



SPRACE

# STARLight Production

DENER S. LEMOS

SPRACE - UNESP

# Codes

## CMSSW\_11\_1\_0\_pre5

- ❑ Official genproductions
  - <https://github.com/cms-sw/genproductions>
- ❑ STARLight
  - <https://starlight.hepforge.org>
- ❑ Details about the generation and samples in the twiki
  - <https://twiki.cern.ch/twiki/bin/view/CMS/STARlightINFO>
- ❑ Code to make histograms
  - [https://github.com/denerslemos/STARLight\\_cross\\_check\\_analyzer](https://github.com/denerslemos/STARLight_cross_check_analyzer)

# MC test samples

STARLight samples generated for two configuration

- ❑ Single Diffraction (prodType==5)
- ❑ Double Diffraction (prodType==6)

Test STARLight MC samples with 10k events are available:

- ❑ AOD for Single Diffraction (prodType==5)
  - /eos/cms/store/group/phys\_heavyions/ddesouza/STARLight/prodType5/step3\_RAW2DIGI\_L1Reco\_RECO.root
- ❑ AOD for Double Diffraction (prodType==6)
  - /eos/cms/store/group/phys\_heavyions/ddesouza/STARLight/prodType6/step3\_RAW2DIGI\_L1Reco\_RECO.root
- ❑ LHE, GEN-SIM, DIGI and miniAOD can be found on the twiki page:
  - <https://twiki.cern.ch/twiki/bin/view/CMS/STARlightINFO>

# STARLight Private Sample

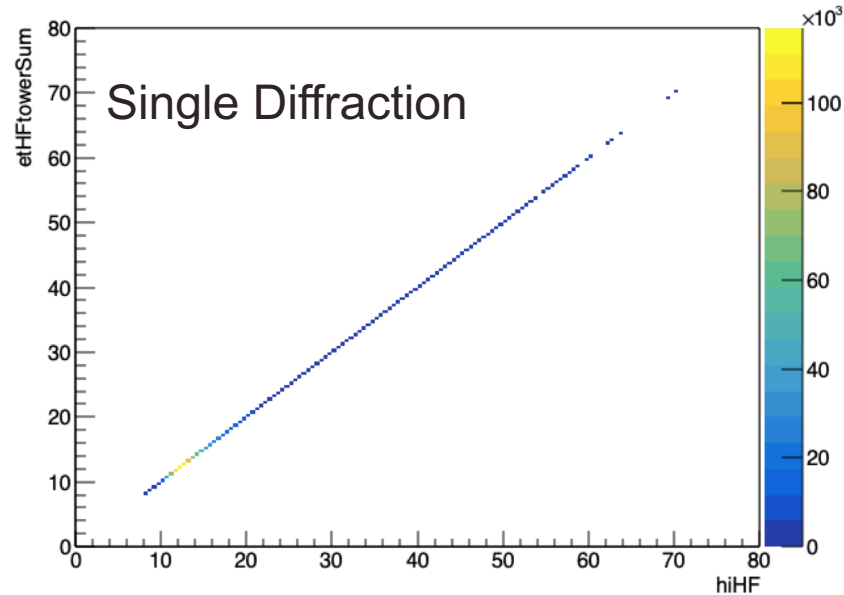
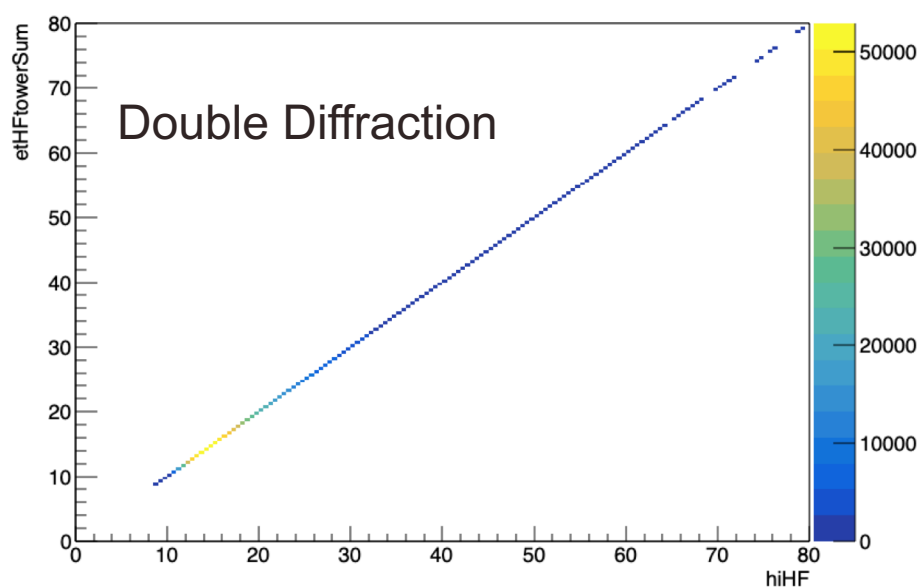
Sample with  $\sim 1$  million events were produced:

- ❑ LHE: [Single Diffraction](#) and [Double Diffraction](#)
- ❑ GEN-SIM: [Single Diffraction](#) and [Double Diffraction](#)
- ❑ DIGI: [Single Diffraction](#) and [Double Diffraction](#)
- ❑ AOD: [Single Diffraction](#) and [Double Diffraction](#)
- ❑ miniAOD: [Single Diffraction](#) and [Double Diffraction](#)

Also, this samples can be found at the twiki

- ❑ <https://twiki.cern.ch/twiki/bin/view/CMS/STARlightINFO>

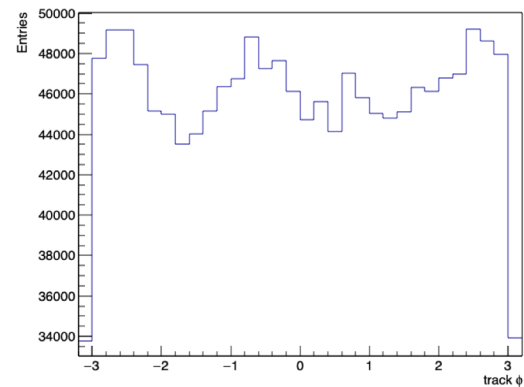
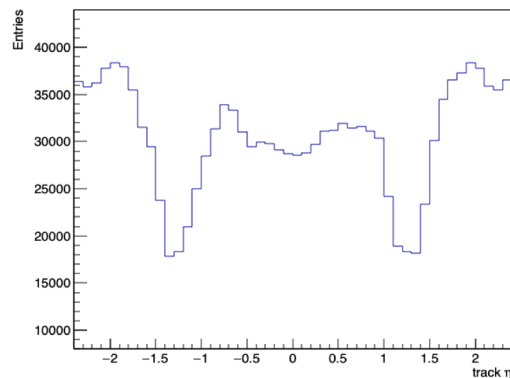
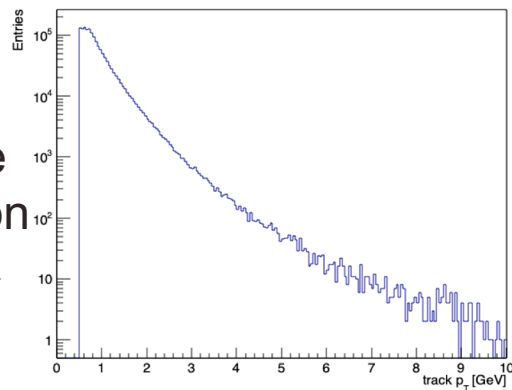
# Cross-check: hiHF vs etHFtowerSum



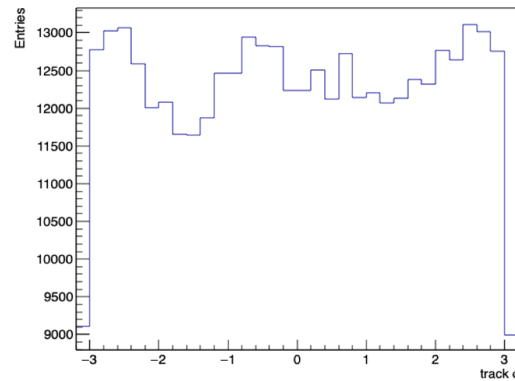
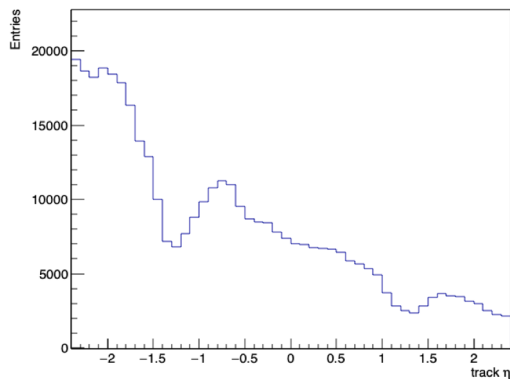
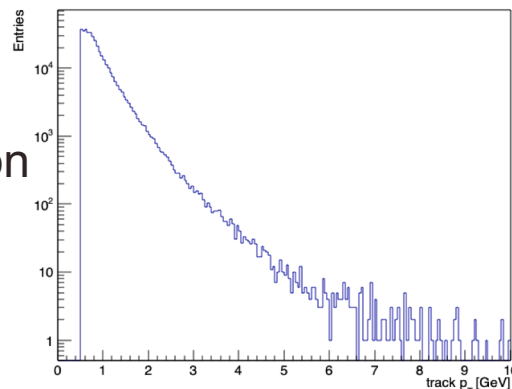
hiHF using centrality collection  
etHFtowerSum using towerMaker collection

# Tracking control plots

Double  
Diffraction

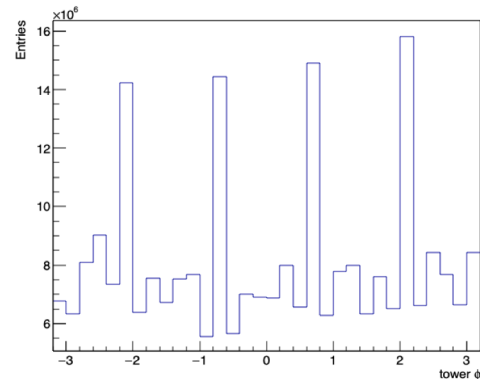
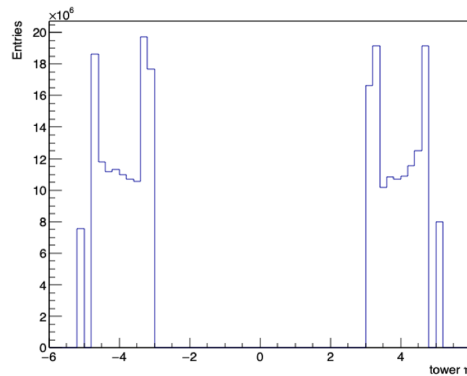
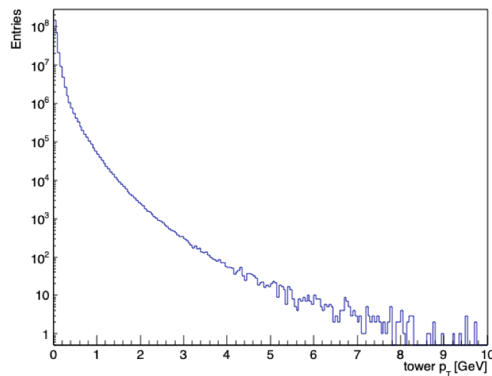


Single  
Diffraction

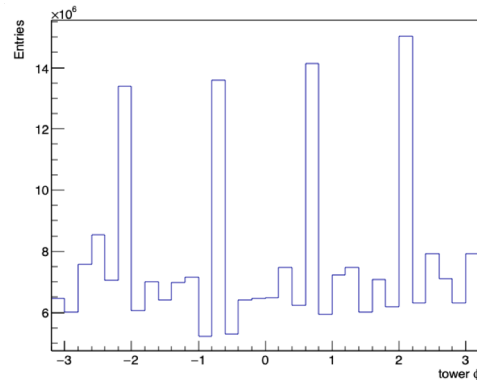
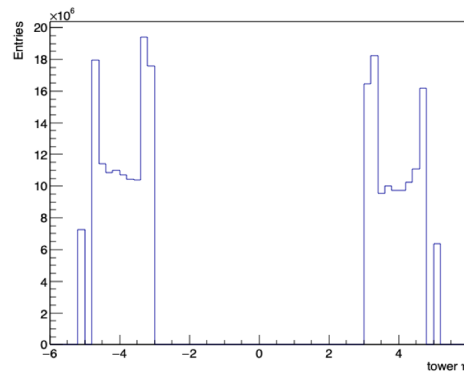
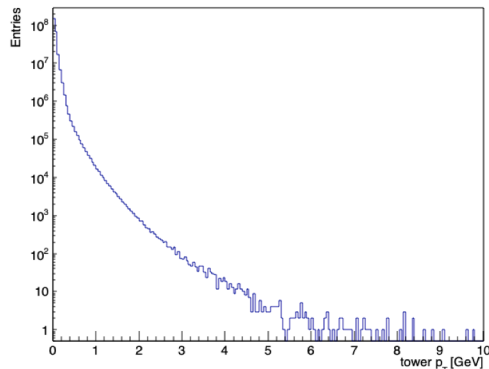


# Tower (HF) control plots

Double  
Diffraction

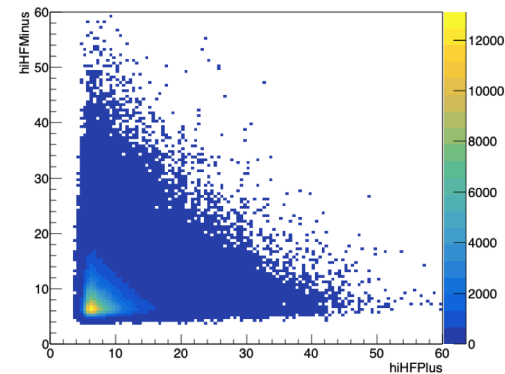
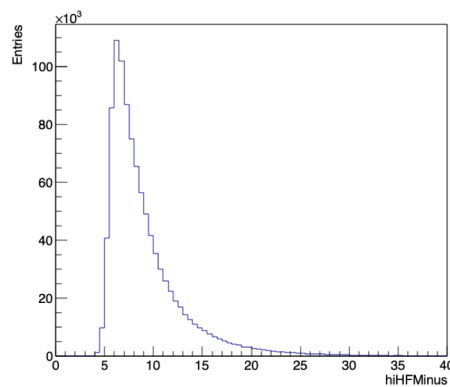
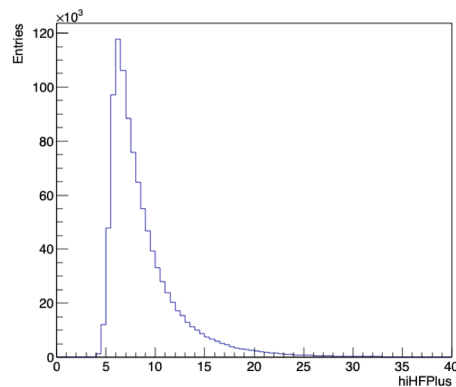


Single  
Diffraction

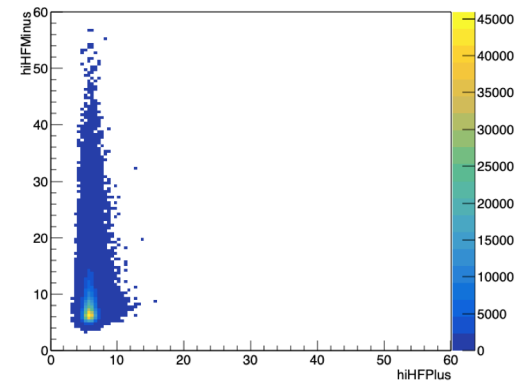
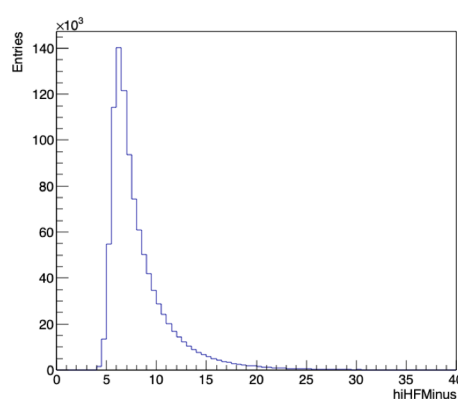
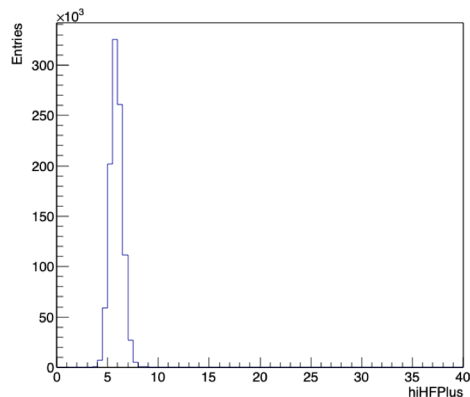


# hiHF + and -

Double  
Diffraction



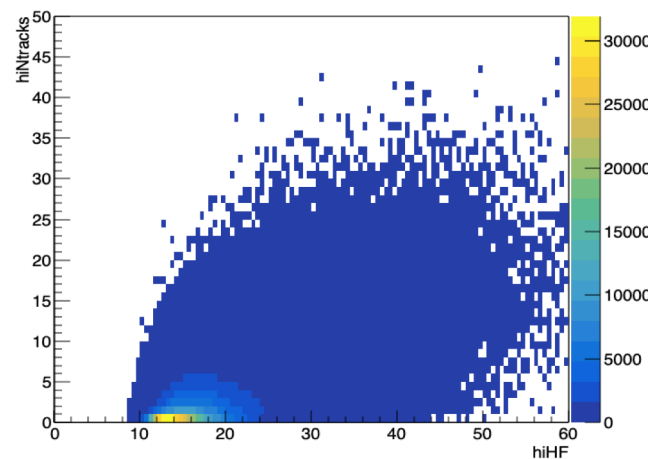
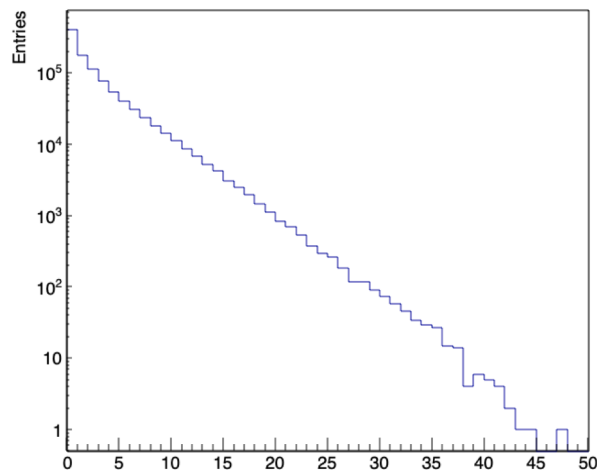
Single  
Diffraction



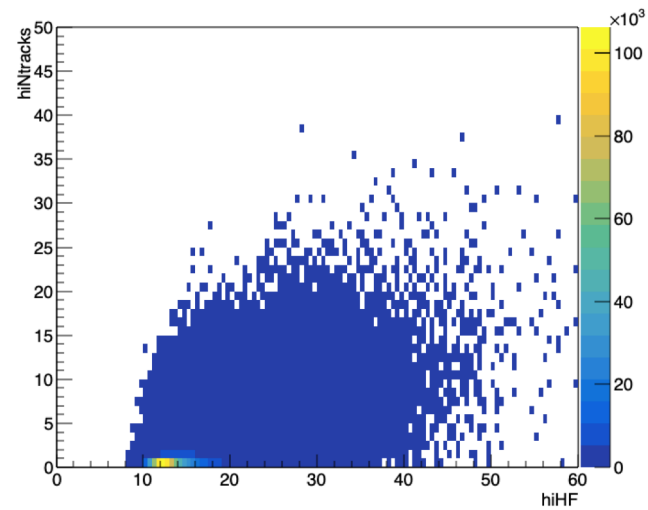
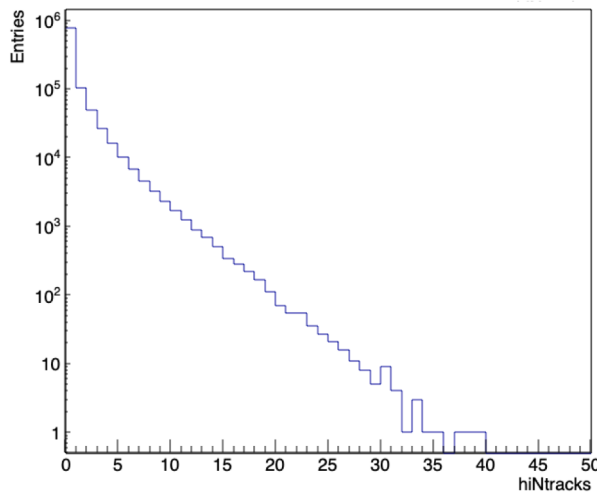


# hiHF vs hiNtracks

Double  
Diffraction

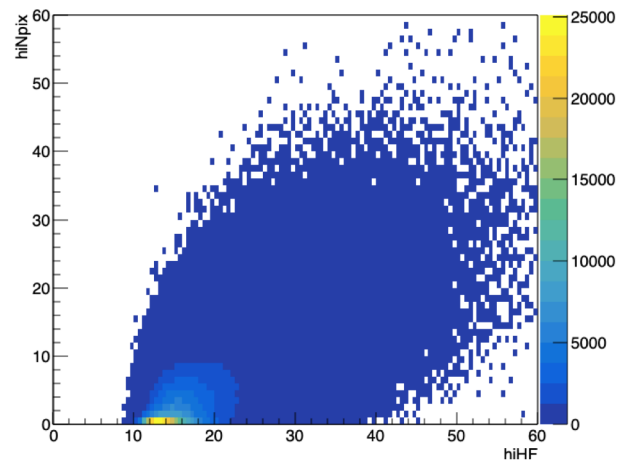
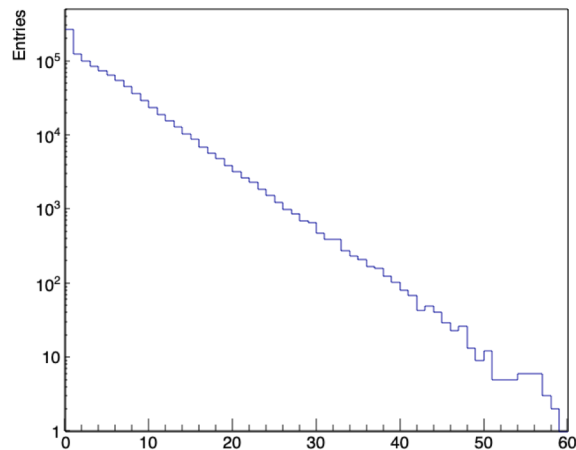


Single  
Diffraction

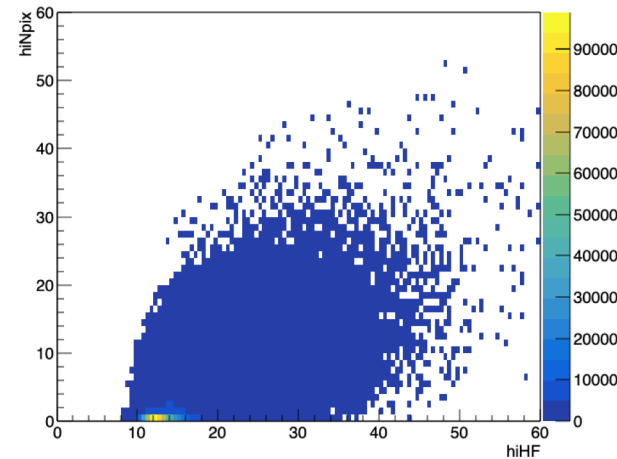
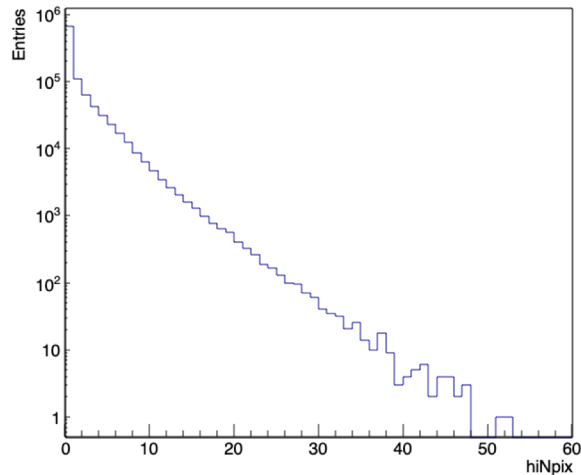


# hiHF vs hiNpix

Double  
Diffraction

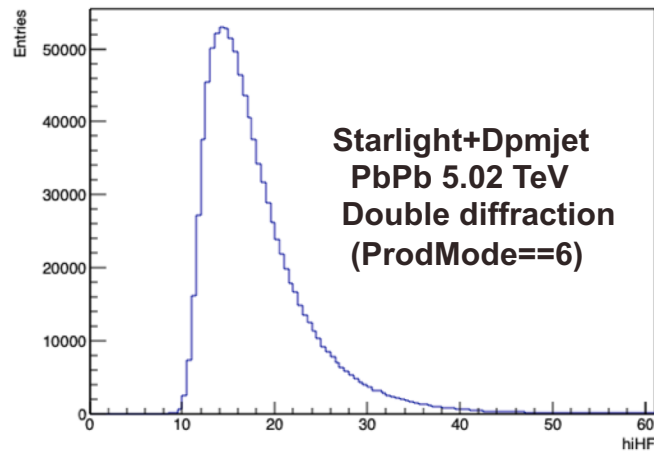
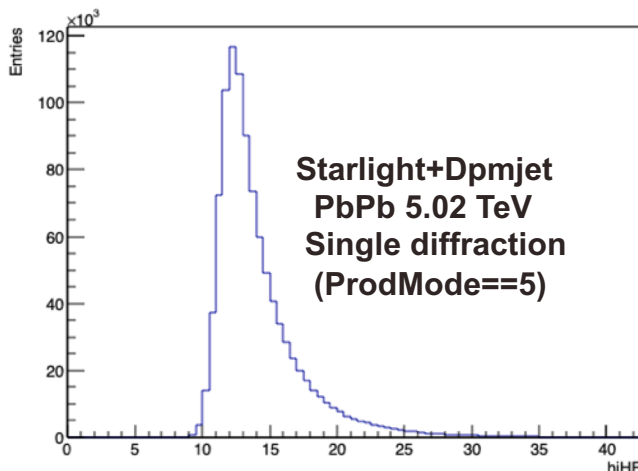


Single  
Diffraction



# hiHF comparison with 2018 PbPb MC

2022



2018

