

Updates

- Make some upgrades to keep the same with publication

- Changing Lumi of mc16a to 36.2, total Lumi to 139.0

- Input the same fittedSignalYield (N_sig) as publication

isPassed.fittedSignalYield: 6546.1200

N_j_30.fittedSignalYield: 3573.4300 1772.9500 879.0540 421.4070

- Introduce f_OOF in the formula

$$\sigma_{fid}^i = \frac{N_{sig}^i (1 - f_{Dalitz} - f_{OOF})}{L \times (nReco^i / nTruth^i)}$$

Results

- Comparison of fiducial xsec:

- isPassed:

65.2302 vs 65.2402 (publication)

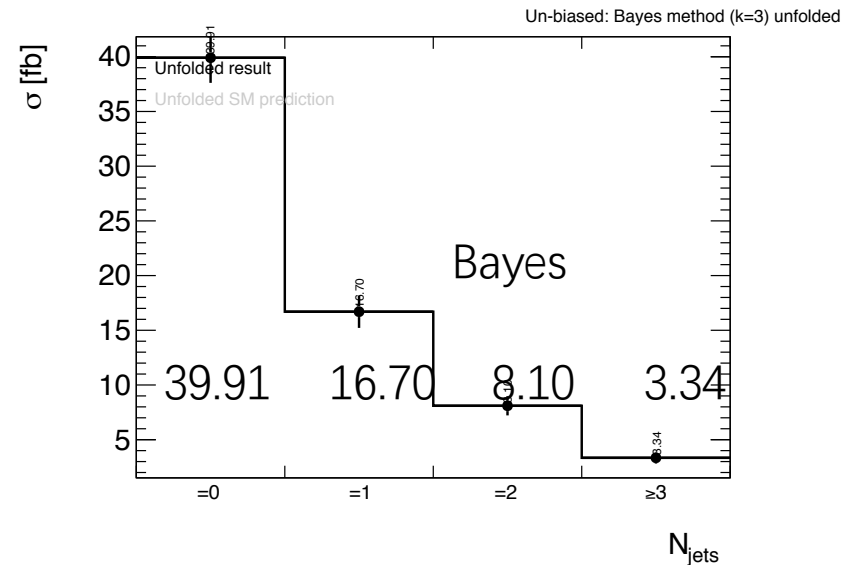
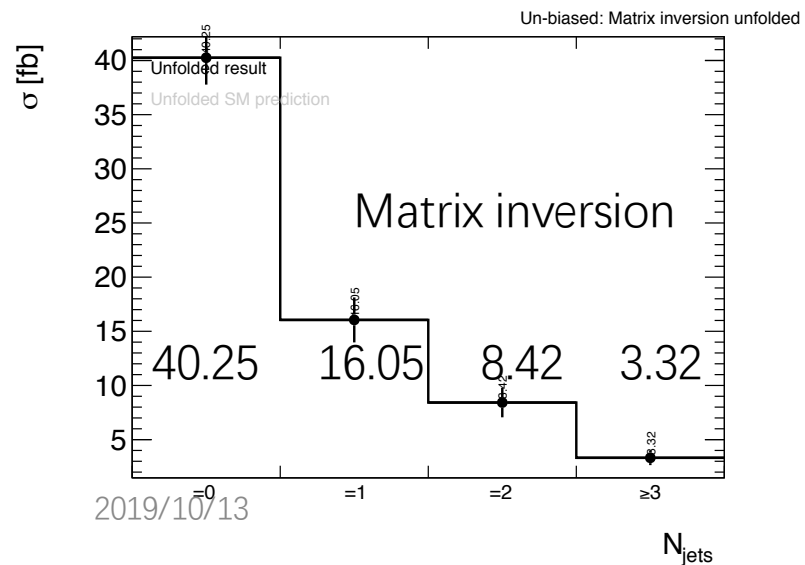
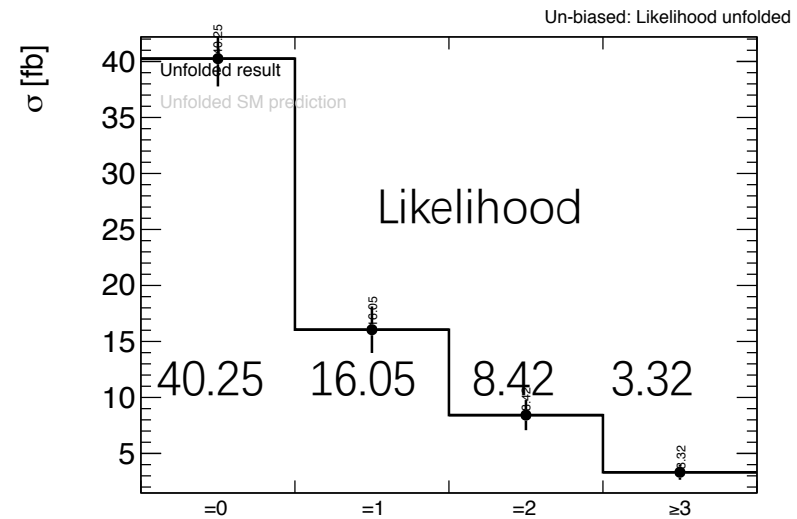
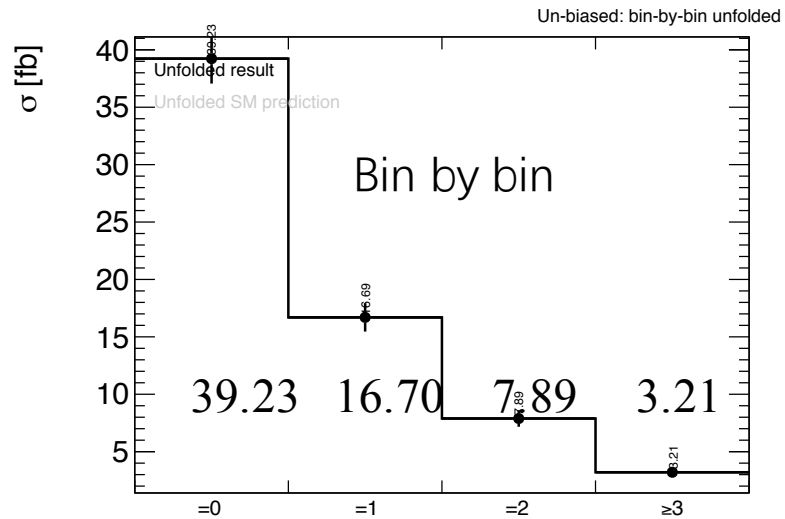
- N_j_30:

39.2324 16.6950 7.8885 3.2052 vs

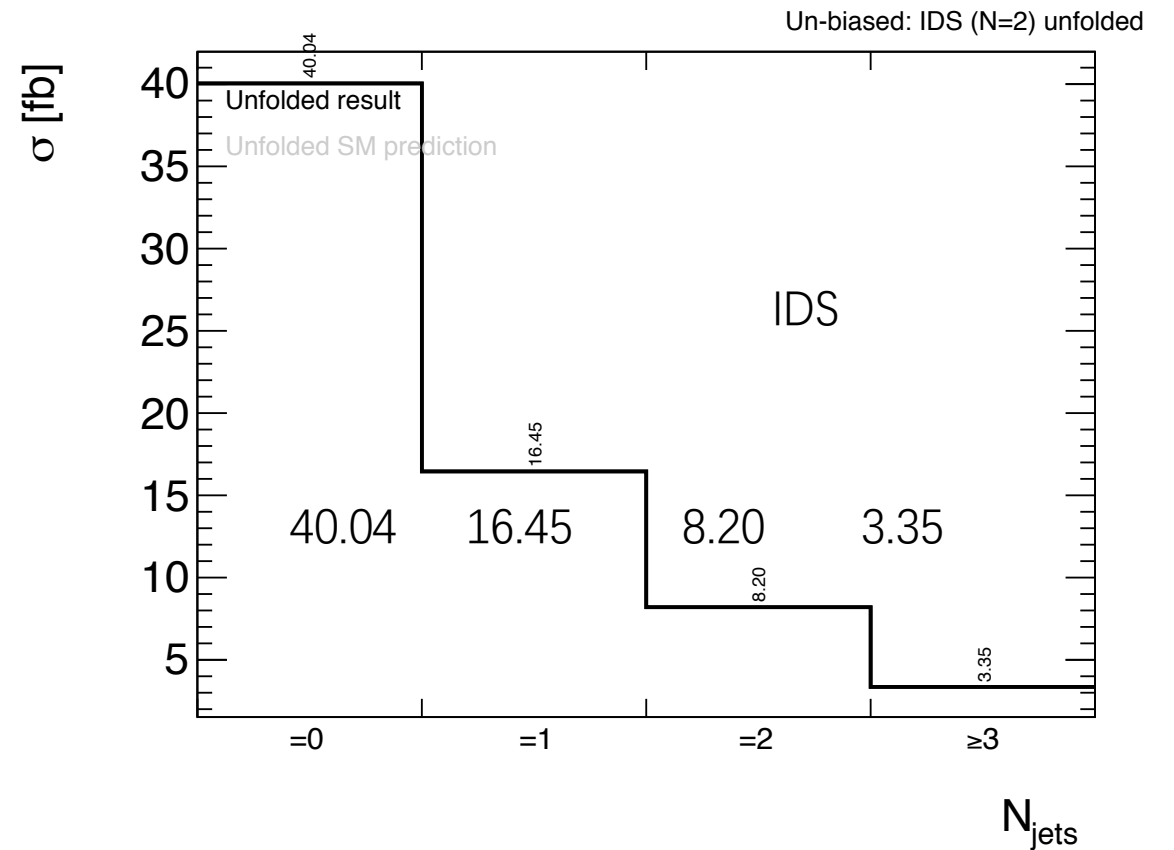
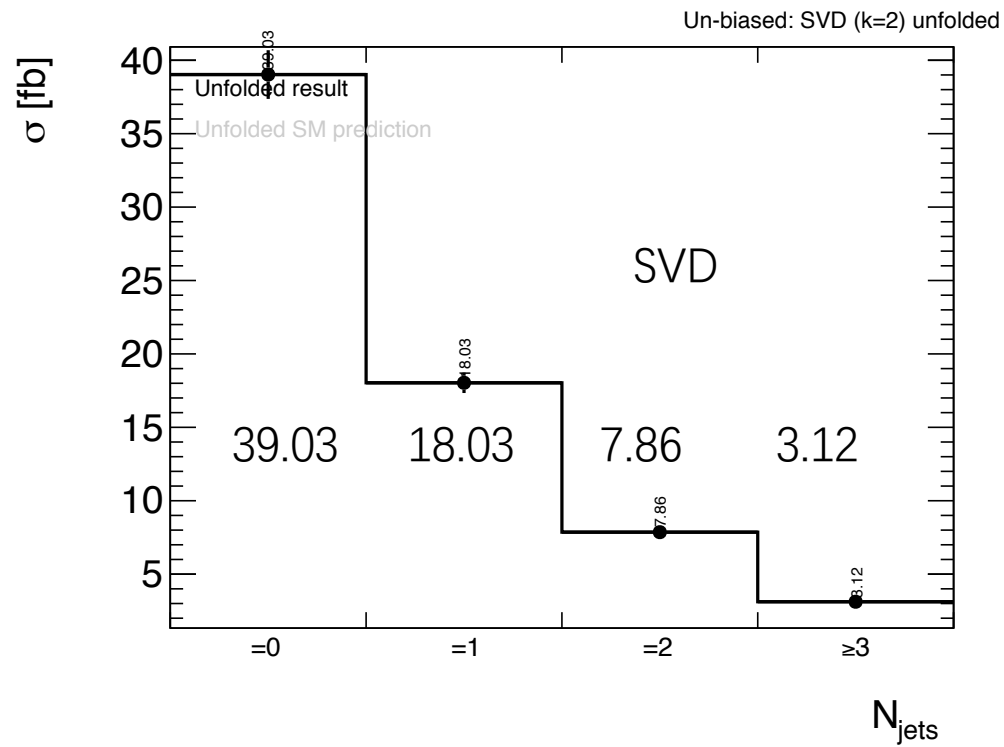
39.2425 16.6964 7.8887 3.2054 (publication)

- The difference is quite little, about 0.01% ~ 0.03%, which means we obtain the same results as publication via wrong method.

Unfolding method



Unfolding method



EFT Status

- Generate samples with MadGraph5, and output EVNT.root
- Change parameters in the param_card, generate a variety of samples
- Use Rivet to analyze those EVNT.root and generate .yoda files
- Use Professor2(need docker environment) to process .yoda files
- Interpolation to get combination data file and draw the xsec plot in parameter space
- Scan over parameters in EFT through HGameEFTScanner to obtain confidence intervals of these parameters.

H2Zy package

- Succeed in compiling and installing the package
- The package can run over HIGG1D2Kernel DAOD samples successfully
- Failed to run over egamma DAOD samples (EGAM3Kernel and EGAM4Kernel)
 - Error message: `H2ZyAnalysis::fileExec... ERROR Failed to find HIGG1D2Kernel CutBookkeeper in MetaData! Exiting.`
(I add the permission to EGAM3/EGAM4 Kernel in fileExecute function, the error get solved.)
 - Error message: `HiggsWeightTool configured to used cut-off factor, but no cross-section available for this sample: CrossSection.364114`
(I add CrossSection.364114 in config file, the error disappear, but new error message printed:
`CP::TPileupRewighting... ERROR Unrecognised channelNumber 364114 for periodNumber 310000)`
 - Error message: `xAOD::TEvent::retrieve WARNING Couldn't (const) retrieve"DataVector<xAOD::Jet_v1>/AntiKt4TruthWZJets"`
`execute() ERROR Failed to retrieve AntiKt4TruthJets container.`
- The errors appear in the process of EventLoop, we need to revise the code more to solve the errors.

Backup

