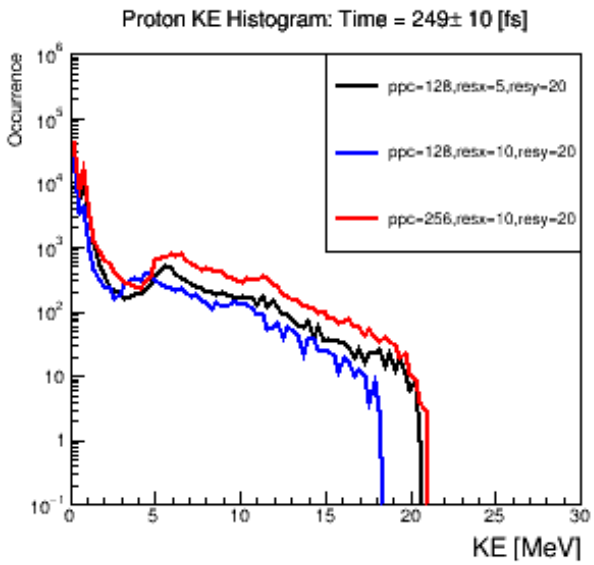
LhARA Meeting

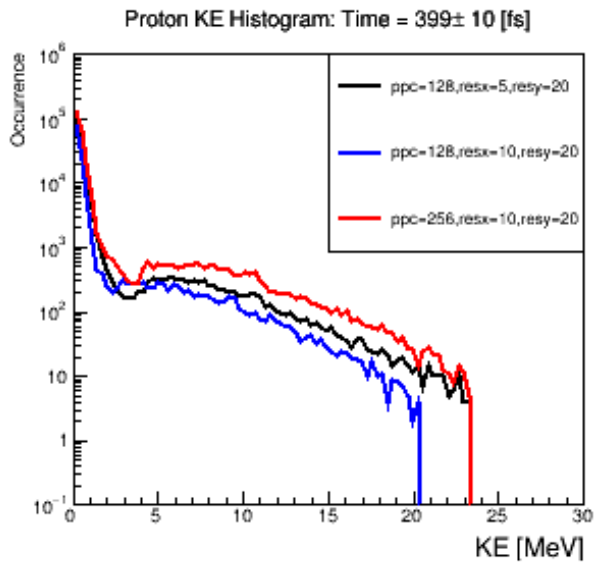
Hin Tung Lau

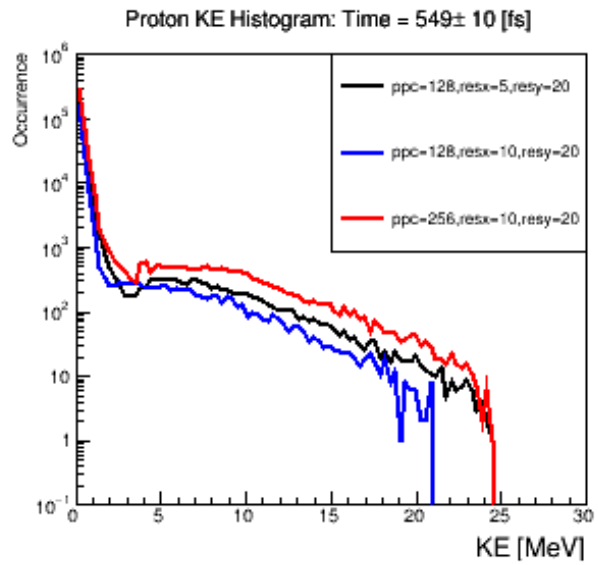
September 17, 2020

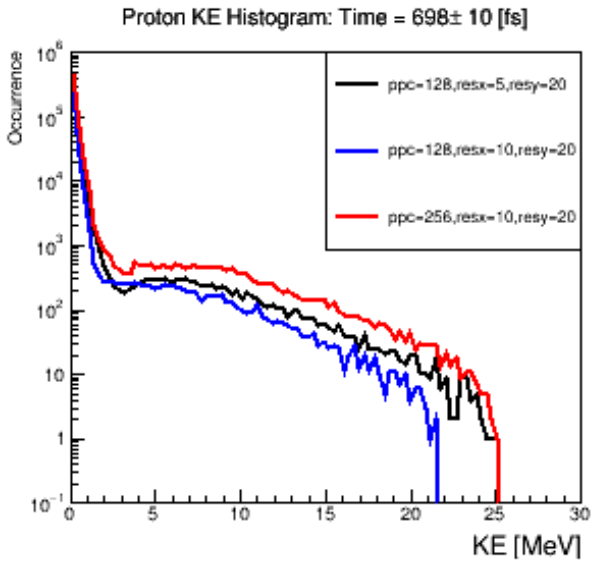
Minor Update: ppc + cell size comparison

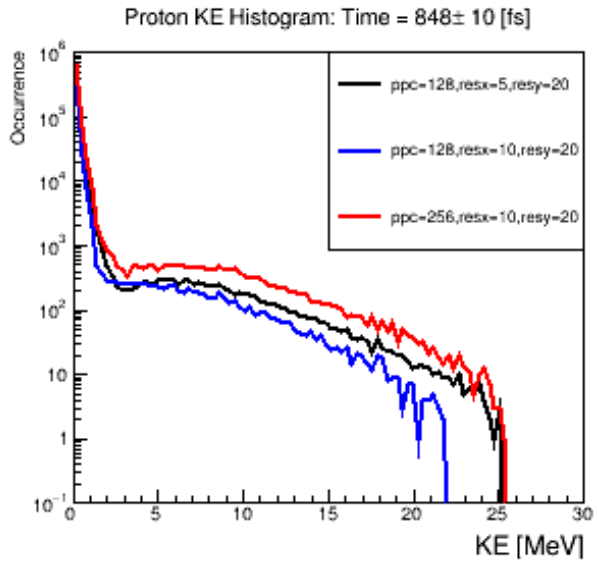
Appears to reach convergence a smaller cell size is needed:

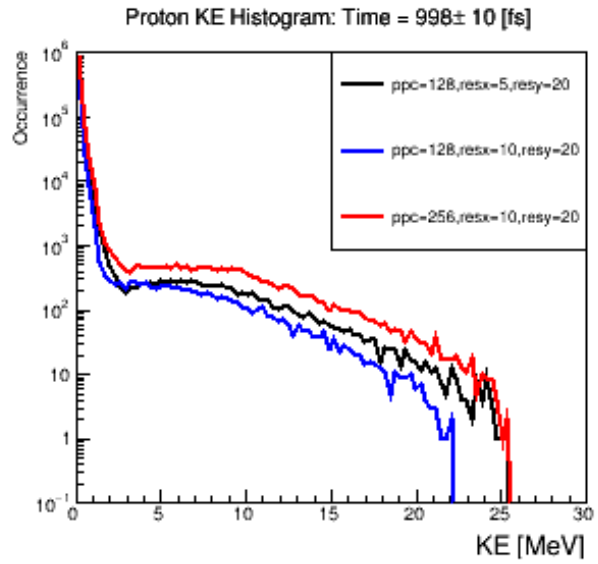






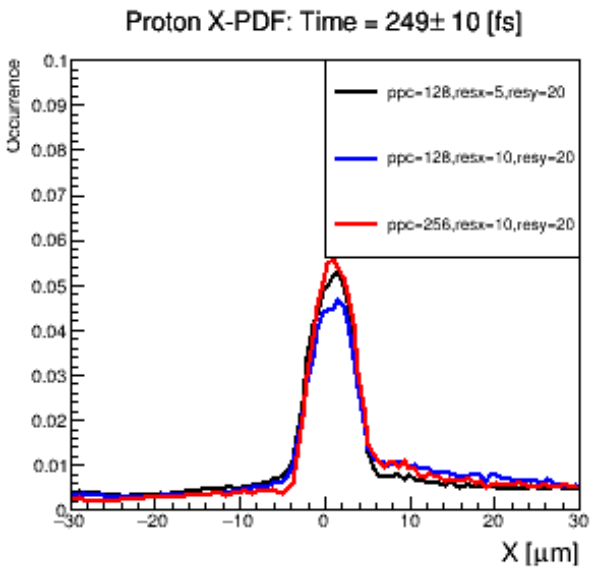


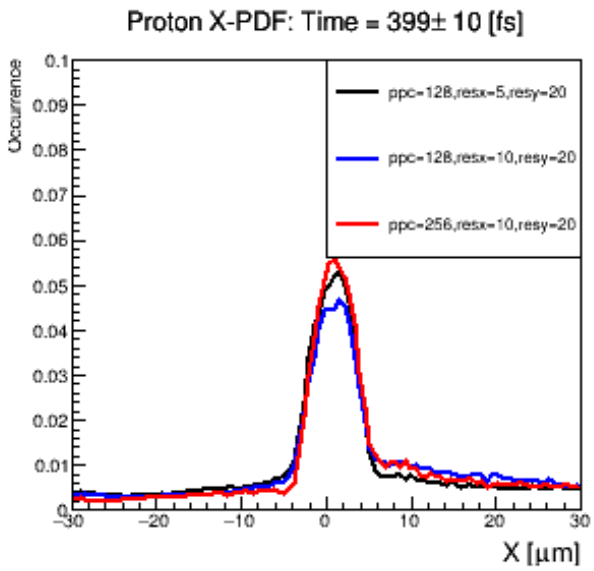


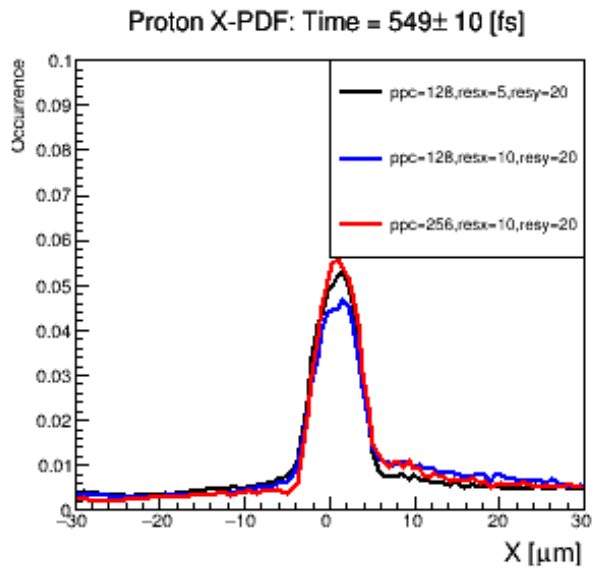


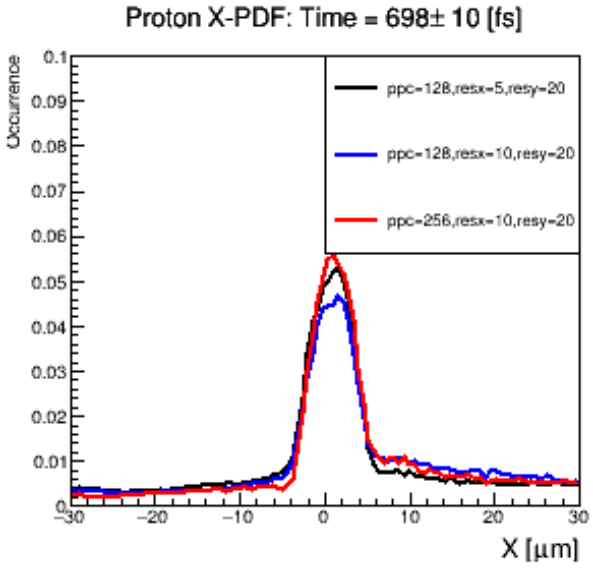
Minor Update: ppc + cell size comparison

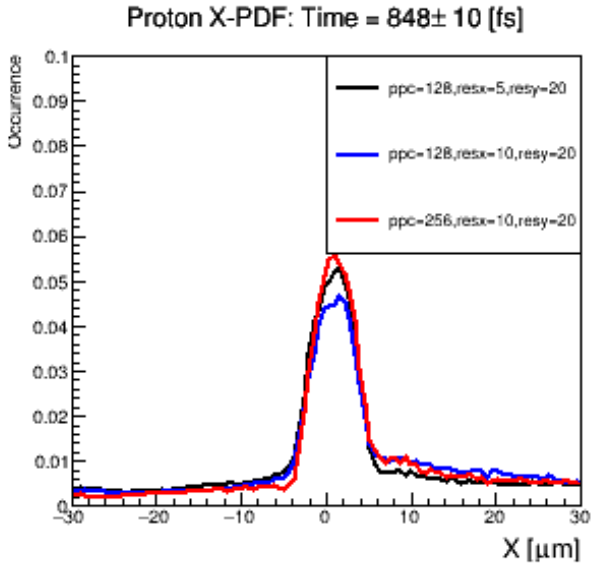
As in all previous cases, distribution in transverse plane stays quite similar:

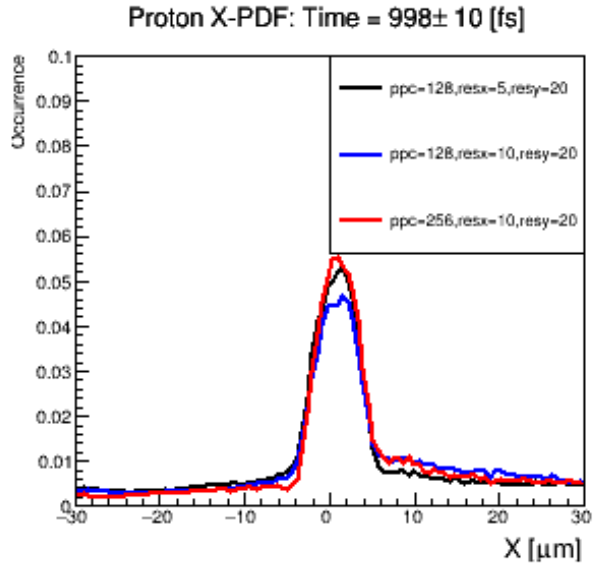












Generating Distribution (for M.King)

From 2D TNSA simulations using SMILEI on a 2 μm plastic foil, sample and smear a third dimension to obtain a 3D distribution to send into the beamline.

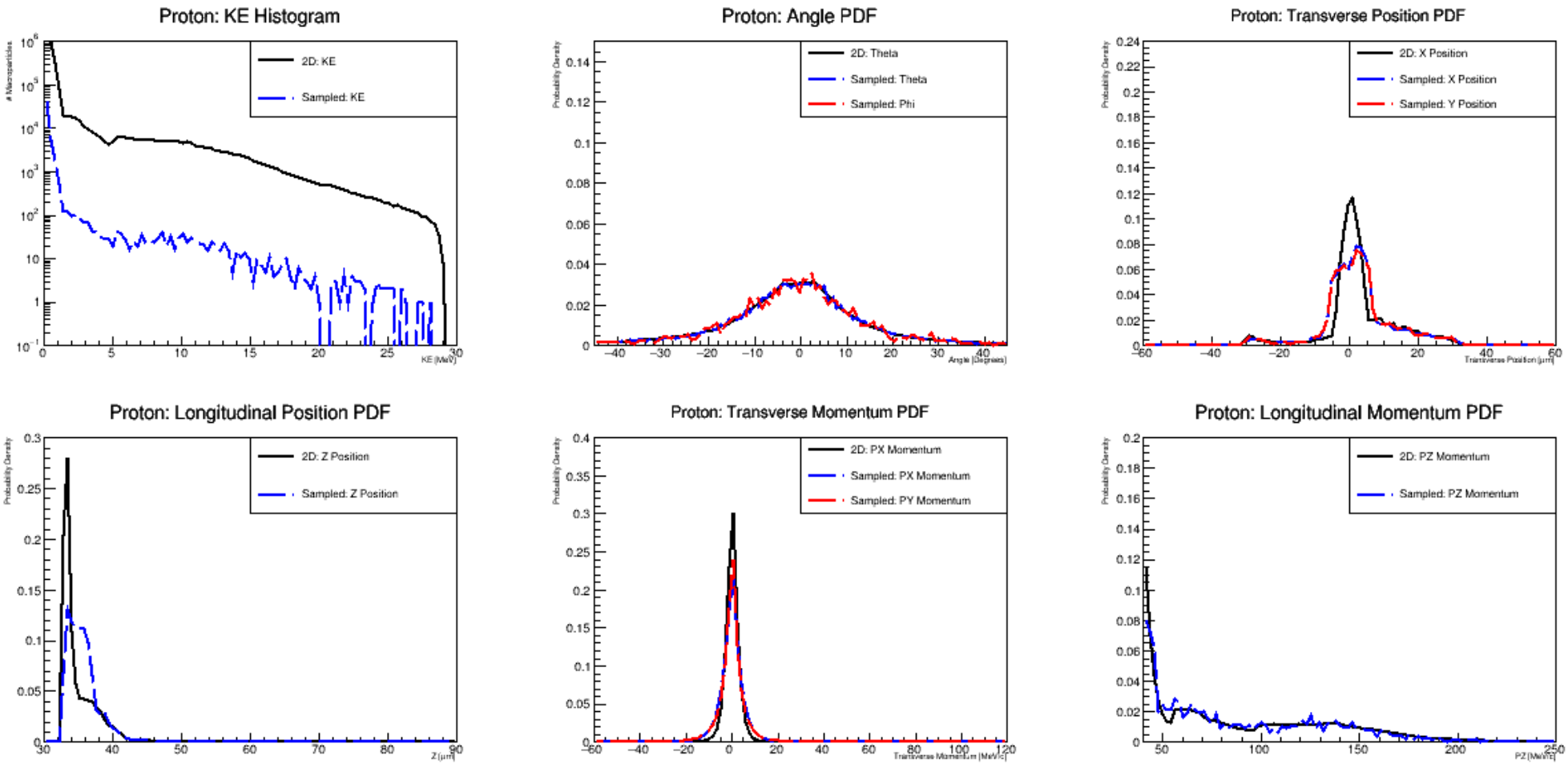


Figure: Comparison of sampled proton beam distribution against the simulations from SMILEI.

Questions (for M.King)

1. Any observed major discrepancies between experiments, 2D, and 3D simulations?
   - Proton/Ion cutoff energy
   - Energy distribution
   - Angular spread
2. What parameters do you use in 2D simulations to get reliable/realistic results?
   - Particle per cell (PPC)
   - Grid size
   - Cell size
   - Foil compositions
3. Do you use any particular experiments/parameters when benchmarking simulation codes?