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Instruction for CERN Yellow Report "Handbook of LHC Higgs Cross Sections

[i] This is the instruction for writing the CERN Yellow Report "Handbook of LHC Higgs Cross Sections: 3 Higgs Properties" .

- You can find the current draft at [WebSVN](#).
- E-group: lhc-higgs-contact members have read&write access privileges for above link.
- E-group: lhc-higgs members have read access privilege for above link.(disabled temporarily)

• Contents for CERN Report 3

• Code Repository (SVN at CERN)

- Please check the SVN Guide.
- **You can browse the repository via** [WebSVN Web Interface](#).
- Members of E-group: lhc-higgs-contact have read&write access for above link and SVN checkout privilege.
- Members of E-group: lhc-higgs have read access to [WebSVN Web Interface](#) (disabled temporarily).

• LaTeX Information

Source files

- LaTeX source files which describe each section should be located at the top directory under cernrep/trunk.
- To get started: download two files: YRHXS3_Section.tar.gz and allsty.tar.gz. The first one contains the basic LaTeX files, the second one contains all .sty, .cls, .bst files.
- Above and in the following "Section" should always be replaced by the individual group name, ggF, MSSM, BR,
- ALL figures should be placed under the subdirectories like cernrep/trunk/YRHXS_Section/*.eps
- Naming should be like YRHXS_Section_fig#.eps where # is the Figure number.
- Thus figure citation inside your LaTeX should be like,

```
\includegraphics[width=.48\linewidth]{YRHXS_Section/YRHXS_Section_fig1.eps}
```

LaTeX style

- LaTeX: Instructions for preparing CERN Report can be found at <http://cern.ch/dtp/dtpcernreport.asp>
- Detailed information about styles and rules are given in this pdf file (which is also given in the above YRHXS3_Section.tar.gz).
- Important examples for styles and rules:

cernunits.sty	GeV, etc.
heppennames2.sty	particle names
lhchiggs.sty	our definitions

LaTeX compilation

- On Linux, you can compile all LaTeX files by simply typing `make`. It could be a good idea to cleanup before with `make clean`.
- Before you commit your changes to SVN, make sure that there are no LaTeX compilation errors.

FAQ: I have my personalized macros. Where should I put on SVN?

- ALL `\usepackage{xxx}` should be declared in preamble inside the main LaTeX YRHXS.tex.
- ALL `\newcommand` should be merged into our style file `lhchiggs.sty`.

• Feynman Diagrams

- Use Axodraw [↗](#) for Feynman diagrams consistently and everywhere!
- Here is the sample LaTeX code and output PDF file.
- Colours are for illustration only, please use black-and-white diagrams by default!
- Please use shorthands for particle names and parameters as specified in the style files of the Yellow Report.

• Figures (ROOT)

- It is strongly encouraged to create figures with ROOT for eps format only.
- ROOT macro files for LHC Higgs XS WG is `lhchiggsstyle-v3.zip`.
- Please read the README file in the macro package.

1. `LHCHiggsStyle.C`: it contains the actual style definition. You can call it from any macro by doing something like:

```
gROOT->LoadMacro("LHCHiggsStyle.C");
SetLHCHiggsStyle();
```

2. `rootlogon.C`: automatically loads the LHCHIGGS style. Put in your working directory together with `StyleLHCHiggs.C`, and you'll get the LHCHIGGS style loaded by default any time you launch ROOT in that directory.
3. `LHCHiggsUtils.C`: a useful utility package, containing several function definitions, like the one to generate the LHCHIGGS label (ex. `LHCHIGGS_LABEL(0.98,0.725)`). You can load it in your plotting macro by doing:

```
gROOT->LoadMacro("LHCHiggsUtils.C");
```

4. `LHCHiggsExample.C` will produce an example plot. Just copy them in the directory with all the other style and utility files, and execute the macro. Enter root and do:

```
.x LHCHiggsExample.C
```

- Example eps file `LHCHiggsExample.eps`.

FAQ: Axis label and numbers overlap. How can I change the position of the labels ?

- Change the label offset values in LHCHiggsStyle.C

```
// set label offsets
lhchiggsStyle->SetTitleOffset(0.9, "x");
lhchiggsStyle->SetTitleOffset(0.8, "y");
```

FAQ: I am a fan of TopDrawer. How I can create the ROOT figure?

- Ask your experimental colleagues to create the ROOT figure by giving the XS data sets.
- Here is one example of ROOT macro which converts TopDrawer file into ROOT.

1. tdr2root.sh: TopDrawer to ROOT conversion script
2. tdr2root.C: TopDrawer to ROOT conversion source file

- where Input: filename.tdr and Output: filename.root .

```
source tdr2root.sh filename
```

• Tables

- Only ONE best estimate (N)NLO table after PDF4LHC recipe in the main text.
- ALL other tables like, LO/NLO numbers, each MSTW/CTEQ/NNPDF NLO table go into Appendix.
- Table contents should look like this.

M_H [GeV]	[pb]	QCD scale uncertainty	PDF+ _s error	Total error
120	1.234	+1.0%	+2.0%	+2.2%
		-2.0%	-2.0%	-2.8%

• References (BibTeX)

- References should be listed in BibTeX format.
- To get the BibTeX, just click "BibTeX" output format in INSPIRE [↗](#) or SPIRES [↗](#).
- Please do not modify the Article label.
- Please make sure that there are no duplications which cause the LaTeX errors.
- There is only ONE bib file, YRHXS.bib. Please do not create separate bib file.

```
@Article{Higgs:2002ht,
  author   = "Higgs, Peter W.",
  title    = "{My life as a boson: The story of ' The Higgs '}",
  journal  = "Int. J. Mod. Phys.",
  volume   = "A17S1",
  year     = "2002",
  pages    = "86-88",
  SLACcitation = "%%CITATION = IMPAE,A17S1,86;%%"
}
```

-- ReiTanaka - 26-Sep-2010

- lhchiggsstyle-v1.zip: ROOT Macros for LHC Higgs XS group style
-

This topic: LHCPHysics > LHCHWGCERNYellowReport3
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