# 每周小结

## Weekly Summary

周柏宏

2025年11月26日星期三

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TSUNG-DAO LEE INSTITUTE

# Finished
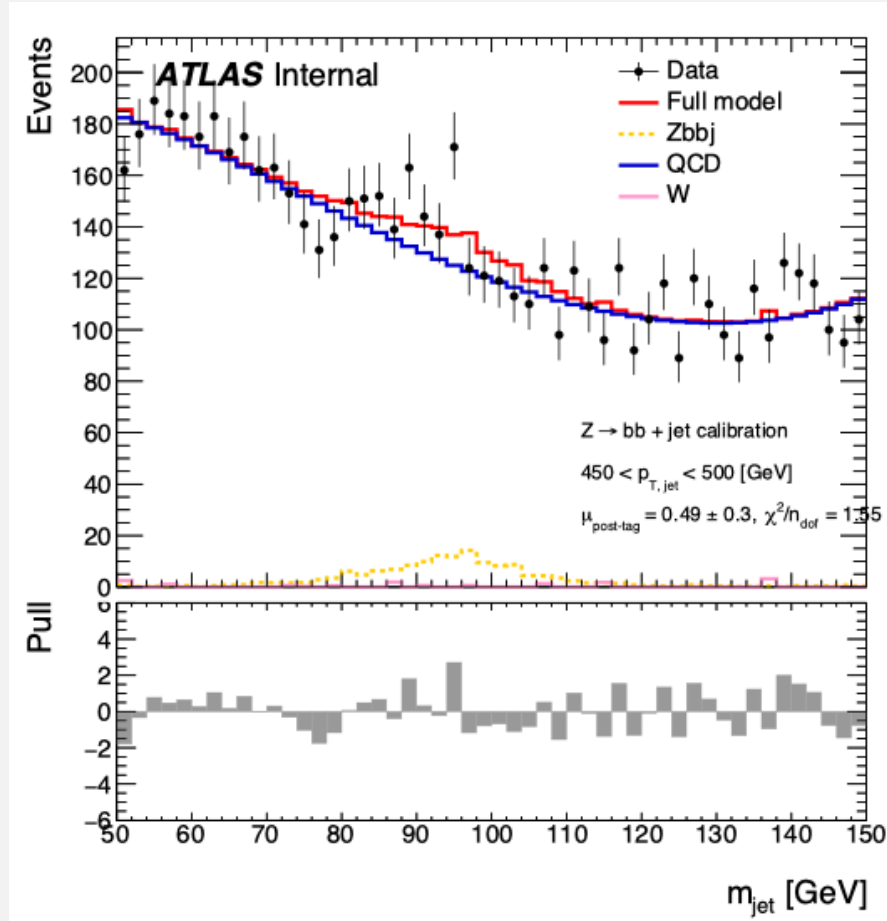
- **Same sign WW Polarization**

  - ✓ Updated the MC23 sample list;

  - ✓ Added the ssWW-MC23 to pipeline;

  - ✓ Adjusted the trigger list based on the latest recommendation;

- **Xbb Calibration**

  - ✓ Successfully produced all Run2 samples with systematics;

  - ✓ Processing the samples with coffea (zcalibrationntuples);

  - ✓ Checked the fitting results for mc20d with 0.25 WP using ZCalibrationFitter;
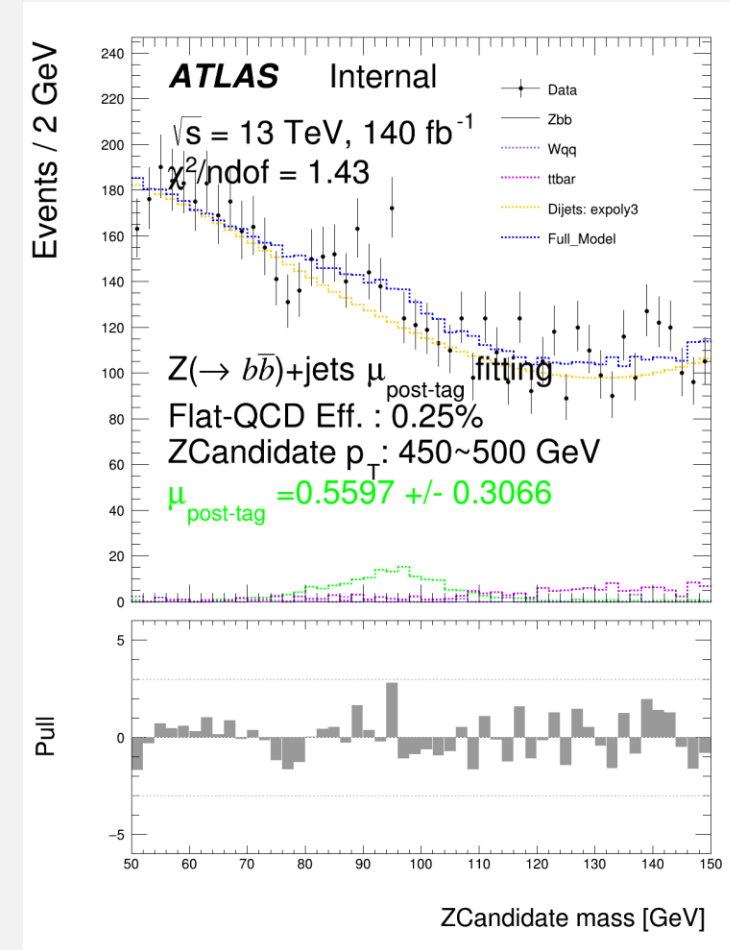
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- The fitting results for μ, only considering the stat and the MC unc.;



**The diff is within 1$\sigma$**



**Currently:**
μ = 0.49 ± 0.3

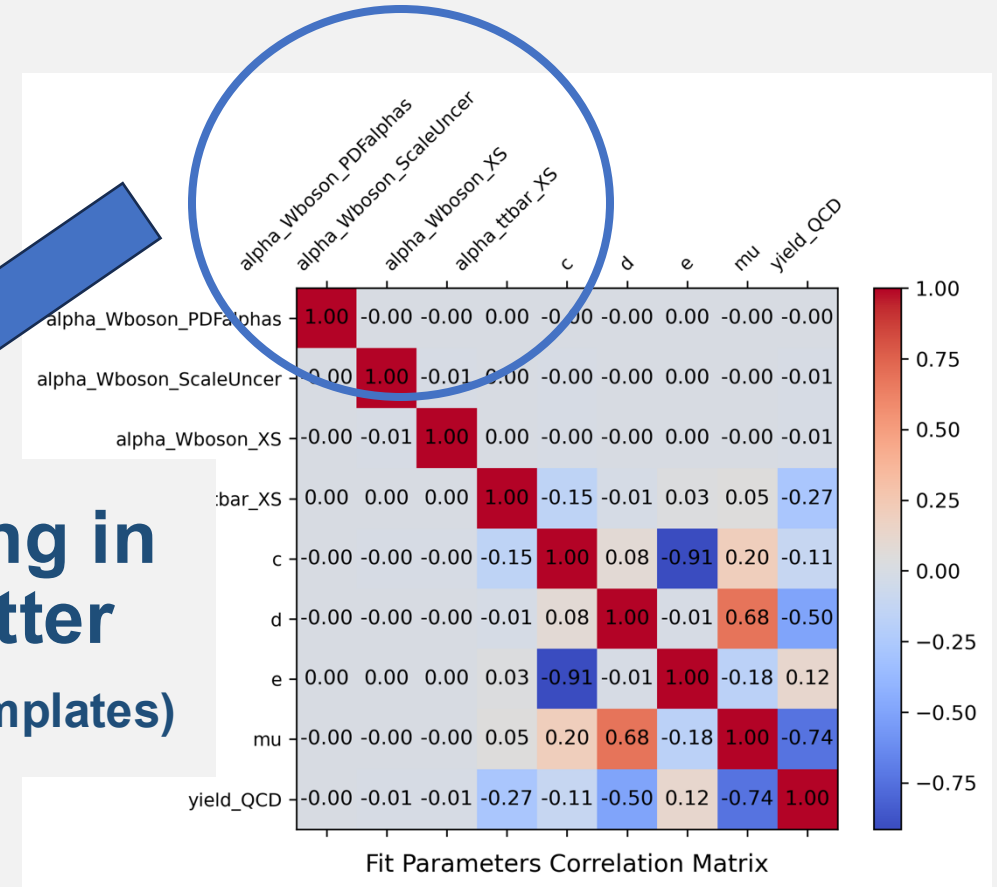**Previous:**
μ = 0.56 ± 0.3

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# Xbb - Fitting (mc20d (WP: 0.25, pT1))

- The fitting results for $\mu$, only considering the stat and the MC unc.;

**Check the setting in ZCalibrationFitter**

**(from the name of the templates)**
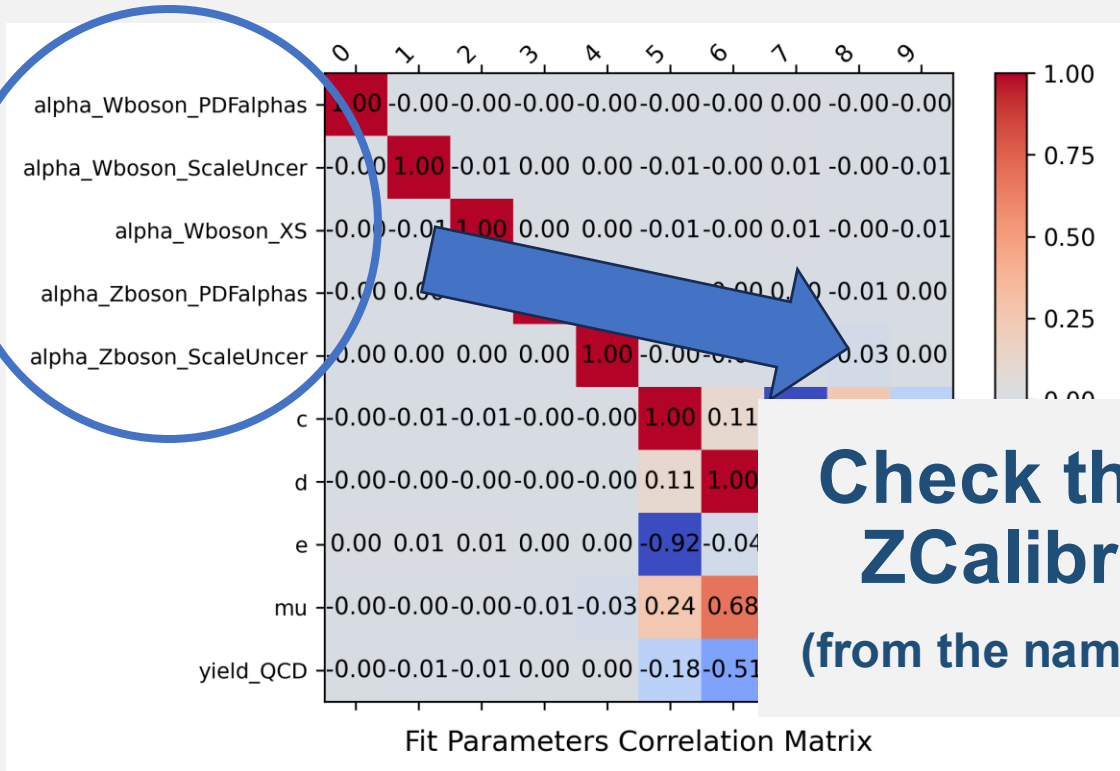
**Current Correlation Matrix**

**Previous Correlation Matrix**

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# ssWW - Missing Samples List

## Samples for mc23 could not be found in the PMG Twiki (but found in mc20):

| Process | Sample Name | Explanation |
|---|---|---|
| WZ EW | MGPy8EG_NNPDF30NLO_A14NNPDF23LO_lvlljjEW6_SFMinus | The **Sherpa_2214** sample could be found for mc23 (for Run3 WZ analysis, they are using this) |
| | MGPy8EG_NNPDF30NLO_A14NNPDF23LO_lvlljjEW6_SFPlus | |
| | MGPy8EG_NNPDF30NLO_A14NNPDF23LO_lvlljjEW6_OFPlus | |
| | MGPy8EG_NNPDF30NLO_A14NNPDF23LO_lvlljjEW6_OFMinus | |
| TopV | MadGraphPythia8EvtGen_A14_tZ_4fl_tchan_noAllHad | |
| | aMcAtNloPythia8EvtGen_MEN30NLO_A14N23LO_ttW | |
| | MadGraphPythia8EvtGen_A14NNPDF23_ttbarWW | |
| Vjets | All samples with MGPy8EG generator | Mc23e could not be found (Due to Madgrapgh updates) |

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# ssWW - Missing Samples List

## Samples for mc23 could not be found in the PMG Twiki (but found in mc20):

| Process | Sample Name | Solution |
|---|---|---|
| WZ EW | MGPy8EG_NNPDF30NLO_A14NNPDF23LO_lvlljjEW6_SFMinus | Change to **Sherpa_2214** sample |
| | MGPy8EG_NNPDF30NLO_A14NNPDF23LO_lvlljjEW6_SFPlus | |
| | MGPy8EG_NNPDF30NLO_A14NNPDF23LO_lvlljjEW6_OFPlus | |
| | MGPy8EG_NNPDF30NLO_A14NNPDF23LO_lvlljjEW6_OFMinus | |
| TopV | MadGraphPythia8EvtGen_A14_tZ_4fl_tchan_noAllHad | (tZ and ttWW have been found, tW would change to Sherpa samples) |
| | aMcAtNloPythia8EvtGen_MEN30NLO_A14N23LO_ttW | |
| | MadGraphPythia8EvtGen_A14NNPDF23_ttbarWW | |
| Vjets | All samples with MGPy8EG generator | Change to **Sherpa_2214** sample |

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# Plan

- **Dark SHINE**

  - Do rough hyper-parameter scans;

- **ssWW Polarization**

  - Derive the final results for the significance;

  - Push the MC23 related codes to the main branch;

- **Zbbj Calibration**

  - Reply all the comments and merge my MR;

  - Checked the latest fitting framework;

- $H \rightarrow WW$ **Quantum Entanglement**

  - Talk with Danning for the following tasks;

- $H \rightarrow \gamma^* \gamma$

  - Waiting for Danning to provide the full systs workspace;

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