Geant4 Simulation Package for the High Efficiency Multi-Modal Imager (HEMI) System

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I General Remarks

- Detectors are CZT, world is vacuum
- Using optimized HEMI mask with fully populated backplane (not up to date)
- 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