

Third Meeting For SM Higgs Boson Book

March 12, 2013

outline

- Introduction
- Where are we with the preparation of the various chapters?
 - Discussion
- Next steps
- Discussion

Status So Far & Path Ahead

- Kudos to several authors who managed to flesh out their articles towards a first draft
 - what is written looks good !
- The flip side of engaging the crème-de-la-crème in Higgs physics towards writing such a book is that they are always very busy
- We have produced beautiful results for Winter'13 conferences !
 - hence the writing of articles has lagged behind
 - after a brief rest, time to focus on the book writing
 - Next four weeks present a unique opportunity to converge towards a good first draft

Conference Schedule Ahead

- As Orwell wrote in 1984, the war is always on
 - conferences in our case...
- Major summer conferences are approaching
 - LHCp Barcelona : May 13
 - LP'13 SLAC : June 24
 - EPS'13 Stockholm : July 18th
- So between now & mid-april is a **period of opportunity** to focus on the book & produce a good first draft of each article
 - particularly for analyses which were updated for HCP and winter'13 conferences.

What do we have in svn now?

Theory chapter

- Discuss (briefly) here also production at Tevatron
- Probably the Higgs boson signatures at Tevatron and LHC should be discussed in the overview chapter (?)
- what are the plans to make further progress?

Overview chapter

- Just started
- Many things to do, still.
- Needs to be update with references to the various chapters of the book
- what are the plans to make further progress?

LEP chapter

- It is in a very good shape!
- Some questions:
 - The LEP machine is described here, so we put just a short introduction to LEP in the Overview and refer to it. We should check what is stated in the Overview on LEP.
 - Should the figure on the partial decay with go in the theory paper?
 - Should we refer to the theory paper as far as BRs are concerned?
- what are the plans to make further progress?

$$H \rightarrow \gamma\gamma$$

- Introductory material available; I think the approach adopted is good
- *Question for Tuesday: Does an earlier chapter talk about pileup and primary vertex identification? → very generic presentation in the Overview chapter, more detailed discussion in the gamma-gamma chapter*

$H \rightarrow ZZ \rightarrow 4l$

- Structure of the paper is available in svn
- Needs to be filled...

$$H \rightarrow WW \rightarrow lnl$$

- Very advanced paper!
- The ATLAS and CMS analyses are described in a very harmonized way.

$H \rightarrow b\bar{b}$

- Structure of the paper is available in svn
- Needs to be filled...

H → tautau

- Structure of the paper is available in svn
- Needs to be filled...

$H \rightarrow WW \rightarrow l\nu qq$

- It is another paper quite advanced
- The ATLAS and CMS analyses cannot be described using the same text. So, after a common part the paper branches in an ATLAS and in a CMS analysis discussion. Emphasize why ATLAS and CMS followed different solutions, and try to compare/contrast the approaches.
- I would put the results from ATLAS and CMS in a common section “Results” (as opposed to keep them in the two separated sections), to highlight the conclusion of the search

$$H \rightarrow ZZ \rightarrow llqq, llnn$$

- It is a very advanced status.

Combination

- Structure of the paper is available in svn
- Needs to be filled...

fully missing chapters (in svn)

- Tevatron
- Statistics
- Summary

General issues

- It would be good to have in each paper a *Results/Summary* section, that would be also the last section in each chapter
- bibliography: do we want to use bibtex?
- Other points?

What Is Needed To Produce A Good First Draft

- HCP and Winter'13 conferences have seen Tevatron & LHC results with majority of the dataset
- Barring a few exceptions, the general analysis methodology and results, already shown will change only incrementally, if at all
 - not so crucial for the general description intended for each review article
- Suggest to use the latest conf. papers, already available, to flesh out the first good draft of each article
 - then asymptotically iterate on the articles as these results go into publications
 - can we do this in the next month before summer conf activities heat up ?