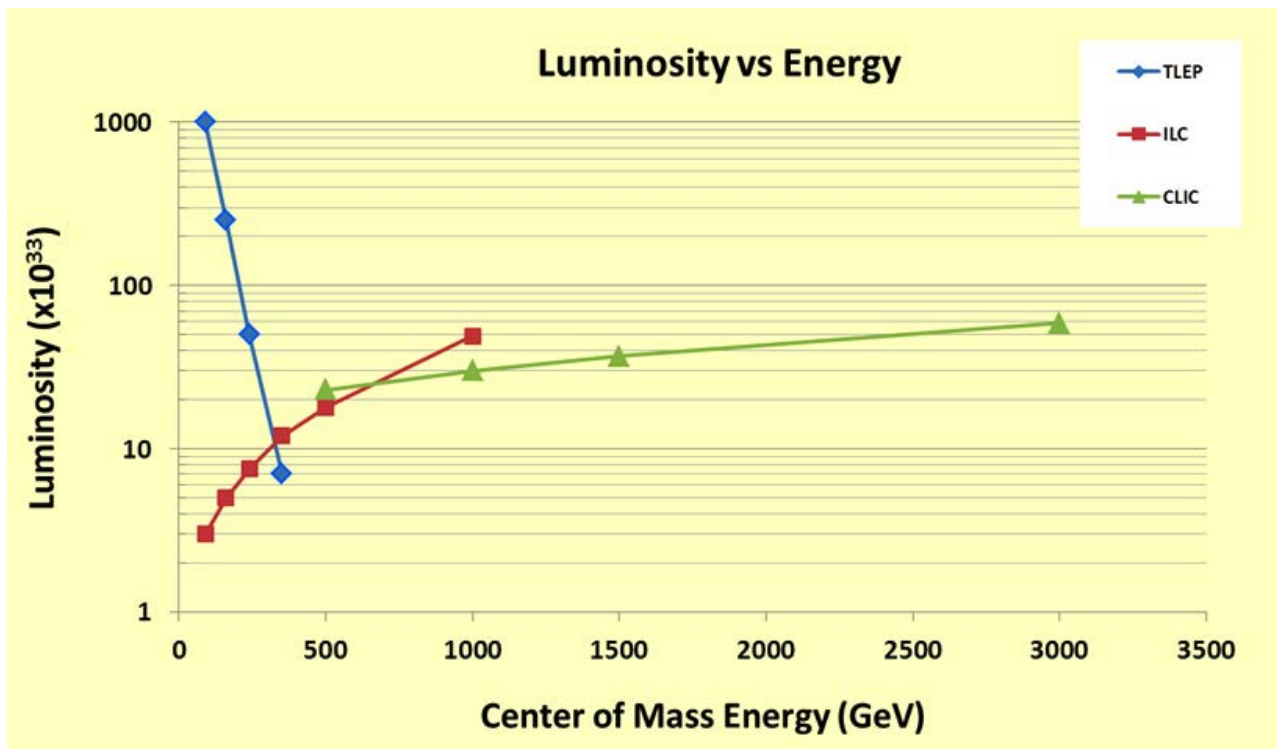


Panel Comments on the Accelerator

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Luminosity Scaling with Beam Energy (M. Zanetti)



Comments (1)

- 1) Design optimization: Suggest optimizing CEPC accelerator design and costs for Higgs running. Then accept the resulting luminosity for Z pole and tt with minimal changes.
- 2) tt operation: Could leave this for ILC initial operation.
- 3) tt: operation: If the construction costs to operate at tt is inexpensive (~10%) then plan for it. (e.g. magnets, power supplies, injector are more complicated.) If the cost to go to tt is closer to x2 then it is not likely worth it. Need a detailed cost estimate to evaluate this variation.
- 4) To do the cost estimates, we must decide on “European” or “US” accounting. For example, going from one ring in CEPC to a partial two ring is only about 10% in “European” accounting but will be more like 15% in “US” accounting as there is more design, management, and staging costs.

Comments (2)

5) Full energy top-up injection is needed because of beam lifetime. Injection rate of about 0.1 Hz is about right. The injector must be full energy, reliable, low background, inexpensive. Need some optimization (bore, field quality, RF system, tune up). A prebooster is a good idea to allow the main booster's lowest energy of order 20 GeV. Do we need full energy injection at tt?

6) Staging: If the machine is designed for Higgs, then run at Z pole briefly to allow accelerator and luminosity tune up then proceed to go to Higgs as soon as possible to get the primary data goal. A second Z run will be much more effective after the accelerator is mature.

7) Build the longest tunnel that can be afforded.

Comments (3)

8) The length of the “partial two ring” IR need to be optimized. Twice as long gives twice the luminosity for e+e- but may hurt pp as there will be shorter arc length. Need to optimize this length.

9) If the pp machine ultimately replaces the e+e- machine, then the interaction region can be the same for both e+e- and pp, resulting in a lot of saved costs on hall construction.