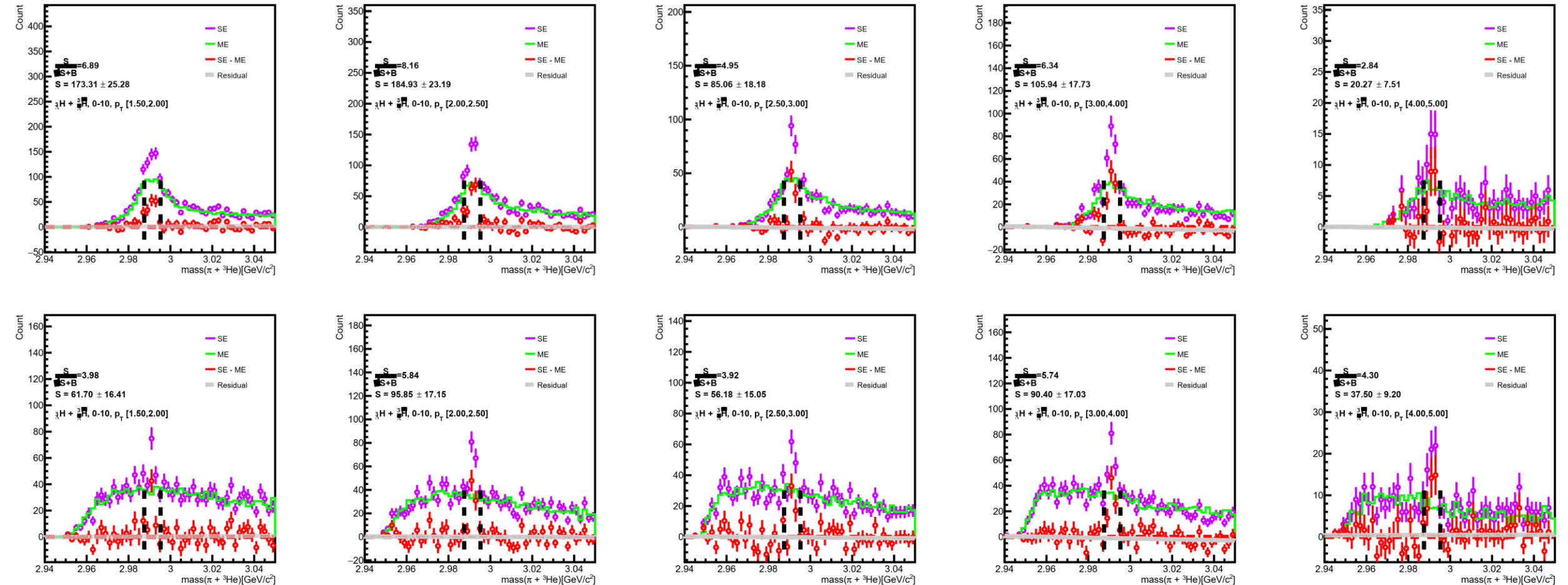
Tune H3L with TMVA

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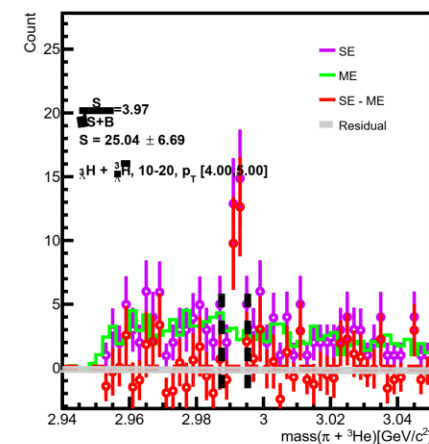
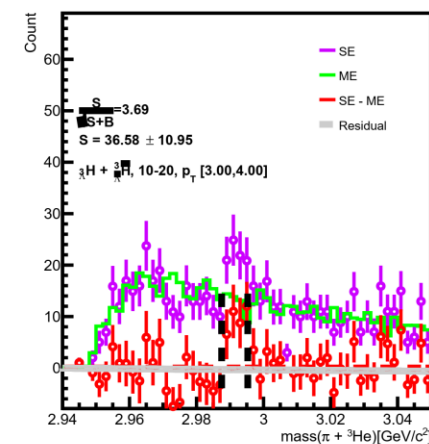
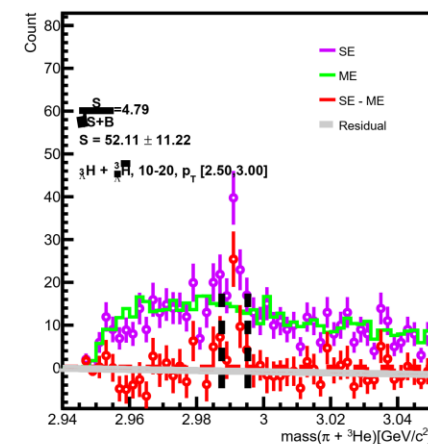
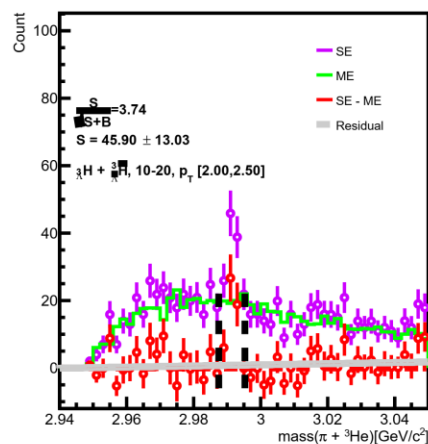
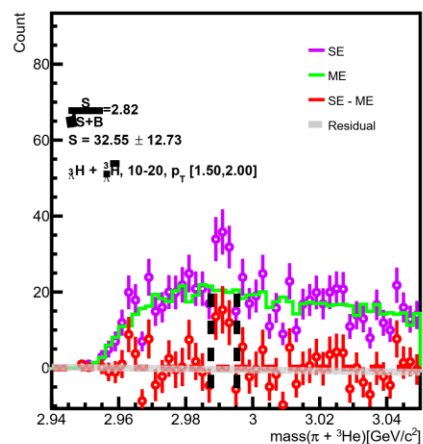
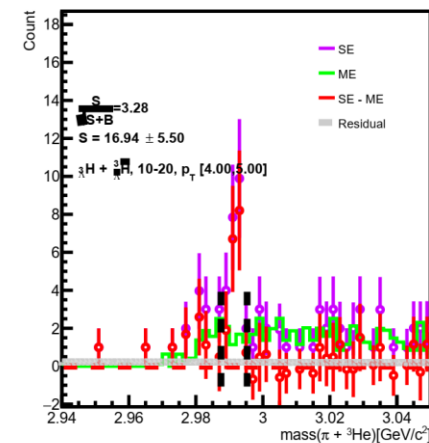
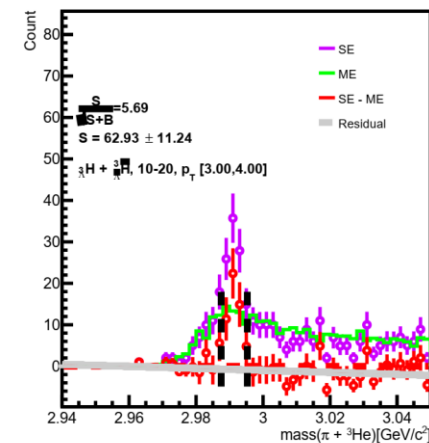
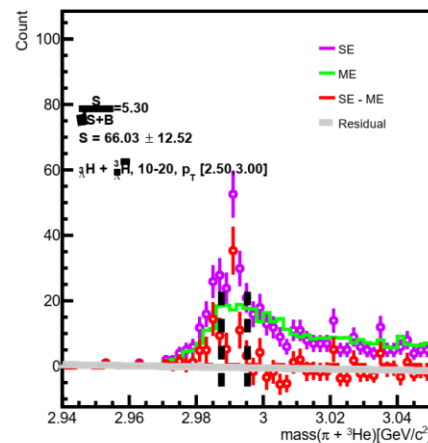
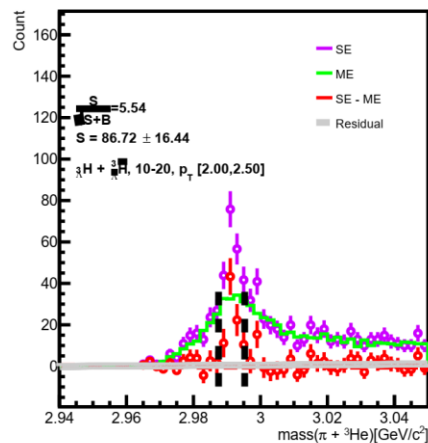
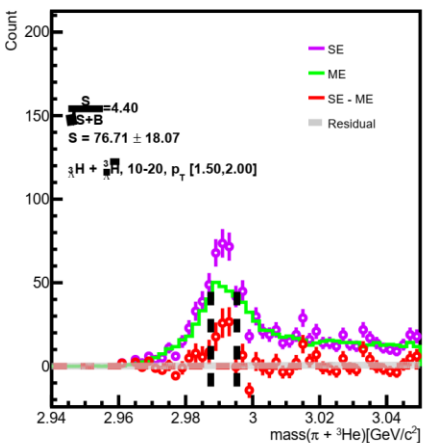
Tune H3L with TMVA

- MLP (response > 0.8): top: new bot: old



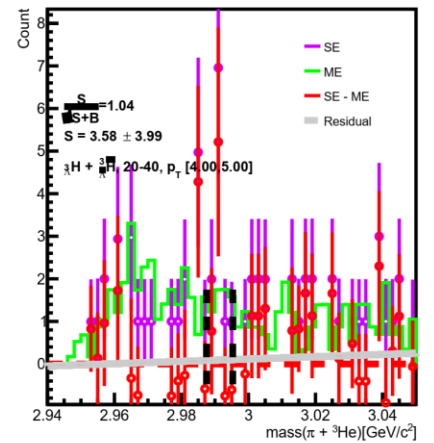
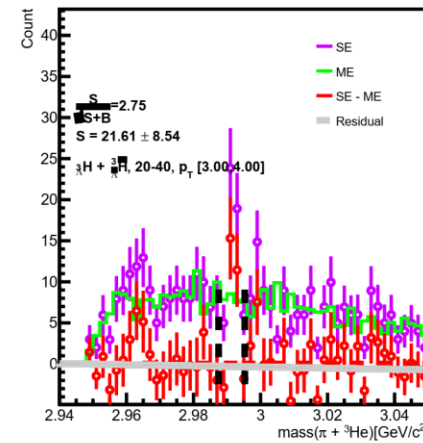
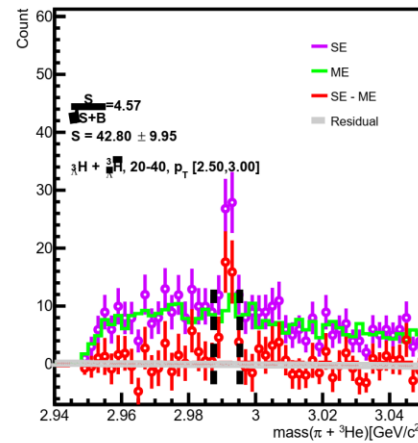
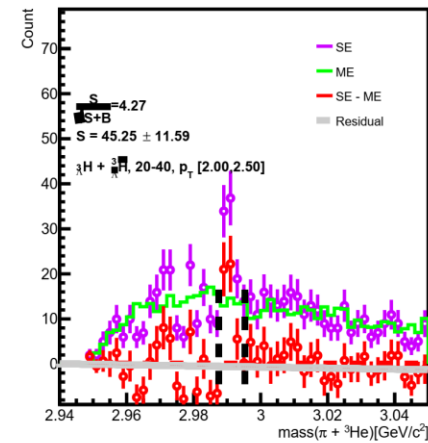
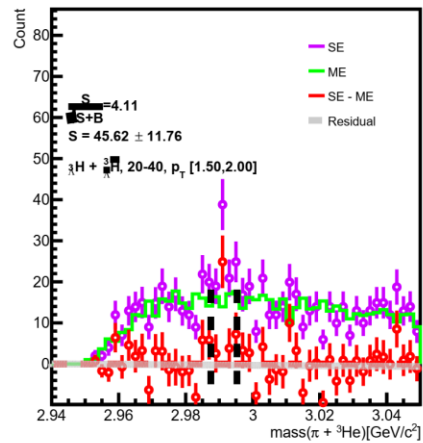
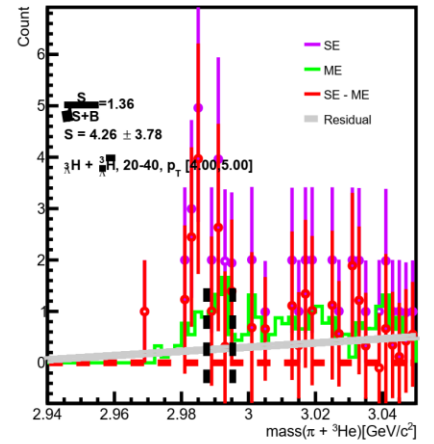
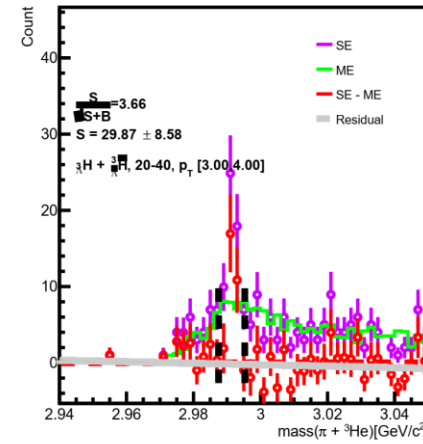
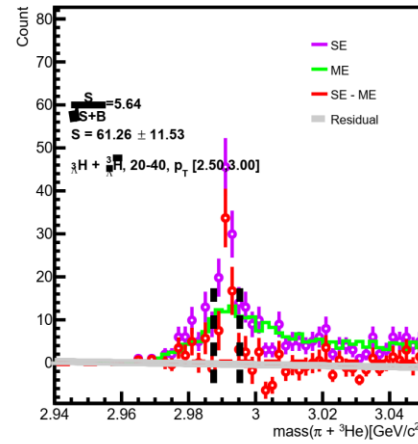
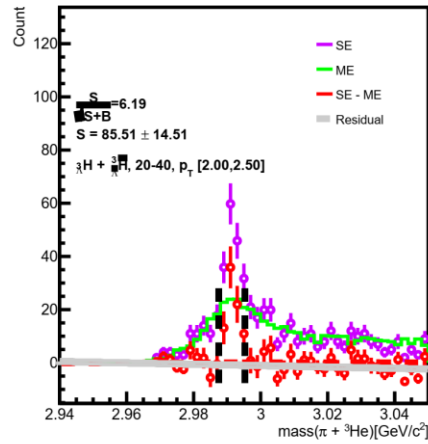
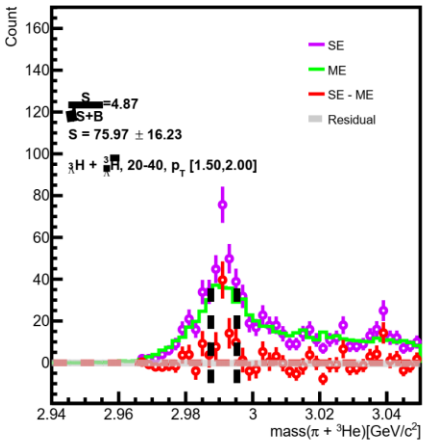
Tune H3L with TMVA

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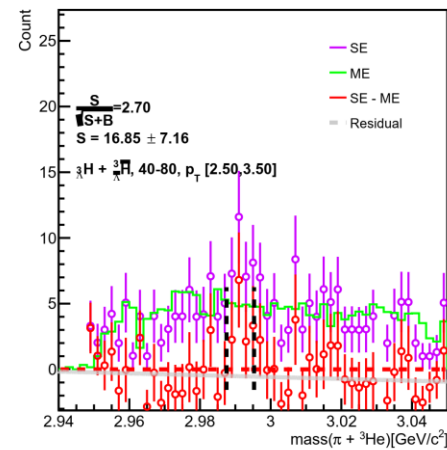
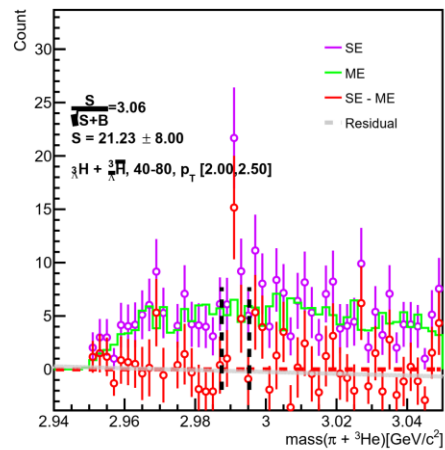
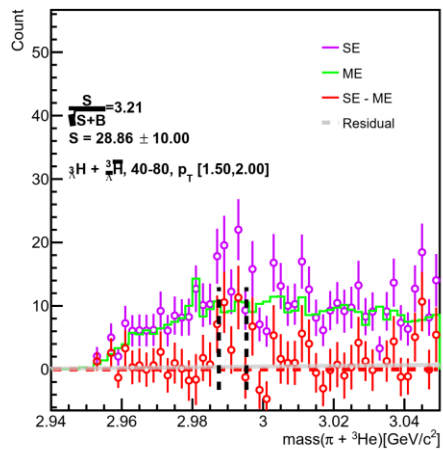
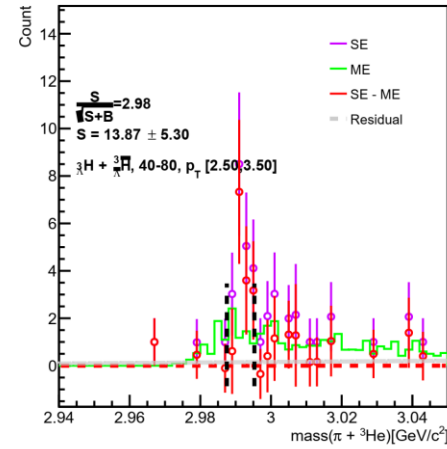
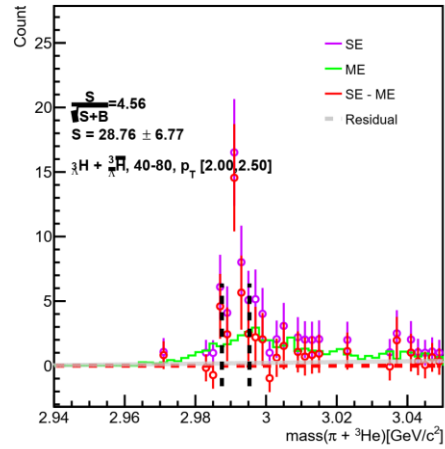
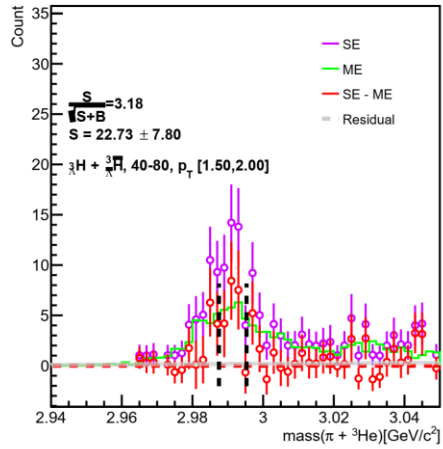
Tune H3L with TMVA

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Tune H3L with TMVA

- MLP (response > 0.8): top: new bot: old



Tune H3L with TMVA

- Significance improved
 - A lot in central collisions, a bit in peripheral collisions
 - But can we trust the results?