



Challenges and discussion about $H \rightarrow WW$: experimental feedback to theorists for differential/fiducial measurements

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LHC fiducial cross section workshop
<https://indico.cern.ch/event/399923/>



Questions from experimentalists to theorists



- From experimentalists to theorist:
 - We may measure **fiducial cross sections**
 - We may measure **differential cross section**, but only “**transverse**” variables (don't ask for Higgs rapidity distribution)
- Questions:
 - Which **variables** are you interested in?
 - Which variables would be used to **tune models and generators** within the **SM** theory of Higgs production?
 - Which variable would be useful to look for **BSM in the Higgs sector**?
 - Which variables are “**safe**” from BSM effects, and predictions can actually be used to tune Higgs production simulation? For example if a variable is very dependent on BSM models, we cannot use it to define fiducial regions or to reject background, since it would change the results.
 - Which **fiducial phase space** would you like to have?
 - Do you prefer background subtracted distributions or distributions including **irreducible backgrounds**? E.g. Higgs + WW or Higgs alone?
 - Which kind of “**lepton**” definition do you prefer? Before/after FSR? Dressed leptons?
- Please fill in the wish list “menu” and from experiments we can tell you what the chef has in the kitchen and what we will be able to cook