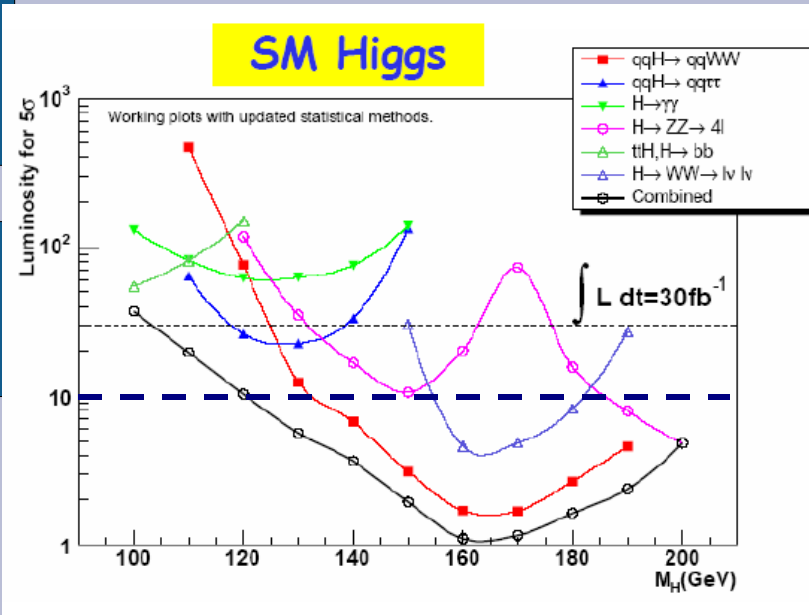


# Some Higgs WG Issues and Plans

- ❖  $10^{**7}$  MC samples for CSC (formerly DC3)
- ❖ remark on private MC production
- ❖ focus of Higgs WG activities ?

# Higgs WG MC Request for CSC (DC3)

- ❖ Main CSC samples should correspond to 1st 100 pb<sup>-1</sup> of ATLAS data



Process	produced	selected
H $\rightarrow$ gg (120) :	4.6 evts	1.1 evts
H $\rightarrow$ ZZ $\rightarrow$ 4l (150) :	0.6 evts	0.09 evts
H $\rightarrow$ WW $\rightarrow$ 2(lv)(170) :	80 evts	1 evts
VBF: H $\rightarrow$ tt(120) :	13 evts	0.1 evts
VBF: H $\rightarrow$ WW(160) :	150 evts	0.9 evts
ttH, H $\rightarrow$ bb(120) :	11 evts	0.14 evts

- ❖ too small signal rate  $\rightarrow$  look at your favourite BG processes

- What do we do with 1st data and hence with CSC MC sets?
- Which background studies are relevant and unique for Higgs WG?
  - e.g.  $\gamma\gamma$  mass resolution, forward jet tagging, .....
- What are your plans? (trigger study, xsec  $\gamma\gamma$  as  $f(M_{\gamma\gamma})$ , xsec for  $Z \rightarrow ll + \text{jets}, \dots$ )
- Which BG MC samples with which filters do you request and why?

# CSC MC request Type I: 100 pb<sup>-1</sup> samples

- ❖ Obvious BG samples:  
tt, W+jets, Z + jets, QCD, ZZ, WW,  $\gamma\gamma$ , ...
- ❖ But which filter cuts, how inclusive should samples be?
- ❖ It is also suggested that each WG group focuses on, say, two detailed topics which will then be the subject of a detailed note in spring 2007.“  
(quote from physics coordination meeting)
- ❖ In addition there will probably be a dedicated short workshop or extension of ATLAS week end of 2006/ beginning of 2007.

# CSC MC request type II: $\sim o(10\text{fb}^{-1})$ samples

- Proposed signal samples: (specialised BG samples not listed here)

$H \rightarrow gg$        $H \rightarrow ZZ \rightarrow 4 \text{ leptons}$        $H \rightarrow WW \rightarrow l\nu l\nu$

VBF:  $H \rightarrow \tau\tau \rightarrow \text{lep had, lep lep}$        $H \rightarrow WW \rightarrow \text{lep qq, lep lep}$

$t\bar{t}H, H \rightarrow bb$        $H \rightarrow \mu\mu, \tau\tau$  from direct and  $bbH$  production

- Goal: validation of software

extraction of key performance numbers

trigger studies and effect of misaligned + miscalibrated detector

- Guidelines: no sample should contain less than 10K events Provide following info:  
"10K of these corresponds to XX inverse pb-1 , This rate should include the effect of any generator level filtering.

- group requests by Nov. 14th → next discussion on PC Nov 16th

- Other mass points and extended samples should be done in private production

# Future Toronto activities

Goal, Work on CSC samples (type I: especially  $100\text{pb}^{-1}$ ), do exercise for 1st data, define our activities for 1st year of data taking

1) Continue our key performance studies with more realistic MC analysis for VBF:  $H \rightarrow \tau\tau$

- Fcal performances, jet Rec. efficiencies, Pile-up effect,
- Full trigger studies
- Study effects of misaligned / miscalibrated detector
  - intense interaction with comb. performance (jets) and trigger groups
- repeat and detail studies concerning BG estimate from data

2) On Going work

QCD and Higgs signal events digitization with pile-up

Higgs signal trigger simulation

Release 11.0.x validation (updated particle identification algorithms, jet calibration...)

Large scale QCD background production (Using LCG tools and WestGrid storage)