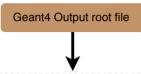# RTD code flow chart

Geant4 Output root file

Class READ_G4_ROOT

Open file and return the number of events

Per event
loop through the hits
convert them into real electrons
account for lifetime and diffusion
project them on a pixel pad

returns vector of electrons sorted by pixel ID and true arrival time in ns

Class Pixel_Functions

Pixelize the event
sorts the electron vector in to per pixel chuncks that are ordered in time

Reset functions loops through a buffer per pixel. Every time step it adds noise and checks of any electrons should be added. when the reset threshold is reached it adds the reset and resets the counter.

this returns a vector of resets to the pixel object.

Class Root_Writer

Writes the pixel object into a new root tree. Then it copies the Geant4 root file into it.

This keeps the simulation and reconstruction in the same file. While also providing file safty

RTD Output root file