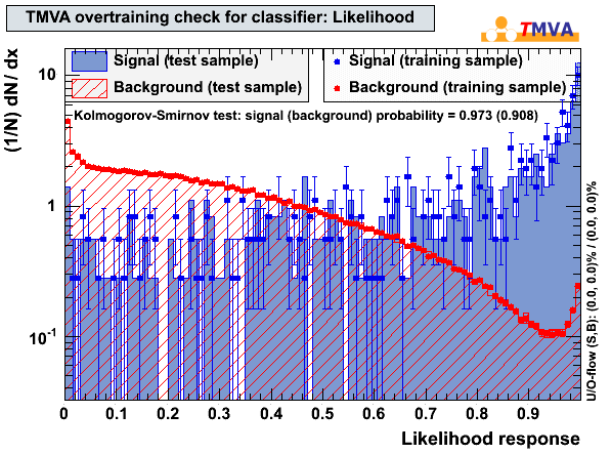
studies

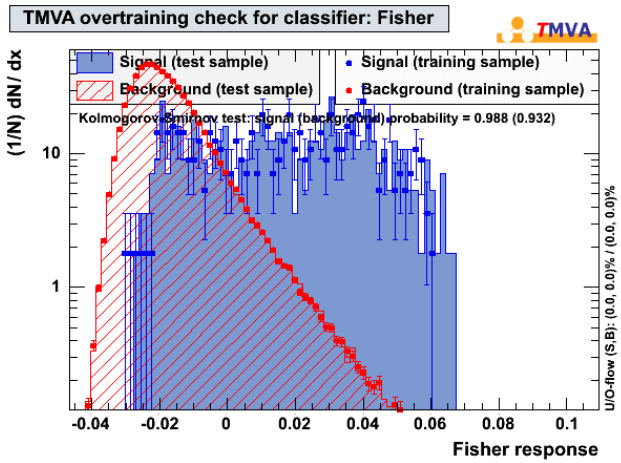
1. Training samples :
   1. Signal : ~700 pairs (unlike sign) matched from MuDst
      ←→MiniMc from files 700_102/
   2. Background : corresponding like sign pairs
   3. Classifiers : BDT, Fisher, Likelihood
2. Test :
   1. Default training
   2. Including dEdx,ndEdx
   3. For pairs with silicon hits ≤2 vs. pairs with Silicon hits ≥3
      1. I wanted to test silicon hit =0 and silicon hit ≠0 but I do not have enough statistic
   4. Pt bins : not enough statistic
3. Evaluation : signal/noise and significance vs. mva response

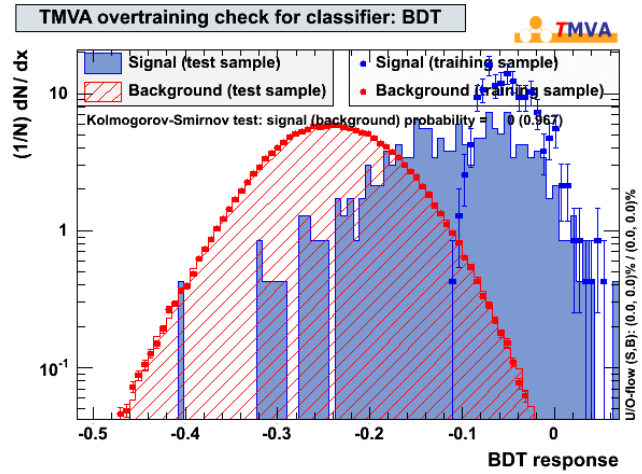
Default training

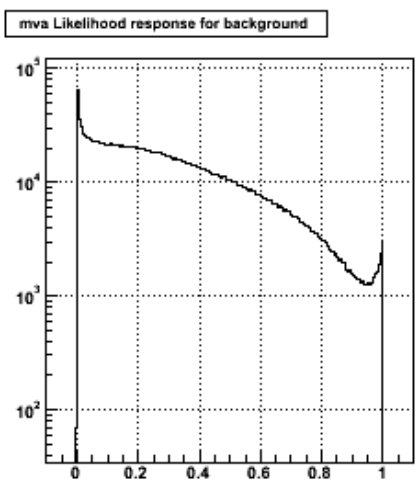
- Variables are :
  - Pt of daughters
  - dcaXY, dcaZ of daughters (dca to PV)
  - SigmaDcaXY of daughters (error) [SigmaDcaZ has not been saved]
  - Phi of daughters
  - DcaXY , DcaZ between daughters as SV
  - Slength (dslength) : signed decay length of pairs and its error
  - Probability of fit
  - Cospointing
  - Cos(θ*)
  - Dca of tracks to SV [I cannot used the error of this DCA because one has not been filled properly in the new TTree]
- Questions/comments :
  - Is it correct to include the phi of tracks ? → dead areas of detectors
  - When I use composition of variables, like SL = slength/dslength, the mva distributions after rerunning the data do not match the distributions after training (slide 3)

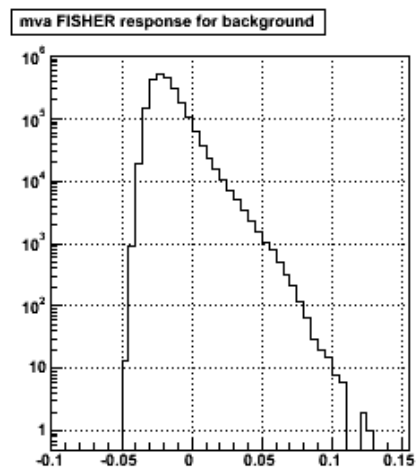
Mva distributions

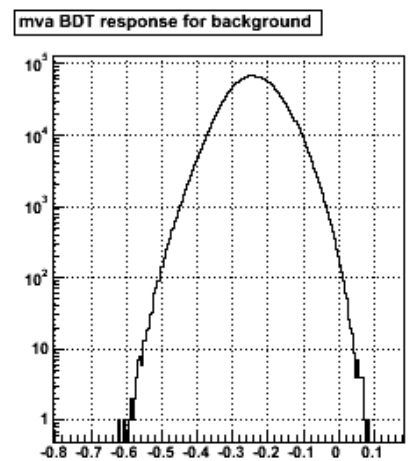








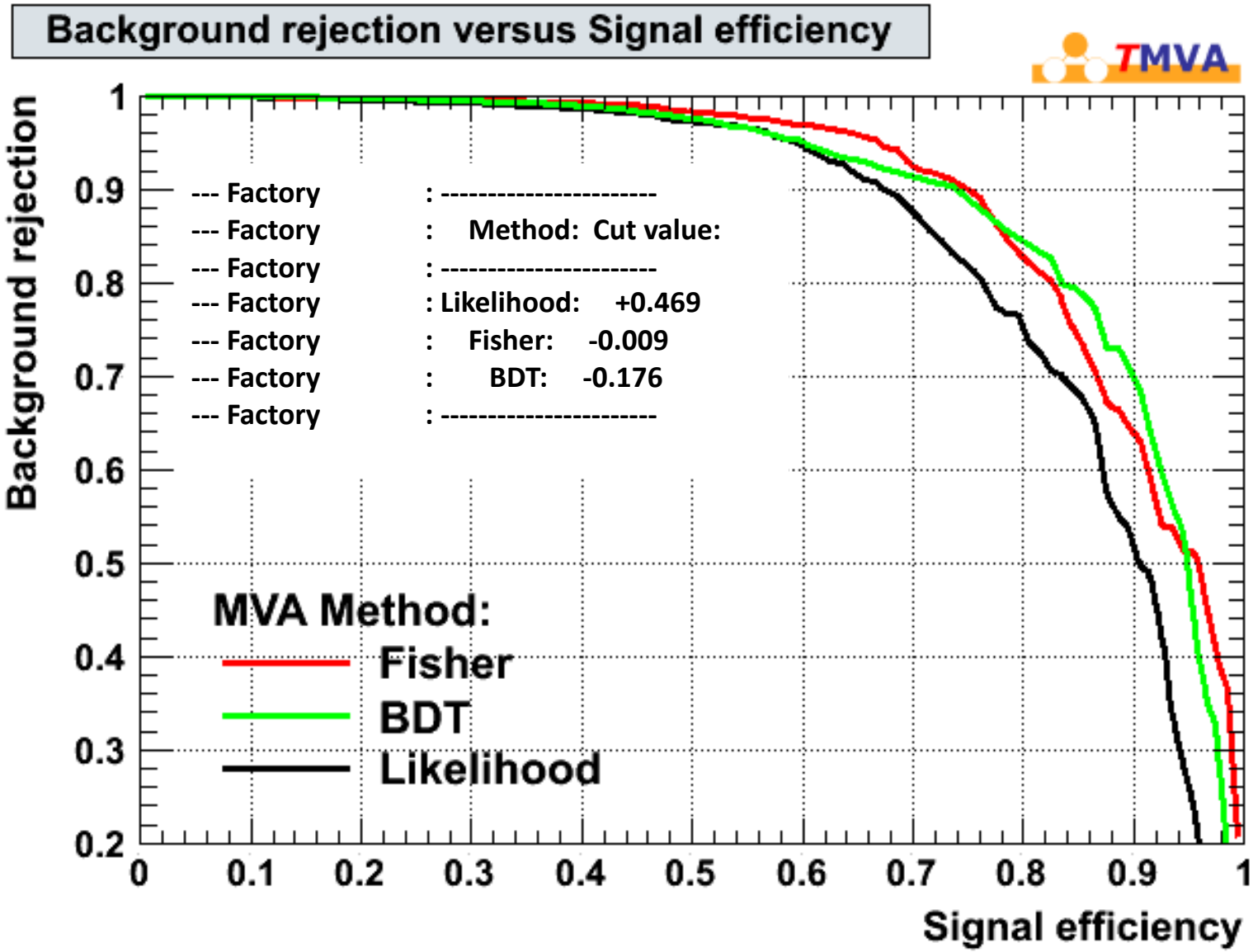




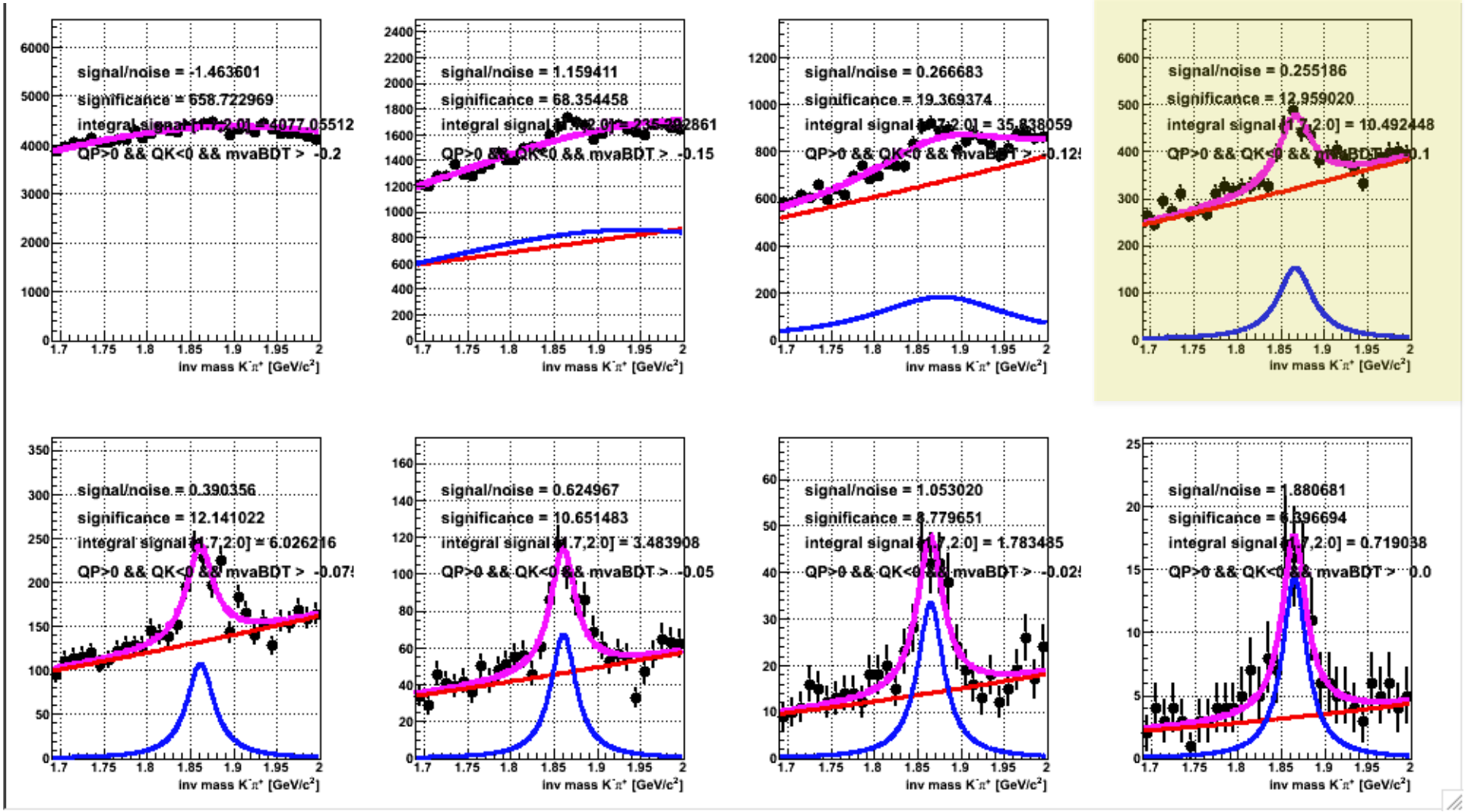
- top : after training
- bottom : after rerunning all pairs and booking the corresponding mva value

➔Log scale shows that the matching btw distributions is not perfect

Signal eff. Vs. background rejection

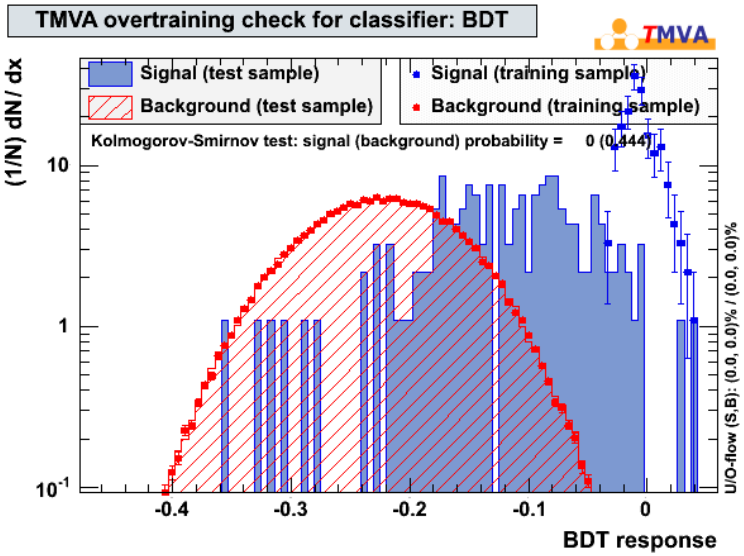


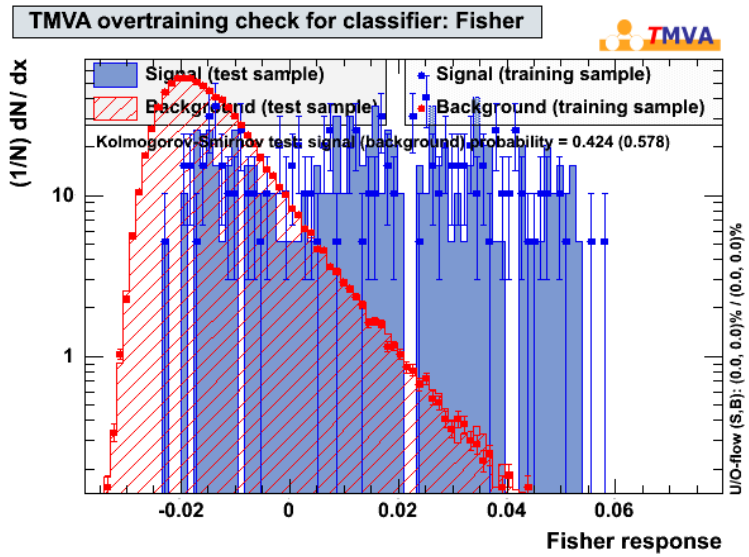
Inv. Mass vs. mvaBDT

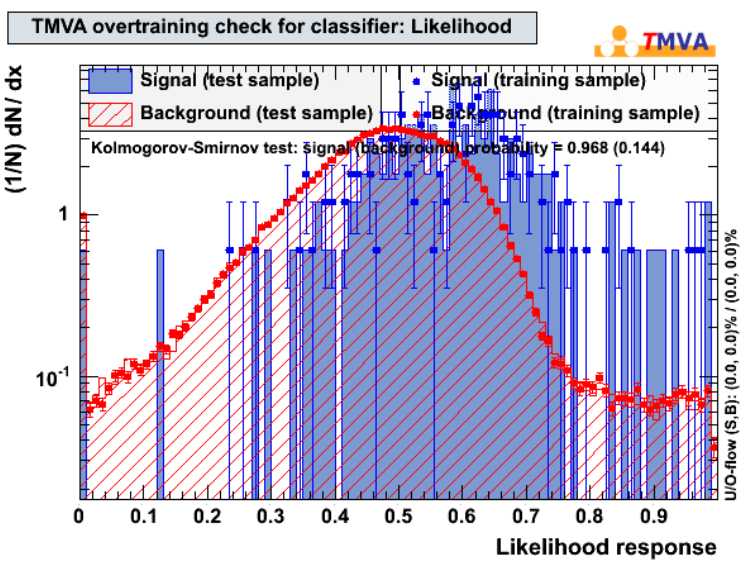


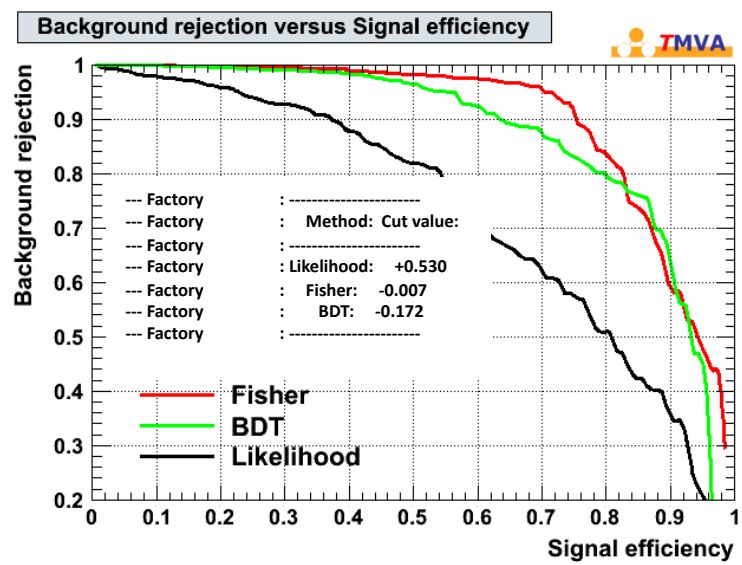
- best significance for mvaBDT>-.1 (upper right plot)

Slicon hits < 3

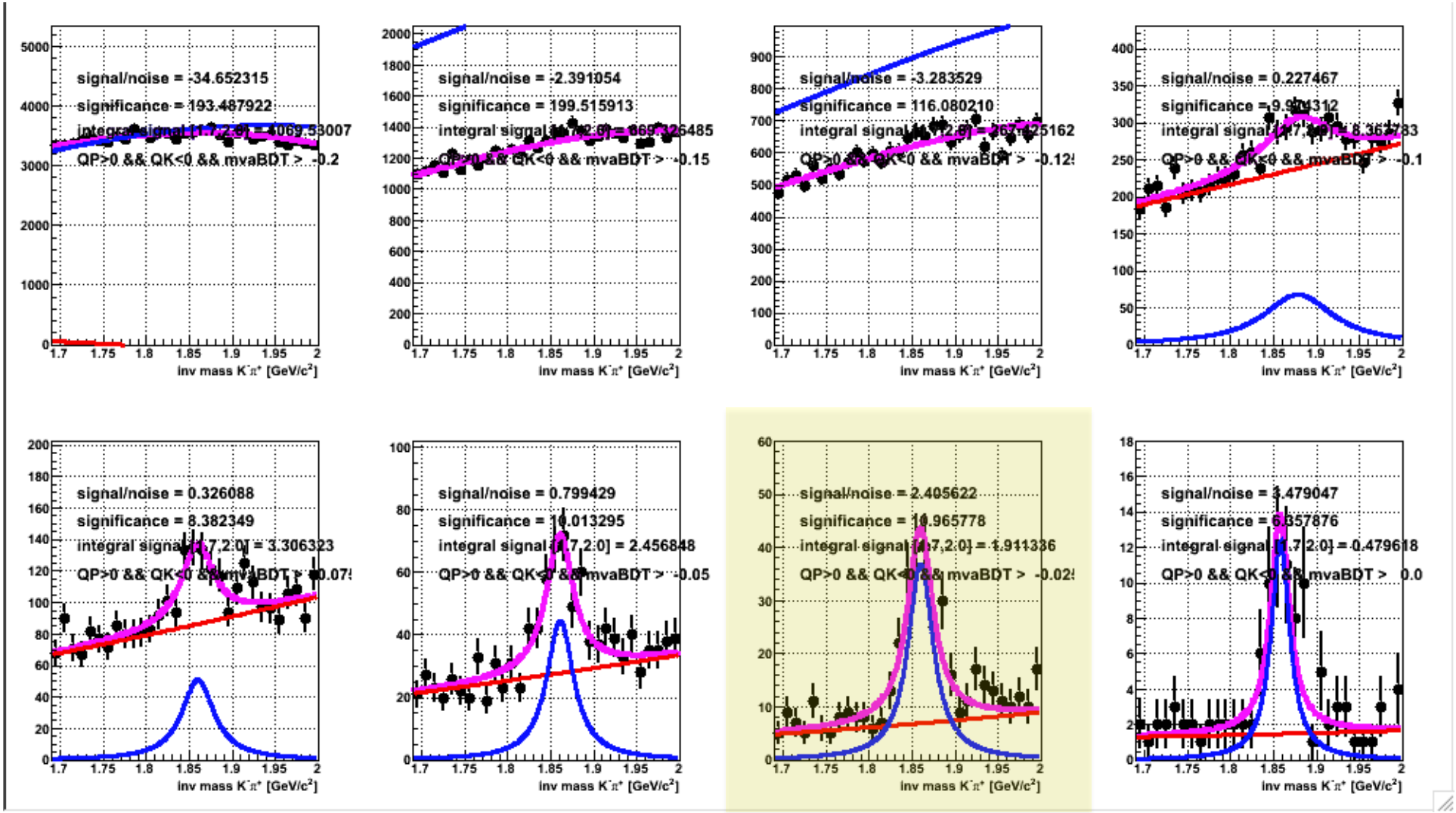








Inv. Mass vs. mvaBDT



- best significance for mvaBDT>-.025