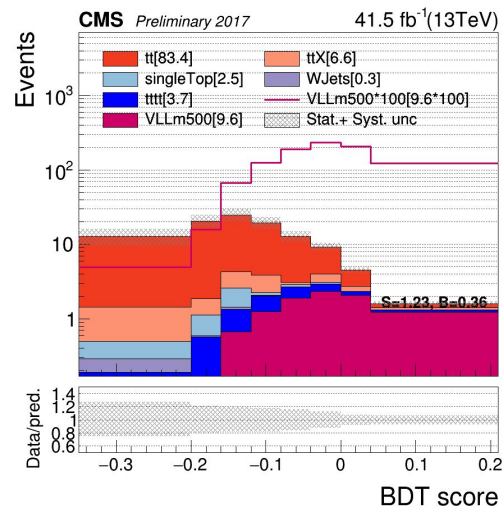


Analysis of 4top process with VLL model(2017)

The optimization of binning at different mass points

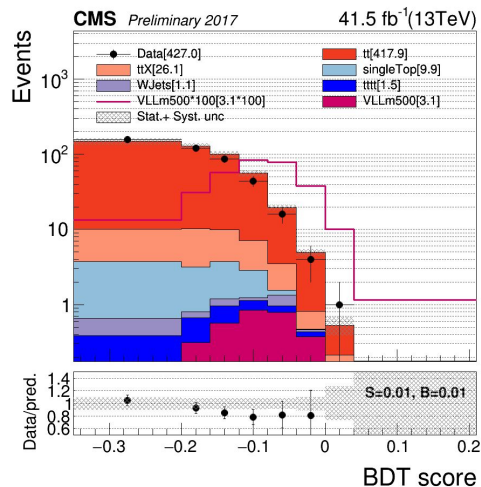
VLLm500 **best bin**(last bin: 0.04-0.2)



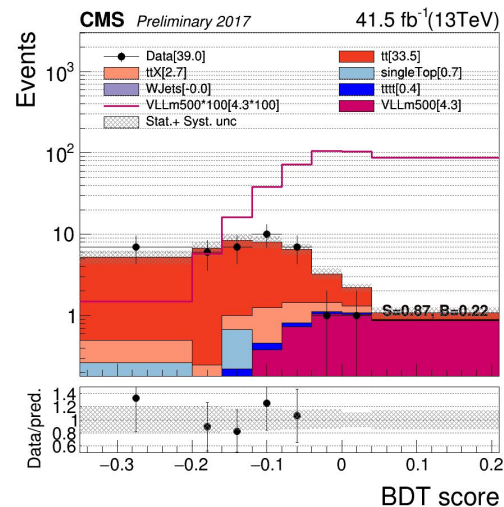
SR

limit: 1.05

significance: 2.04

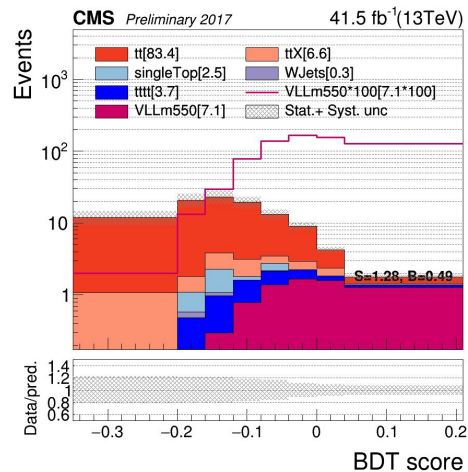


CR1



CR2

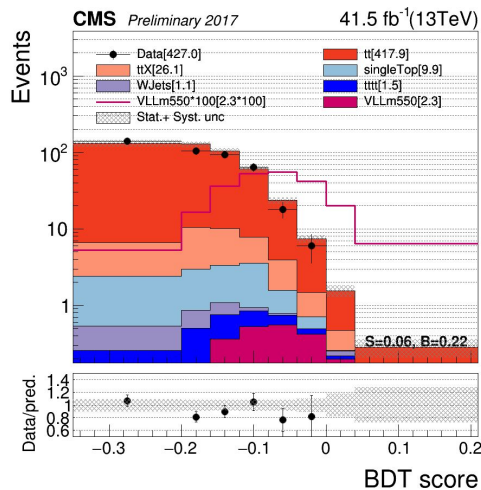
VLLm550 **best bin**(last bin: 0.04-0.2)



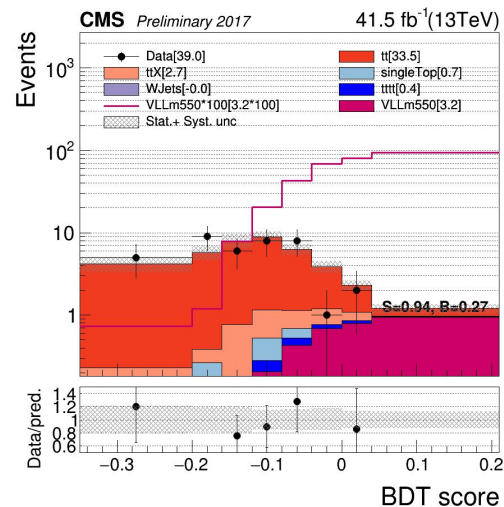
SR

limit: 1.42

significance: 1.71

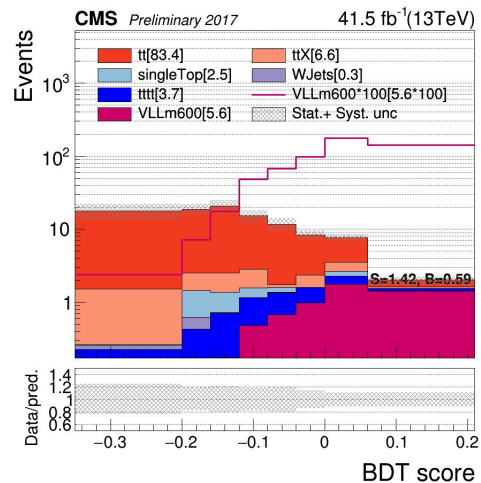


CR1



CR2

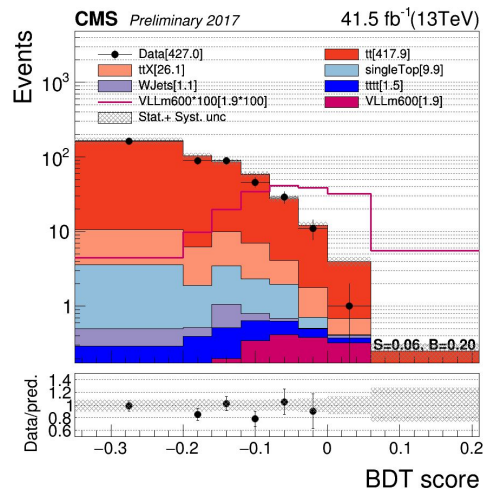
VLLm600 **best bin**(last bin: 0.06-0.2)



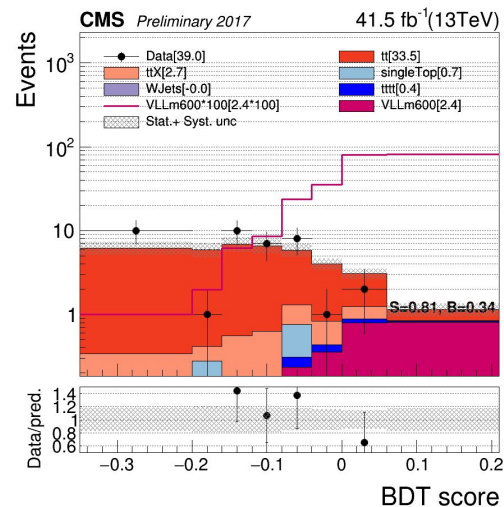
SR

limit: 1.62

significance: 1.58

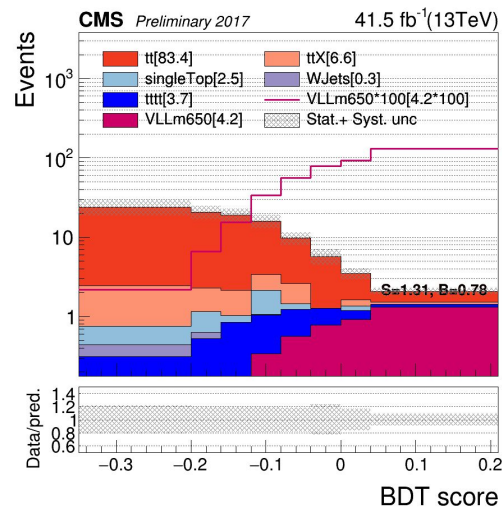


CR1



CR2

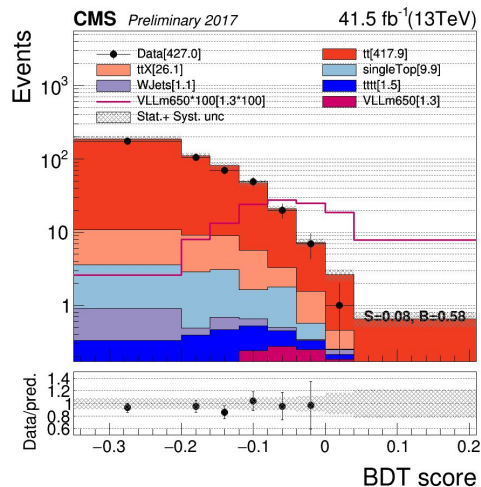
VLLm650 **best bin**(last bin: 0.04-0.2)



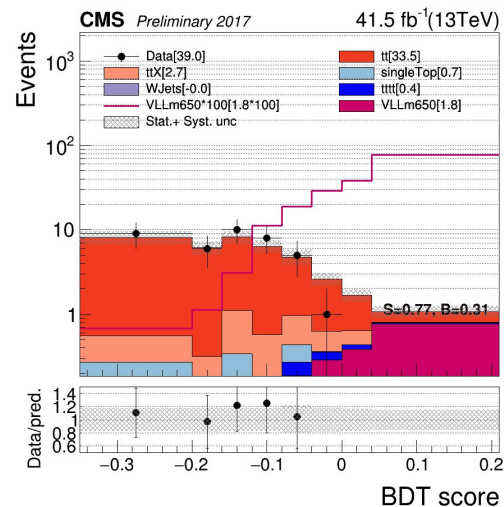
SR

limit: 1.94

significance: 1.33

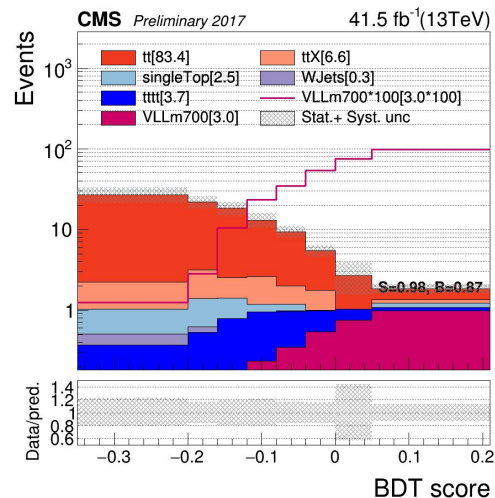


CR1



CR2

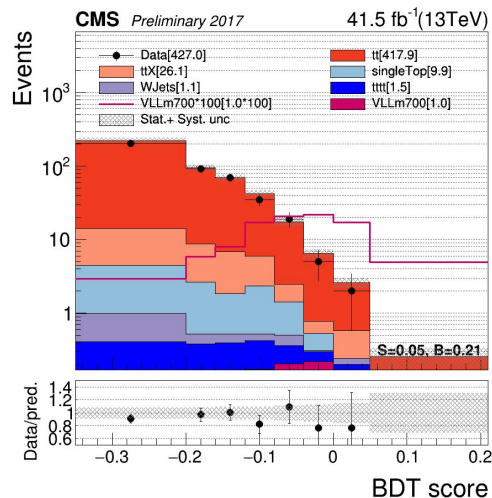
VLLm700 **best bin**(last bin: 0.05-0.2)



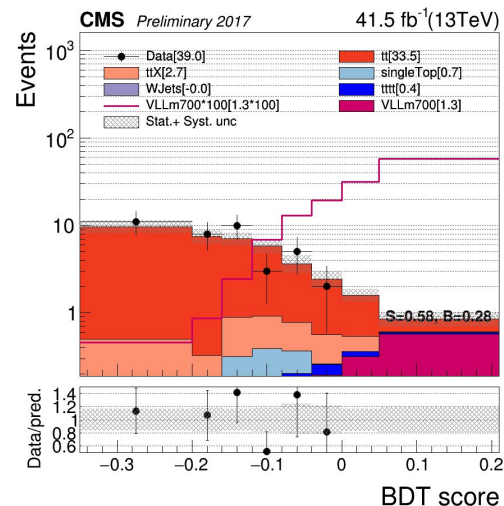
SR

limit: 2.67

significance: 0.97

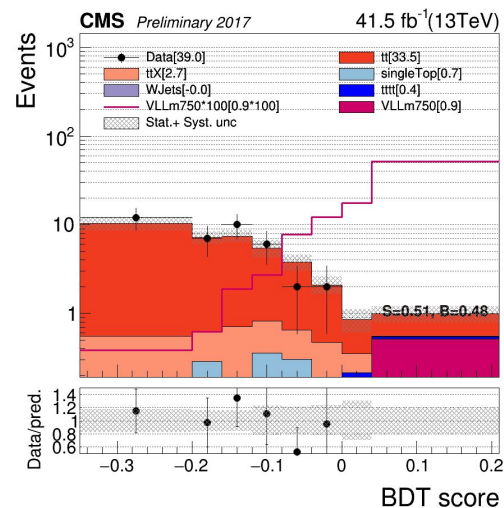
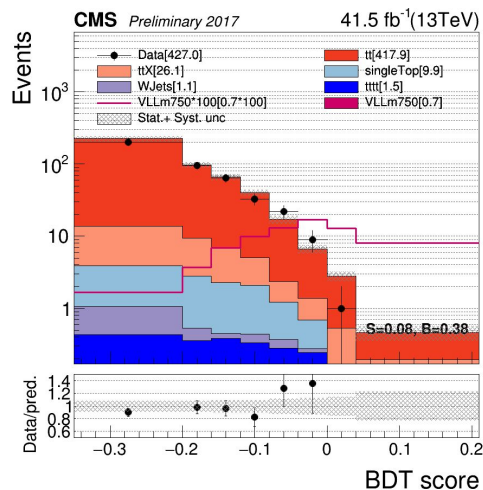
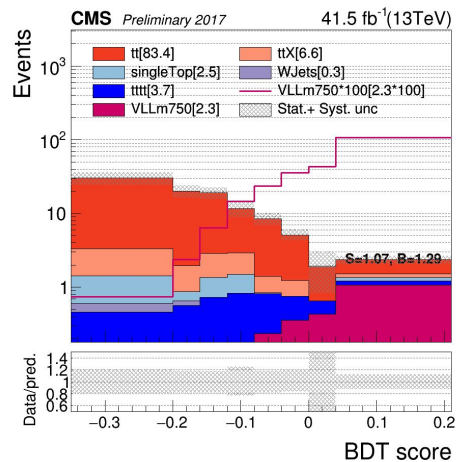


CR1

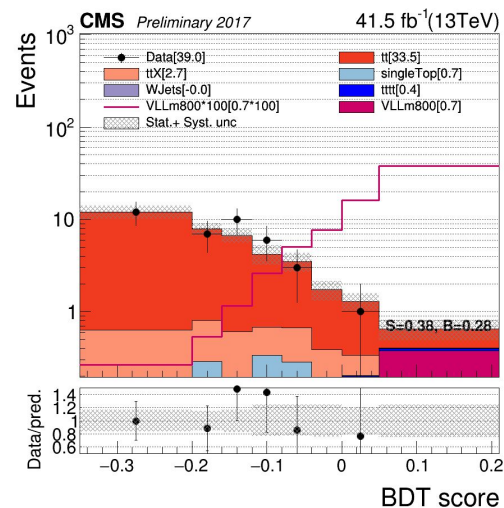
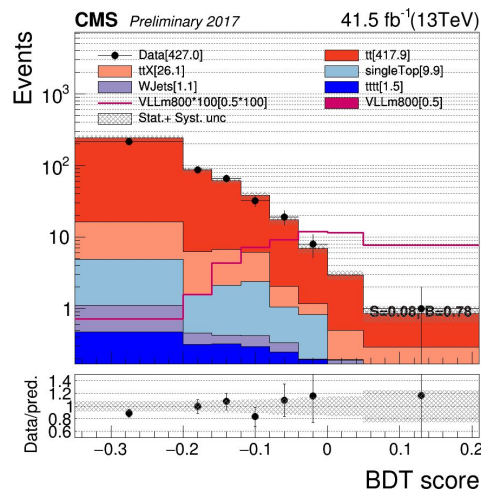
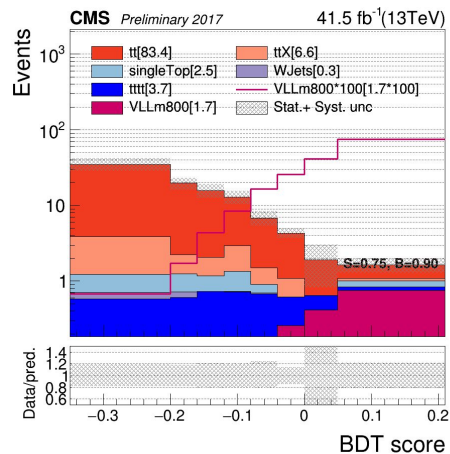


CR2

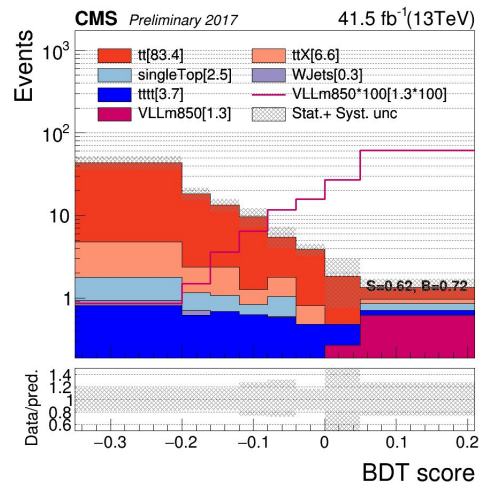
VLLm750 **best bin**(last bin: 0.04-0.2)



VLLm800 **best bin**(last bin: 0.05-0.2)



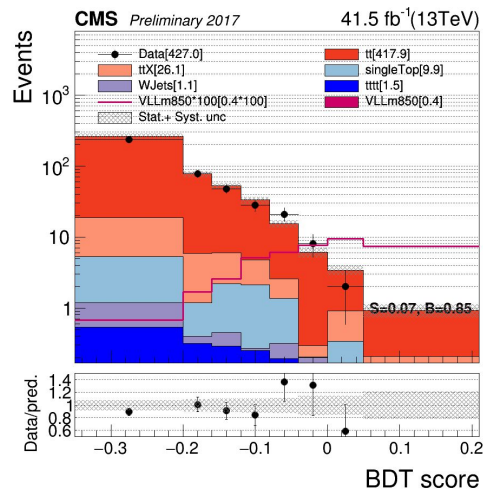
VLLm850 **best bin**(last bin: 0.05-0.2)



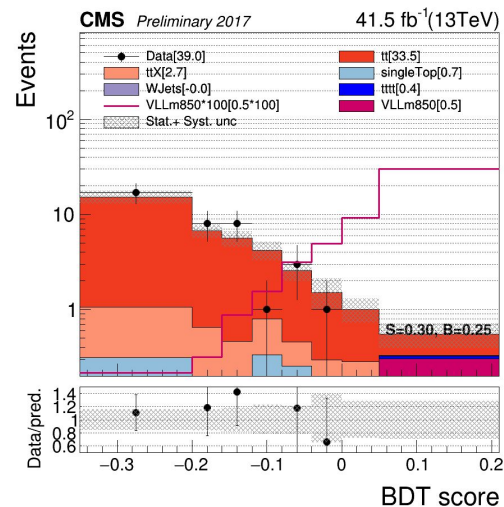
SR

limit: 4.70

significance: 0.61

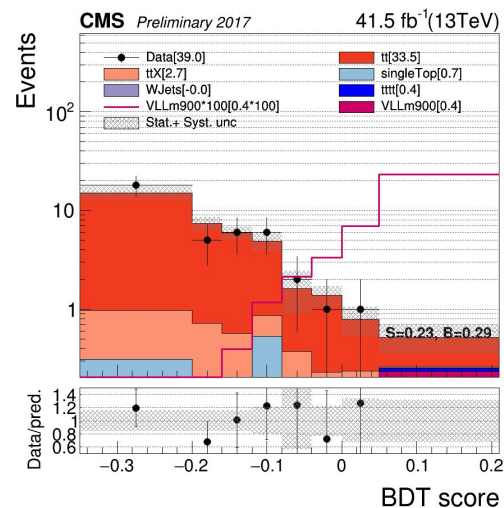
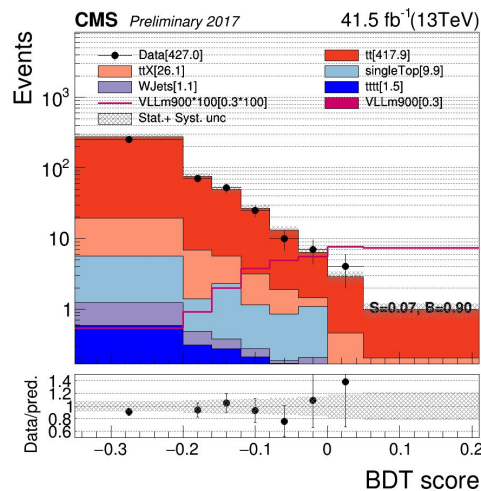
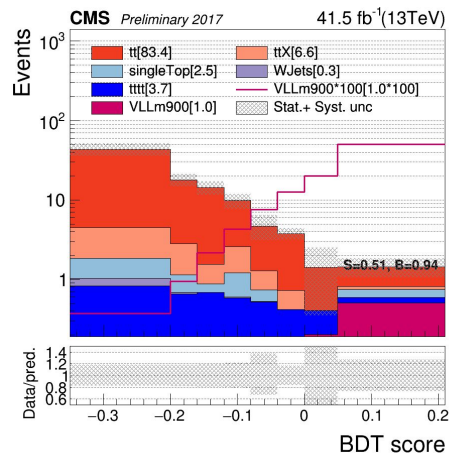


CR1

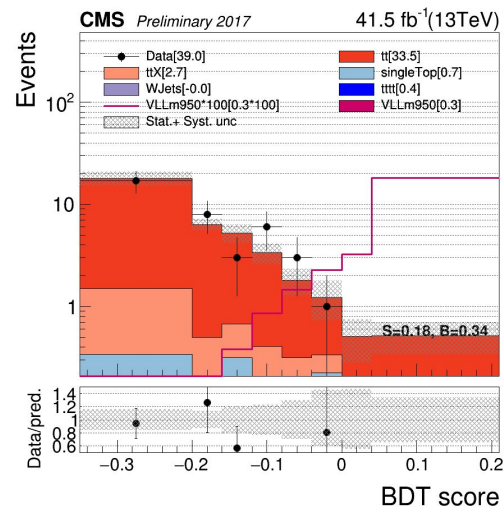
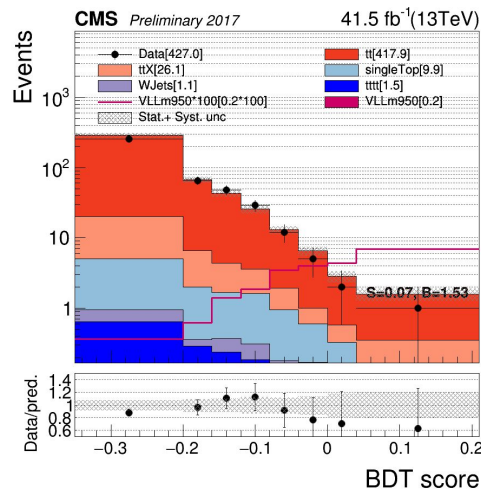
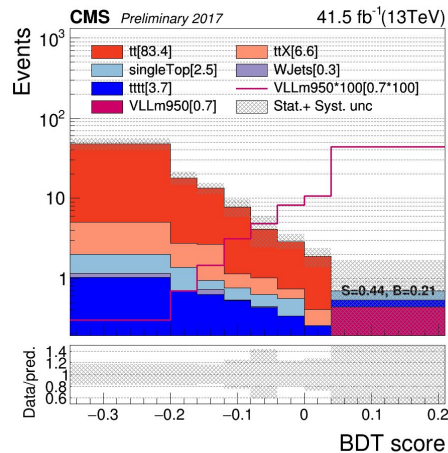


CR2

VLLm900 **best bin**(last bin: 0.05-0.2)

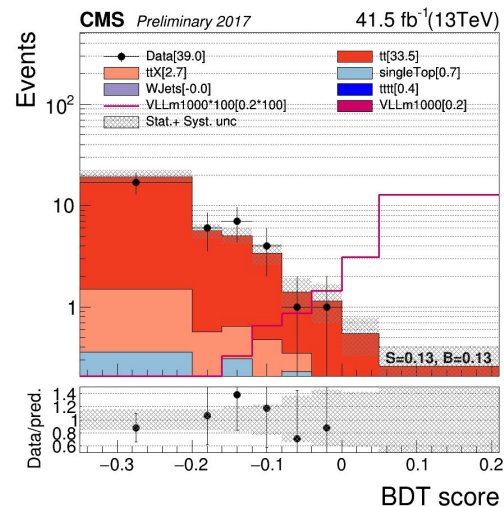
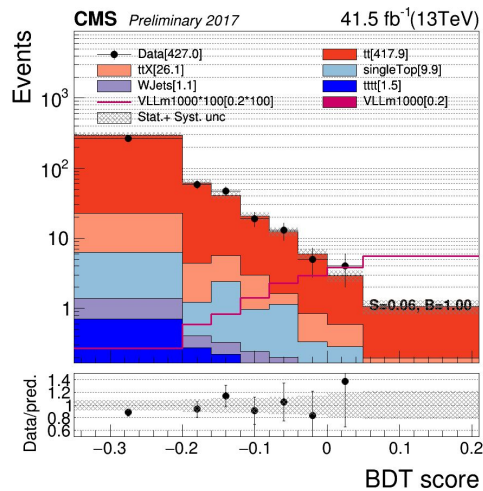
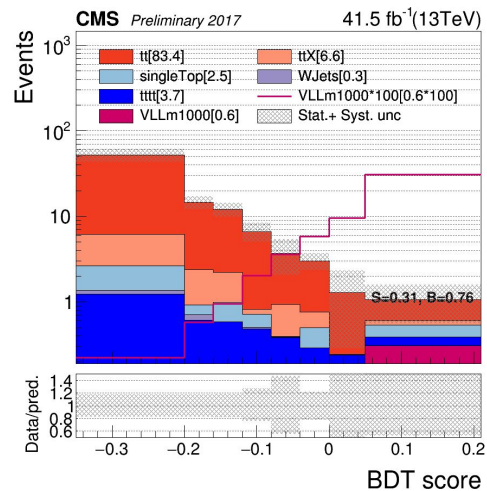


VLLm950 **best bin**(last bin: 0.04-0.2)

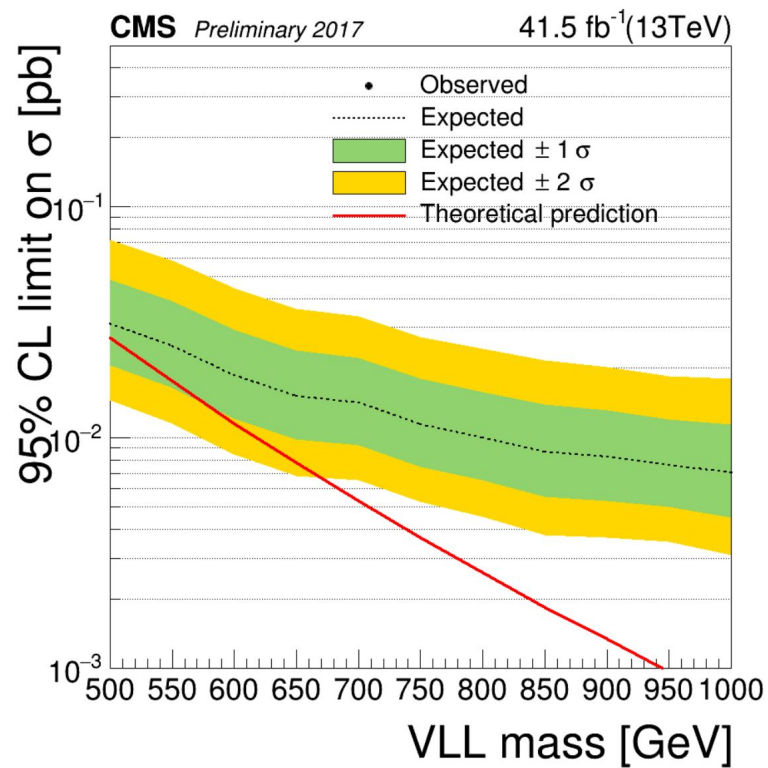


VLLm1000

best bin (last bin: 0.05-0.2)



mass limit



To do list:

- ☐ Samples list with VLL
- ☐ VLL sample validation: event entries...
- ☐ Why at the m500 the asymmetric impact? Seemed signal sample issue.
- ☐ how to consider QCD scale NP for VLL?
 - ☐ Check the VLL AN to see their strategy