

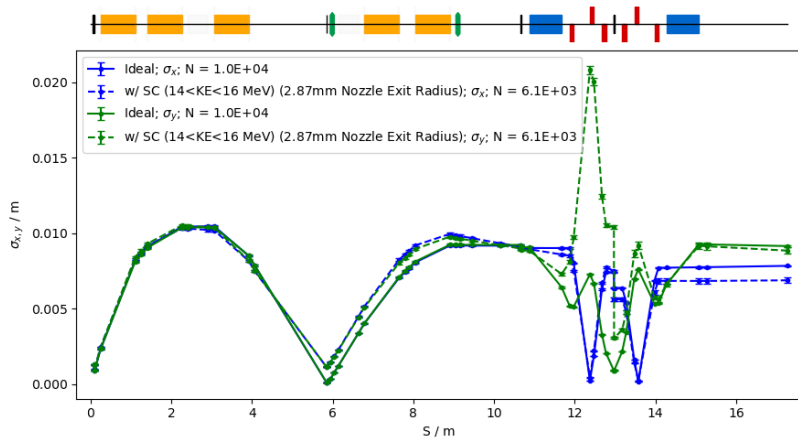
LhARA: Capture Meeting

Hin Tung Lau

January 21, 2021

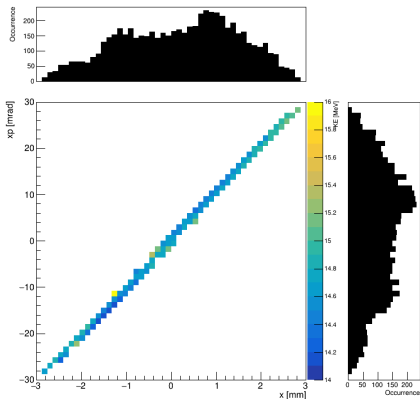
Update

- Still waiting for higher statistics simulations
- Took the lower statistics distribution (last week) but fixed nozzle geometry to have an exit diameter of 5.74 mm

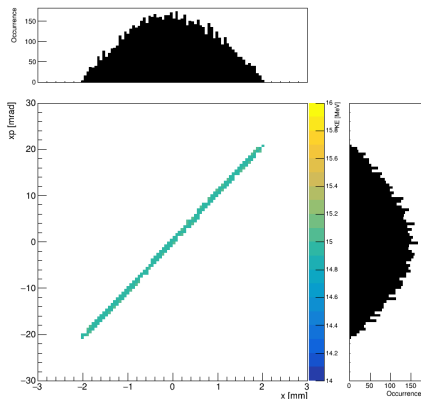


Update

Cartesian Geometric Sampled Proton Beam: Nozzle End (w/ SC)



Ideal Beam: Nozzle End (w/ SC)

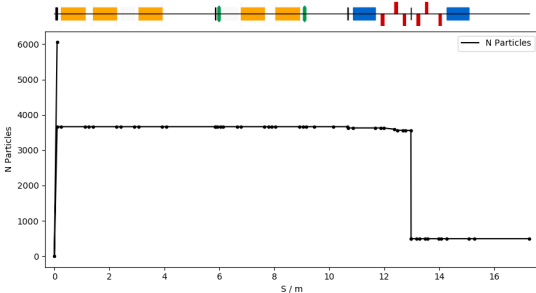


β_x [m]	31.602	39.38
α_x	-317.667	-395.14
ϵ_x [π m rad]	2.984×10^{-8}	4.18×10^{-8}
β_y [m]	31.652	40.45
α_y	-318.088	-405.91
ϵ_y [π m rad]	2.888×10^{-8}	4.19×10^{-8}

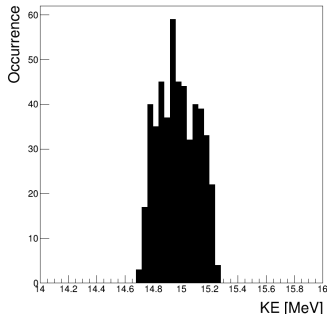
β_x [m]	4.82
α_x	-49.43
ϵ_x [π m rad]	3.277×10^{-7}
β_y [m]	4.97
α_y	-51
ϵ_y [π m rad]	3.256×10^{-7}

Update

- Beam losses for the $14 < KE < 16$ MeV beam
- Main losses in the arc where the resulting beam energies are $14.7 < KE < 15.3$ MeV



Cartesian Geometric Sampled Proton Beam: Endstation (w/ SC)

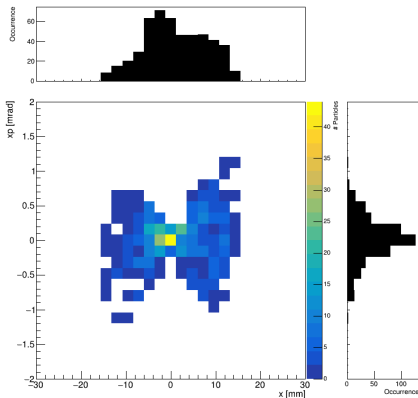
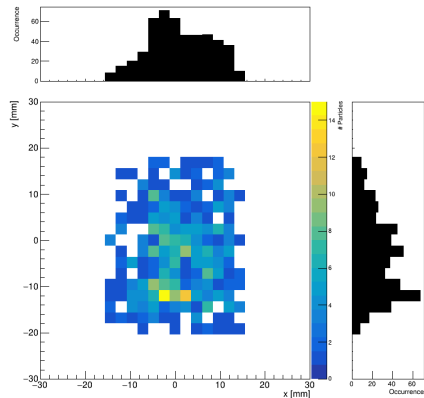


Update

- Needs more statistics
- Colour in plots are population in bins

Cartesian Geometric Sampled Proton Beam: Endstation (w/ SC)

Cartesian Geometric Sampled Proton Beam: Endstation (w/ SC)



- Positional distributions of $14 < KE < 16$ MeV beam coming out of nozzle (15 cm away from the start of GL field)

Cartesian Geometric Sampled Proton Beam: Nozzle End (w/ SC)

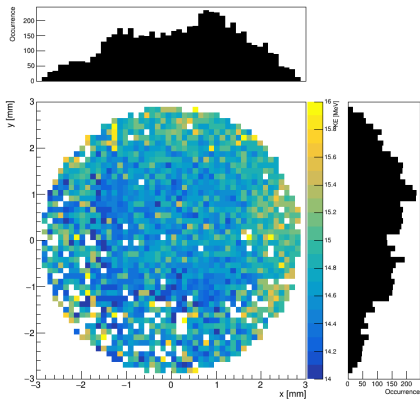


Figure: Colour represents KE of protons.

Cartesian Geometric Sampled Proton Beam: Nozzle End (w/ SC)

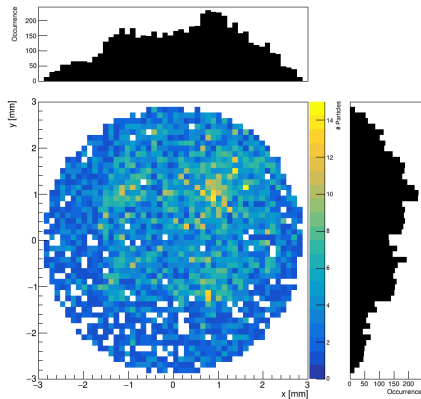


Figure: Colour represents population binning of protons.