

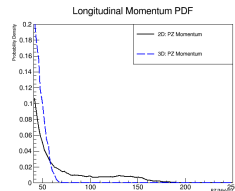
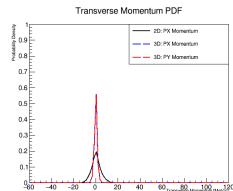
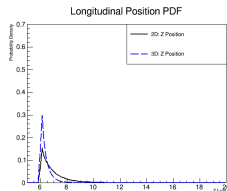
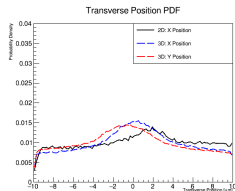
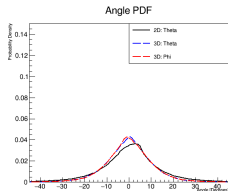
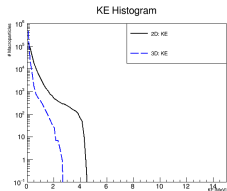
LhARA Meeting

Hin Tung Lau

September 10, 2020

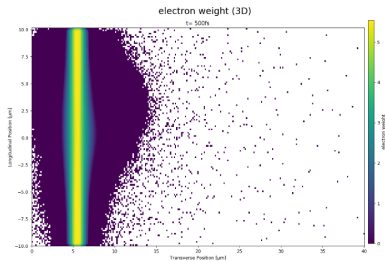
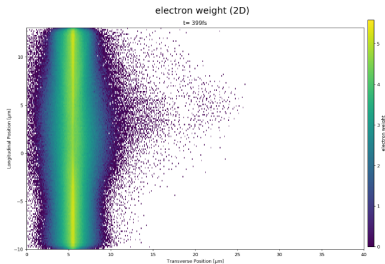
2D vs 3D Check

- ppc=16, rex=15 nm, resy=30 nm, 1 μm foil for both 2D vs 3D
- Final timestep (t=400 fs for 2D, and t=500 fs for 3D) and cut so results are only with $z < 15 \mu\text{m}$
- Neither simulations has saturated and parameters are not convergent, but indications do appear to support about a factor of 2 for cutoff energy of protons
- Paper on ratio of 2D vs 3D: <https://aip.scitation.org/doi/10.1063/1.5003619>



2D vs 3D Check

Difference in electron number density:



- Discussion with Ken to explain rationale behind the dimension smearing of the generated distribution
- Inherent uncertainties due to adding a new dimension
- But an initial rough first beam distribution ready
- Might be able to study some trends in 3D data to slightly improve the generated distribution

- May be able to get away with smaller ppc to run simulations faster
- Verify convergence actually reached with regard to cell size