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A title with some math: $x = 1$

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Abstract: Abstract...

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'Fixed-scale' approach

Renormalization scale dependence

Factorization scale dependence

'Flexible-scale' approach

2 fastNLO manual v2.2

2.1 Preambel

The term 'NLO program' denotes any kind of program in the following.

2.2 Requirements

2.3 Download and installation

2.4 fastNLO table format v2.2

2.5 fastNLO table format v2.3

todo

2.6 Table creation: Interface fastNLO to NLO program

2.6.1 Requirements

2.6.2 Classes and class descriptions

2.6.3 Conceptional working principle

2.6.4 Interfacing fastNLO to new NLO program

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vector<table> ....
    then merge or append

2.6.6 Example implementation: nlojet++

nlojet++ interface

Creation of new scenario

Usage of pre-define scenarios

2.7 The fastNLOCreate steering card

2.7.1 Generator specific keys

2.7.2 Process specific keys

2.7.3 Scenario specific keys

2.8 Table creation

2.8.1 Warmup run

2.8.2 Running order by order separately

2.9 Contribution flags

additive
    multiplicative
    data

non-perturbative corrections
fixed-order
etc...

2.10 Merging tables

2.10.1 fastNLO programs

fnlo-tk-merge

fnlo-tk-append

2.10.2 fastNLO c++ functionality

2.11 Modifying tables

2.11.1 fastNLO stand-alone programs

Not much available at the moment. Once we had the 'fnlo-modifier', but this is not ported to the toolkit. Maybe we have to provide some few functions for, e.g., removing data points, changing the binwidth, etc...

2.11.2 fastNLO function calls

USE THEM WITH CARE !

2.12 Evaluation of a fastNLO table: Cross section calculation

2.12.1 Requirements

2.12.2 fastNLO stand-alone programs using LHAPDF

fnlo-tk-cppread

fnlo-tk-example

fnlo-tk-minexample

2.12.3 fastNLO c++ functionality

How to use fastNLOReader:

```
1 /*
2  * Project: ATFOC -> Autonomous Trainer For Object Classification
3  * Name:    Main.cc
4  * Autor:   Bla Blub
5  * Date:    03.09.2013
6  * Description: main class for
7  *          1) executing a web search for images and store them
8  *          2) and image comparison to filter good from bad samples
9  */
10
11 #include ``stdafx.h
12
13 #include ``WebSearch.h
```

```
14 #include ``ImageComparison.h
15
16 using namespace std;
17
18 #define NUMBER_OF_IMAGES 50 // default
19 #define NUMBER_OF_QUERIES 3 // default
20
21 int main(int argc, char** argv)
22 {
23     vector<string> input_vector;
24     string input;
25
26     uint i;
```

Inheritance structure of fastNLOReader

fastNLOReader

2.12.4 Predefined fastNLOReader interfaces

LHAPDF5 and LHAPDF6

QCDNUM

Hoppet

2.13 Implementing a new PDF interface

2.14 Implementing a new α_s evolution code

2.15 Python interface to fastNLOReader

2.16 Rivet and YODA interface to fastNLOReader

2.17 Independent Fortran reading code

Figure 1: Always give a caption.

x	y	x and y
a	b	a and b
1	2	1 and 2
α	β	α and β

Table 1: We prefer to have borders around the tables.

A JHEP example

For internal references use label-refs: see section A. Bibliographic citations can be done with cite: refs. [1–3]. When possible, align equations on the equal sign. The package `amsmath` is already loaded. See (A.1).

$$\begin{aligned} x &= 1\,, \qquad y = 2\,, \\ z &= 3\,. \end{aligned} \tag{A.1}$$

Also, watch out for the punctuation at the end of the equations.

If you want some equations without the tag (number), please use the available starred-environments. For example:

$$x = 1$$

The amsmath package has many features. For example, you can use use `subequations` environment:

$$a = 1 \tag{A.2a}$$

$$b = 2 \tag{A.2b}$$

and it will continue to operate across the text also.

$$c = 3 \tag{A.2c}$$

The references will work as you'd expect: (A.2a), (A.2b) and (A.2c) are all part of (A.2).

A similar solution is available for figures via the `subfigure` package (not loaded by default and not shown here). All figures and tables should be referenced in the text and should be placed at the top of the page where they are first cited or in subsequent pages. Positioning them in the source file after the paragraph where you first reference them usually yield good results. See figure 1 and table 1.

We discourage the use of inline figures (wrapfigure), as they may be difficult to position if the page layout changes.

We suggest not to abbreviate: "section", "appendix", "figure" and "table", but "eq." and "ref." are welcome. Also, please do not use `\emph` or `\it` for latin abbreviaitons: i.e., et al., e.g., vs., etc.

A.1 And subsequent

A.1.1 Sub-sections

Up to paragraphs. We find that having more levels usually reduces the clarity of the article. Also, we strongly discourage the use of non-numbered sections (e.g. `\subsubsection*`). Please also see the use of "`\texorpdfstring{}{}`" to avoid warnings from the hyperref package when you have math in the section titles

Acknowledgments

This is the most common positions for acknowledgments. A macro is available to maintain the same layout and spelling of the heading.

Note added. This is also a good position for notes added after the paper has been written.

References

[1] Author, *Title*, *J. Abbrev.* **vol** (year) pg.

[2] Author, *Title*, arxiv:1234.5678.

[3] Author, *Title*, Publisher (year).