

Changes to GEANT – St. Valentine's Day 2006

1. To run an alpha source.

In `dragon_2003.ffcards` change card `FKIN(1)` to 21. Change `FKIN(2)` and `FKIN(3)` both to 2. Change card `BEAM` to the energy in MeV of the alpha particles.

Deviations in the position of the source (by default [0,0,0]) can be set in the `MTUN` card as `MTUN(1)` and `MTUN(2)` (the x and y offsets in centimetres). For the alpha source *only*, `MTUN(3)` is the z-offset, otherwise it is conventionally the dx offset for reactions.

This generates alphas in the forward direction with a half-angle of 30 mrad. If this needs to be changed it can be done in the file `gukine_full.f` by changing the line
`thet = acos(1.0-rndm(2)*0.00045) ! between 0 and 30 mrad`
accordingly, then recompiling.

A histogram simulating the 16 x and y strips of a DSSSD placed just in front of the Q1 fringe field (a few centimetres beyond the second last collimator in the small tubes) has been implemented, number 522 in the HBOOK output file.

2. Other changes

See document http://dragon.triumf.ca/docs/gastarget_profile_report.pdf for the changes to the way the gas distribution is handled in the simulation.

Now the simulation has two separate geometry files for the small and large apertures respectively: `ugeom_trgt_small.f`, `ugeom_trgt_large.f`. All numbers in the small tubes are hard coded according to Dave Ottewell's drawings. The large pumping tubes have still to be changed. Some mistakes with volumes such as `PUH4` and its neighbours being gas instead of Aluminium have been corrected.

The last collimator in the small pumping tubes is now not part of the `DETE` volume, and does not contain gas, allowing it to be placed in Q1 much the same as a beam-pipe retaining the Q1 magnetic field within its confines.

-Chris