Conclusions

1. Horizontal apertures in the energy collimation section must be \( \approx 12 \text{ cm} \) full width to safely contain \( \pm 20\% \) off-energy pulse trains. At 1 TeV CM E\_coll quads may have to be longer, i.e. \( B_{\text{pole}} \approx 12 \text{ kG} \).

2. Need a pre-radiator to keep an off-energy pulse train from melting the energy spoiler \( \Rightarrow \) add 10 m drift in the high dispersion region of E\_coll.

3. Need titanium absorbers in the E\_coll section to avoid edge fractures from photon showers when a pulse train hits SP-5 or SPE. This means the drifts between E\_coll dipoles must increase from 30 cm to 60 cm to accommodate titanium absorbers \( \Rightarrow \) adds \( \approx 10 \text{ m} \) to total length of BDS.

4. An errant beam (missteered by \( \sim 100 \text{ } \mu\text{rad} \)) hitting any spoiler in the halo collimation section will damage copper absorbers and PC’s.