

# WWyy work status(1<sup>st</sup> week)

for hh pairs search

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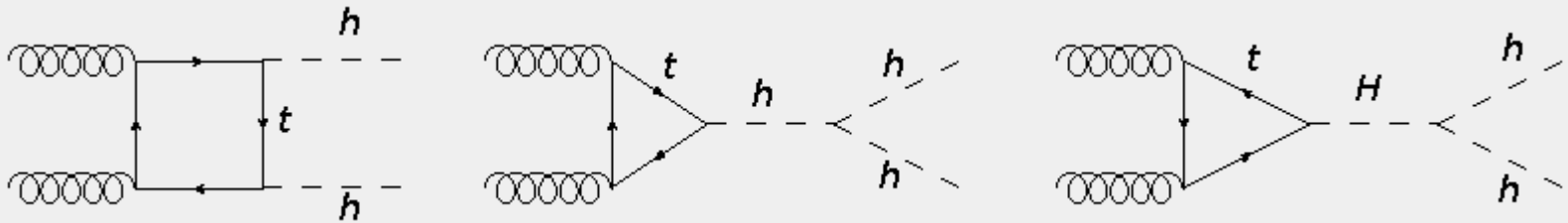
# Outline

- ☞ Intro: basic physics pictures
- ☞ signal MC request status: testing JO files
- ☞ To do

# physics: signal&bkg

☞ non-resonant:  $p p \rightarrow h h$

☞ resonant:  $p p \rightarrow H \rightarrow h h$



☞  $h \rightarrow w w, w \rightarrow j j, w \rightarrow l \nu$

☞  $h \rightarrow \gamma \gamma$

☞ bkg: taken from sm higgs production modes, which is  $ggh, VBF, Wh, Zh,$  and  $tth$

# signal MC request

☞ now is testing 300GeV JO file, you can find in:  
/afs/cern.ch/user/m/mzhou/public/run\_wwaa/MC15.999999.MadGraphPythia8E  
vtGen\_A14NNPDF23LO\_X300tohh\_yyww.py

☞ Basically, it is deried from bbyy JO, just modified several items

☞ MHH=300GeV (mass of H) , WHH=10MeV (width of H)

```
parameters={'1560':'3.000000e+02', #MHH  
            '1561':'1.000000e-02'} #WHH
```

☞ run\_card.dat: keep the same as bbyy

☞ generate command lines:

```
import model sm  
define p = g u c d s u~ c~ d~ s~  
define j = g u c d s u~ c~ d~ s~  
import model HeavyHiggsTHDM  
generate p p > h h
```

☞ ww decay:

```
genSeq.Pythia8.Commands += ["25:oneChannel = on 0.5 100 24 -24 ", #ww decay  
                             "25:addChannel = on 0.5 100 22 22 "] #gammagamma decay
```

# continue on JO

🔗 EVNTFile generated successfully:

```
asetup 19.2.3.10
```

```
Generate_tf.py --ecmEnergy=13000 --runNumber=999999 --maxEvents=1000 --randomSeed=123456
```

```
--jobConfig=MC15.999999.MadGraphPythia8EvtGen_A14NNPDF23LO_X300tohh_yyww.py
```

```
--outputEVNTFile=MC15.999999.MadGraphPythia8EvtGen_A14NNPDF23LO_X300tohh_yyww.root
```

but, conversion(EVNTFile to DAOD\NTUP) failed, Xiaohu & me is debugging...

```
Reco_tf.py
```

```
--inputEVNTFile=MC15.999999.MadGraphPythia8EvtGen_A14NNPDF23LO_X300tohh_yyww.root
```

```
--outputDAODFile mytest.root --reductionConf TRUTH1
```

or

```
Reco_tf.py
```

```
--preExec='from D3PDMakerFlags import  
D3PDMakerFlags;D3PDMakerFlags.TruthWriteHadrons.set_Value_and_Lock(True)'
```

```
--inputEVNTFile=***pool.root outputNTUP_TRUTHFile=***.truth.1.root --autoConfiguration=everything
```

# To do

- ☞ fix the bug, get the output NTUP or DAOD file
- ☞ check the output file, plot some important variables(my, MHH...)
- ☞ modify/validate the JO files
- ☞ finally, official MC request

# Backup

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