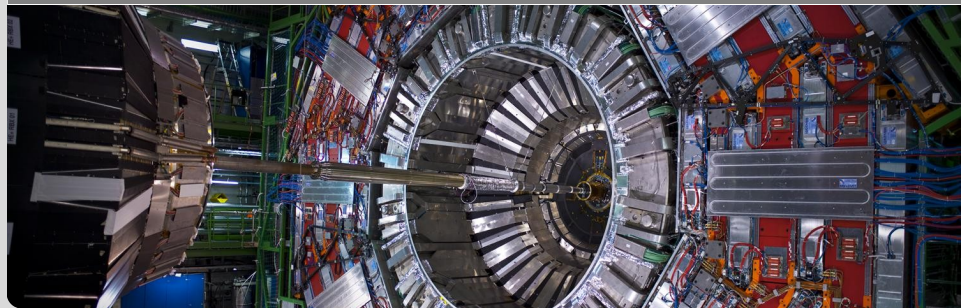


# Study of the Overlap with the HWW Analysis in the Dimuon Channel

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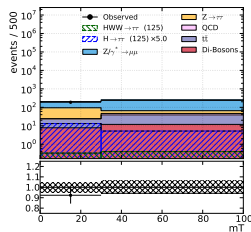
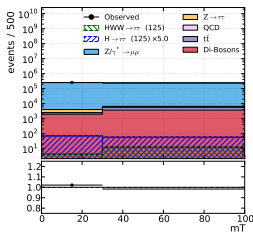
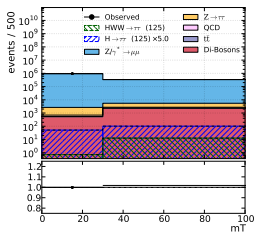
# Transversal Mass (with Cut at 30 GeV)

0 Jets

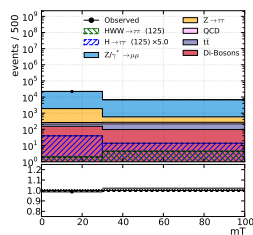
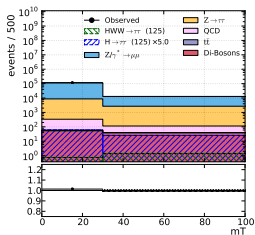
1 Jet

VBF

High Pt



Low Pt



# Changes in Event Yields after Cut on mT

- Table shows efficiency after mT cut = yield (mT < 30 GeV) / inclusive yield

| Process        | VBF  | 1 Jet High | 1 Jet Low | 0 Jet High | 0 Jet Low |
|----------------|------|------------|-----------|------------|-----------|
| Data           | 0.44 | 0.52       | 0.76      | 0.74       | 0.90      |
| ZMM            | 0.37 | 0.51       | 0.77      | 0.74       | 0.91      |
| ZTT            | 0.79 | 0.71       | 0.75      | 0.42       | 0.76      |
| TTJ            | 0.38 | 0.20       | 0.33      | 0.11       | 0.51      |
| Dibosons       | 0.40 | 0.35       | 0.61      | 0.19       | 0.58      |
| QCD, WJets     | 0.00 | 0.22       | 0.84      | 0.33       | 0.70      |
| $H_{TT}$ (125) | 0.72 | 0.54       | 0.74      | 0.34       | 0.71      |
| HWW (125)      | 0.46 | 0.25       | 0.31      | 0.06       | 0.34      |

- mT cut of 30GeV show a signal efficiency from 30-75 % depending on the event category
- Background gets more reduced than signal, what could cover the loss of signal events
- HWW signal gets reduced significantly
- Reasonable inclusive agreement between data and MC after mT cut

- Less than 0.1 % of data events (in most cases either 0 or 1 event of each data ntuple file) are selected in both the  $H \rightarrow \tau\tau$  and the HWW analysis
- Do we need to change anything?
- Check for possible bugs in using the event lists is ongoing