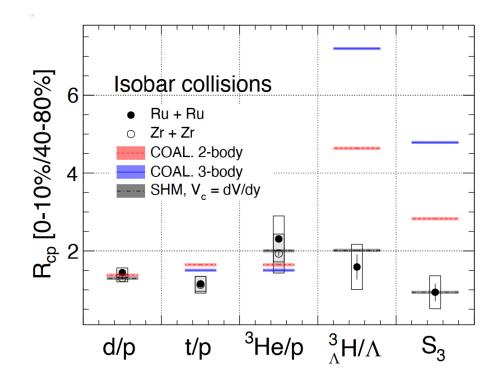
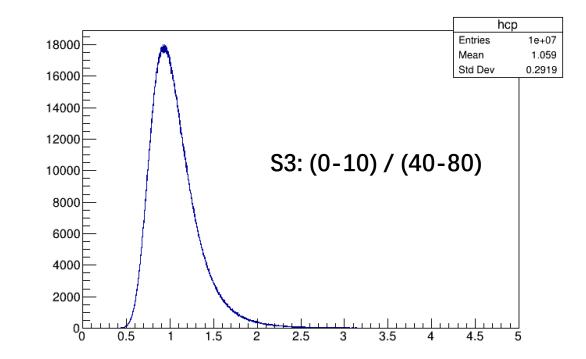
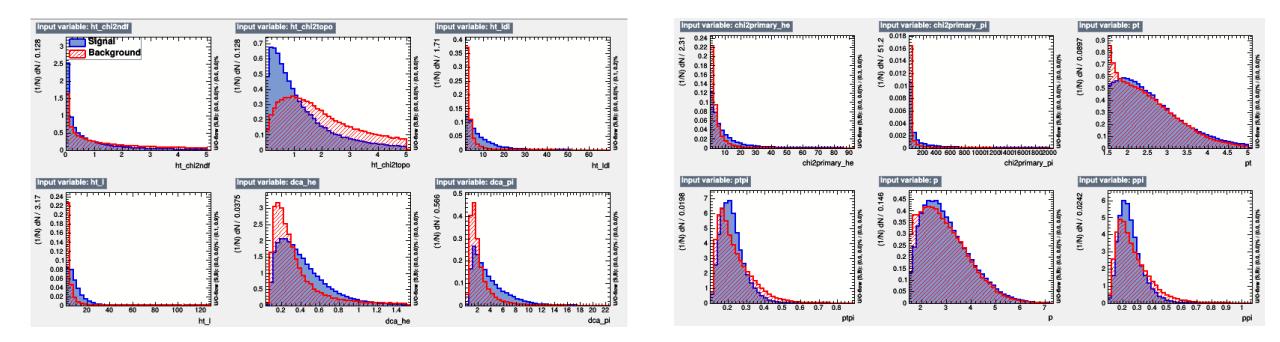
- rcp = (0-10%)/(40-80%) of different particle ratios need careful treatment
 - Stat. error
 - Use bootstrap
 - Asymmetric stat. error on rcp



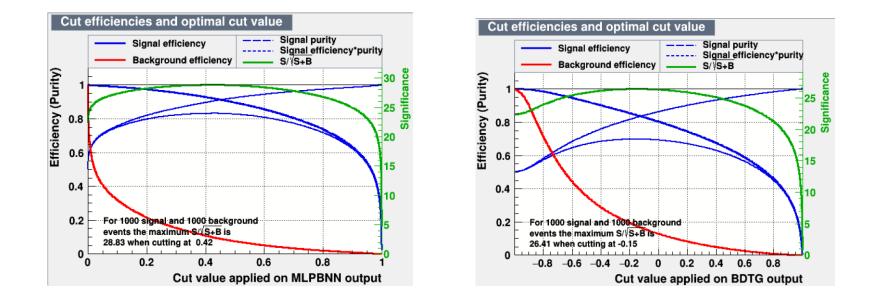


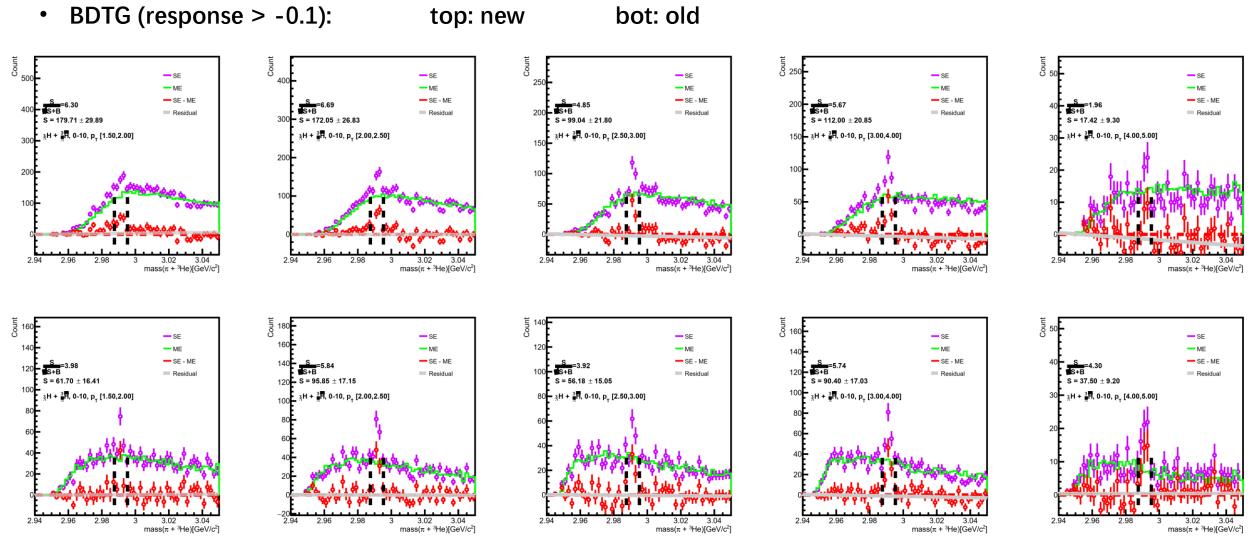
- rcp = (0-10%)/(40-80%) of different particle ratios
 - Sys. Error
 - First calculate rcp of different particles with different extrapolation function
 - Systematic error mostly canceled
 - Then rcp(H3L/Lambda) = rcp(H3L) / rcp(Lambda)
 - rcp(Lambda) = 8.87 ± 0.03 (stat.) ± 0.17 (sys.)
 - Stat. err ~0.3%
 - Total sys. err ~1.9% = cut variation ~1% & extrapolation ~1.6%
 - But for rcp(H3L), we use different analysis cuts in 0-10% and 40-80%
 - Then ~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

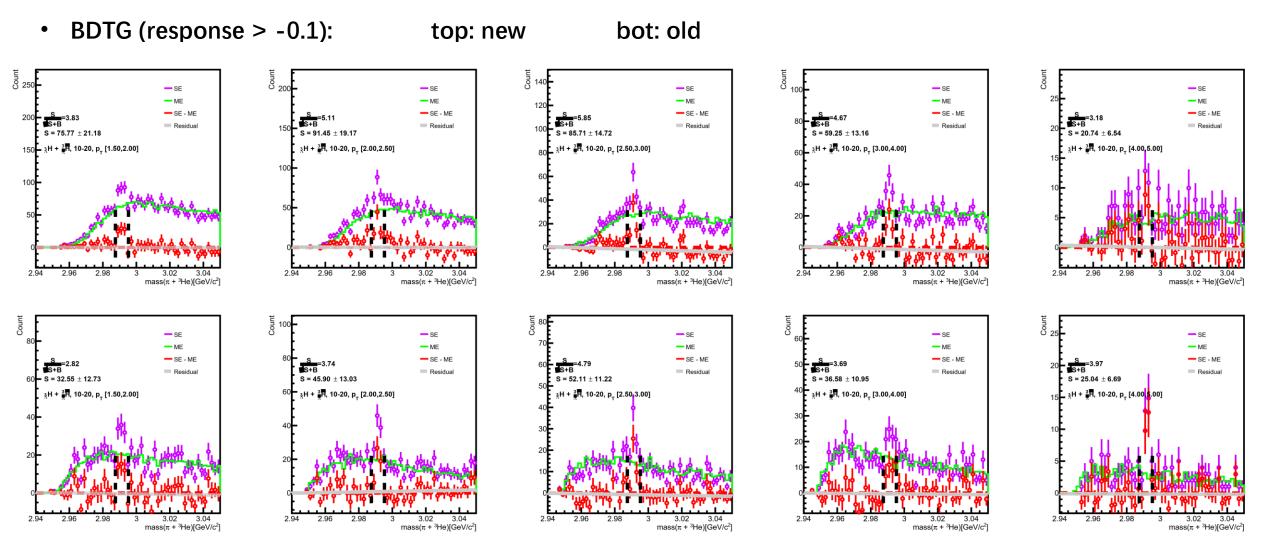
- There are many classification methods in TMVA package
 - Tried BDTG and MLP
 - Signal sample from H3L embedding, weighted with measured spectra (#evt = 750000 * 2)
 - Background sample from H3L mixed-event (#evt = 250000 * 2)

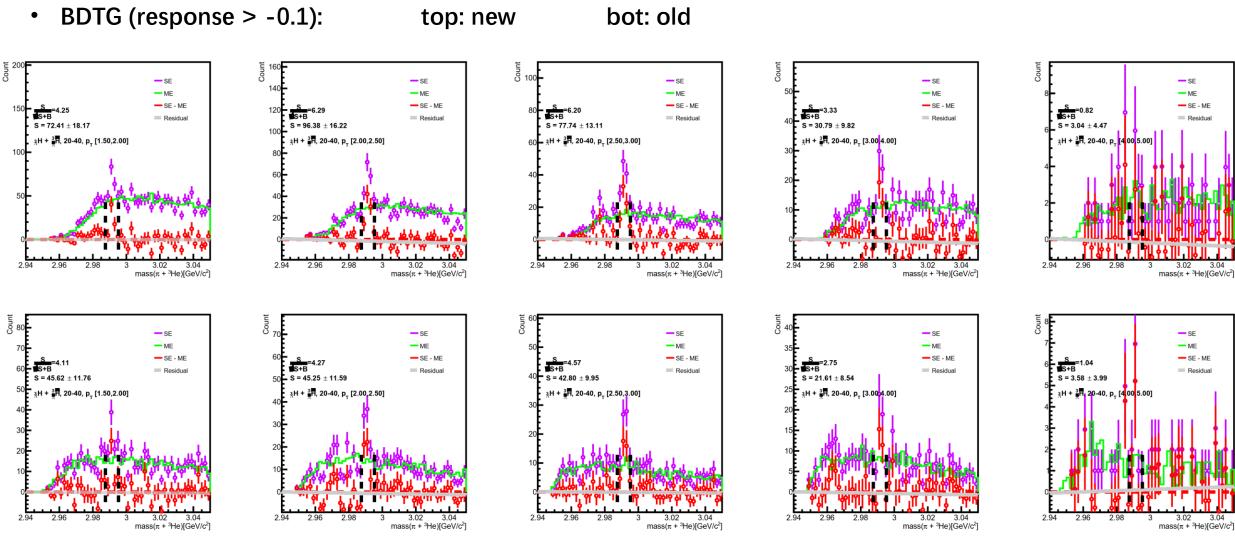


- There are many classification methods in TMVA package
 - Tried BDTG and MLP
 - Signal sample from H3L embedding, weighted with measured spectra (#evt = 750000 * 2)
 - Background sample from H3L mixed-event (#evt = 250000 * 2)









7

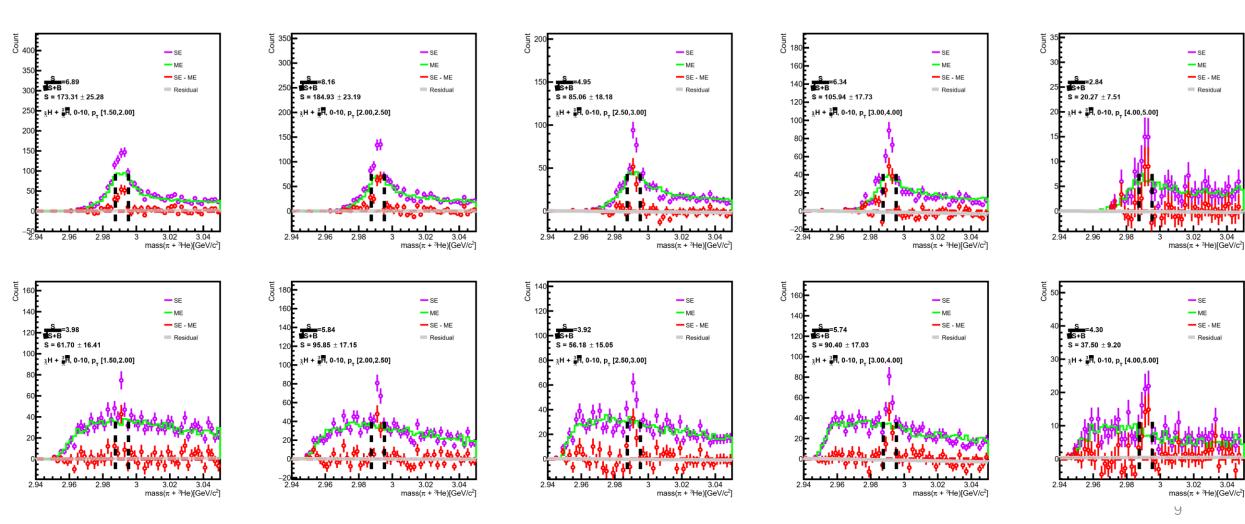
• BDTG (response > -0.1): top: new bot: old Count 40 00 Coun 18**F** — SE — SE - SE - ME ME - ME - SE - ME - SE - ME - SE - ME S+B=2.7 S+B=4.12 Residua Residual Residual S = 22.34 ± 8.56 20 S = 27.62 ± 7.28 S = 15.35 ± 5.85 25 H + 3H, 40-80, p₁ [1.50,2.00] ₃H + ³, 40-80, p₊ [2.50, 3.50] 3H + ³H, 40-80, p₋ [2.00 2.50] -2**L** 2.94 2.94 2.96 2.98 3 3.02 3.04 mass(π + ³He)[GeV/c²] 2.94 2.96 2.98 3 3.02 3.04 2.96 2.98 3.02 3 mass(π + 3He)[GeV/c2] mass(\u03c0 + 3He)[GeV/c2] Count 50 00 30 ₹ 25 — SE — SE — SE - ME - ME - ME - SE - ME - SE - ME - SE - ME 20 S+B=3.2 S = 16.85 ± 7.16 S+B Residua Residual Residual S = 28.86 ± 10.00 S = 21.23 ± 8.00 _____3H + ≟Ħ, 40-80, p₊ [1.50,2.00] 3H + 3H, 40-80, p, [2.00, 2.50] 15 3H + 3H + 3H, 40-80, p₊ [2.50, 3.50] 2.94 2.96 2.98 3.04 2.94 2.96 2.98 3.02 3.04 mass(π + ³He)[GeV/c²] 2.94 2.96 2.98 3.02 3.02 3 $mass(\pi + {}^{3}He)[GeV/c^{2}]$ $mass(\pi + {}^{3}He)[GeV/c^{2}]$

3.04

3.04

• MLP (response > 0.8): top: new

bot: old



3.02

3 04

SE

ME

3.02

SE

- ME

SE - ME

Residual

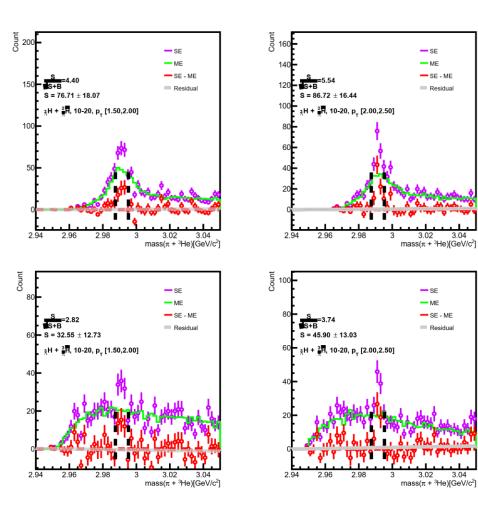
3.04

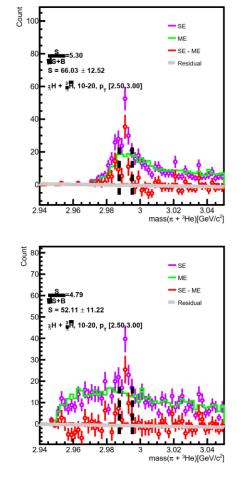
SE - ME

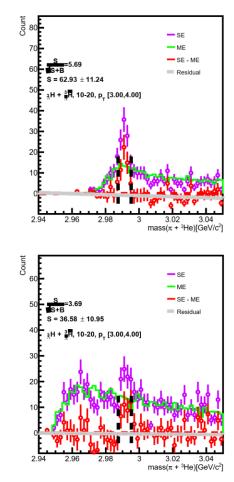
Residual

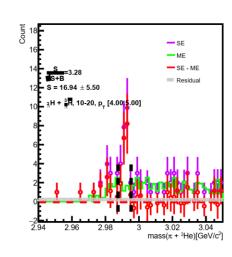
• MLP (response > 0.8): top: new

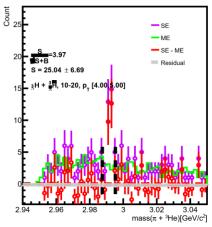
bot: old











• MLP (response > 0.8): top: new

- SE

ME

- SE

3.02

mass(π + 3He)[GeV/c2]

ME

SE - ME

Residual

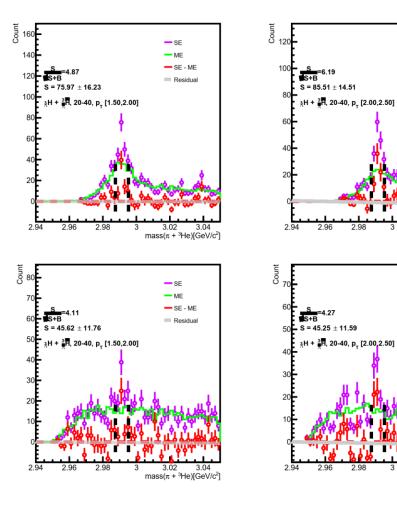
2.98

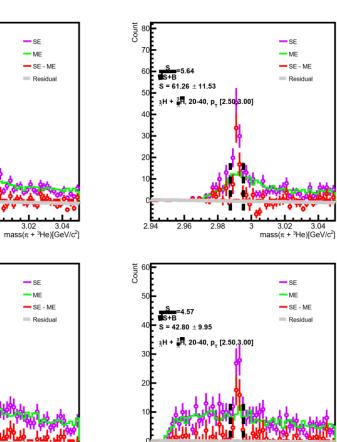
2.98

SE - ME

Residua

bot: old





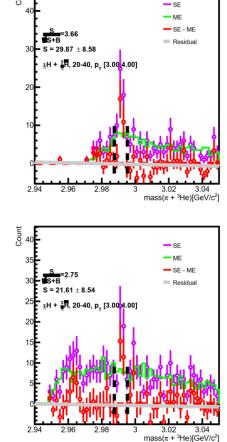
2.94

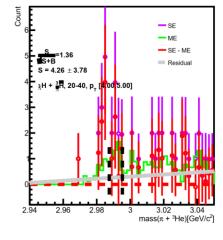
2.96

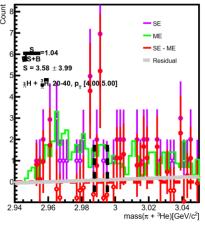
3.02

mass(π + 3He)[GeV/c2]

3 04





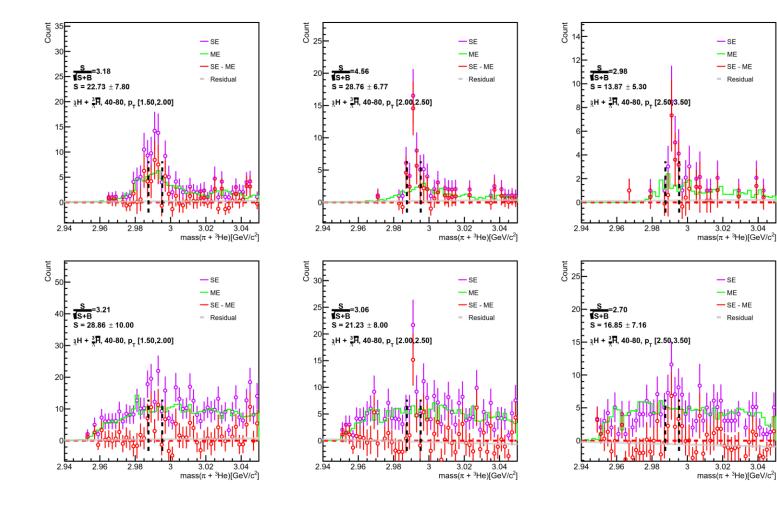


• MLP (response > 0.8): top: new

bot: old

3.04

3.04



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