Faraday Cup: Geant4 Simulation

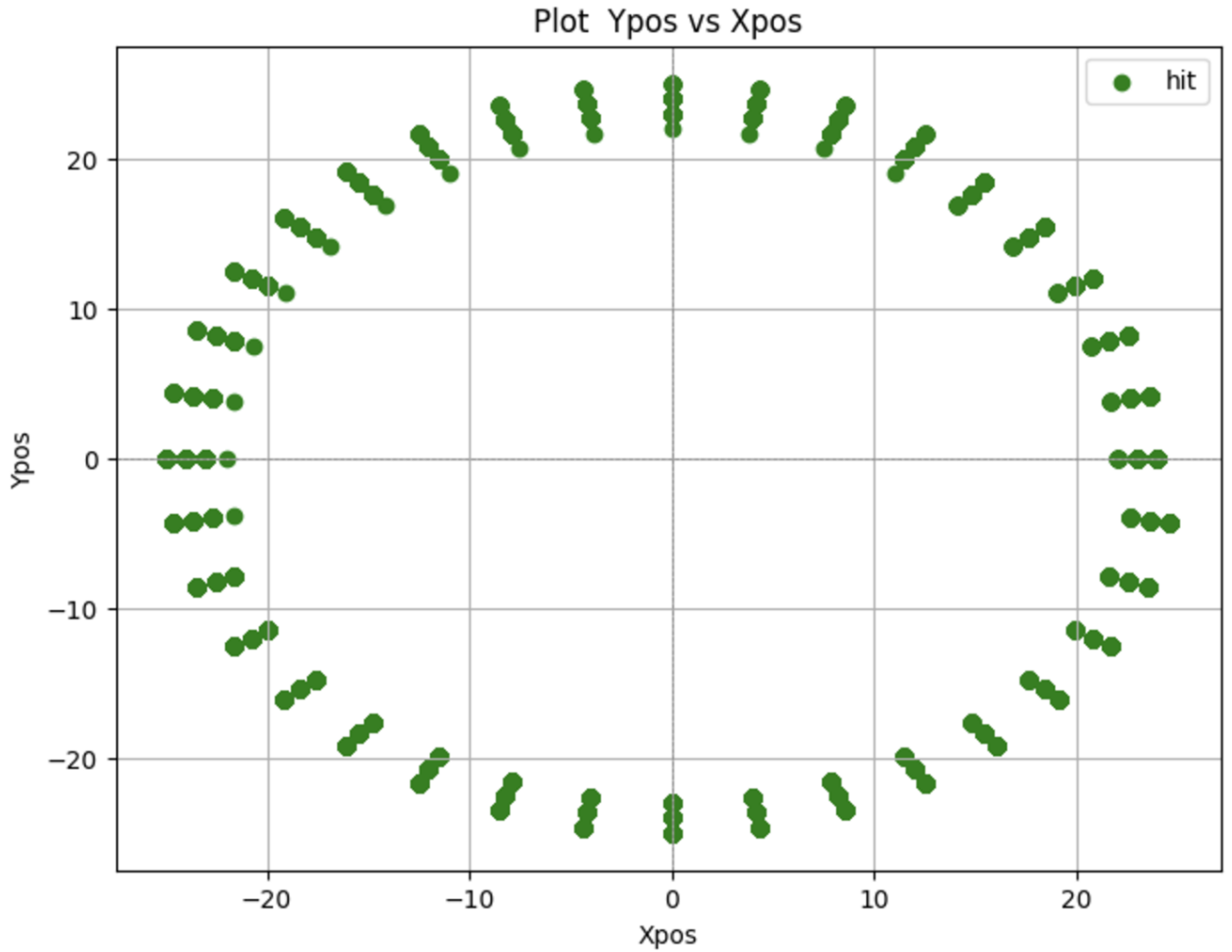
Hector Chinchay

November 6th 2024

Jefferson Lab
Thomas Jefferson National Accelerator Facility

University of New Hampshire

/gun/particle e-
/gun/energy 1 GeV
/run/beamOn/ 20 000



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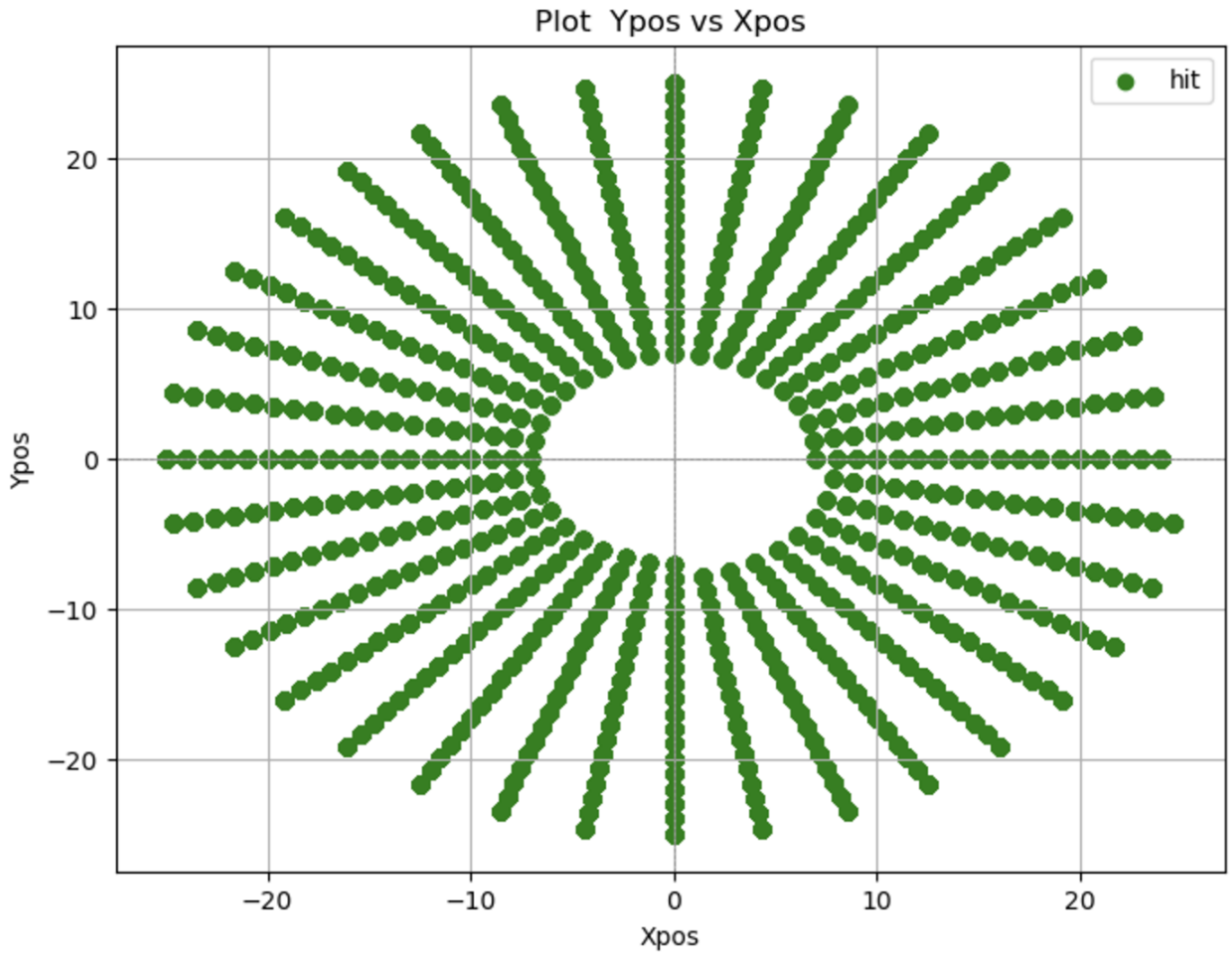

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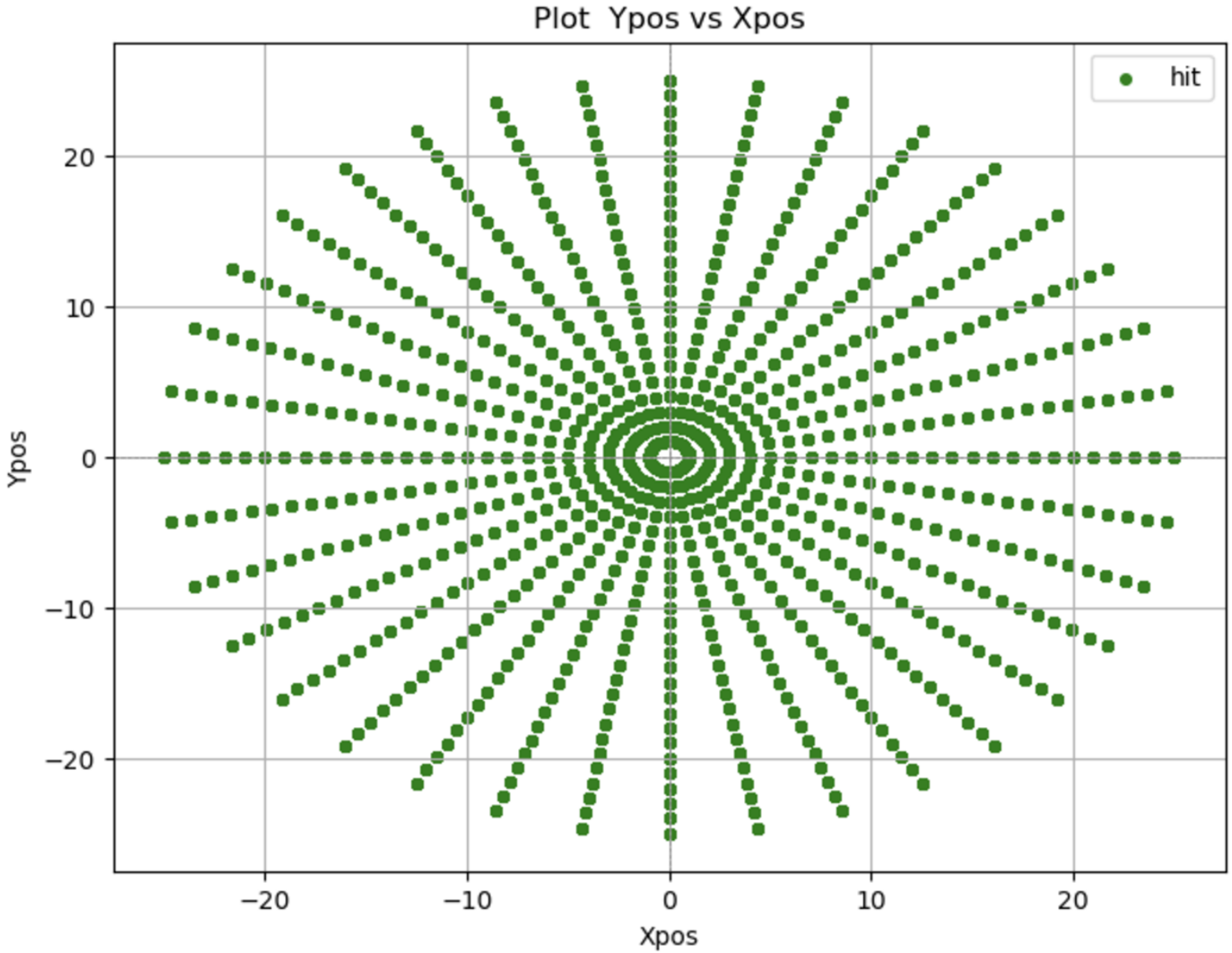


A Strong-QCD Regime Measurement of the Proton's Spin Structure

BY

DAVID RUTH

B.A. in Physics, McDaniel College, 2015

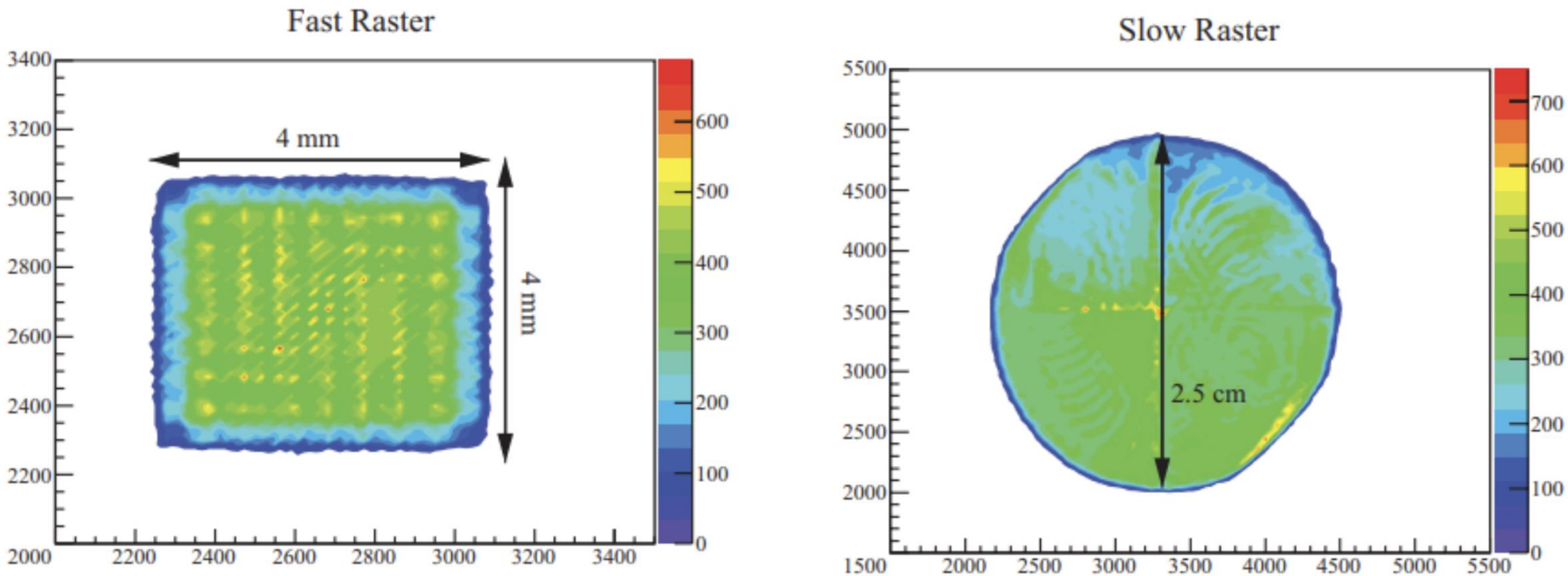
DISSERTATION

Submitted to the University of New Hampshire

in Partial Fulfillment of

the Requirements for the Degree of

https://arxiv.org/pdf/2212.00763



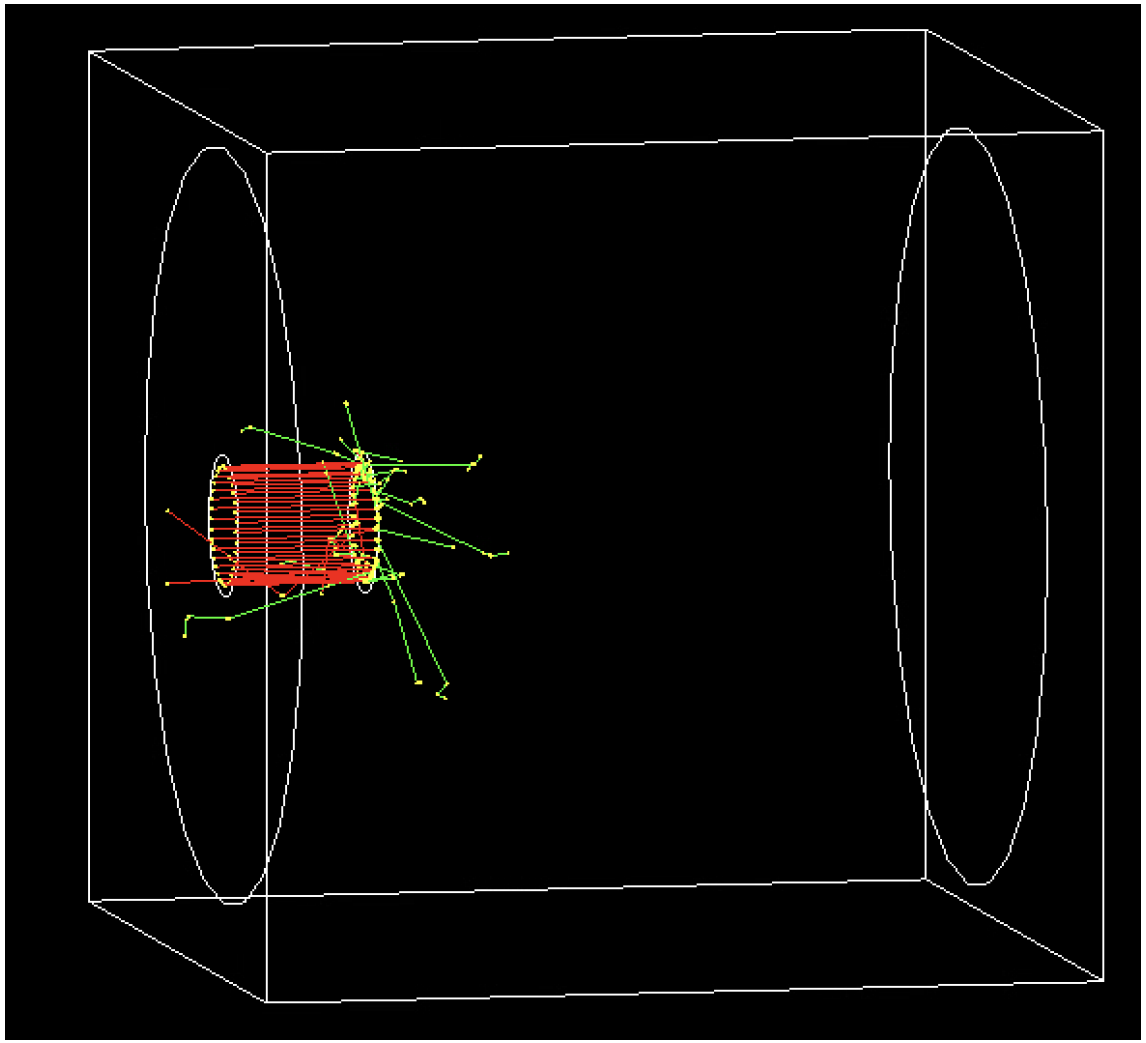
(a) Fast Raster

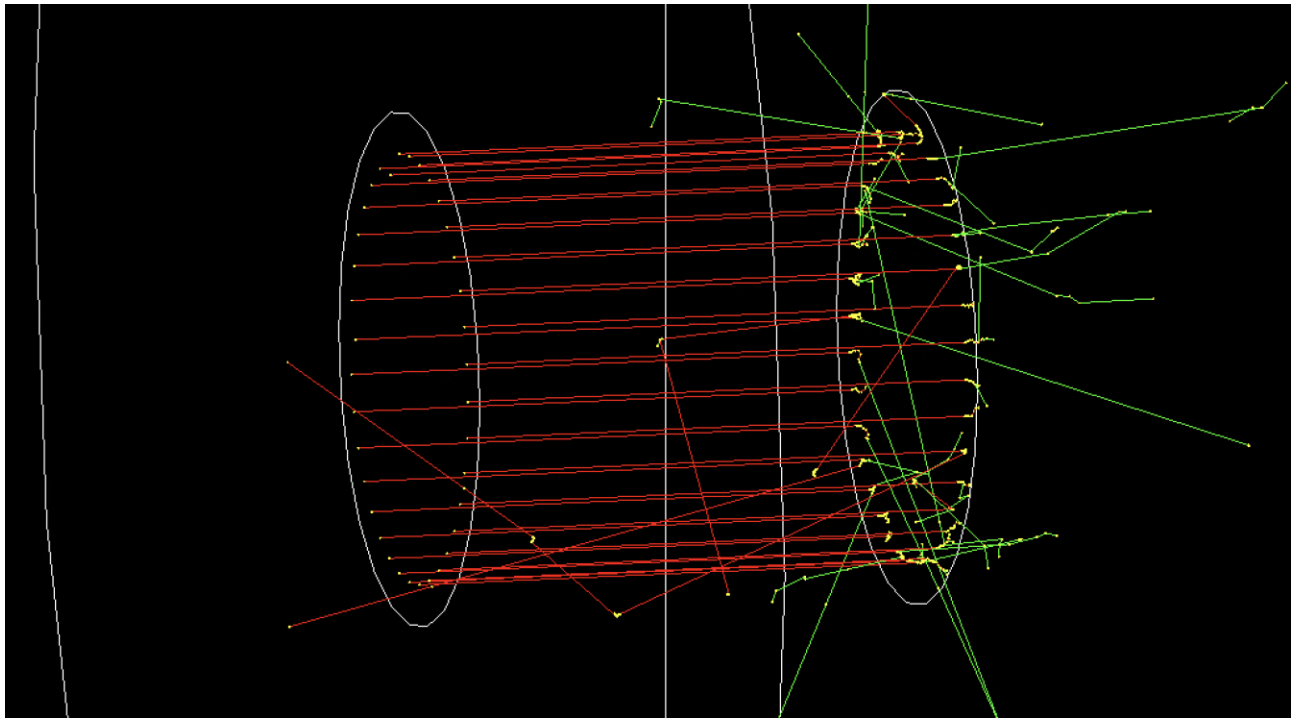
(b) Slow Raster

Figure 4.4: Raster swept beam profiles. Plots are a function of current in arbitrary units. Reproduced from Zielinski [2017]

TEST1
/gun/particle e-
/gun/energy 11 GeV
/run/beamOn/ 40

Cylinder: diameter and longitude = 16cm
Hole: diameter and longitude = 3cm





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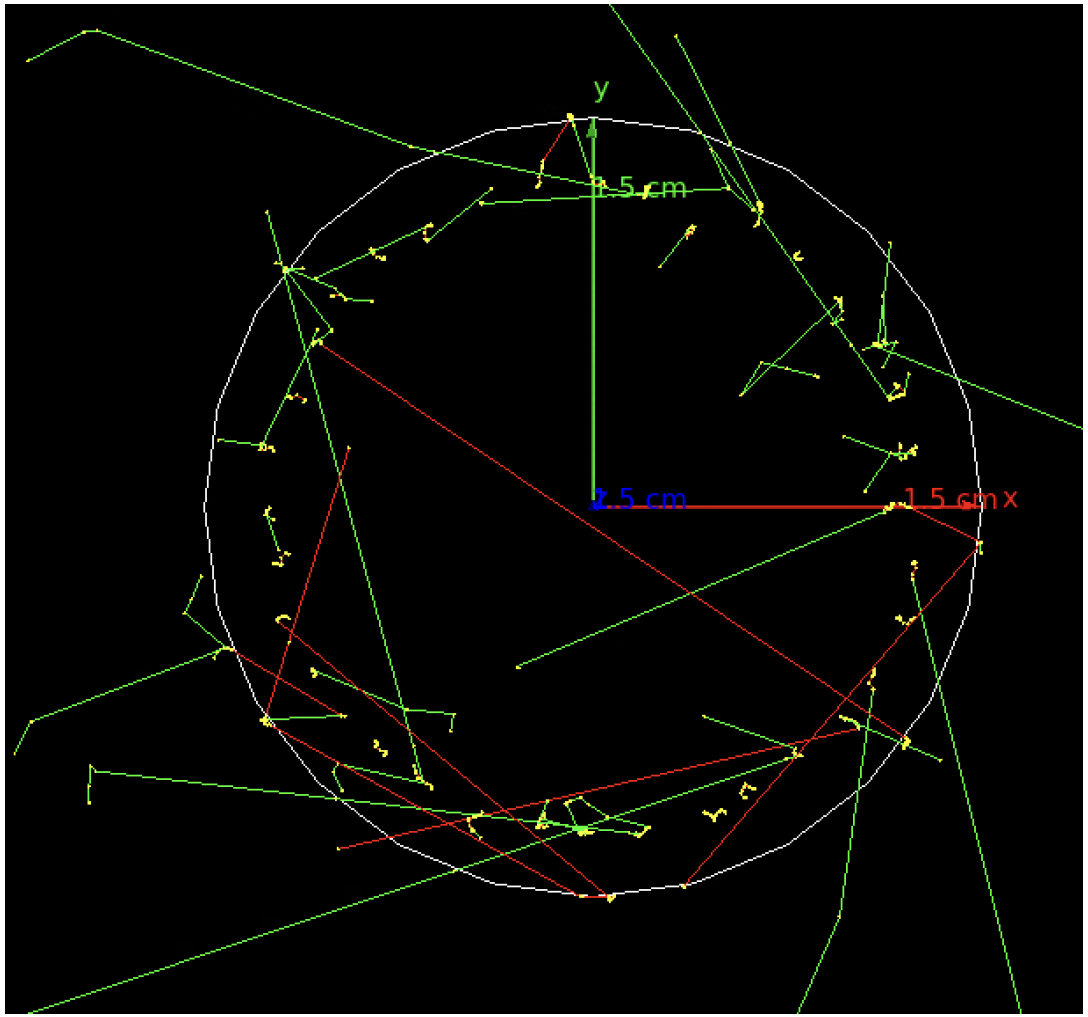
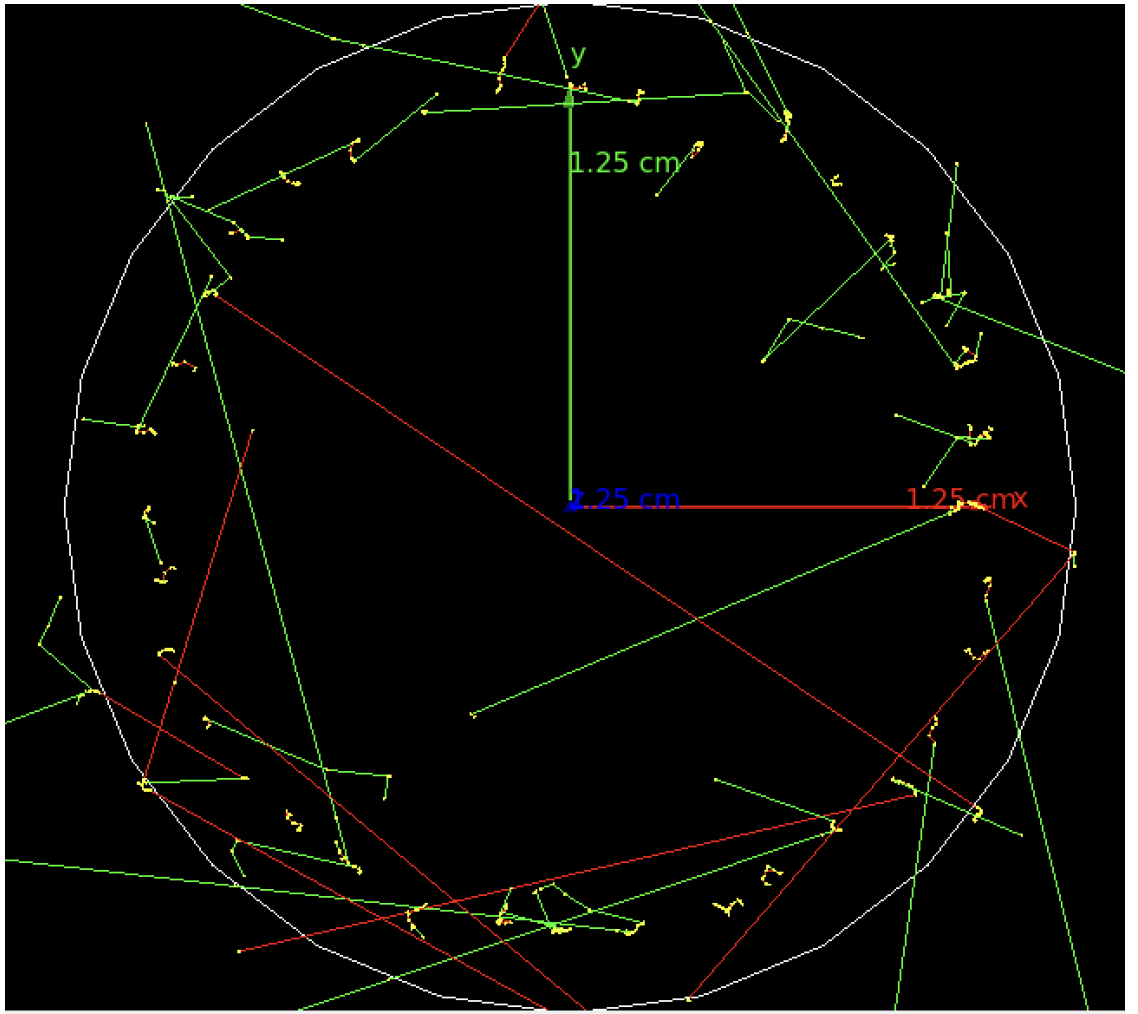
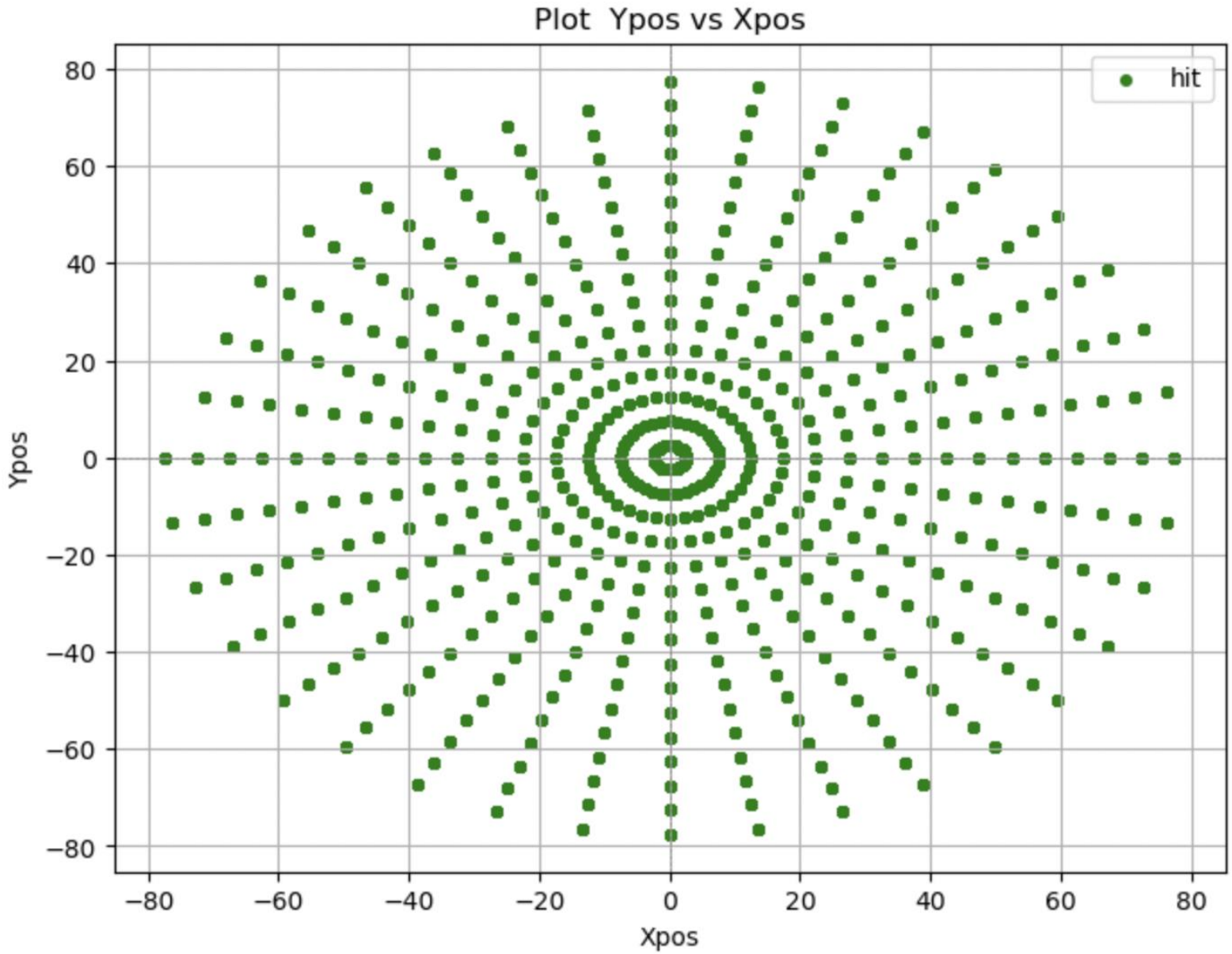




FINAL TEST
/gun/particle e-
/gun/energy 11 GeV
/run/beamOn/ 100 000



FINAL TEST
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/gun/energy 11 GeV
/run/beamOn/ 100 000

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Area under the curve h1: 9.58657
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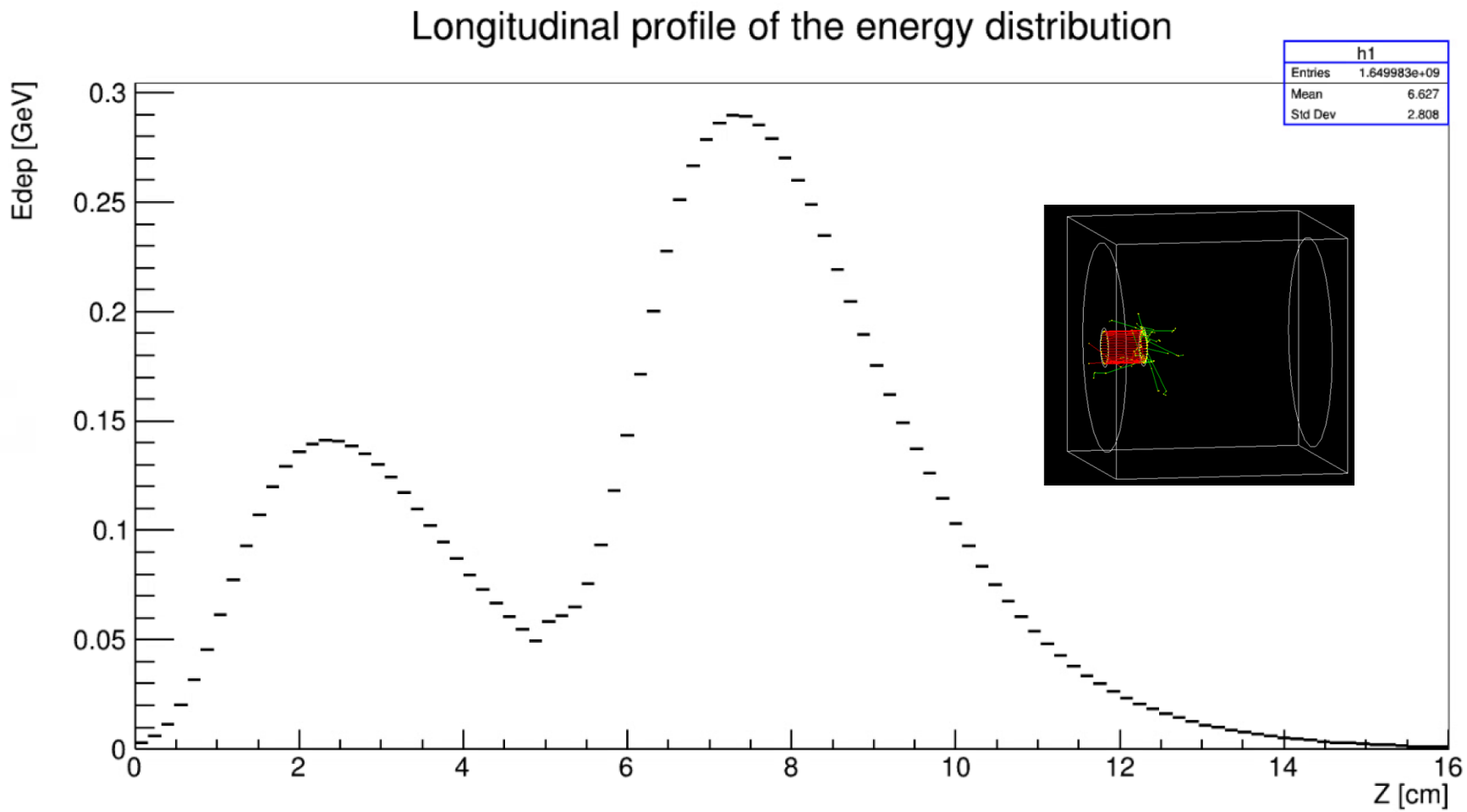

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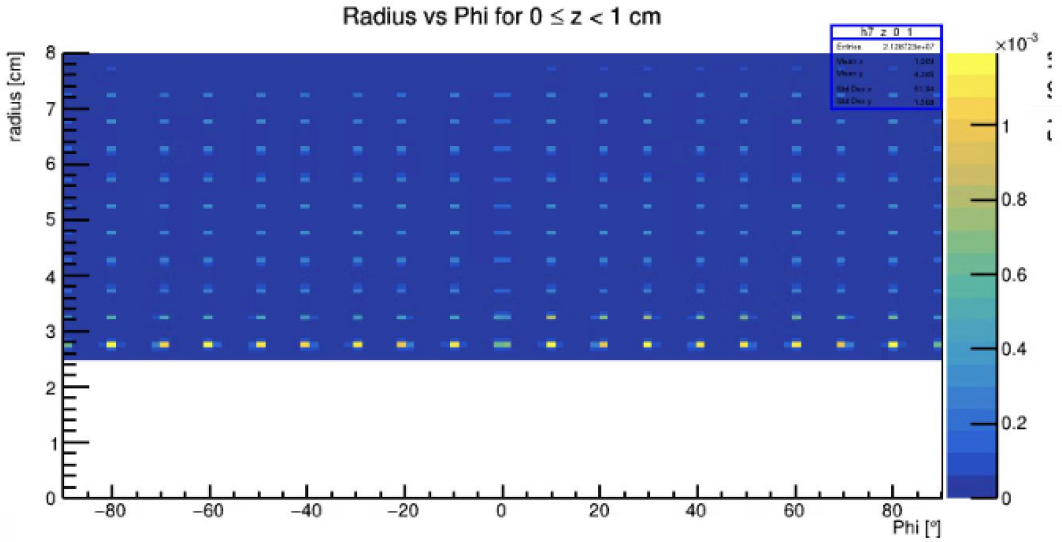

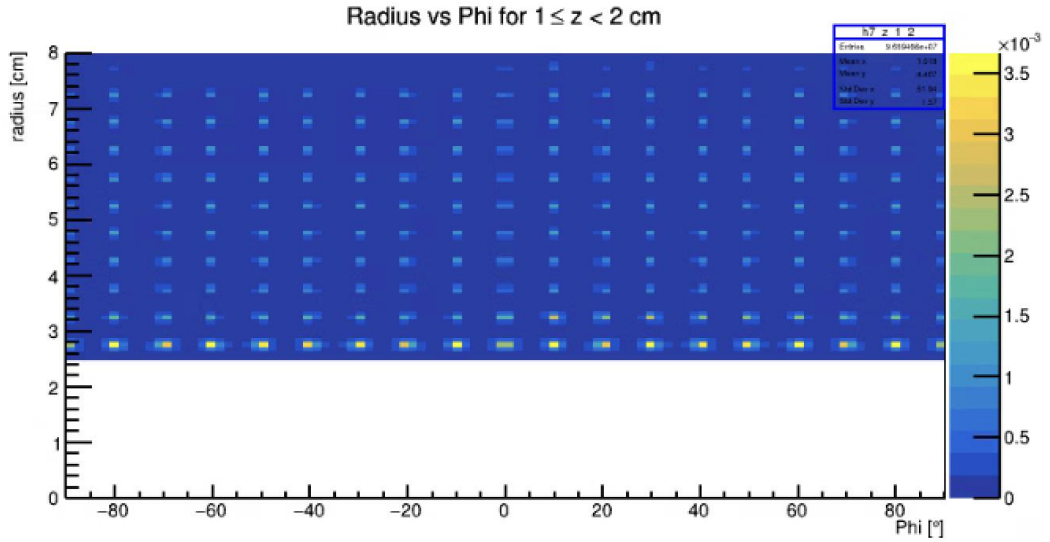

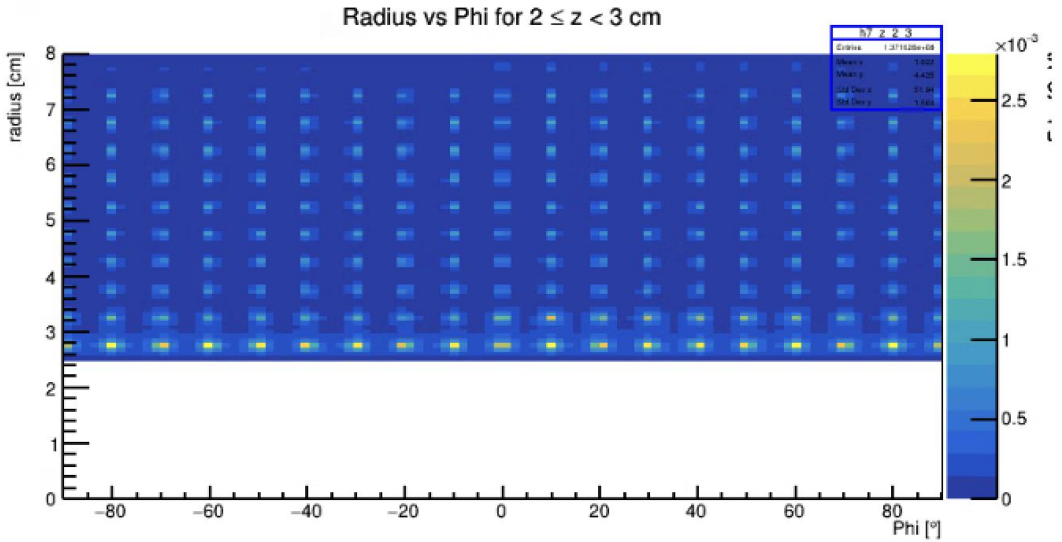

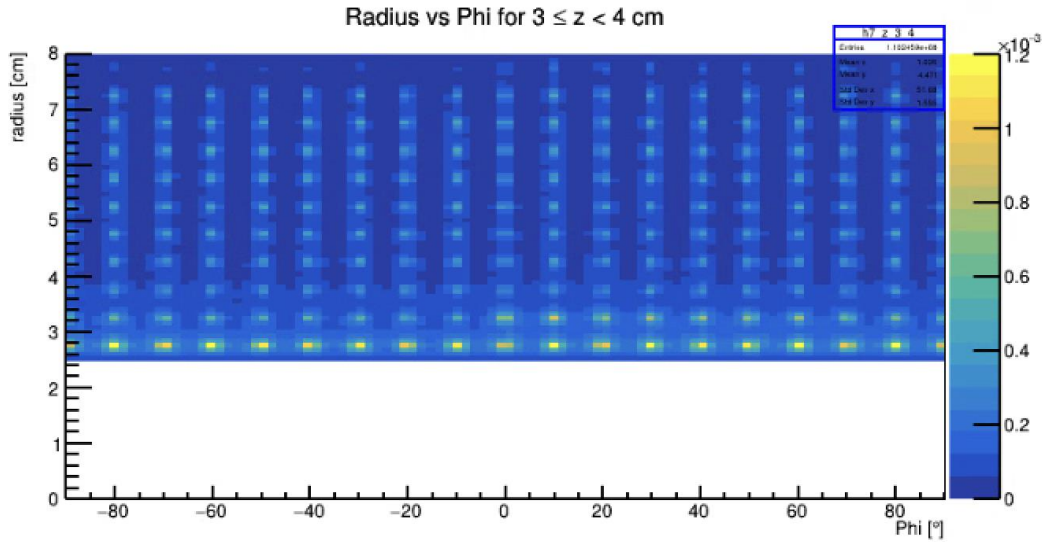

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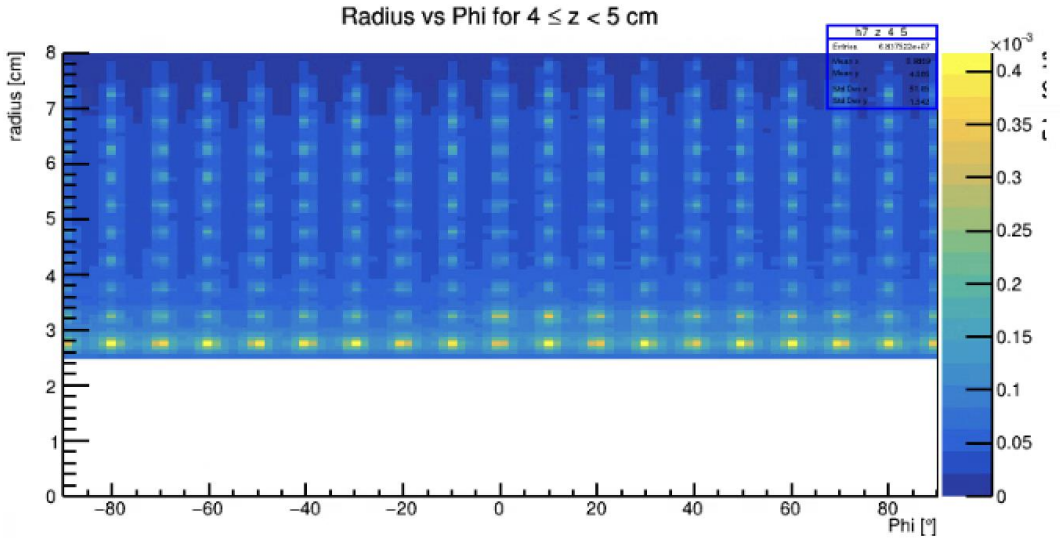

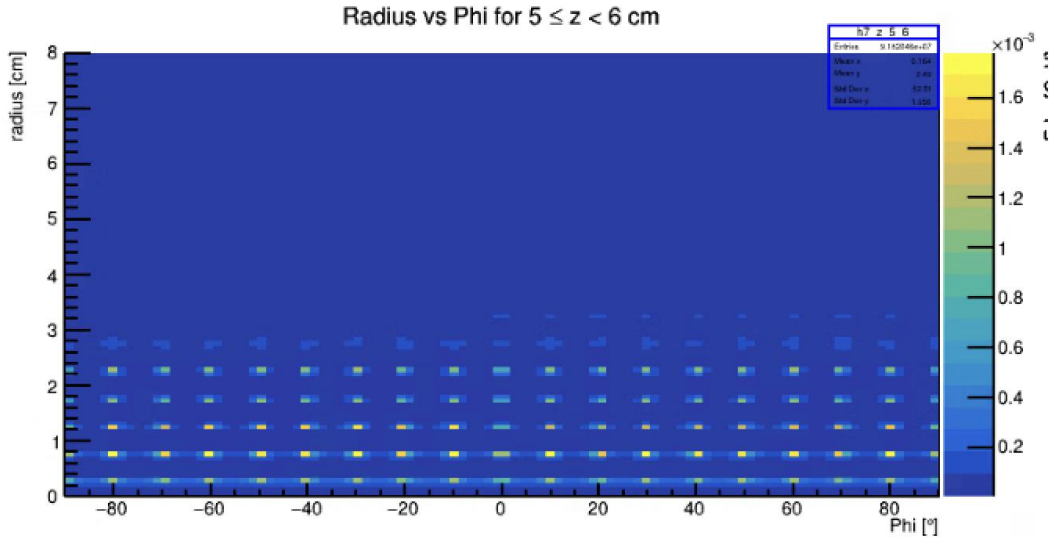

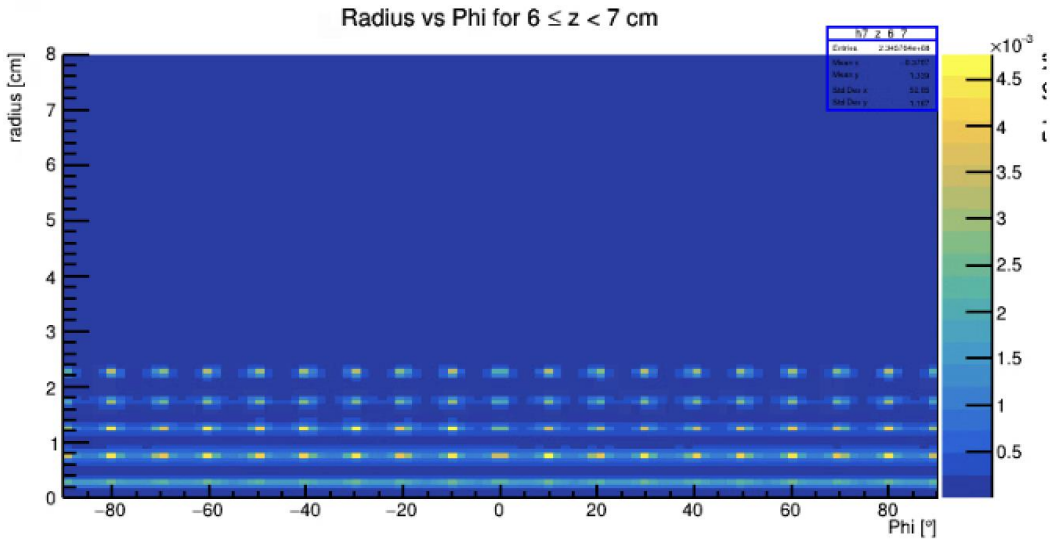

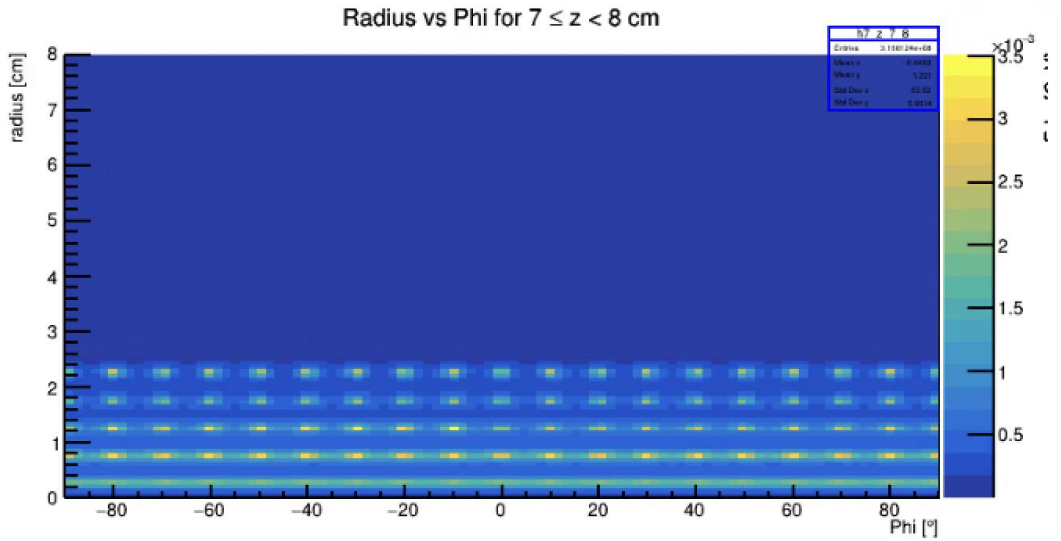

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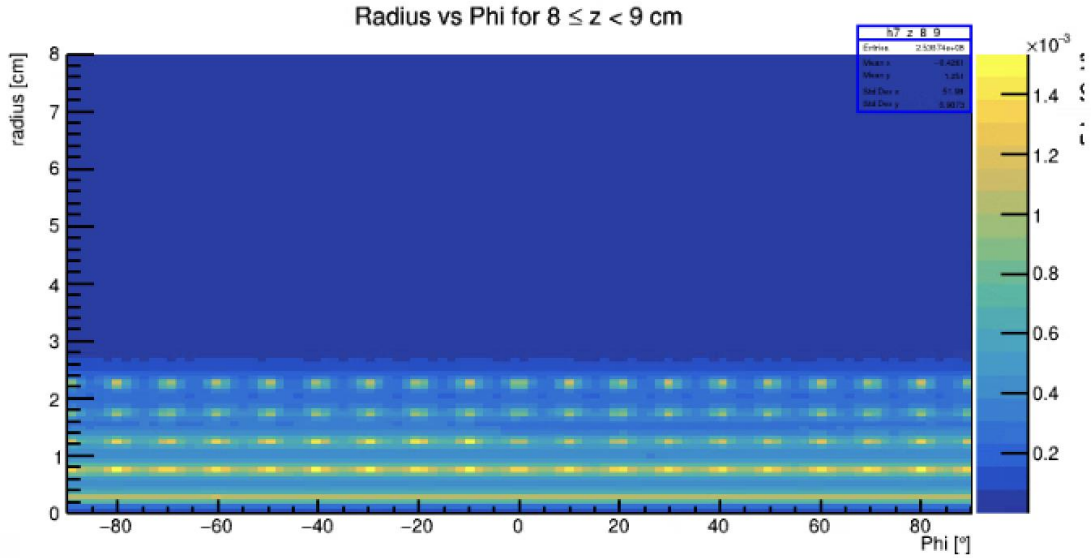

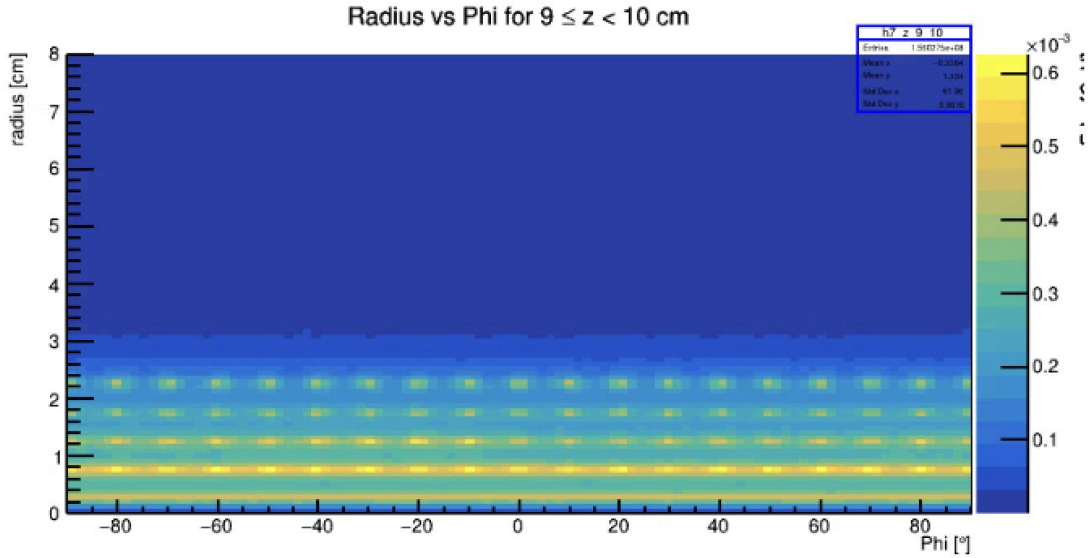

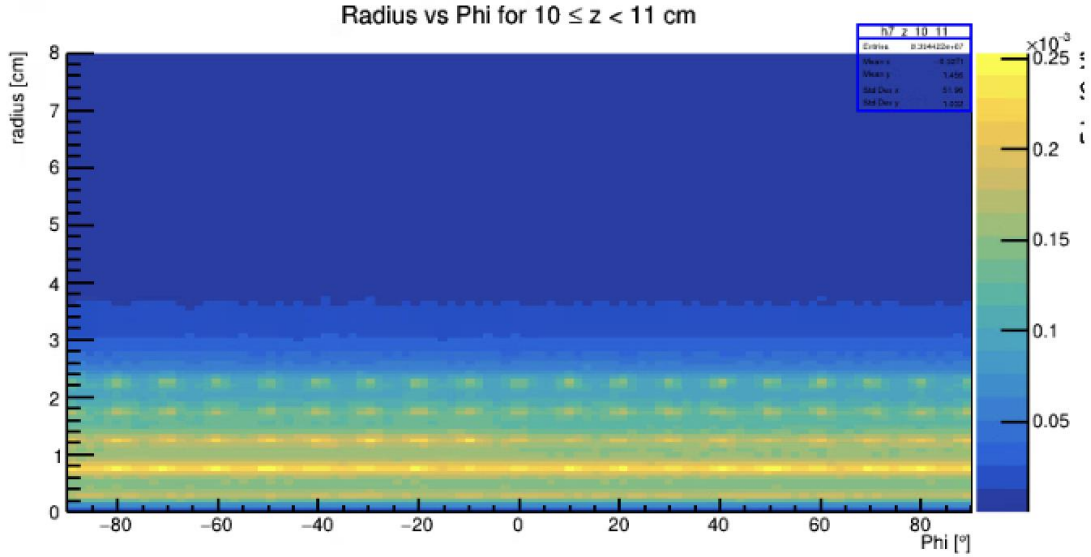

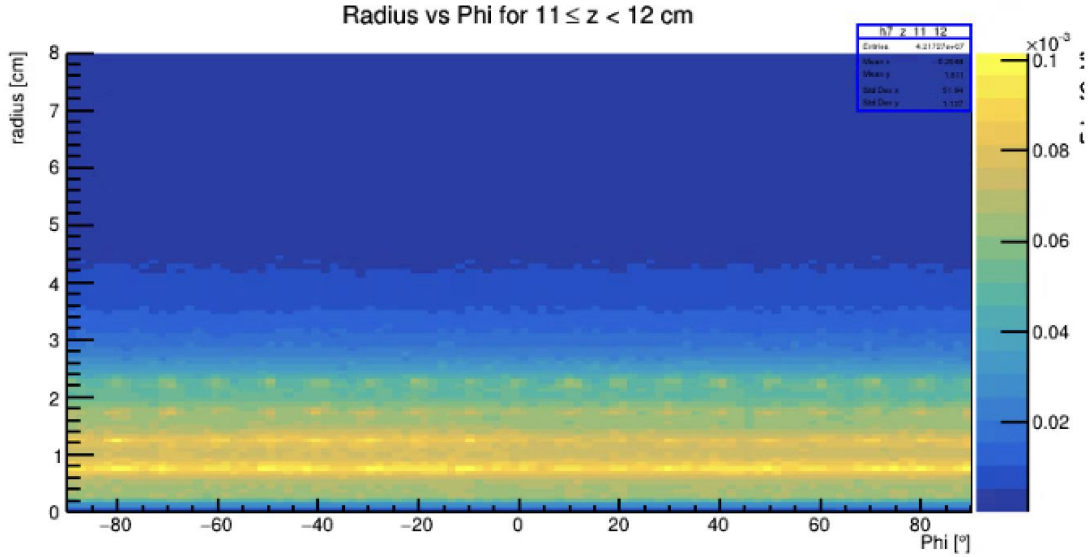

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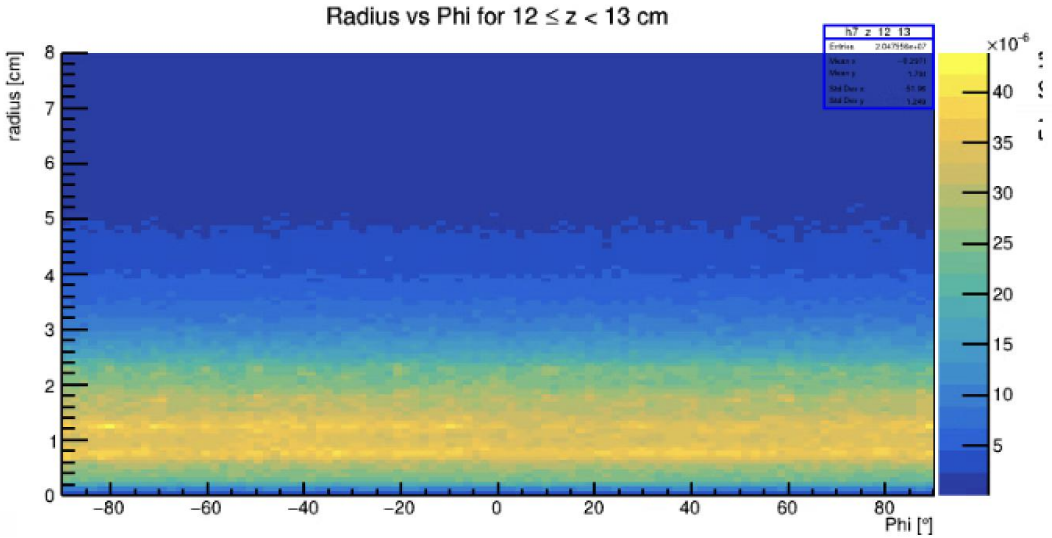

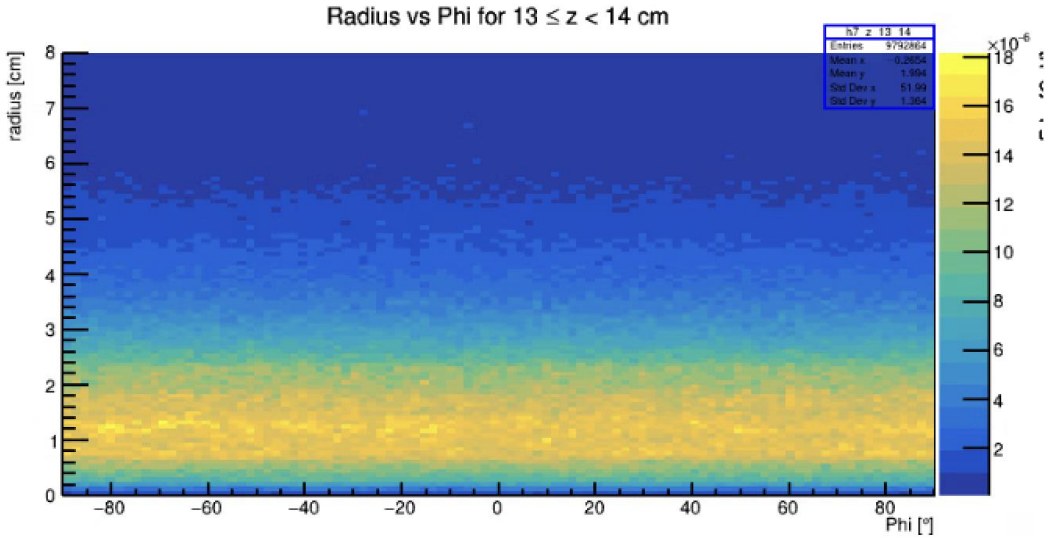

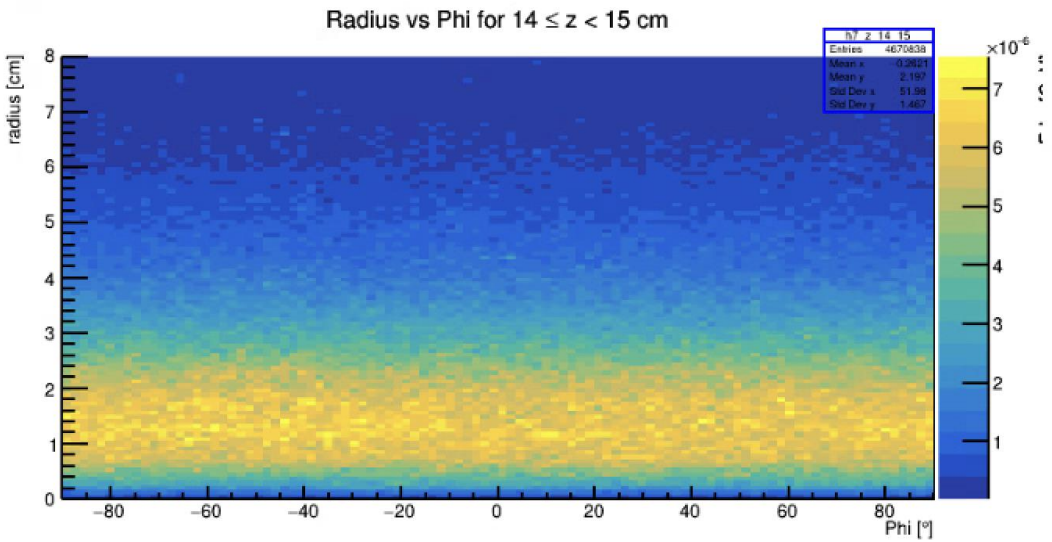

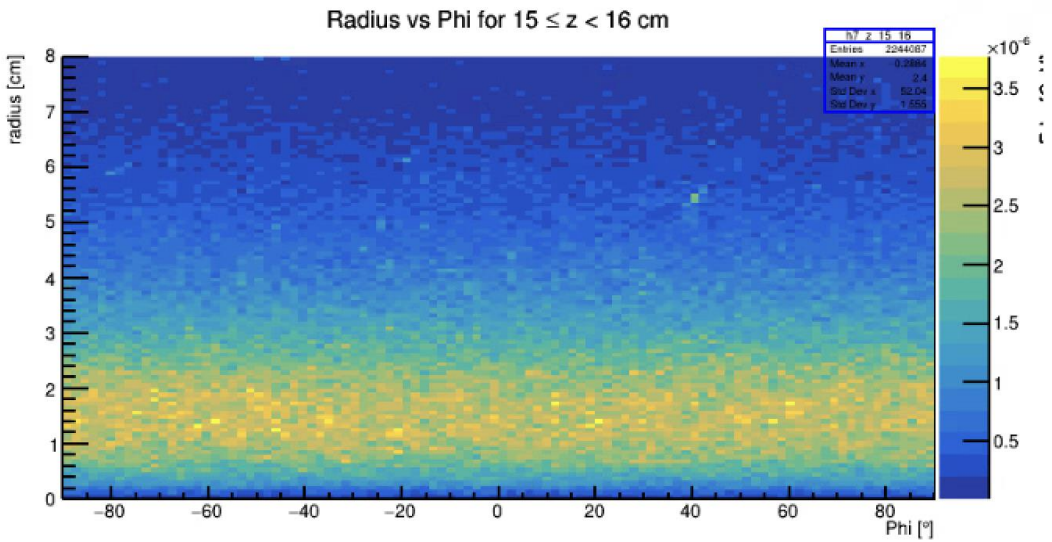

/gun/particle geantino
/gun/energy 11 GeV
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