GLC Dump Line Design
for
Measurement of Energy Distribution
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Dump Line Optics (Crossing angle 7 mrad)
Dump Line Geometry (Crossing angle 7 mrad)
Optics from IP to 2nd focus.

Vertical dispersion = 40 mm
x-y distribution at 2nd focus for monochromatic beams. Horizontal laser wire can be used for energy distribution measurement.

\[ \Delta \frac{E}{E} = 0 \]
\[ \Delta \frac{E}{E} = -0.2\% \]
\[ \Delta \frac{E}{E} = -0.4\% \]
\[ \Delta \frac{E}{E} = -0.6\% \]
\[ \Delta \frac{E}{E} = -0.8\% \]
\[ \Delta \frac{E}{E} = -1\% \]
x-y distribution at 2nd focus.
Simulated by CAIN(collision) and SAD(beam line).
Number of $\gamma$-rays/bunch-crossing vs. laser wire position
(rough estimation, Preliminary)
Assumption:

- Laser peak power $= 10$ MW (0.1mJ, 10 ps)
- Laser wire size: $\sigma = 10$ $\mu$m ($\rightarrow \Delta E/E \ 0.025\%$)
- Bunch population: $N = 7E9$/bunch