Instructions for PDG Review Authors

1 Introduction to PDG review example

This file, `examples.tex`, contains examples for writing PDG reviews. When you start writing your review, you should comment out the line in BASENAME-main.tex that includes this file.

PDG review source files consist of files edited by the review author as well as generated files. Do NOT edit generated files - your changes will be lost as the files are periodically regenerated. Files edited by review authors:

- BASENAME-main.tex - this file contains the text of your review (you may include other files)
- BASENAME-booklet.tex - contents of the booklet version (if there is one)
- BASENAME-preamble.tex - for review-specific definitions or packages that need to go into the document's preamble
- BASENAME.bib - BibTeX bibliography entries (see below)
- figures - directory where to put all figures

Generated files (do not edit them!):

- Makefile - Makefile to generate different formats
- pdg.cls - PDG review sytle file
- pdg.bst - BibTeX style file
- pdgdefs.tex - PDG standard symbols and macros
- BASENAME.tex - driver file for this review in standalone mode
- examples.tex

2 Type-setting style

We give here our conventions on type-setting style. Particle symbols are italic (or slanted) characters: e^-, $\bar{p}$, Λ_b, π^0, K_L^0, D^*. Charge is indicated by a superscript: B^-, Δ^{++}. Charge is not normally indicated for p, n, or the quarks, and is optional for neutral isosinglets: η or η^0. Antiparticles and particles are distinguished by charge for charged leptons and mesons: τ^+, K^- Otherwise, distinct antiparticles are indicated by a bar (overline): $\bar{\nu}_\mu$, $\bar{t}$, $\bar{p}$, $\overline{K}^0$.

3 How to include figures

To add a figure, it is recommended to use the `\pdgfigure` or `\pdgwidefigure` enviroments for a single-column or double-column wide figure in the book format, respectively. To include two images in one figure use the enviroment `\pdgdoublefigure`. The figures need to be in `.pdf` format. Depending on your version of latex, running pdflatex may or may not convert the `.eps` files into `.pdf`. In case the conversion fails, the conversion can be done manually with variuos programs (ImageMagick on linux for example). Make sure that the `.pdf` figure is added into the subdirectory `figures`, and that it is commited in svn or provided with your text.
The macros `\pdgfigure` and `\pdgwidefigure` take the following arguments:

```
\pdgfigure{name of the file in the figures directory}
{your caption }{ label }{option to determine the position}
{other options}
```

The macro `\pdgdoublefigure` takes the following arguments:

```
\pdgdoublefigure{name of the file1 in the figures directory}
{name of the file2 in the figures directory}
{your caption }{ label }{option to determine the position}
{other options}
```

Good practice for the label is to use the following convention: `BASENAME:fig:some-meaningful-name`. Examples on how to use these enviroments are shown below. The snippets of code can be directly included in BASENAME-main.tex.

```
\pdgfigure{filename.pdf}{Figure with caption and label}
{BASENAME:fig:ideogram}{}{}
```
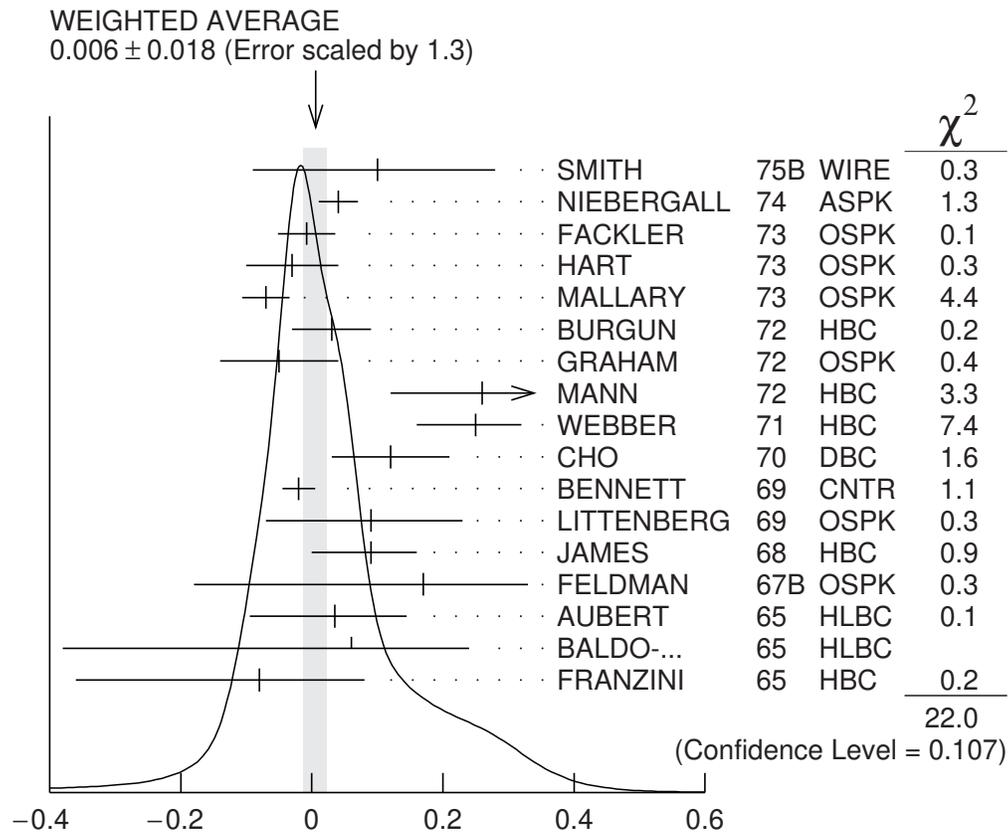

Figure 1: Figure with caption and label

```
\pdgdoublefigure{filename.pdf}{filename.pdf}
{Two figures, with caption and label, reduced in size}
{BASENAME:fig:ideogram2}{ht!}{width=0.4\textwidth}
```

```
\pdgwidefigure{filename.pdf}
{Wide figure forced to be placed at the top of the page}
{BASENAME:fig:ideogram3}{t}{}
```

To add a reference to the figure in the text, the following command can be used: `\ref{label}`. For example, to reference Figure 1 use the following code: `\ref{BASENAME:fig:ideogram}`.
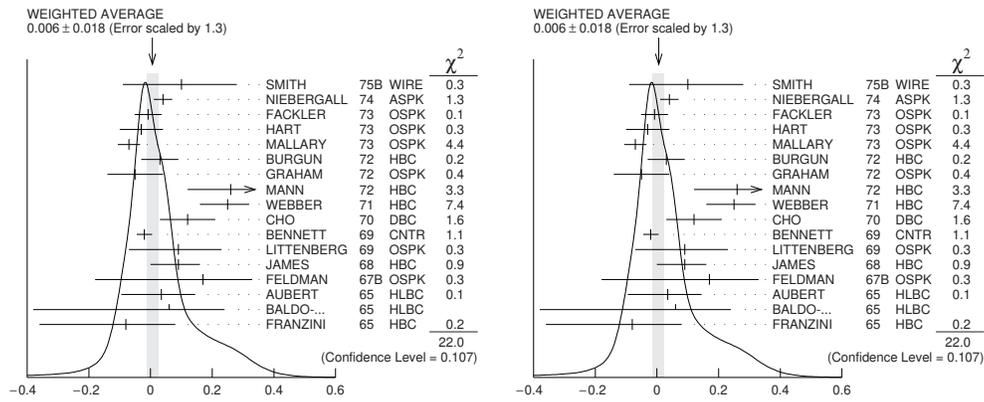
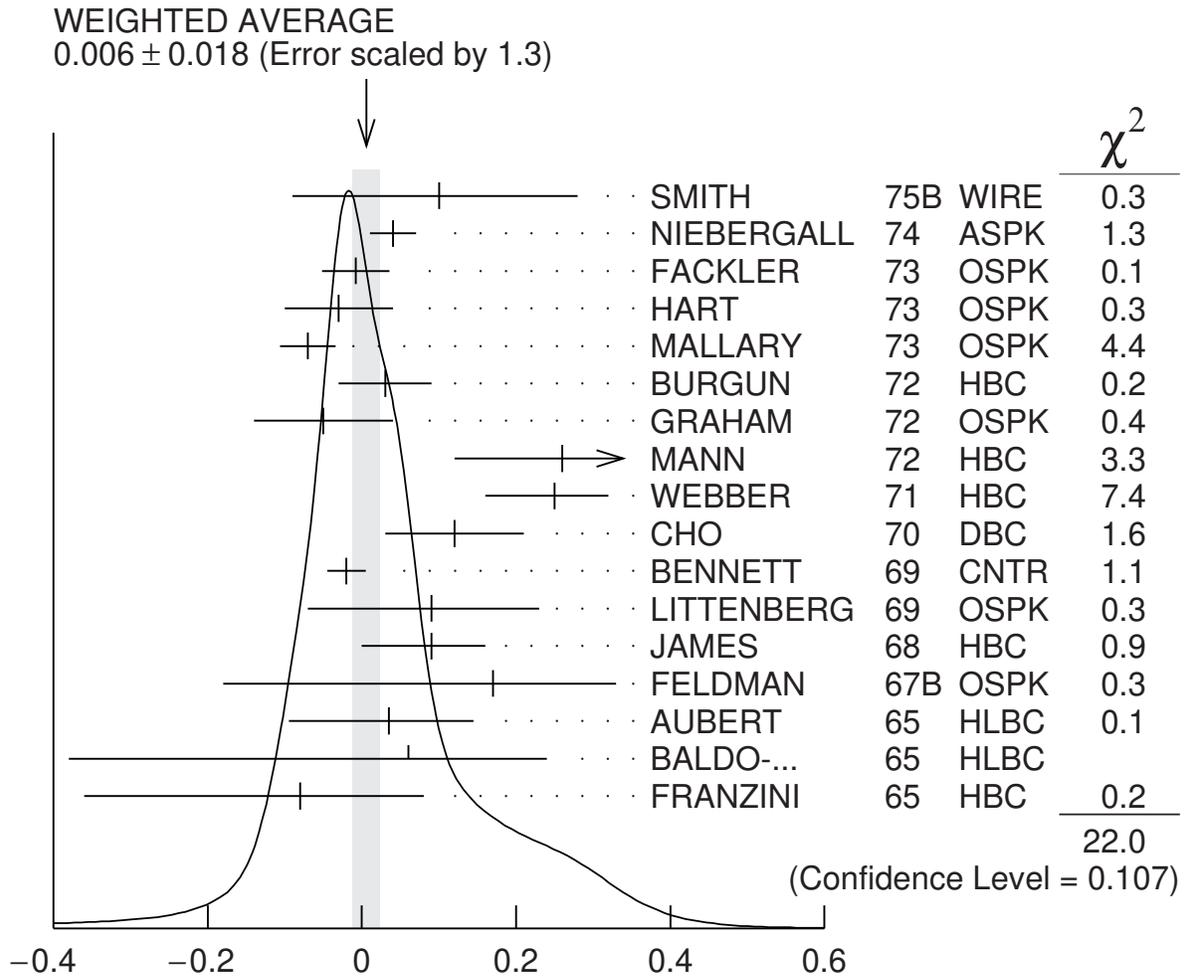Figure 2: Two figures, with caption and label, reduced in size

Figure 3: Wide figure forced to be placed at the top of the page

4 How to include tables

To add a table it is recommended to use the `\pdgtable` or `\pdgwidetable` environments for single-column or double-column wide tables in the book format, respectively. It is recommended also to use `\pdgtableheader` enviroment for the first line of the table. The macros `\pdgtable` and `\pdgwidetable` take the following arguments:

```
\pdgtable{ dimension of the table }
{ your caption }{ label }{options}
```

Good practice for the label is to use the following convention: `BASENAME:tab:some-meaningful-name`. Examples on how to use these enviroments are shown below. The snippets of code can be directly included in BASENAME-main.tex.

```
\begin{pdgtable}{c c c}
{Table}{BASENAME:tab:mytable}{h!}
\pdgtableheader{ Column 1 & Column 2 & Column 3}
row1  & 1  & 2\\
row2  & 1  & 2\\
row3  & 1  & 2\\
\end{pdgtable}
```

Table 1: Table

Column 1	Column 2	Column 3
row1	1	2
row2	1	2
row3	1	2

```
\begin{pdgtable}{|c | c | c | c|}
{Multicolumn table}{BASENAME:tab:mytable2}{h!}
\pdgtableheader{ \multicolumn{2}{c}{Column 1} &
\multicolumn{2}{c}{Column 2}}
\pdgtableheader{ A & B& C & D }
row1  & 1 & 2 &3 \\
row2  & 1 & 2 &3 \\
\end{pdgtable}
```

Table 2: Multicolumn table

Column 1		Column 2	
A	B	C	D
row1	1	2	3
row2	1	2	3

```
\begin{pdgtable}{c l}
{Table with footnotes}{BASENAME:tab:table3}{}
One value & another\footnote{This is something to notice
\label{BASENAME:foot:one}}\\
Two values\footref{BASENAME:foot:one} & another \\
\end{pdgtable}
```

Table 3: Table with footnotes

One value	another*
Two values*	another

*This is something to notice

To add a reference to a table in the text, the following command can be used: `\ref{label}`. For example, to reference Table 2 use the following code: `\ref{BASENAME:tab:mytable2}`.

5 Equations

If you want to add equations, you need to use the `equation` environment. A working example is:

```
\begin{equation}\label{BASENAME:eq:equation}
N_{exp} = \sigma_{exp} \times \int L(t) dt
\end{equation}
```

$$N_{exp} = \sigma_{exp} \times \int L(t)dt \tag{1}$$

If you want to add a set of equation, please use the `subequation` enviroment, together with `allign`. This will add a number for every equation in the array. A working example is:

```
\begin{subequations}
\label{BASENAME:eq:equation1}
\begin{align}
A + B = C\\
D= \frac{E}{F}
\end{align}
\end{subequations}
```

$$A + B = C \tag{2a}$$

$$D = \frac{E}{F} \tag{2b}$$

You can also add text within equation with the `\intertex` enviroment.

```
\begin{subequations}
\begin{align}
A+B = C  \\
\intertext{One can then add a comment or a reference here}
D = E
\end{align}
\end{subequations}
```

$$A + B = C \tag{3a}$$

One can then add a comment or a reference here

$$D = E \tag{3b}$$

6 Labels and referencing

If you are creating a new label, use the following convention: `BASENAME:type:some-meaningful-name` with `type` corresponding to one of the following options:

- `fig` for figures
- `eq` for equation
- `tab` for tables
- `sec` for section, subsection etc..
- `foot` for footnotes.

Please, pay special attention when referencing sections, subsections, figures, table, equations in different reviews - use the `BASENAME` associated with the target review, not the `BASENAME` of the review you're currently working on.

To identify the `BASENAME` of a review, login into pdgWorkspace (click to be redirected). Under **Reviews** select from the drop-down menu **all reviews**. Click on the title of the review you are interested in, and then select the **Technical details** tab. The **Basename** is the fist entry.

When including references or citations into caption, use the `\protect` enviroment, as shown below:

```
\begin{pdgtable}{ c | c }
{Example on how to cite a paper {\protect \cite{InspireLabel}}
into a caption.}{}{ht!}
\pdgtableheader{ Column 1 & Column 2}
A & B \\
\end{pdgtable}
```

7 Bibliography

References are handled using BibTeX. To add a reference to your review:

- look up the reference in INSPIRE and download its BibTeX entry (see bottom of the **Information** tab for the article, under **Export**).
- add the BibTeX entry to reviewinstructions.bib file. Note the article tag assigned by INSPIRE - you can see it in the first line of the BibTeX entry, after `\@article{`.
- cite the reference with `\cite`, using the article tag assigned by INSPIRE.

In case the reference does not appear in INSPIRE, use the standard convention for the label: `BASENAME:meaningful-name`. For example, to add a reference to the Review of Particle Phsyics (2018) add the following code to reviewinstructions.bib:

```
@article{Tanabashi:2018oca,
     author        = "Tanabashi, M. and others",
     title         = "{Review of Particle Physics}",
     collaboration = "Particle Data Group",
     journal       = "Phys. Rev.",
```

```
volume          = "D98",
year            = "2018",
number          = "3",
pages           = "030001",
doi             = "10.1103/PhysRevD.98.030001",
SLACcitation    = "%%CITATION = PHRVA,D98,030001;%%"
}
```

and then use the following snippet of code to add a reference to it in BASENAME-main.tex:

```
\cite{Tanabashi:2018oca}
```

In case you need to add multiple references within the same set of brakets, use the following code:

```
\cite{paper1,paper2}
```

In case you want to cluster into one reference multiple papers, use the following code:

```
\cite{paper1,*paper2,*paper3}
```

Note the use of the asterisk to signal trailing papers. If a paper is preceded by the asterisk, it can't be cited separately later - latex will fail and provide an error. In general, the recommendation is to cite papers individually, without using the asterisk to group them.

8 Booklet

If your review has a booklet version, it needs to be prepared at the same time as you prepare your full review. The content to be displayed in the booklet needs to be included in BASENAME-booklet.tex. To test the rendering of your review in the booklet, you can run the following command:

```
make booklet
```

9 Standard PDG symbols

The pdgdefs.tex file implements a series of useful shortcuts to typeset the rewies, such as particle symbols. All definitions are terminated with \xspace , so you can simply write \ttbar production instead of \ttbar\ production.
Most Monte Carlo generators have a form with a suffix 'V' that allows you to include the version, e.g. \PYTHIAV8 to produce PYTHIA 8 . In case you need to define other symbols, please add them to the BASENAME-preamble.tex file.

Table 4: Units

\TeV	TeV	\syin	$''$	\barn	b
\MeV	MeV	\inch	in	\mbarn	mb
\keV	keV	\ft	ft	\microbarn	μb
\eV	eV	\km	km	\nb	nb
\GeVc	GeV/c	\m	m	\pb	pb
\GeVcSq	GeV^2/c^2	\cm	cm	\fb	fb
\GeVcc	GeV/c^2	\mm	mm	\invnb	nb^{-1}
\GeVccSq	GeV^2/c^4	\mum	μm	\invpb	pb^{-1}
\MeVc	MeV/c	\nm	nm	\invfb	fb^{-1}
\MeVcc	MeV/c^2	\fm	fm	\invab	ab^{-1}
\invps	ps^{-1}	\nm	nm	\lum	$\mathcal{L}$
		\ma	m^2		
\degr	$\circ$	\cma	cm^2		
		\mma	mm^2		
		\muma	μm^2		

Table 5: Particles

\pp	pp	\ee	e^+e^-	\pizero	π^0
\pbar	$\bar{p}$	\epm	$e^\pm$	\piplus	π^+
\ppbar	$p\bar{p}$	\epem	e^+e^-	\piminus	π^-
\tbar	$\bar{t}$	\en	e^-	\pipm	$\pi^\pm$
\ttbar	$t\bar{t}$	\ep	e^+	\pimp	$\pi^\mp$
\bbar	$\bar{b}$	\mumu	$\mu^+\mu^-$	\etaprime	η'
\bbbar	$b\bar{b}$	\mun	μ^-	\Kzero	K^0
\cbar	$\bar{c}$	\mup	μ^+	\Kzerobar	$\overline{K}^0$
\ccbar	$c\bar{c}$	\tautau	$\tau^+\tau^-$	\kaon	K
\sbar	$\bar{s}$	\taup	τ^+	\Kplus	K^+
\ssbar	$s\bar{s}$	\taum	τ^-	\Kminus	K^-
\ubar	$\bar{u}$	\lepton	ℓ	\KzeroL	$K^0_{\rm L}$
\uubar	$u\bar{u}$	\leptonm	ℓ^-	\Kzerol	$K^0_{\rm L}$
\dbar	$\bar{d}$	\ellm	ℓ^-	\Klong	$K^0_{\rm L}$
\ddbar	$d\bar{d}$	\leptonp	ℓ^+	\KzeroS	$K^0_{\rm S}$
\fbar	$\bar{f}$	\ellp	ℓ^+	\Kzeros	$K^0_{\rm S}$
\ffbar	$f\bar{f}$	\leptonlepton	$\ell^+\ell^-$	\Kshort	$K^0_{\rm S}$
\qbar	$\bar{q}$	\ellell	$\ell^+\ell^-$	\Kstar	K^*
\qqbar	$q\bar{q}$	\enu	$e\nu$	\jpsi	J/ψ
\nbar	$\bar{\nu}$	\munu	$\mu\nu$	\Jpsi	J/ψ
\nnbar	$\nu\bar{\nu}$	\taunu	$\tau\nu$	\psip	$\psi(2S)$
\neutron	n	\lnu	$\ell\nu$	\chic	χ_c
\antineutron	$\bar{n}$	\nub	$\bar{\nu}$	\UoneS	$\Upsilon(1S)$
\deuteron	d	\nunub	$\nu\bar{\nu}$	\chib	χ_b
\Zzero	Z	\nue	ν_e	\Dstar	D^*
\Zboson	Z	\nueb	$\bar{\nu}_e$	\Bd	B^0_d
\Wplus	W^+	\nuenueb	$\nu_e\bar{\nu}_e$	\Bs	B^0_s
\Wminus	W^-	\num	ν_μ	\Bu	B_u
\Wboson	W	\numb	$\bar{\nu}_\mu$	\Bc	B_c
\Wpm	$W^\pm$	\numnumb	$\nu_\mu\bar{\nu}_\mu$	\Lb	Λ_b
\Wmp	$W^\mp$	\nut	ν_τ	\Bstar	B^*
		\nutb	$\bar{\nu}_\tau$	\BoBo	B^0–$\overline{B}^0$
		\nutnutb	$\nu_\tau\bar{\nu}_\tau$	\BodBod	B^0_d–$\overline{B}^0_d$
				\BosBos	B^0_s–$\overline{B}^0_s$
				\LambdaStar	Λ^*

Table 6: Hypothetical Particles

\Azero	A^0	\gravino	$\tilde{G}$	\slepton	$\tilde{\ell}$
\hzero	h^0	\Zprime	Z'	\sleptonL	$\tilde{\ell}_{\rm L}$
\Hzero	H^0	\Zstar	Z^*	\sleptonR	$\tilde{\ell}_{\rm R}$
\Hboson	H	\squark	$\tilde{q}$	\sel	$\tilde{e}$
\Hplus	H^+	\squarkL	$\tilde{q}_{\rm L}$	\selL	$\tilde{e}_{\rm L}$
\Hminus	H^-	\squarkR	$\tilde{q}_{\rm R}$	\selR	$\tilde{e}_{\rm R}$
\Hpm	$H^\pm$	\gluino	$\tilde{g}$	\smu	$\tilde{\mu}$
\Hmp	$H^\mp$	\stop	$\tilde{t}$	\smuL	$\tilde{\mu}_{\rm L}$
\ggino	$\tilde{\chi}$	\stopone	$\tilde{t}_1$	\smuR	$\tilde{\mu}_{\rm R}$
\chinop	$\tilde{\chi}^+$	\stoptwo	$\tilde{t}_2$	\stau	$\tilde{\tau}$
\chinom	$\tilde{\chi}^-$	\stopL	$\tilde{t}_{\rm L}$	\stauL	$\tilde{\tau}_{\rm L}$
\chinopm	$\tilde{\chi}^\pm$	\stopR	$\tilde{t}_{\rm R}$	\stauR	$\tilde{\tau}_{\rm R}$
\chinomp	$\tilde{\chi}^\mp$	\sbottom	$\tilde{b}$	\stauone	$\tilde{\tau}_1$
\chinoonep	$\tilde{\chi}_1^+$	\sbottomone	$\tilde{b}_1$	\stautwo	$\tilde{\tau}_2$
\chinoonem	$\tilde{\chi}_1^-$	\sbottomtwo	$\tilde{b}_2$	\snu	$\tilde{\nu}$
\chinoonepm	$\tilde{\chi}_1^\pm$	\sbottomL	$\tilde{b}_{\rm L}$		
\chinotwop	$\tilde{\chi}_2^+$	\sbottomR	$\tilde{b}_{\rm R}$		
\chinotwom	$\tilde{\chi}_2^-$				
\chinotwopm	$\tilde{\chi}_2^\pm$				
\nino	$\tilde{\chi}^0$				
\ninoone	$\tilde{\chi}_1^0$				
\ninotwo	$\tilde{\chi}_2^0$				
\ninothree	$\tilde{\chi}_3^0$				
\ninofour	$\tilde{\chi}_4^0$				

Table 7: Useful symbols for proton-proton physics

\pT	$p_{\rm T}$	\mh	m_h
\pt	$p_{\rm T}$	\mW	m_W
\ET	$E_{\rm T}$	\mZ	m_Z
\eT	$E_{\rm T}$	\mH	m_H
\et	$E_{\rm T}$		
\HT	$H_{\rm T}$		
\pTsq	$p_{\rm T}^2$		
\MET	$E_{\rm T}^{\rm miss}$		
\met	$E_{\rm T}^{\rm miss}$		
\Ecm	$E_{\rm cm}$		
\rts	$\sqrt{s}$		
\sqs	$\sqrt{s}$		

Table 8: Monte Carlo Generators

\ACERMC	AcerMC	\MCatNLO	MC@NLO	\Comphep	CompHEP
\ALPGEN	Alpgen	\AMCatNLO	aMC@NLO	\Prospino	Prospino
\GEANT	Geant	\MCFM	MCFM	\LO	LO
\Herwigpp	Herwig++	\METOP	METop	\NLO	NLO
\HERWIGpp	Herwig++	\POWHEG	Powheg	\NLL	NLL
\Herwig	Herwig	\POWHEGBOX	Powheg-Box	\NNLO	NNLO
\HERWIG	Herwig	\POWPYTHIA	Powheg+Pythia	\muF	μ_F
\JIMMY	Jimmy	\PROTOS	Protos	\muR	μ_R
\MADSPIN	MadSpin	\PYTHIA	Pythia		
\MADGRAPH	MadGraph	\SHERPA	Sherpa		
\MGMCatNLO	MadGraph5_aMC@NLO				