

Geant4 Simulation Package for the Portable Radiation Imaging Spectroscopy and Mapping (PRISM) System

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I General Remarks

- Detectors are CZT, world is vacuum
- Basic physics is included (Compton, Photoelectric, Pair Production, Rayleigh..)
- If photon hits detector and has photoabsorption reaction, we tally into ROOT histogram
 - ROOT histogram can then be read by python script in the analysis directory
 - another python script is used to perform the reconstruction
 - * from within the analysis directory run `$ ipython`
 - * once in ipython, run `$ run readsystemresponse.py`, `$ run reconstruction.py`
- can be run by running `$./CodedAperture`
 - macros exist that will run particles at every angle in -30,30 in theta and phi
 - see the `response_loop` macros
 - update this to use HEALpix angles
- output will be in the form of a root file names `totalresponse.root`
- to build with cmake use the following:
`$ cmake -DGeant4_DIR=/path/to/geant4-install/lib/Geant4-10.0.2/ .`
 - then just use `$ make -j4`
- or if you want to use Xcode, use the `”-G Xcode”` flag

II Details