



Collimators and radiation study in FCC-ee

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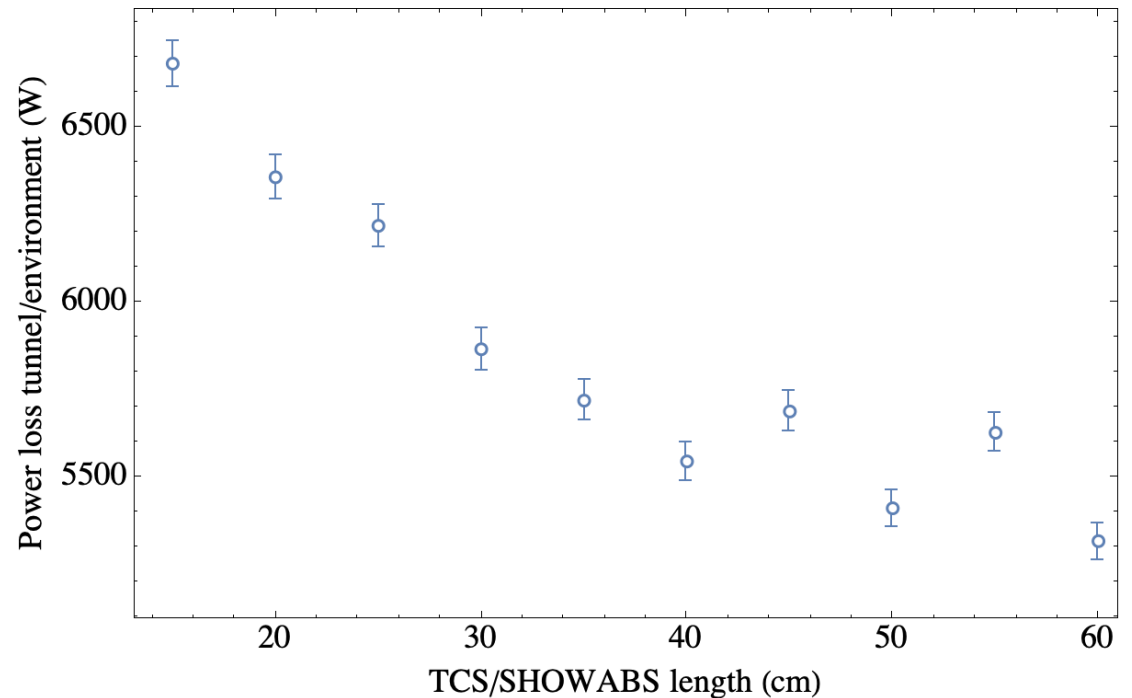
Outline

- How does the material of the primary collimator affect its performance as a beam dump? **VERY SOON**
- How does the length of the secondary collimators affect the power to the tunnel/vacuum chamber?
- What proportion of the energy is going to tunnel/vacuum chamber?
- Does adding a collimator between the primary collimators help reduce power absorption in the environment?
- Realistic impact parameter

Length variation

Length variation TCS and SHOWABS

TCS length (cm)	Power Loss in environment (W) +/- 1%
15	6684
20	6359
25	6220
30	5867
35	5720
40	5546
45	5689



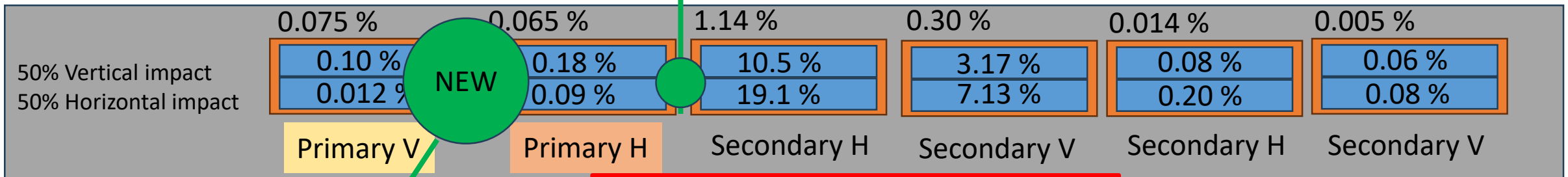
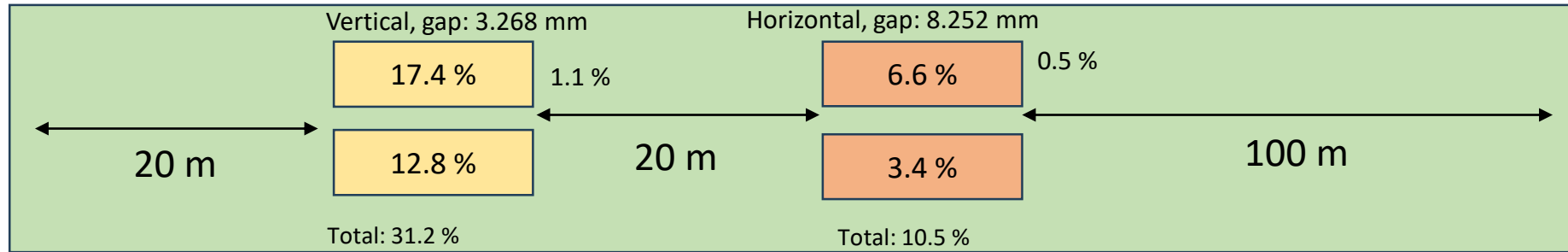
Vacuum/Tunnel

In the cases we have explored the copper vacuum chamber receives between $1/3$ and $1/2$ of the power absorbed by the environment (most of the rest goes to the concrete wall and floor)

Further shower absorber optimization

Shower absorber effects (optimized two SA)

SHOWER ABSORBERS

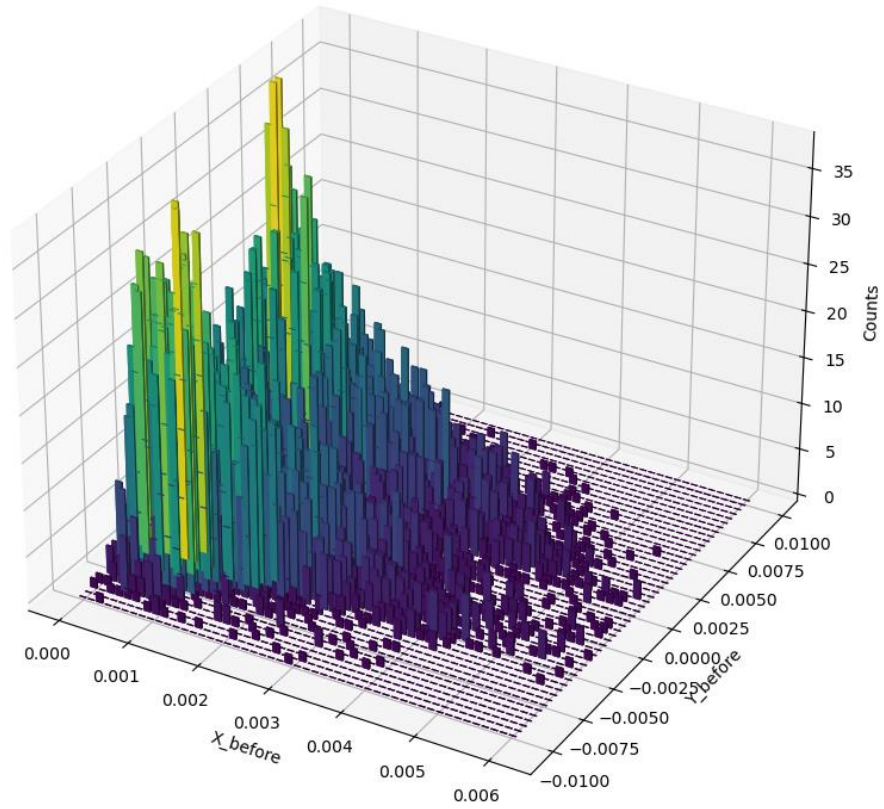


All quadrupoles : 0.78 %
 Tunnel/earth/vacuum chamber: 15.1 %

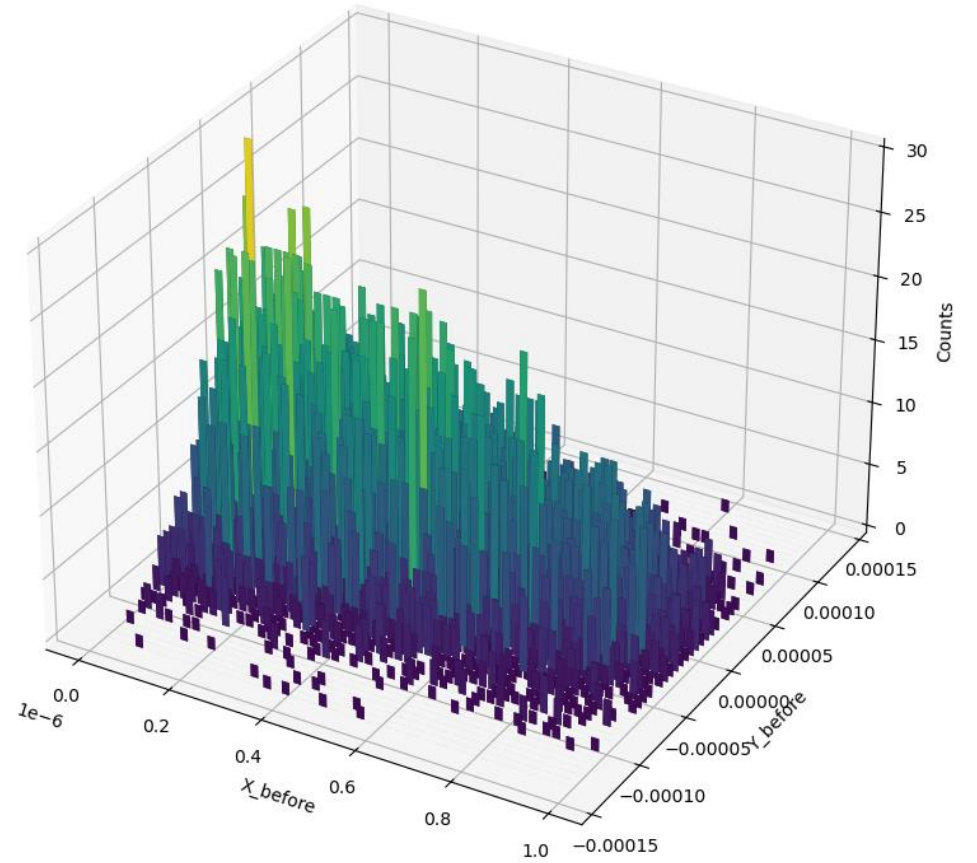
Absorbs an extra 1.5-2%

Extra: Impact distribution and questions

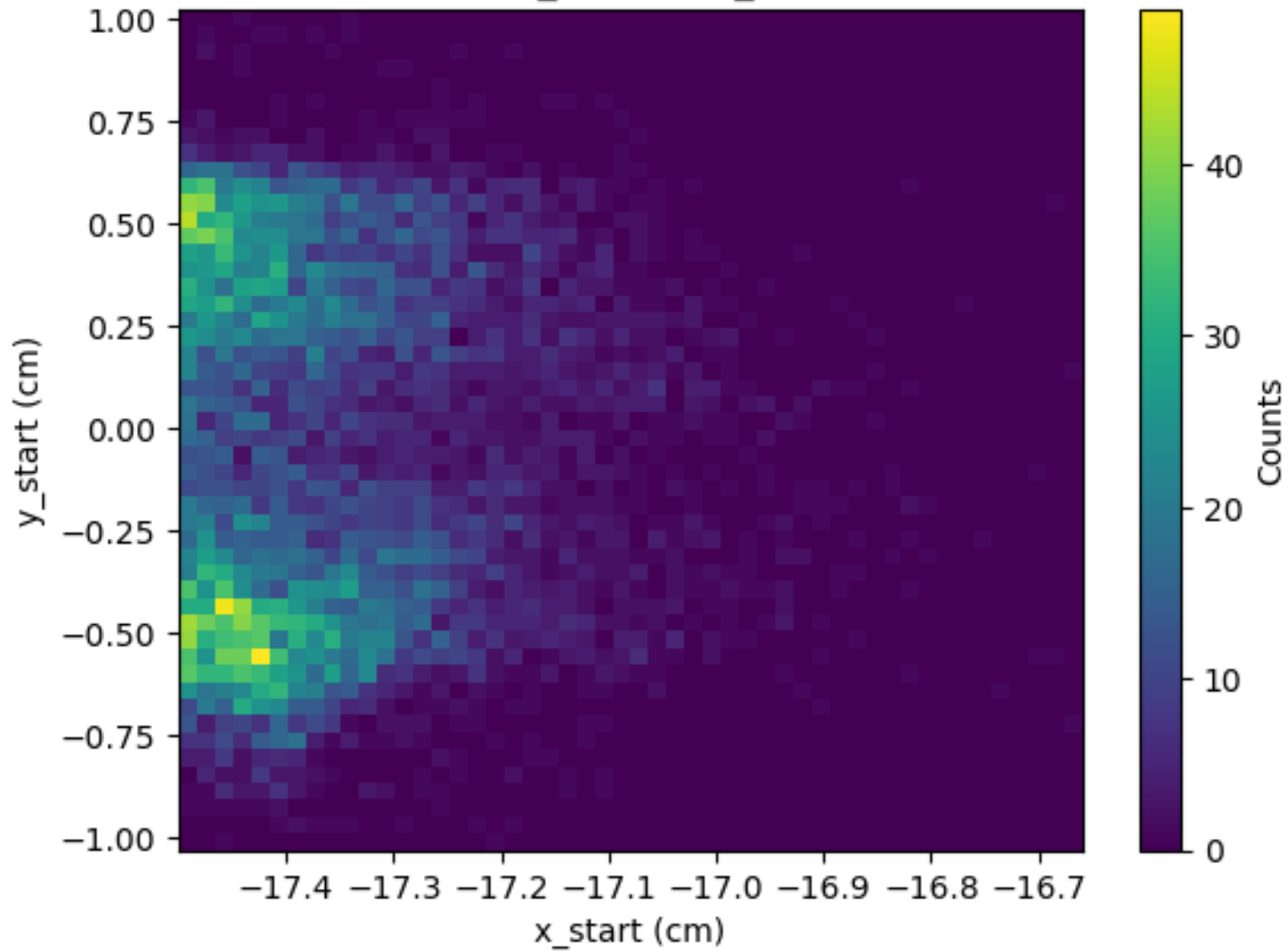
3D Histogram of X_before vs Y_before for tcp.v.b1



3D Histogram of X_before vs Y_before for tcp.h.b1



2D Histogram of x_start vs y_start for tcp.v.b1



What are these distributions describing, and why no vertical gap + positive x only?

Any information on the first impact distribution?