

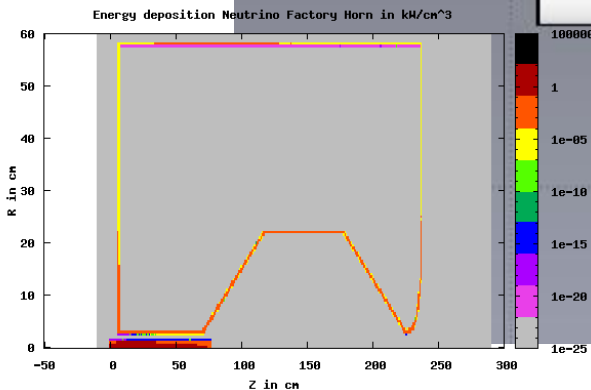
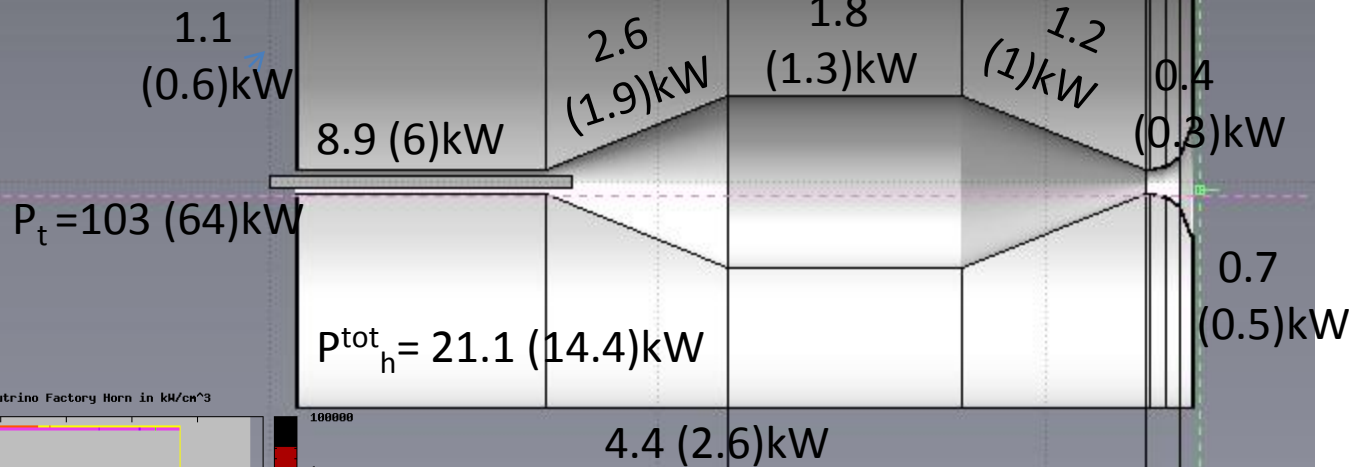
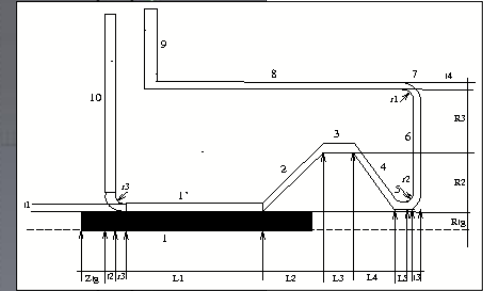
Update on the Energy Deposition for the 4horn system

Power for 4horn System, 350kA

1.3MW, Ti packed bed target

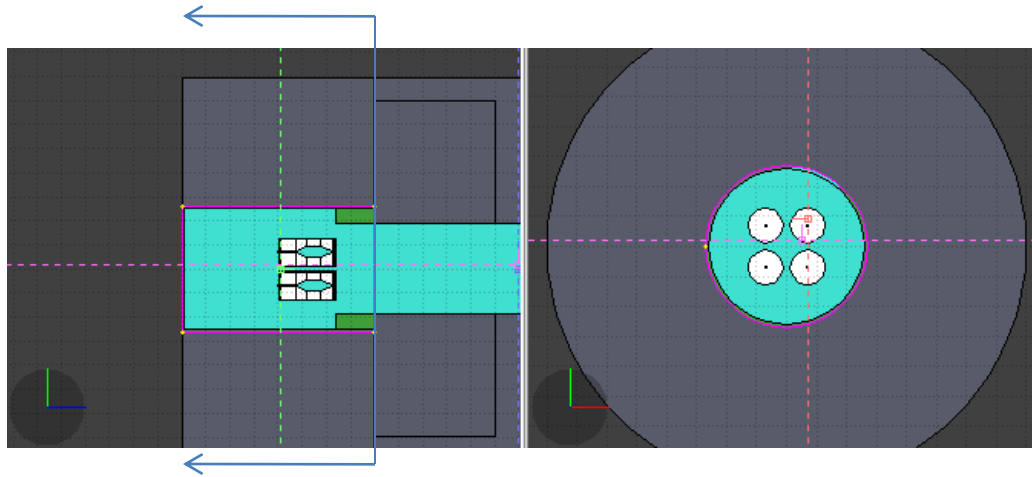
studies done with flair 0.9.1 with geoviewer 0.9, fluka 2008.3d

$d_{\text{packed}} = 66\% d_{\text{Ti}}$
(gr target in parenthesis)



stats: 10^6 protons

Power in Target Horn Station, 4MW



Power scoring parameters:
concrete:

$$t = 5.3\text{m}$$

$$L = 8\text{m}$$

$$P = 109\text{kW}$$

collimator, water cooled (in T2K):

$$t_{\text{Fe}} = 60\text{cm}$$

$$L_{\text{Fe}} = 160\text{cm}$$

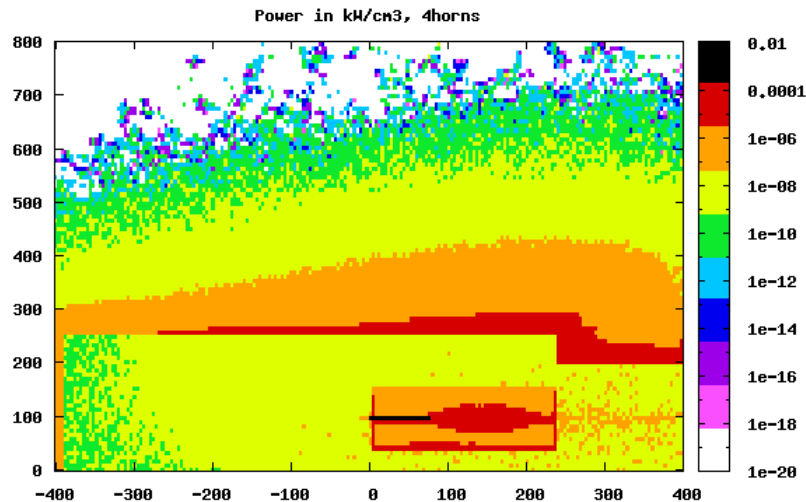
$$P_{\text{Fe}} = 266\text{kW}$$

He vessel, water cooled:

$$t_{\text{Fe}} = 10\text{cm}$$

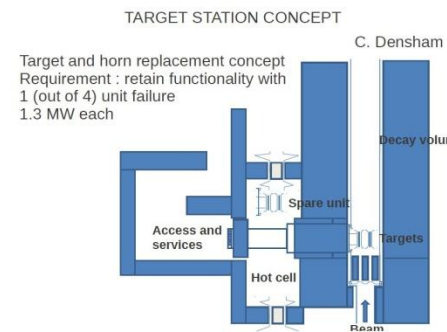
$$L_{\text{Fe}} = 8\text{m}$$

$$P_{\text{Fe}} = 182\text{kW}$$

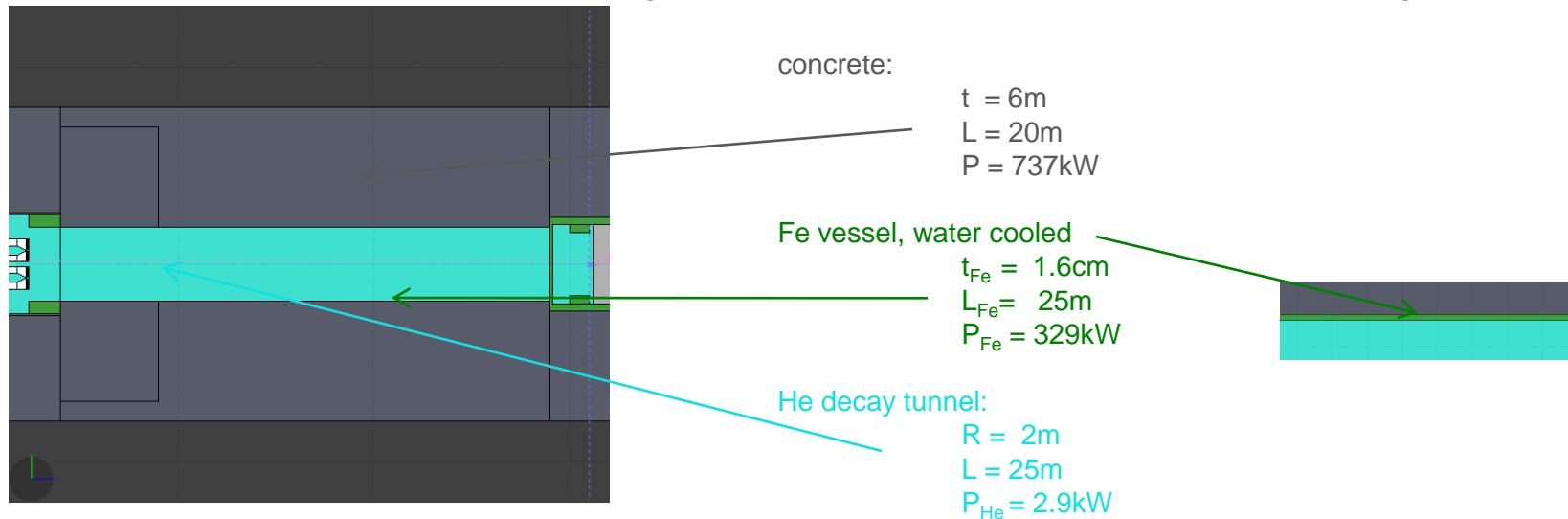


shielding has to be:

- extended behind the horns to contain the energy due to particle production and defocusing
- redesigned to include the service galleries



Power in Decay tunnel, Beam Dump



He vessel + iron plates, water cooled

$$t_{\text{Fe}} = 10\text{-}40\text{cm}$$

$$L_{\text{Fe}} = 6.4\text{m}$$

upstream shield (iron plates), water cooled

$$t_{\text{Fe}} = 40\text{cm}$$

$$L_{\text{Fe}} = 1\text{m}$$

Graphite beam dump:

$$L = 3.2\text{m}, W = 4\text{m}, H = 4\text{m}$$

$$P = 531\text{kW}$$

downstream iron shield (iron plates), water cooled:

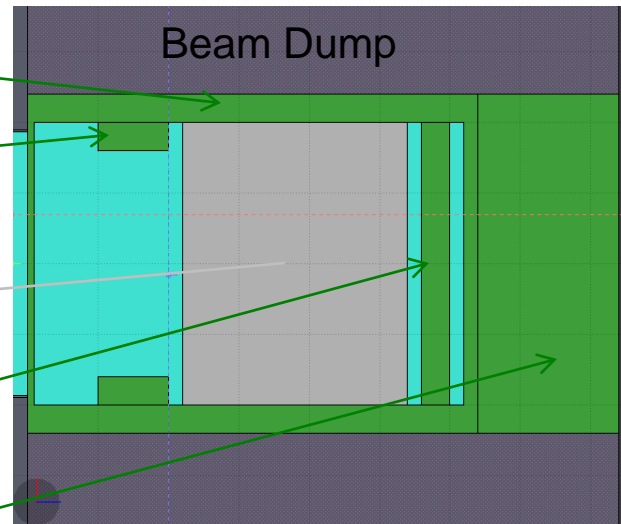
$$L_{\text{Fe}} = 40\text{cm}, W_{\text{Fe}} = 4\text{m}, H_{\text{Fe}} = 4\text{m}$$

$$P_{\text{Fe}} = 8.9\text{kW}$$

outer iron shields (iron plates), water cooled

$$L_{\text{Fe}} = 2\text{m}, W_{\text{Fe}} = 4.8\text{m}, H_{\text{Fe}} = 4.8\text{m}$$

$$P_{\text{Fe}} = 0.9\text{kW}$$



Update of Radiation Studies

- dose rates through SB 4horn layout have been calculated but benchmarking is needed
- benchmarking work is ongoing on CNGS target station, see Eric's talk

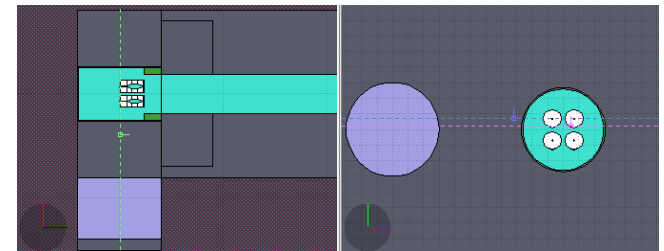
plans for next weeks

on SB energy

- add service gallery and optimize SB layout
- give first order approximation quantities for concrete, iron ... for costing evaluation

on radiation

- benchmark radiation studies



THANKS