

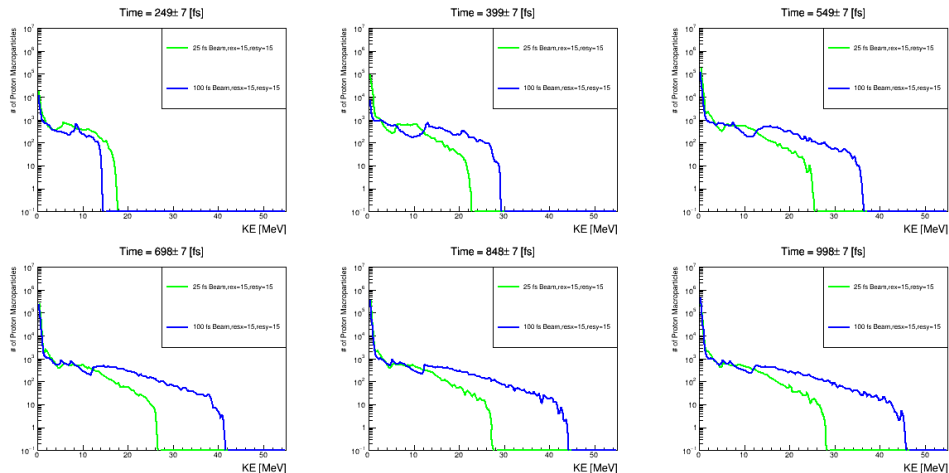
LhARA Meeting

Hin Tung Lau

August 13, 2020

Pulse Duration

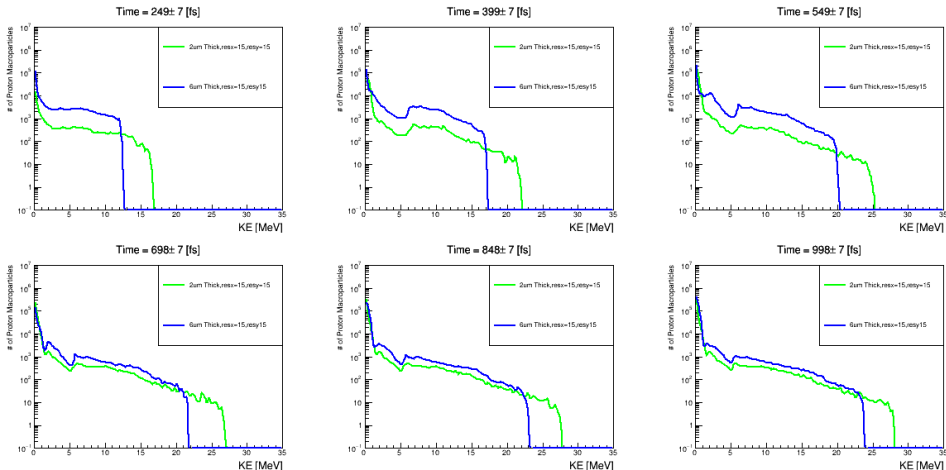
Pulse duration of 25 fs (green) and 100 fs (blue):



Matches observation that long pulse gives higher proton cutoff energy.

Foil Thickness

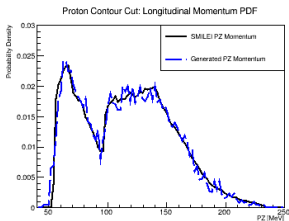
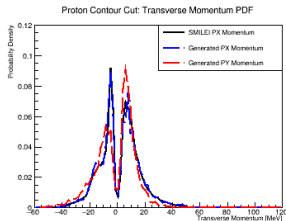
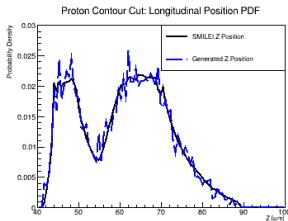
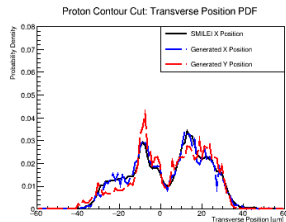
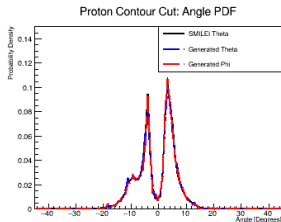
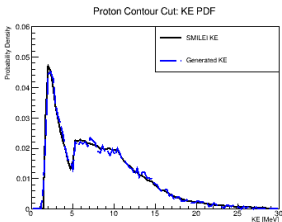
Comparison of 2 micron foil (green) and 6 micron foil (blue):



About 5 MeV decrease in proton cutoff energy between foil thickness.

Sampling Distribution Comparison to SMILEI Simulation (Contour Cut)

- Sampled KE and Theta randomly from simulations, Phi sampled randomly from fitted Theta
- Only 5000 entries in generated distribution



Sampling Distribution Comparison to SMILEI Simulation (Contour Cut)

Correlation of angles to kinetic energy of protons:

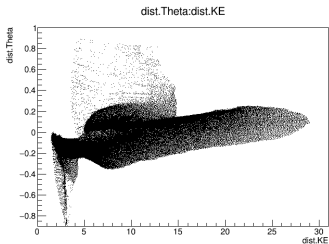


Figure: From SMILEI simulation.

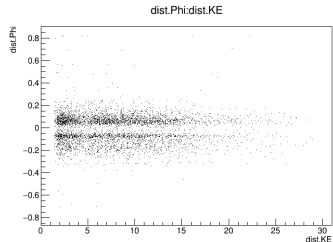
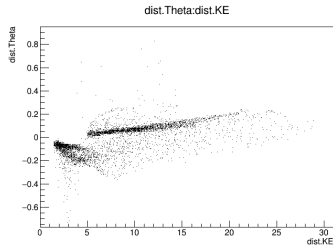


Figure: From generated distribution.

Sampling Distribution Comparison to SMILEI Simulation (Contour Cut)

