Status/Updates of VBF MVA

Yaquan Fang, Shan Jin, Xinchou Lou,
Jin Wang, Huijun Zhang

IHEP, China

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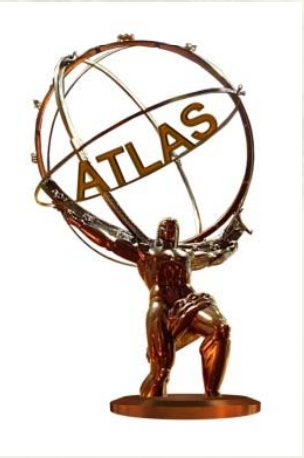

New Samples

- Final ntuples are not ready, AC is still evolving
- Some available new ntuples (not public yet)
  - 8TeV
    - /eos/atlas/user/f/fwang/HSG1_ntuples_Nov07_ForNareiCalibration
  - 7TeV
    - /eos/atlas/user/f/fwang/HSG1_ntuples_ttH2011P1373Nov15
- Changes:
  - new geometry
  - Estelle's pT reweighting for ggH
  - implement relative pt cuts
  - reorder two photons after eta correction from primary vertex
  - cut on mass 105-160 GeV

6 Vairable MVA Training

- VBF MVA with 6 variables
  - Option 1
    - MVA configuration
      - NTrees=850:nEventsMin=500:BoostType=Grad:Shrinkage=0.06:UseBaggedGrad:GradBaggingFraction=0.5:nCuts=30:MaxDepth=4
    - Categorization: [0.29,0.83]
  - Option 2:
    - MVA configuration:
      - NTrees=850:nEventsMin=50:BoostType=Grad:Shrinkage=0.06:UseBaggedGrad:GradBaggingFraction=0.6:nCuts=20:MaxDepth=4
    - Categorization: [0.26,0.82]

Results (5GeV wind)	option1 loose	option1 tight	option2 loose	option2 tight
VBF signal	4.8	3.9	4.7	4.1
ggF	3.8	0.96	3.9	1.0
bk model	41.8	6.2	43.7	6.7
Purity	54.9%	79.8%	53.7%	79.6%
significance	0.70	1.35	0.67	1.36
Data	436	64	453	69

Cross Checks and 7TeV

- Current finalizing cross checks and provide the weight file to coupling analysis tomorrow
- Will also check 7TeV results and cross checking with hongtao.
- Preparing the talk for workshop
  - Baseline MVA
    - Considered optimization approaches
    - Changes
    - Expected improvement
  - Compare to cut-based results used in differential analysis
  - 20 minutes talk, 5 minutes discussion.