Update: Trilinear reweighting

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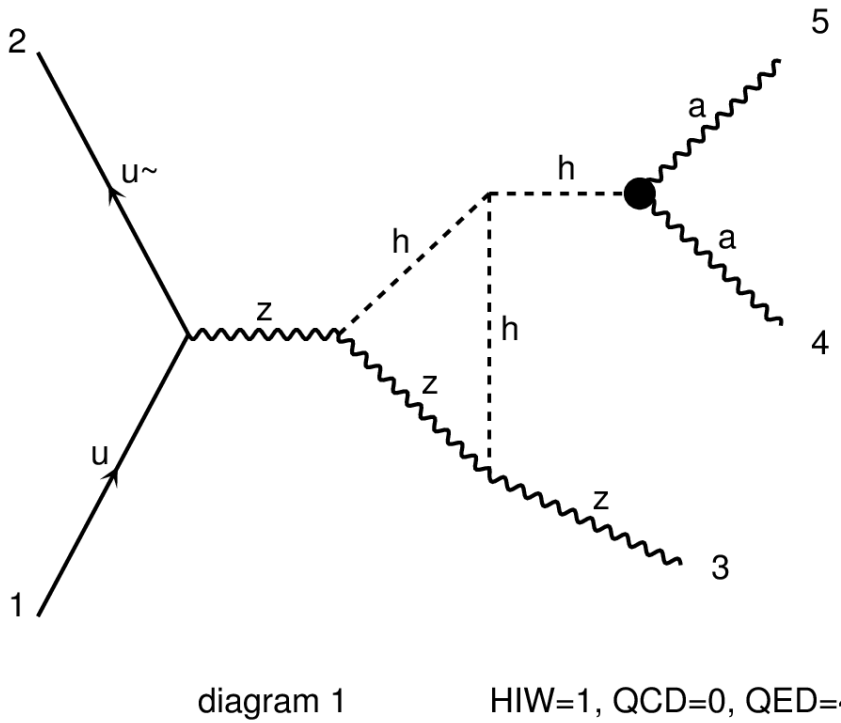
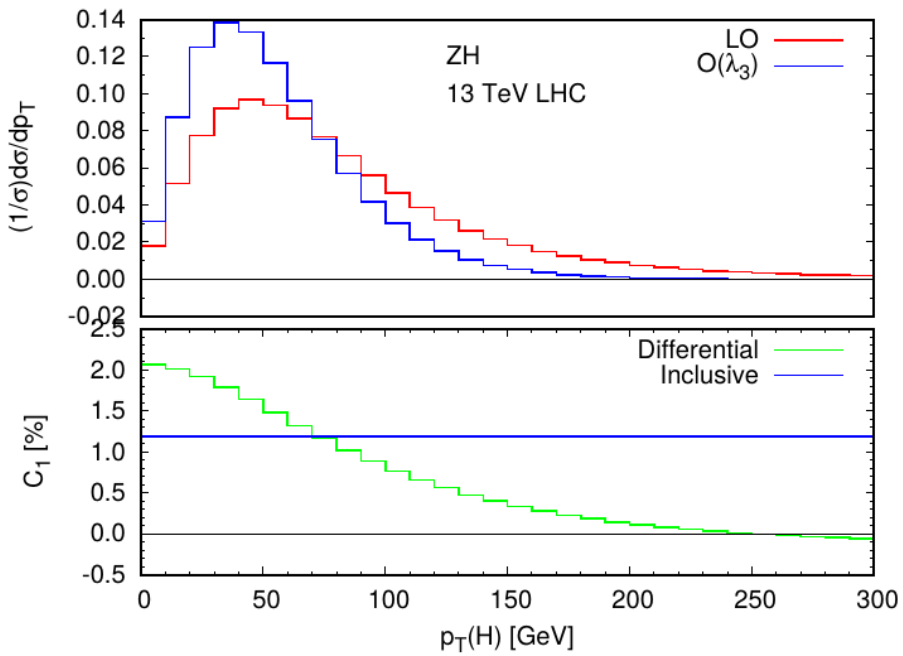
Status

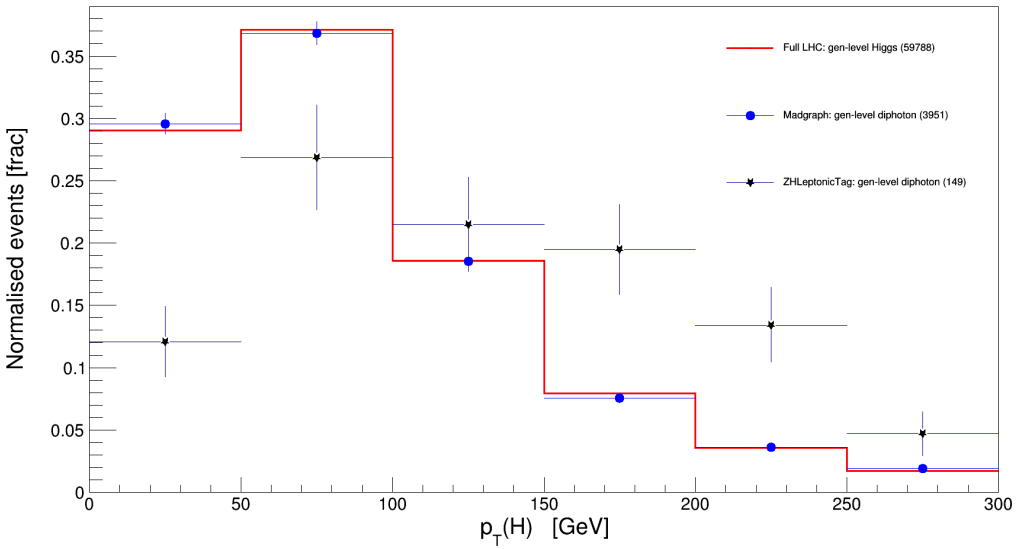
- Successfully generated LO and $\mathcal{O}(\lambda_3)$ events via madgraph. Can calculate C_1 in bins of kinematic distribution.
- Building up analysis: ZHLeptonic
  - Use ZHLeptonicTag on LHC MC samples
  - Dumper configured to output info of reconstructed + gen-level diphotons and leptons
  - End goal: fit for κ_λ using C_1 values determined from madgraph samples. Sensitivity at 3000 fb^{-1}?





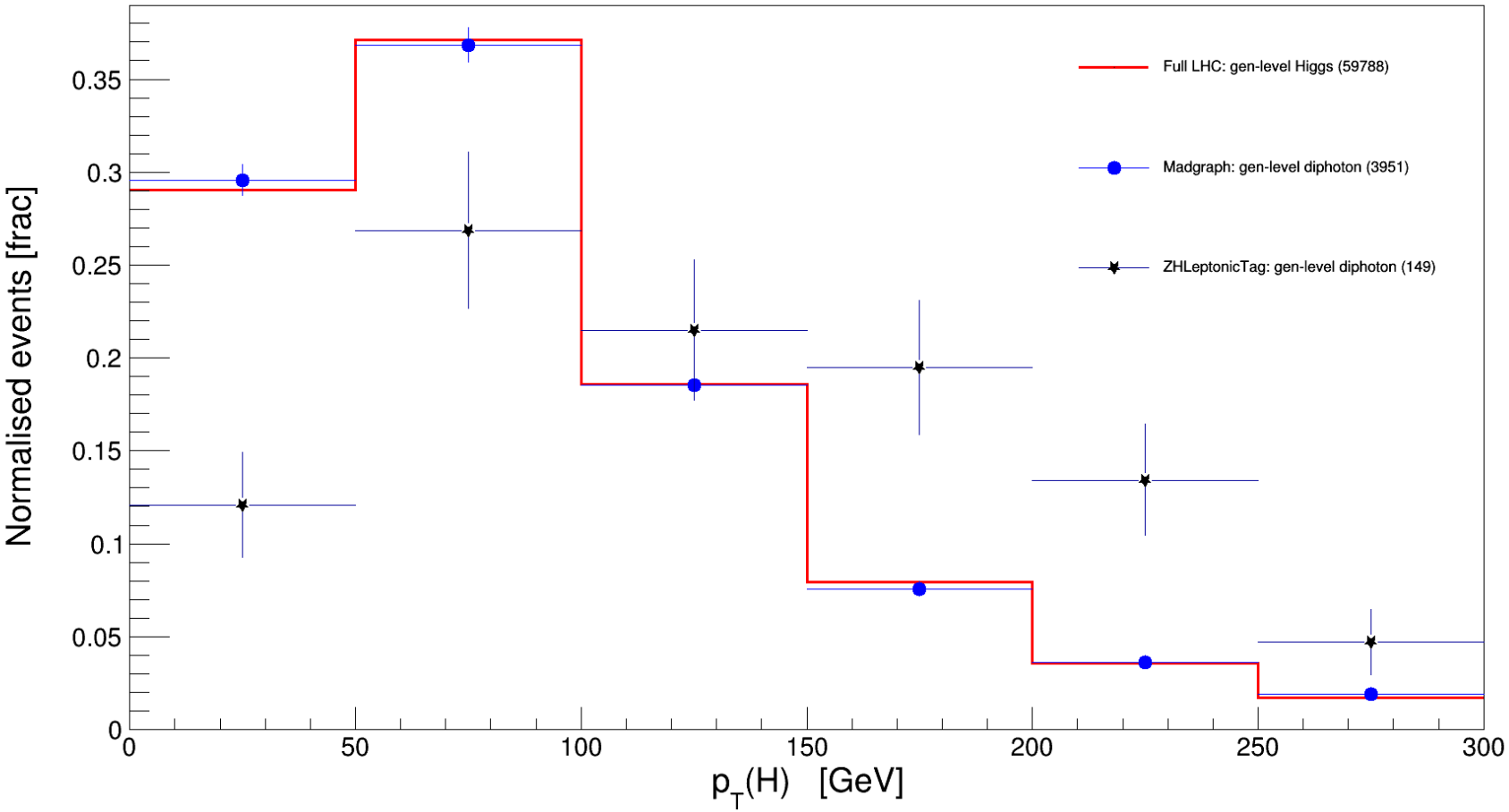
Discrepancy at low $p_T(\gamma\gamma)$

- $p_T(\gamma\gamma)$ spectrum of ZHLeptonicTag events (from LHC sample) has deficit at low $p_T(\gamma\gamma)$ compared to madgraph generated events.

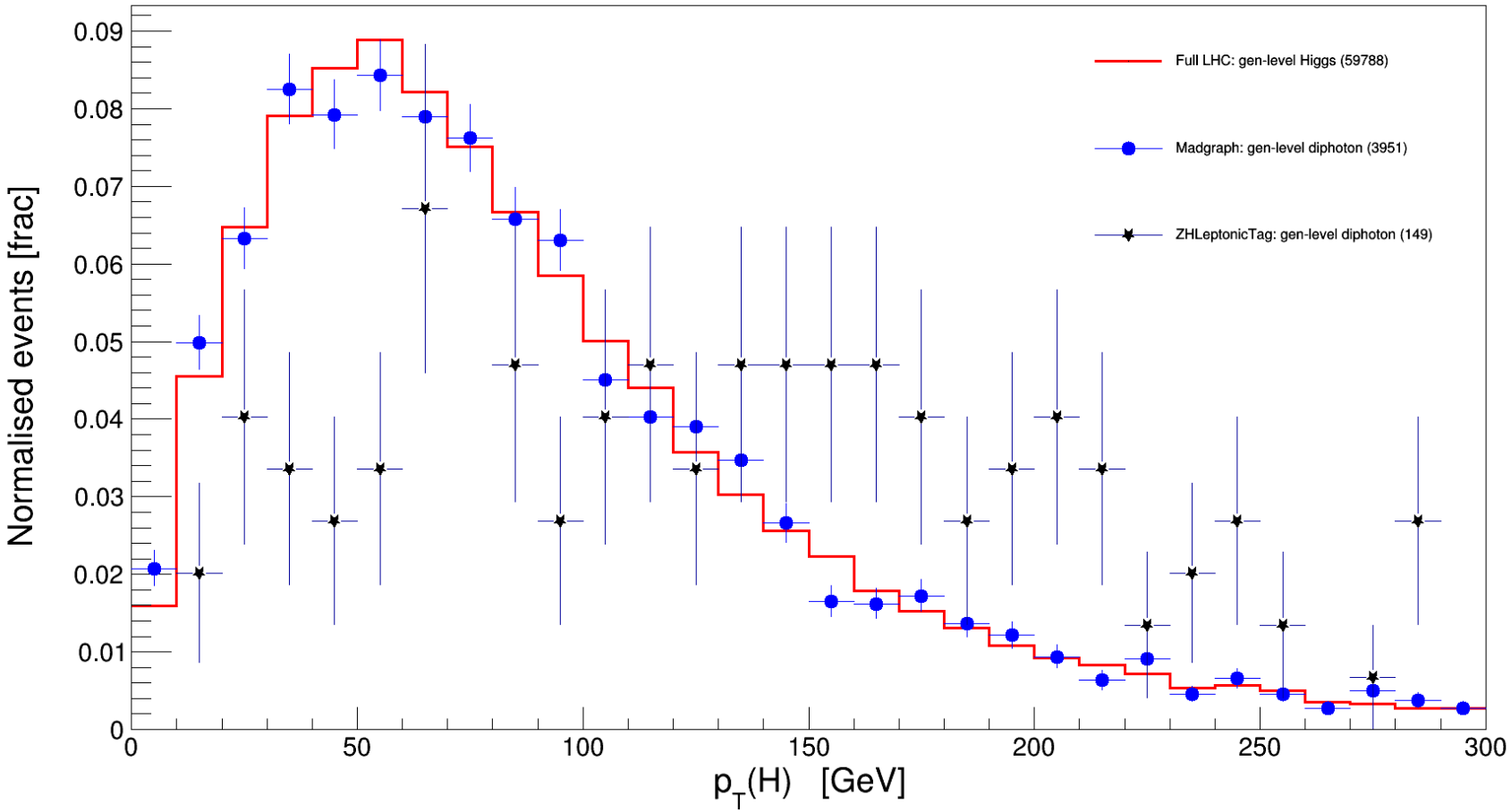


- Gen-level Higgs: $p_T(H)$ for full VHTOGG LHC sample has same shape as madgraph events. Suggests there is **no significant difference** in intrinsic kinematics.
- Selection removing low $p_T(H)$ events?
  - $p_T(\gamma)$
  - Diphoton MVA: tried fully relaxing constraint and no significant change in event numbers ($+2$). Preselection?

Discrepancy at low $p_T(\gamma\gamma)$



Discrepancy at low $p_T(\gamma\gamma)$



Why lack of statistics in MC ZHLeptonicTag?