

## Event Generator Physics: preparations before school

During the exercise session, Tuesday afternoon, we are going to make use of the PYTHIA event generator, run on your laptop. This would not have been the only possibility, but

- PYTHIA is easy to install and get going with,
- it can be run in a completely standalone way, and
- the lecturer is at ease with it.

To avoid network congestion and save time during the exercise session proper, you are expected to download and install the code on your laptop before the school week. Installation requires access to standard Linux/MacOS command tools and a C++ compiler (at least C++11), which hopefully most of you already have. If not, you should check the web for suitable instructions how to install them on your particular platform. These days, even Windows offers a subsystem for Linux. Should you fail to set up a working environment then you may need to team up with somebody for the exercise session. Working two together should be fine, but preferably not more than that.

In addition, a Python installation will allow nicer histogram output (using pyplot) for the exercise, but is not a showstopper.

Assuming a Linux/MacOS installation, here is what to do.

1. Open your web browser on <https://pythia.org/>
2. Click on the red-marked link to `pythia8307.tgz`
3. This should open a dialogue asking you to decide where to download the file. Pick a suitable location and save it there.
4. Open a terminal window, and change directory (`cd`) to the one where `pythia8307.tgz` has been downloaded.
5. Expand the tar file into a `pythia8307` directory with the command  
`tar xvfz pythia8307.tgz`
6. Change to this directory (`cd pythia8307`)
7. Compile `pythia8307` by typing `make`. This will take of the order of ten minutes, depending on cpu power. If you have several cores, say 4, then `make -j4` will speed it up accordingly.
8. Example main programs can be found in the `examples` subdirectory, and this will also be a convenient place to develop your own main programs linked to PYTHIA. Therefore change to this directory.
9. Check that you can compile and run programs in this directory, e.g. with  
`make main01`  
`./main01 > main01.log &`  
Check that `main01.log` contains the listing of an event and a lineprinter-style print-out of a histogram of the charged multiplicity.
10. Save a link in your web browser to the online manual, in your `pythia8307` installation, with frontpage `pythia8307/share/Pythia8/html/doc/Welcome.html`

You are ready to go if you successfully reach the end of this list.