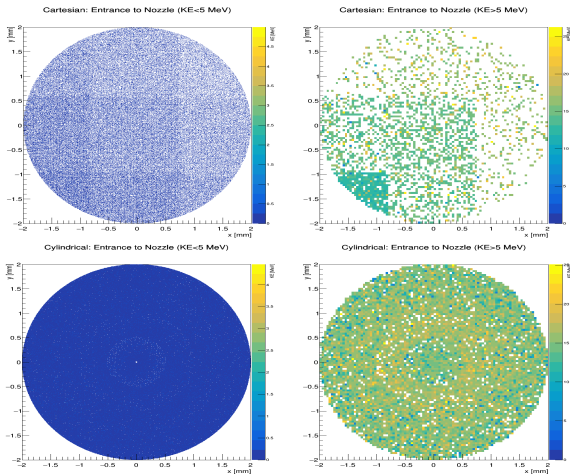


# LhARA: 2D to 3D Smearing Method

Hin Tung Lau

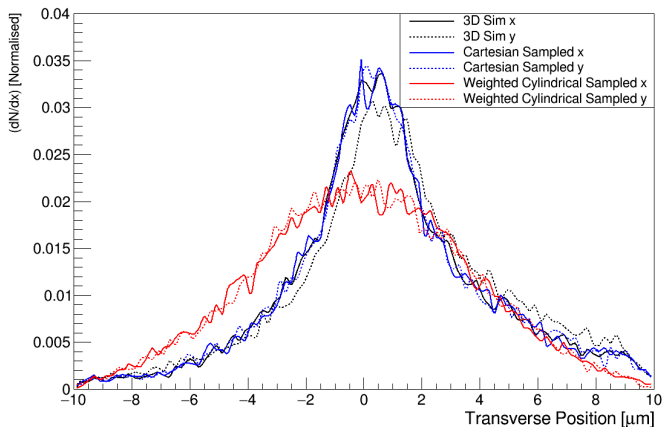
November 26, 2020

# Comparison Beam at Entrance to Nozzle



- Cartesian sampling introduces some artefacts (distinct boundaries), looking into smoothing it.
- Both methods average 0.5% of beam reaching nozzle having protons with energy between 14 to 16 MeV.

## 3D Sim vs Smear: Transverse Position



- Found an issue with 3D simulation geometry that flipped the y-axis when shown previously.
- Cartesian methods fits 1D profile quite well, cylindrical is different and symmetric about zero.