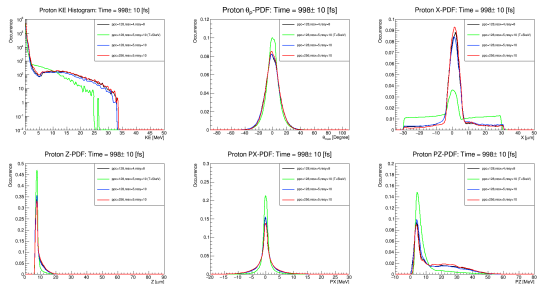


LhARA Meeting

Hin Tung Lau

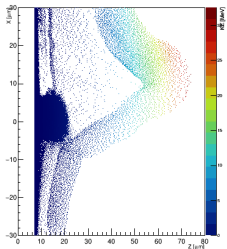
October 8, 2020

Simulation Update

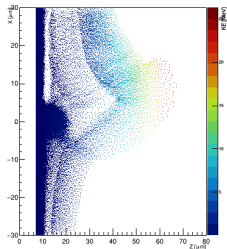


- Convergence: Comparing red, blue, and black curves suggests convergence (need to check trend of equivalent higher ppc).

Proton: ppc=128, resx=5 nm, resy=10 nm



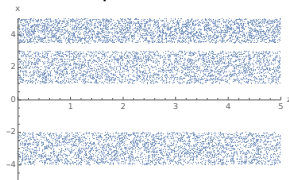
Proton: ppc=128, resx=5 nm, resy=10 nm, hst=5 keV



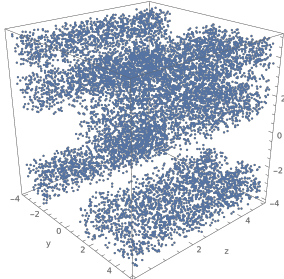
- Initial temperature: Repeated simulation (green curve) with an initial temperature of 5 keV.

Smearing Distribution Method (Simplified)

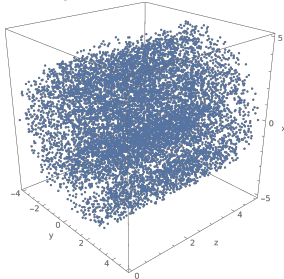
Example distribution



Cartesian Smear



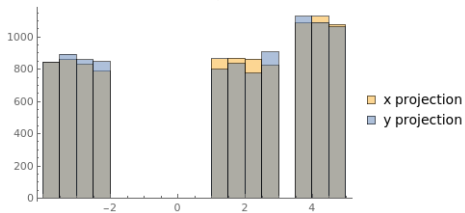
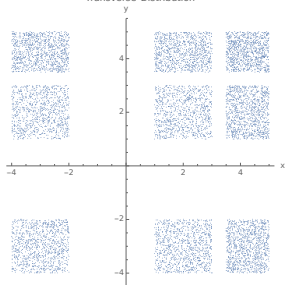
Cylindrical Smear



Smearing Distribution Method (Simplified)

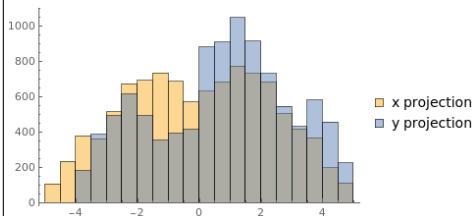
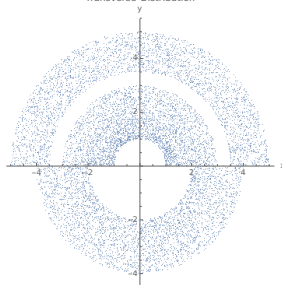
Cartesian Smear

Transverse Distribution



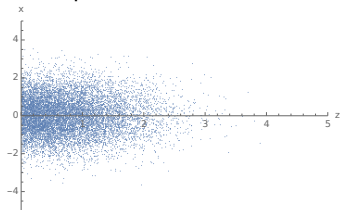
Cylindrical Smear

Transverse Distribution

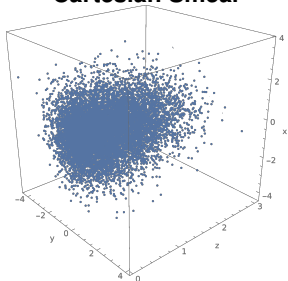


Smearing Distribution Method (Simplified)

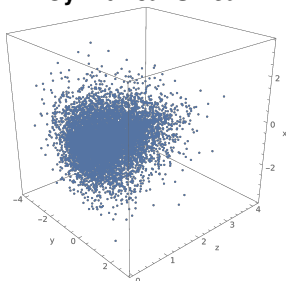
Example Gaussian distribution



Cartesian Smear



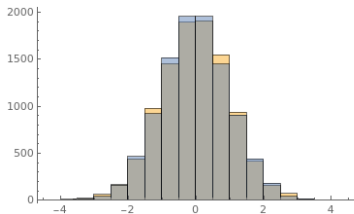
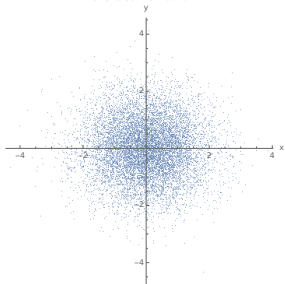
Cylindrical Smear



Smearing Distribution Method (Simplified)

Cartesian Smear

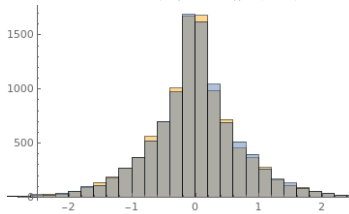
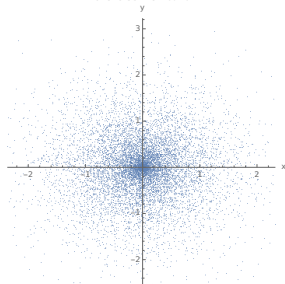
Transverse Distribution



x projection
y projection

Cylindrical Smear

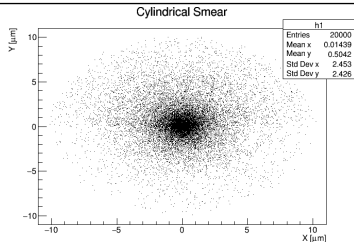
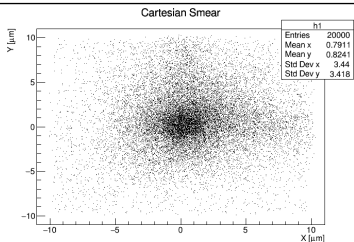
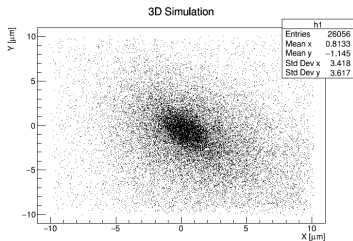
Transverse Distribution



x projection
y projection

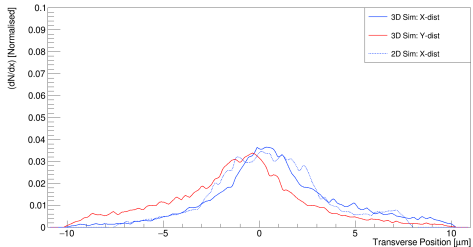
Smearing Distribution Method: Smilei Distribution

3D simulation results with a longitudinal cut applied compared against smeared distribution sampling from x-plane:



Smearing Distribution Method: Smilei Distribution

3D Sim vs 2D Sim: Transverse Position



3D Sim vs Smear: Transverse Position

