Imperial College London

VBF Higgs to Invisible

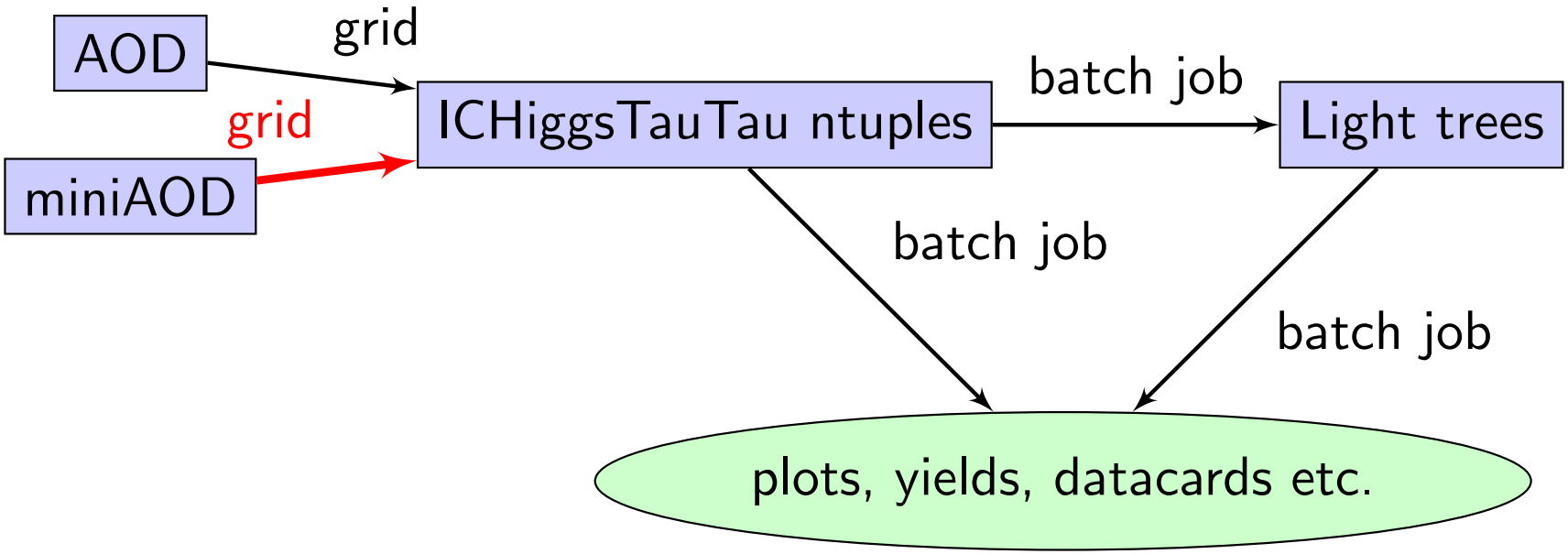
HIG-14-038, AN-14-243

Overview

- We plan to make ntuples from miniAOD
- Working with other ICHiggsTauTau users to update ntuple maker to new recipes
  - Adinda de Wit, Andrew Gilbert, Rebecca Lane
- Will go through progress on objects that have been looked at so far

Reminder of framework structure

- Focus today on miniAOD to ntuples



Electrons

- In run 1 we used cut based identification at veto and tight working points
- Updated for run 2
  - Ntuples already contain all required variables
  - istight() etc. functions will be updated to new cut values
  - Details here

Muons

- In run 1 we used cut based identification at loose and tight working points
  - These are currently unchanged for run 2
- In run 2 there is also a medium working point with better fake rejection than loose but still high efficiency
  - Ntuples have been updated to contain variables required
- Updated for run 2, code has been updated to store all needed variables in ntuples
  - Details here

Taus

- In run 1 we used same ID as $H \rightarrow \tau\tau$ group
- Baseline ID to be used by $H \rightarrow \tau\tau$ in run 2 currently being implemented
  - Details here

Jets

- In run 1 we used ak5 non-CHS jets
- Switching to ak4 for run 2
- Implementation of updated pf and pu jet IDs in progress
- Only CHS jets are stored in miniAOD
  - We can remake non-CHS jets from packed candidates but no pu jet ID available until CMSSW_7_4_X

MET

- In run 1 we used type0PC+type1 corrected MET
- type 1 corrected MET is stored in miniAOD
  - Can't find a recipe to go from this to type 0 + type 1
- Looking into remaking raw MET from packed candidates and applying correction manually

Photons

- Not used in run 1
- For run 2 we aim to use a γ+jets region
- Will implement POG cut based photon ID
  - Details here

Generator information

- MiniAOD has two gen information collections:
- prunedGenCandidates: full info on a limited set of gen particles
  - Currently contains all leptons and b quarks
  - Evolving rapidly
- packedGenCandidates: packed info on all status 1
  - Mainly for clustering gen jets

Summary

- Progress is being made on leptons, jets and MET
  - Recipes are evolving so updates will be necessary
- We have also updated recipes for saving vertex information
- Still need to look at b jets, tracks and trigger information

Backup