Straggling and X-PX Phase Space

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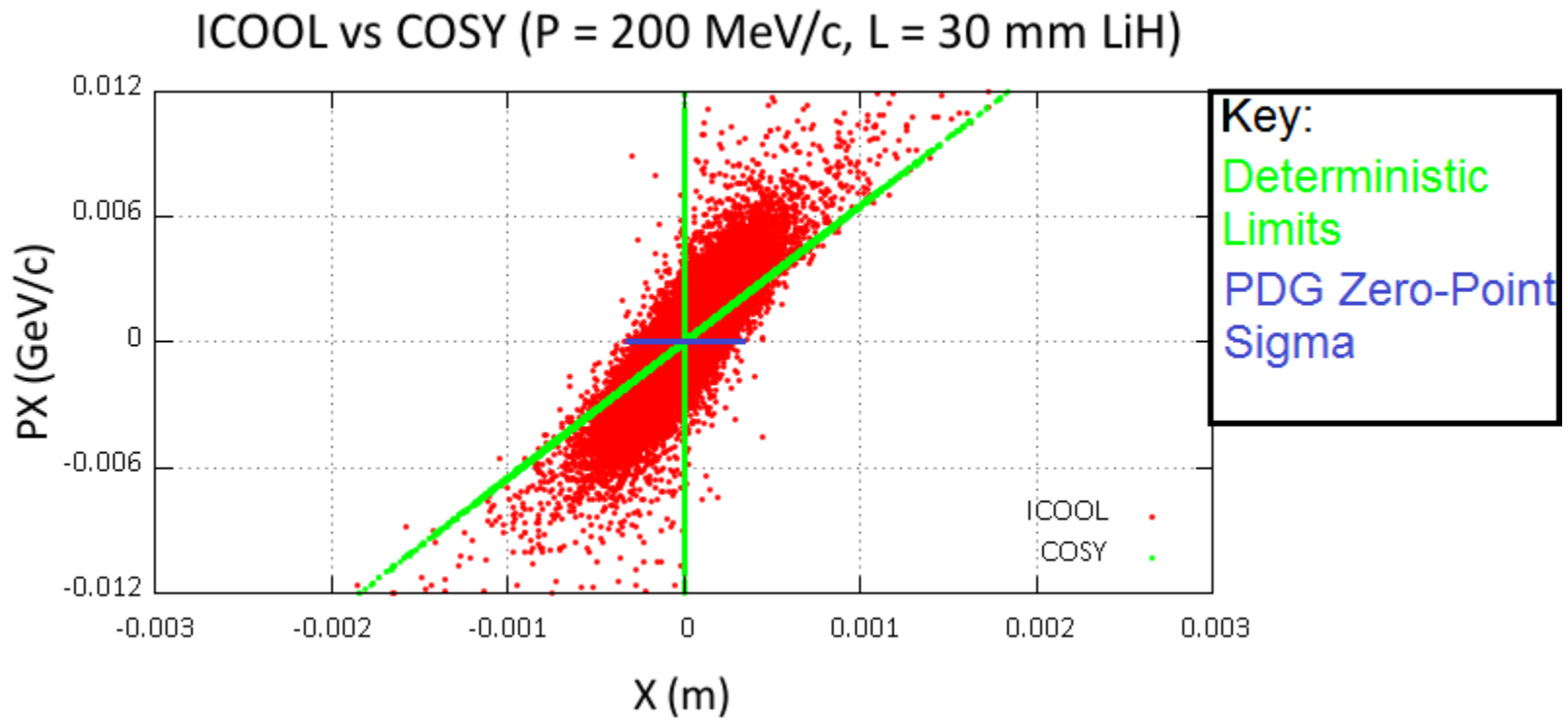
Review & Update

- At CPO, I showed a simulation of 200 MeV/c muons through 12 mm of LH and LiH absorber.
- However, phase space portraits were not shown because both X and ToF histograms had not been perfected.
- Now I am able to show simulations in a range of P = [150, 250] MeV/c and L = [10, 100] mm with X-PX phase space portraits.
- Scattering theory has not changed, but the X selection is new.
- Straggling theory has not changed, but I have installed both Vavilov and Blunck-Liesegang generators.

X Selection

- Artificially fills phase space with a Gaussian profile $X = N(\mu, \sigma)$
- $\mu = \theta * L/2$
- $\sigma = MAX(\sigma_{PDG}, 1/5 * L * P_x/P_z)$



What’s Next?

- Fix straggling
- Look into < 1 mm profiles (not working at face value)
- Look into straggling-ToF phase space