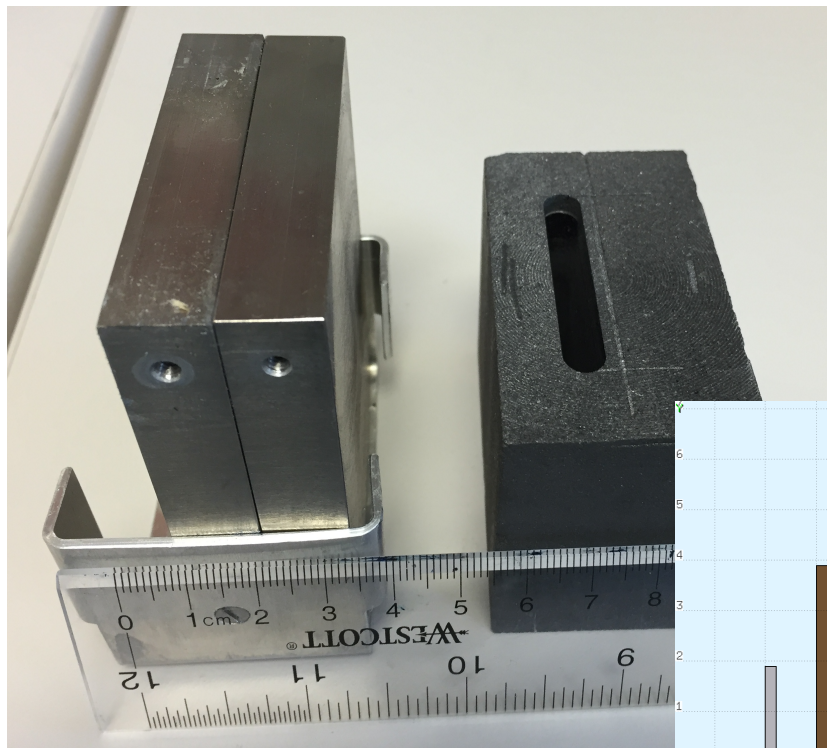


Measurement of ^{67}Cu Yield in gallium at 2.14 GeV

George Kharashvili
Radiation Control
5/31/2016

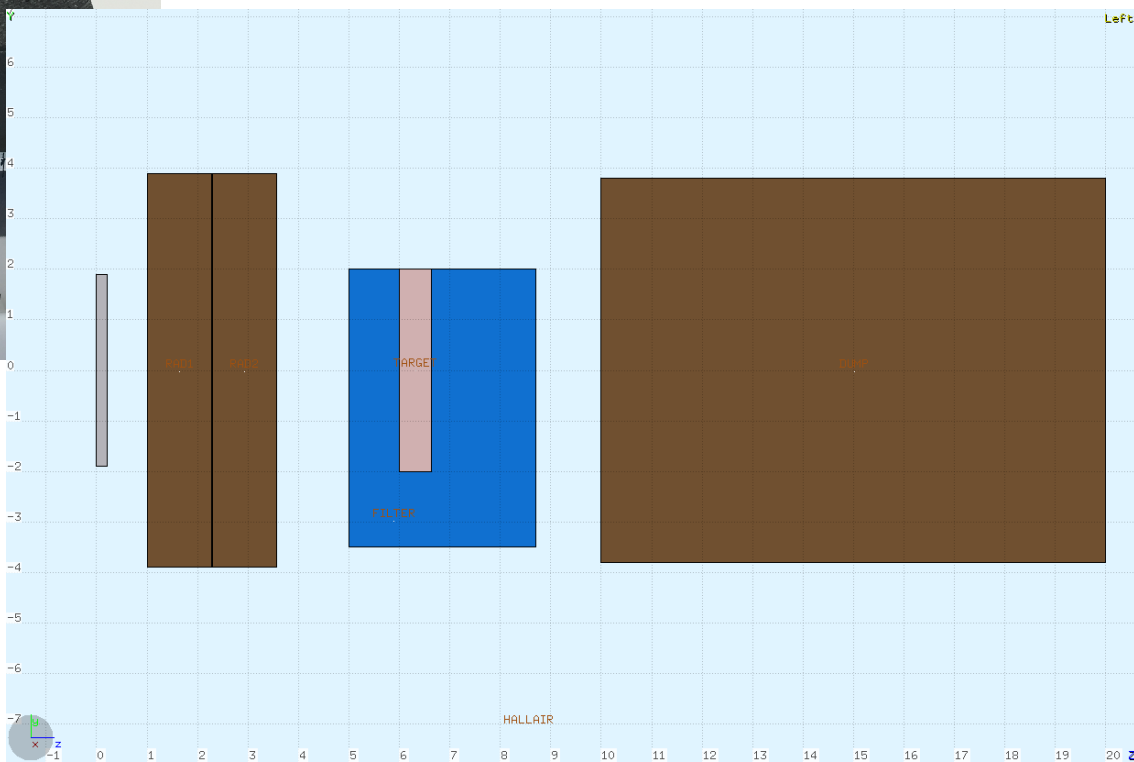


EXPERIMENTAL SETUP

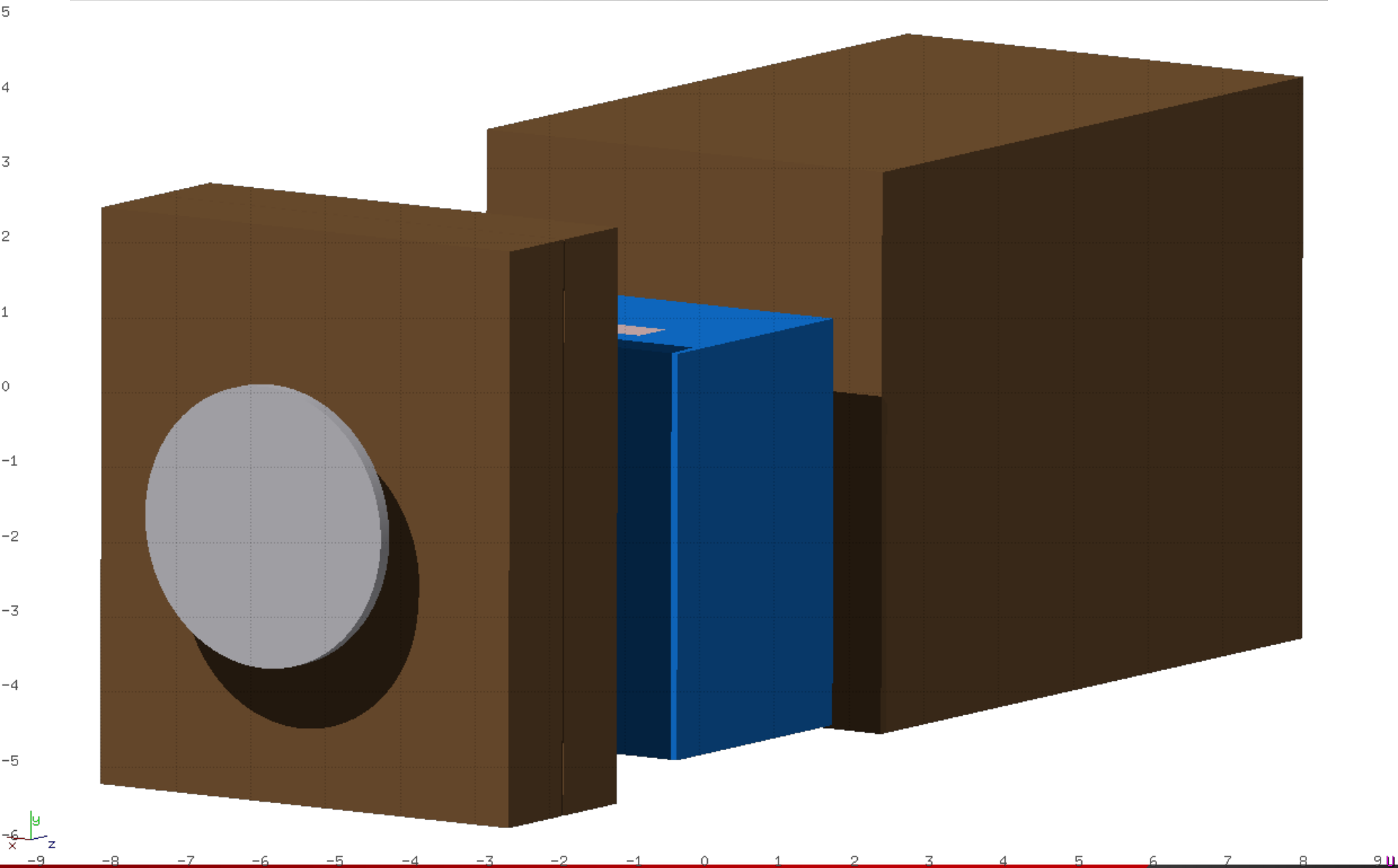


- Beam parameters
 - 2.139 GeV
 - Gaussian shape $\sigma = 5$ mm
 - $I = 46.75$ nA (100 W)
 - $T = 10$ min

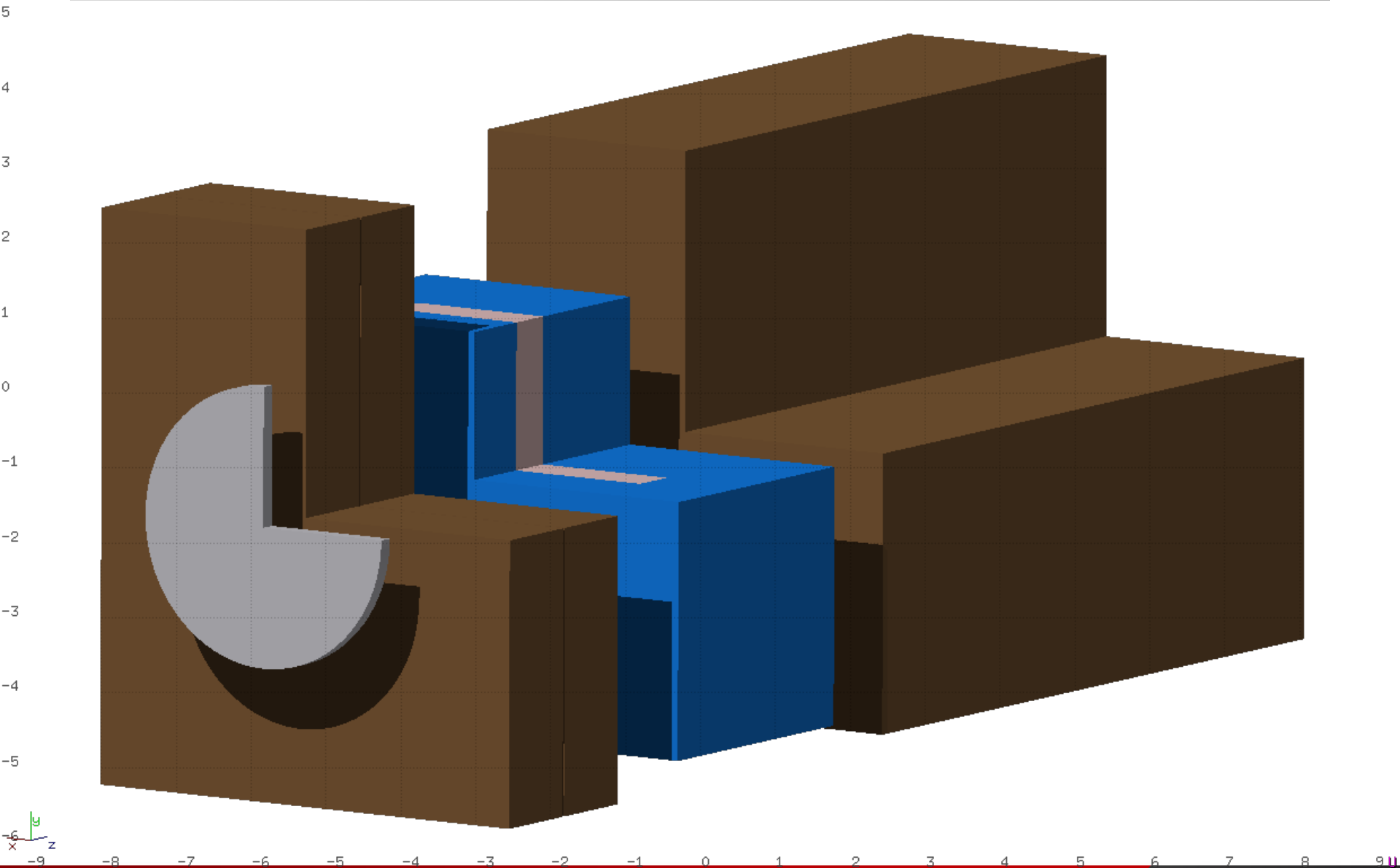
1 inch HD17
Graphite holder
0.5cm Ga (60 g)
10 cm W dump



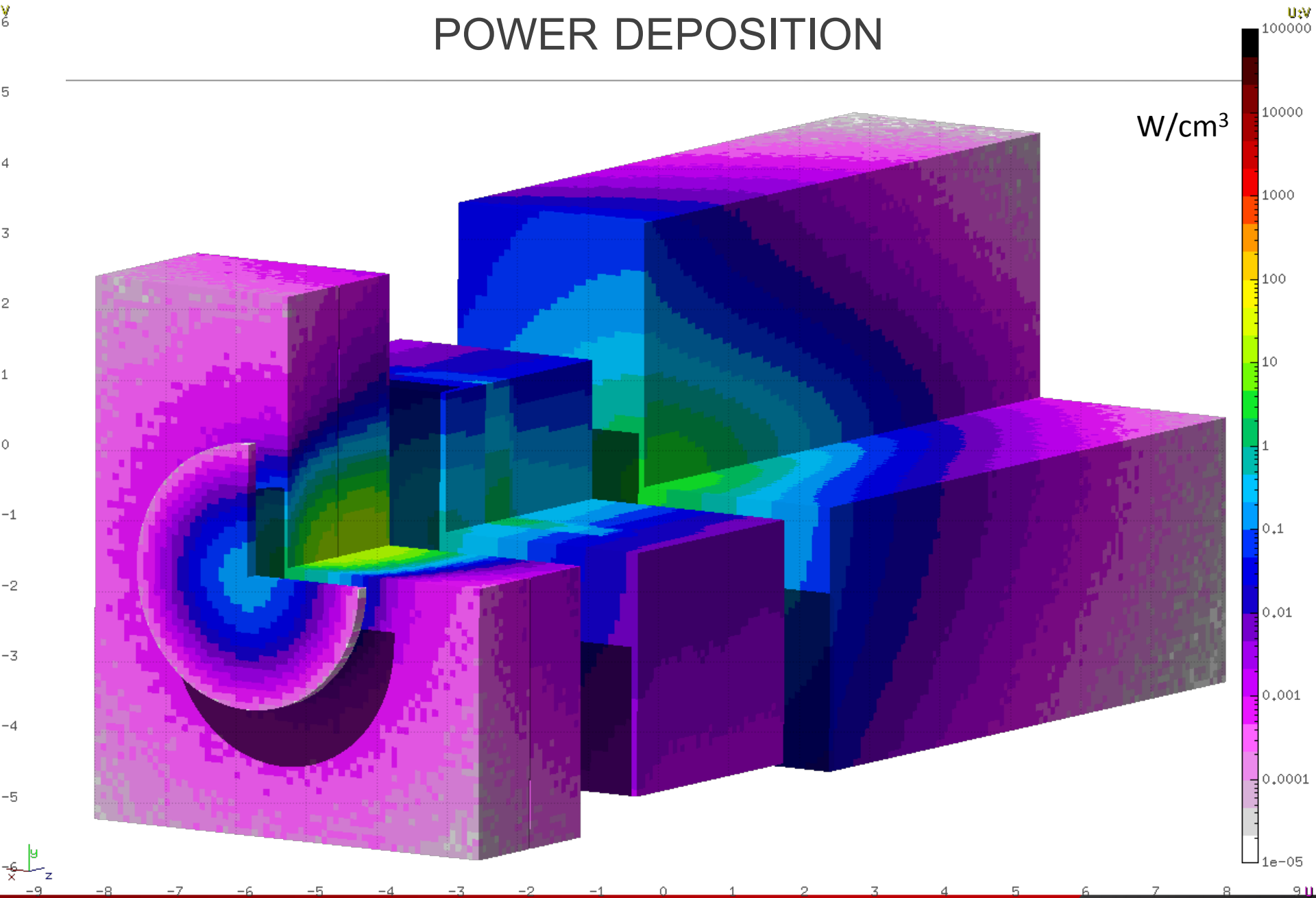
EXPERIMENTAL SETUP



EXPERIMENTAL SETUP

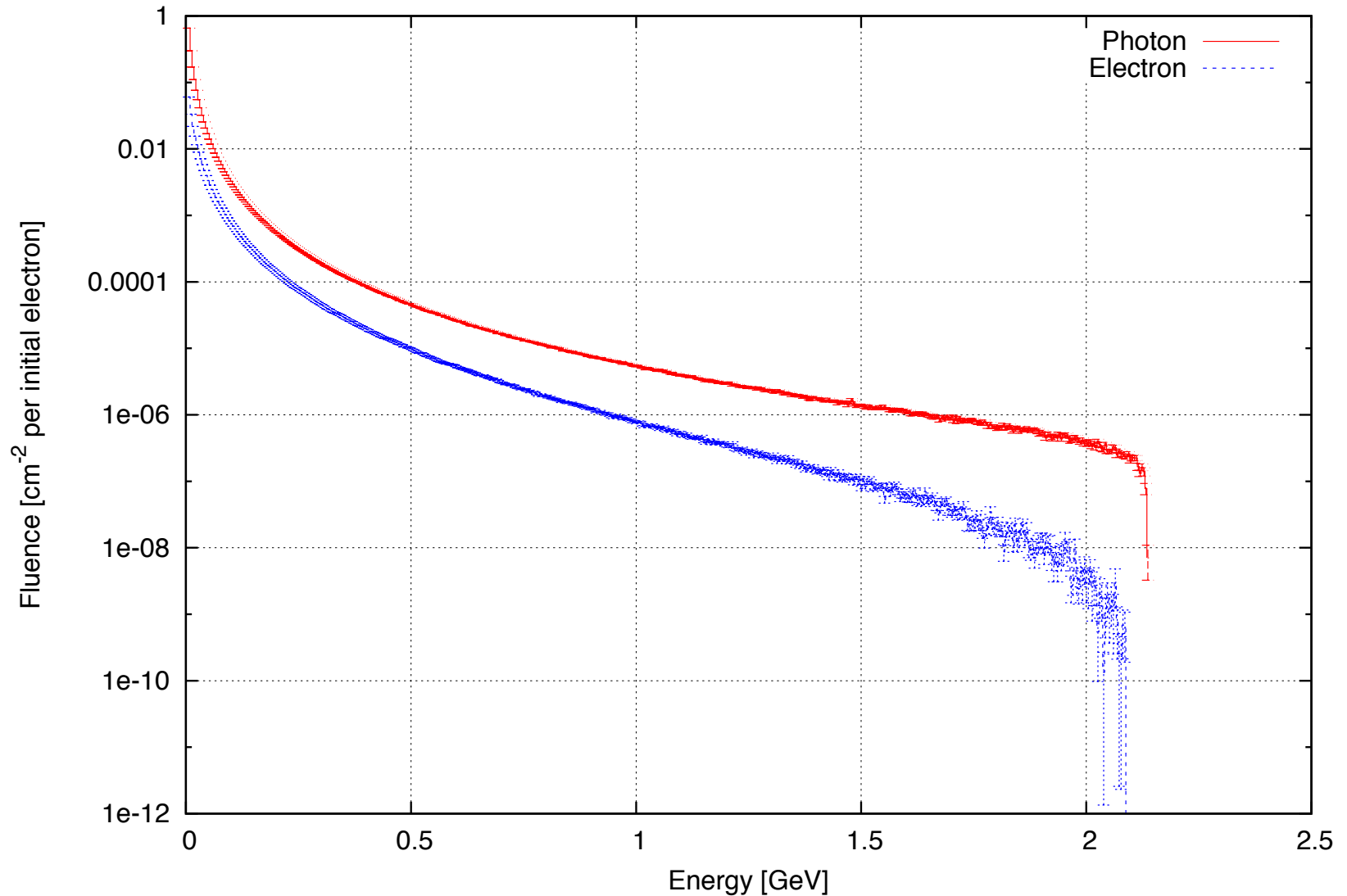


POWER DEPOSITION



Region	Power deposition per 100 W of beam [W]
W Radiator 1	17.3
W Radiator 2	38.3
Graphite	5.0
W Dump	29.9
Ga Target	3.0
Total	93.5

PHOTON AND ELECTRON SPECTRA IN GALLIUM TARGET



CALCULATED YIELDS

	5 MeV photon and electron transport threshold	40 MeV photon and electron transport threshold	Fraction of activity produced by photons below 40 MeV
^{67}Cu [Bq]	$11\,500 \pm 90$	$1\,400 \pm 15$	87.9 %
^{67}Ga [Bq]	$346\,230 \pm 240$	$16\,600 \pm 50$	95.2 %