Setting up MadGraph, Pythia, Delphes, and the 2HDMTC Model

The 2HDMTC model is a model for decays involving the heavy Higgs particle, referred to as A or h3. This model currently does not work with the newest version of MadGraph, so there are some technical complications in getting the model to work with MadGraph, Pythia, and Delphes. This document aims to be a step-by-step manual for installing and configuring MadGraph, Pythia, Delphes, and the 2HDMTC model to create a working environment for heavy Higgs Montecarlo studies.

1 Installing ROOT

wget ftp://root.cern.ch/root/root_v5.34.14.source.tar.gz
tar -xzf root_v5.34.14.source.tar.gz
cd root
./configure
make
source root/bin/thisroot.sh

2 Installing MadGraph

wget https://launchpad.net/mg5amcnli/trunk/1.5.0/+download/MadGraph5_v1.5.14.tar.gz
tar -xzf MadGraph5_v1.5.14.tar.gz

3 Installing Pythia

wget http://madgraph.hep.uiuc.edu/Downloads/pythia-pgs_V2.2.0.tar.gz
tar -xzf pythia-pgs_V2.2.0.tar.gz
cd pythia-pgs
cd src
edit makefile
Links = mass_width_2004.mc pgs clean_output PDFsets pydata.f -¿ Links = mass_width_2004.c PDFsets pydata.f
cd ..
make

4 Installing Delphes

cd MadGraph5_v1.5.14
wget http://cp3.irmp.ucl.ac.be/downloads/Delphes-3.0.12.tar.gz
tar -xzf Delphes-3.0.12.tar.gz
mv Delphes-3.0.12 Delphes
make

5 Installing 2HDMTC Model

wget https://sharepoint.washington.edu/phys/wiki/tev-cluster/Documents/2HDM4TC.zip –user=usr –password=pwd
unzip 2HDMTC.zip
cd 2HDM4TC
edit makefile
F77 = gfortran FFLAGS = -O -ffixed-line-length-192