GEANT4
A SIMULATION TOOLKIT

Version 11.1

Exercises for Particles and Physics

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Geant4 Advanced Course

Displaying processes and particles

- By default, tables of parameters for the EM and hadronic physics are printed in log file before start of simulation of the 1st event
  - Use example $G4INSTALL/examples/extended/hadronic
  - Study README
  - Select physics list (default FTFP_BERT)
  - Run the default macro hadr01.in
  - Study log output
- Run the application in interactive mode
  - Study physics related UI commands

- Check the physics processes attached and their ordering:
  - **`/particle/select e-`**
  - **`/particle/processes/dump`**

- Check what particles exist:
  - **`/particle/list`**
- Check a particle property:
  - **`/particle/select e-`**
  - **`/particle/property/dump`**
- Please type “help” to get the full set of commands for particle category

Start examples/extended/hadronic/Hadr01

- Copy, compile, and build the example into working area
  - cd mydir
  - cp –r $G4INSTALL/examples/extended/hadronic/Hadr01 ./
  - cd Hadr01
  - mkdir build
  - cd build
  - cmake -DGeant4_DIR=${G4COMP} ../
  - make
- Run in the batch mode
  - ./Hadr01 Hadr01.in FTFP_BERT >& ftfp_bert.log
  - ./Hadr01 Hadr01.in FTFP_BERT_HP >& ftfp_bert_hp.log
  - compare log files
- Study Hadr01.cc – how G4PhysListFactory is used
- Run in interactive mode
  - setenv PHYSLIST FTFP_BERT (t- or c- shell)
  - export PHYSLIST=FTFP_BERT (bash shell)
  - ./Hadr01
  - >control/execute vis.mac