



$$hh \rightarrow WW\gamma\gamma \rightarrow lvqq\gamma\gamma$$

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Zh PS uncertainty

- MadGraph
- N_0jet: $12313./20040. = 6.14e-01$
- N_1jet: $5773./20040. = 2.88e-01$
- N_2jets: $1954./20040. = 9.75e-02$

- Pythia8 (Required the number of lepton ≥ 2)
- n_0jet: 0.655
- n_1jet: 0.254
- n_2jet: 0.0908 (≥ 2 jets)

- Error (k_Generator_zh)
= $|0.0908 - 0.0975| / 0.0908 = 7.38\%$

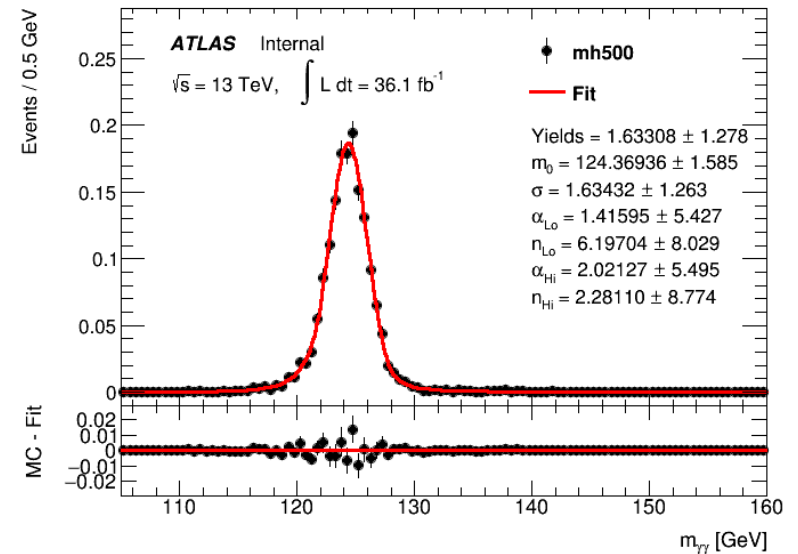
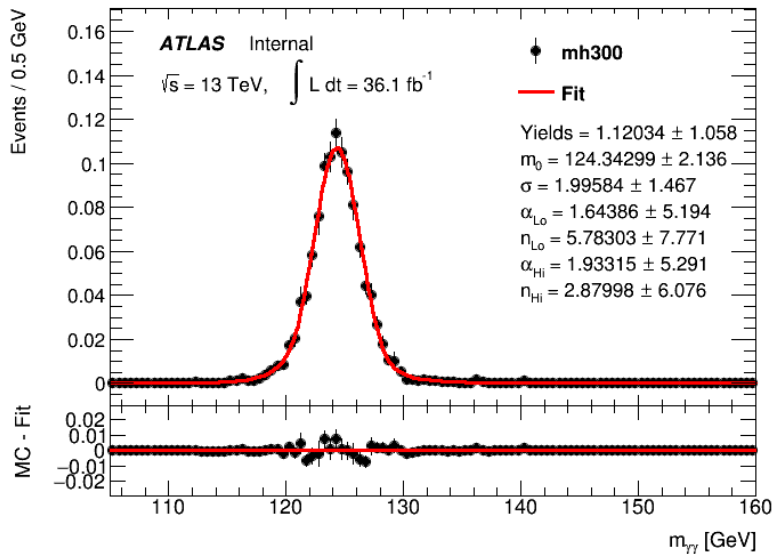
Wh PS uncertainty

- MadGraph
- N_0jet: 27870./44882. = 6.21e-01
- N_1jet: 12723./44882. = 2.83e-01
- N_2jets: 4289./44882. = 9.56e-02

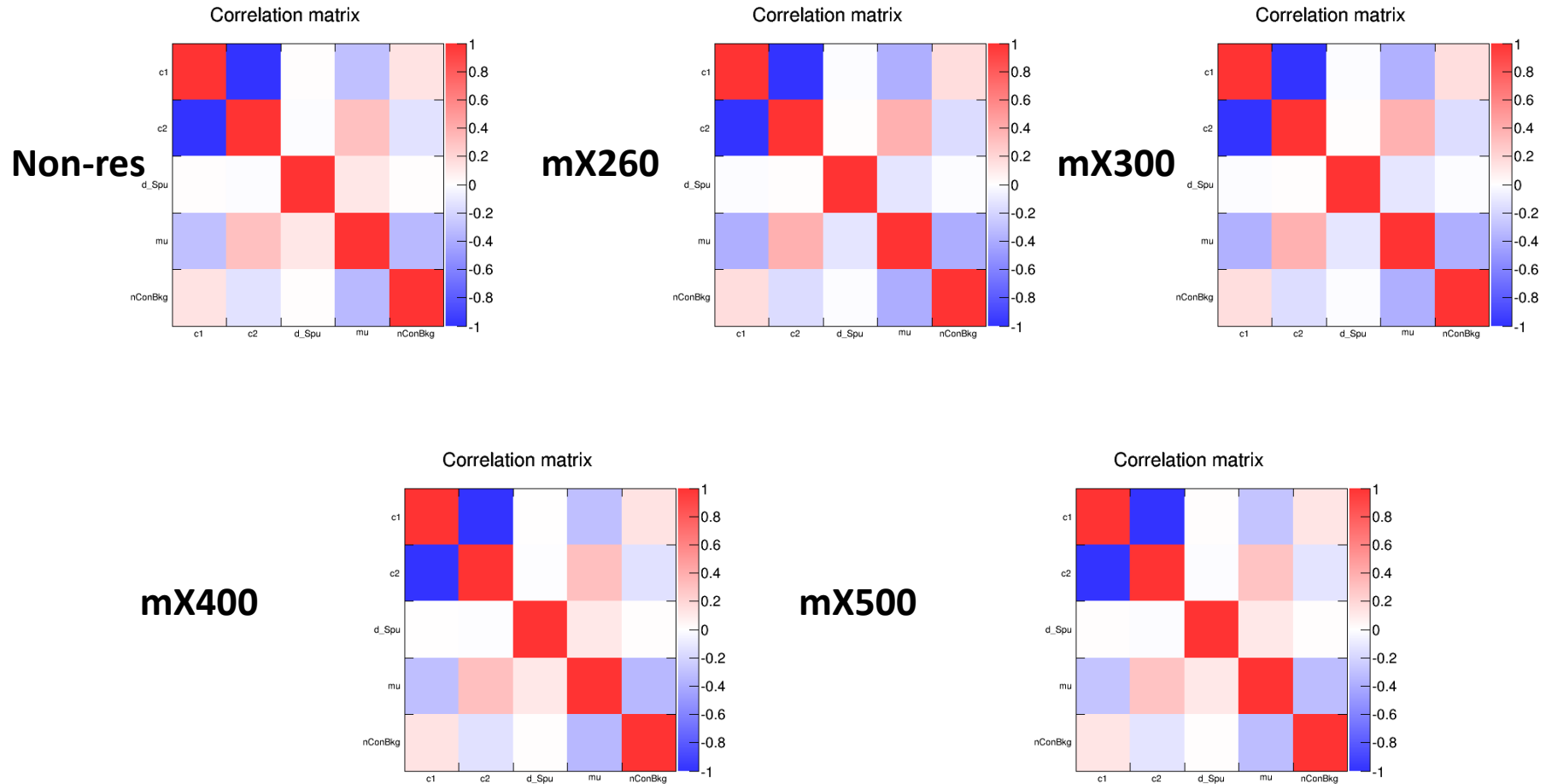
- Pythia8 (Required the number of lepton ≥ 1)
- n_0jet: 0.675
- n_1jet: 0.247
- n_2jet: 0.0779

- Error (k_Generator_wh)
= $|0.0779 - 0.0956| / 0.0779 = 22.7\%$

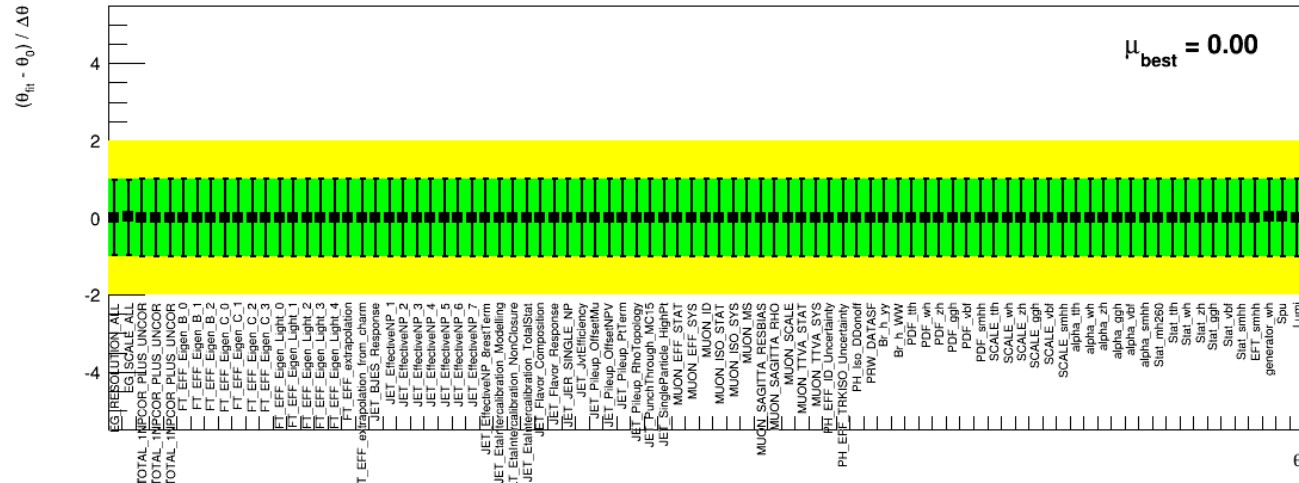
The errors of the shape parameters



Reduced correlation matrix



Non-res



Backup

Remaining issues

- Theoretical uncertainties on acceptance
- New samples for SM Higgs processes
- Full systematical scheme