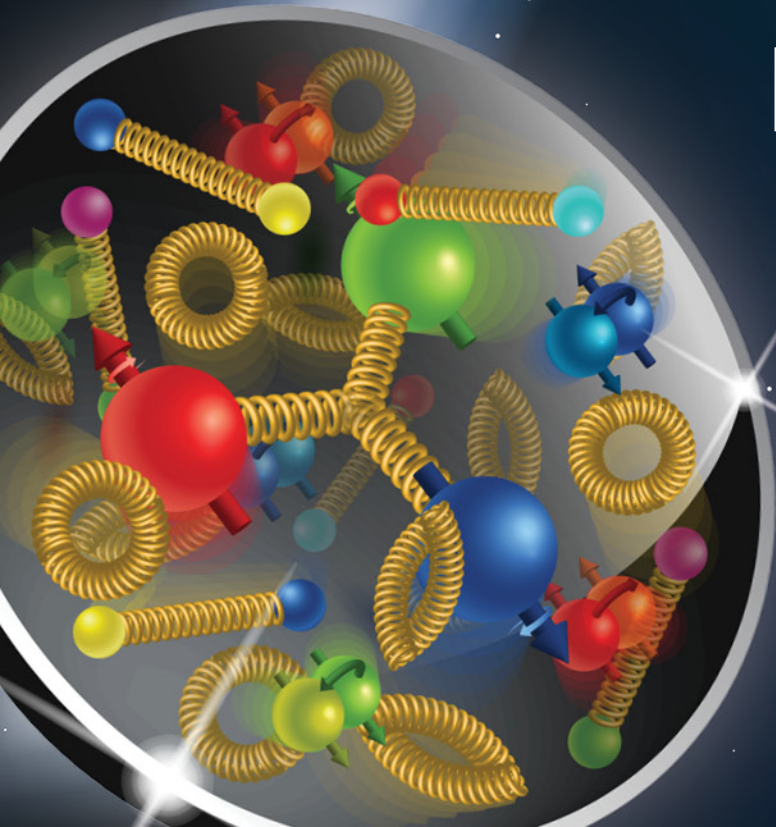


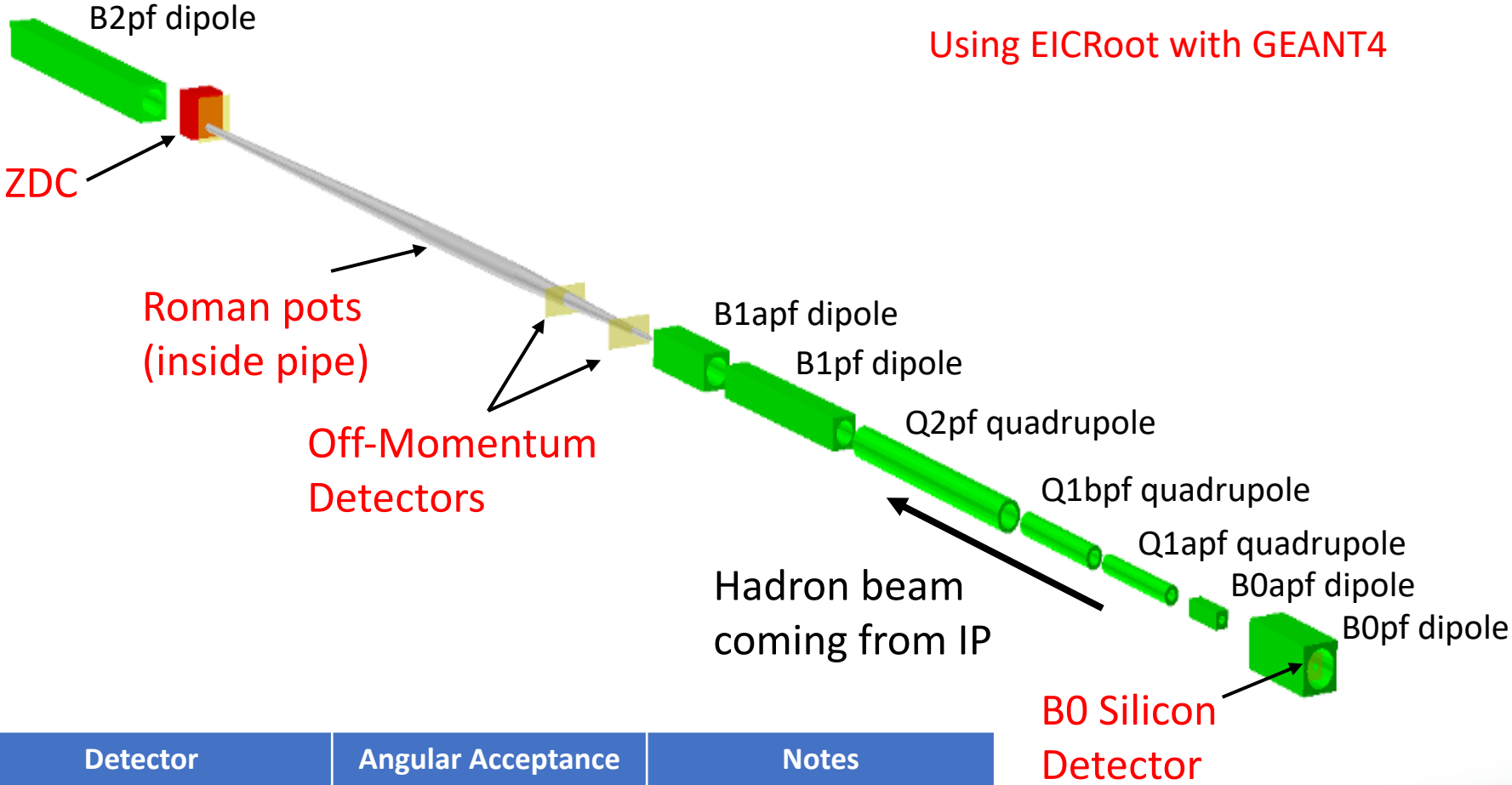
Far-Forward Hadron Acceptances

Alex Jentsch, *Brookhaven National Lab*
2nd Yellow Report Meeting @ Pavia (remote)
May 20th-22nd, 2020



Electron Ion Collider

Far-Forward Region Layout

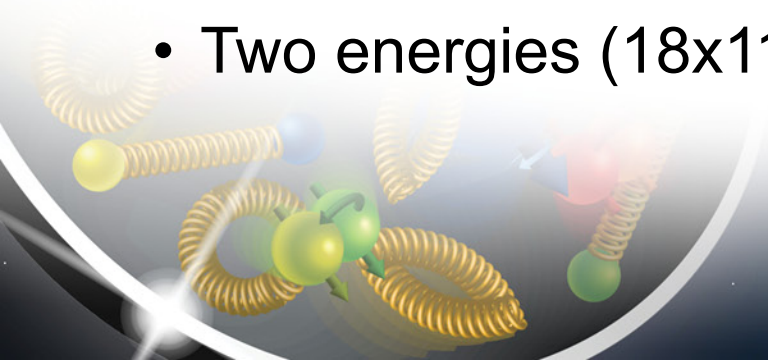


Detector	Angular Acceptance	Notes
ZDC	$\theta < 5.5$ mrad	About 4.0 mrad at $\varphi \sim \pi$
Roman Pots	$0.0 < \theta < 5.0$ mrad	Need 10σ cut.
Off-Momentum Detectors	$0.0 < \theta < 5.0$ mrad	Roughly $.4 < x_L < .6$
B0 Sensors	$5.5 < \theta < 20.0$ mrad	Still need to optimize.

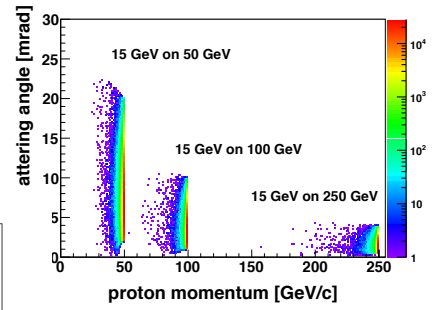
$$x_L = \frac{p_{z,nucleon}}{p_{z,beam}}$$

What has been studied?

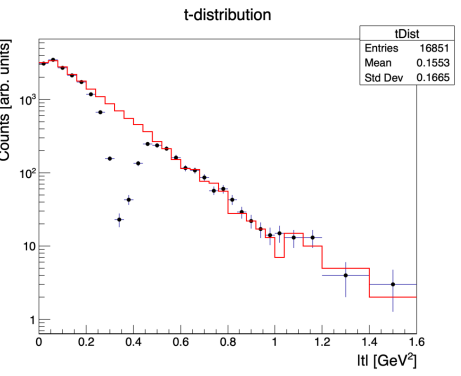
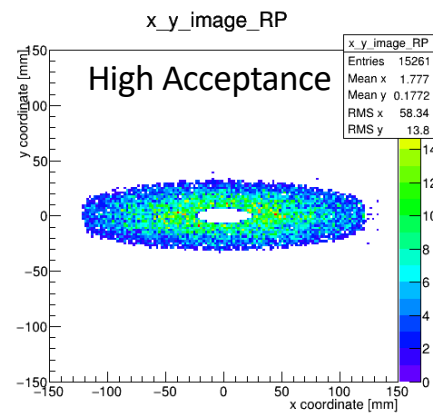
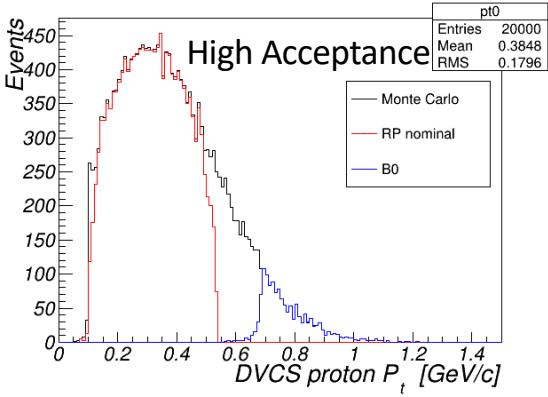
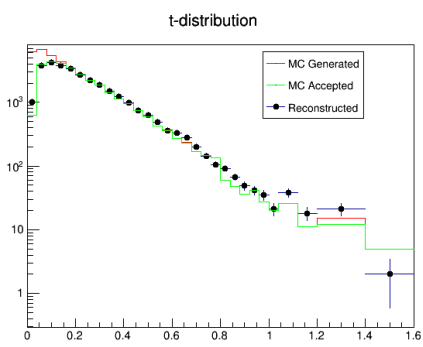
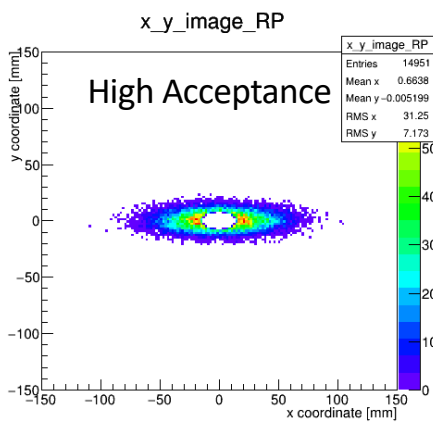
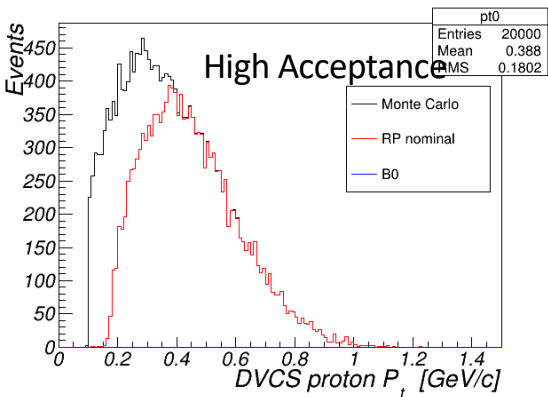
- DVCS proton measurements (using MILOU).
 - Acceptances of protons in Roman Pots and B0.
 - Pt resolution and measurement of t-distribution.
 - All effects included (e.g. angular divergence, detector reconstruction, etc.).
 - Three energies (5x41 GeV, 10x100 GeV, 18x275 GeV).
- Spectator tagging of e+D nuclear breakup with BeAGLE (paper soon to be on arXiv).
 - Acceptance and resolutions for all 4 detectors.
 - All effects included.
 - Two energies (18x110 GeV, 18x135 GeV).



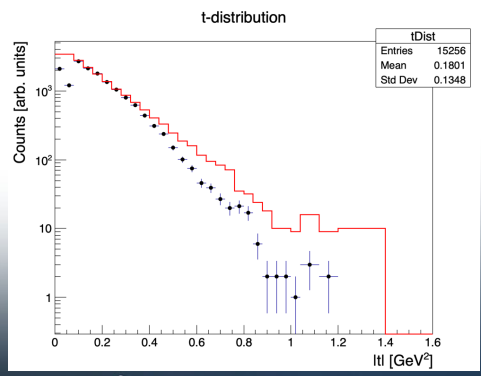
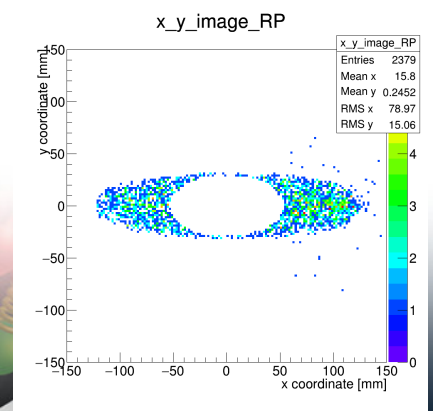
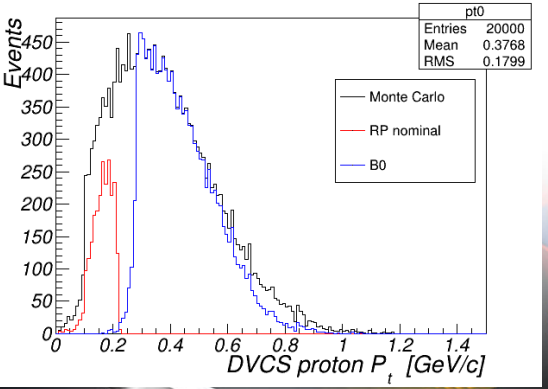
Review of DVCS results



18x275 GeV

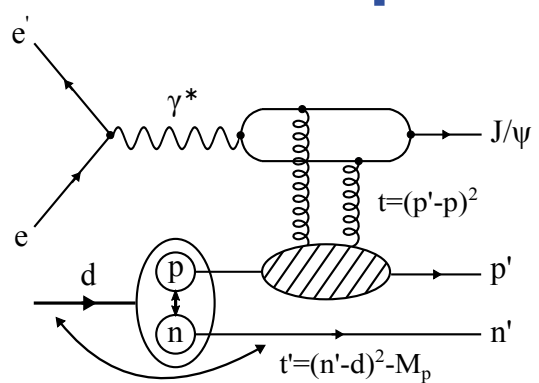
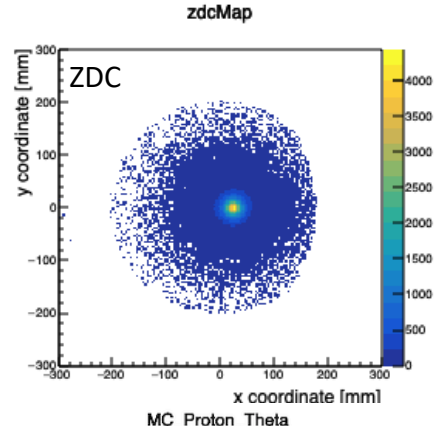
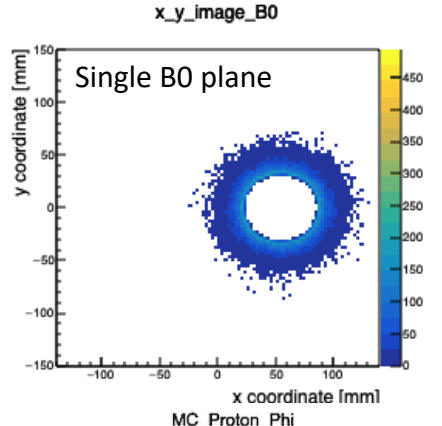
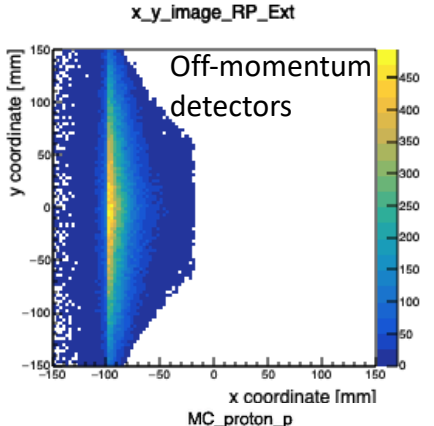


10x100 GeV



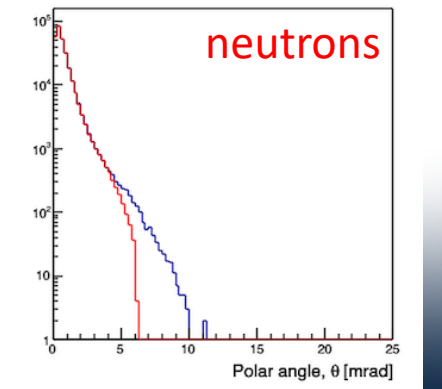
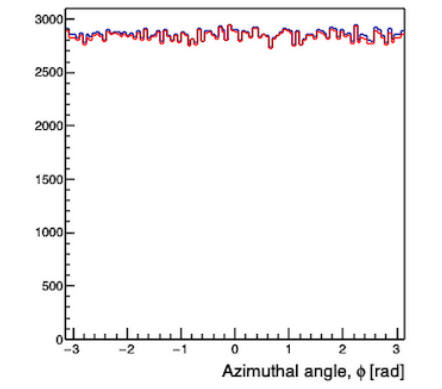
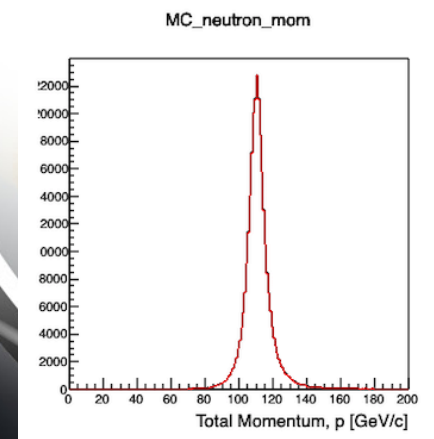
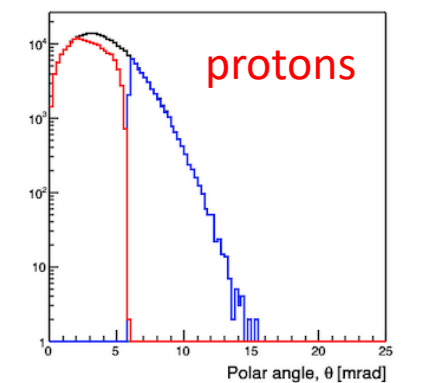
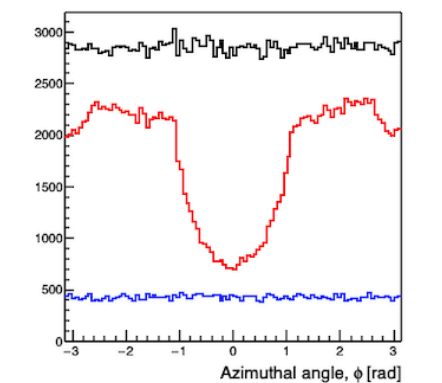
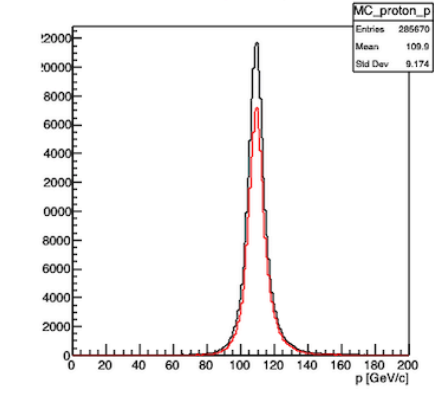
5x41 GeV

Results from e+D nuclear breakup

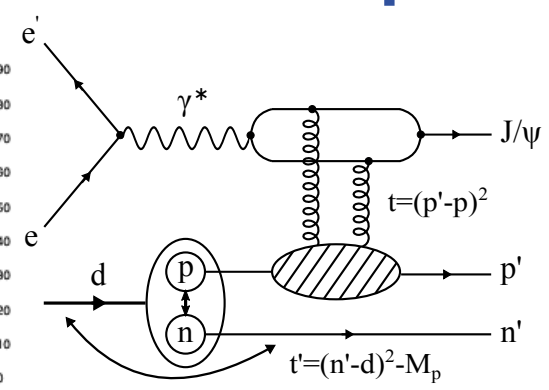
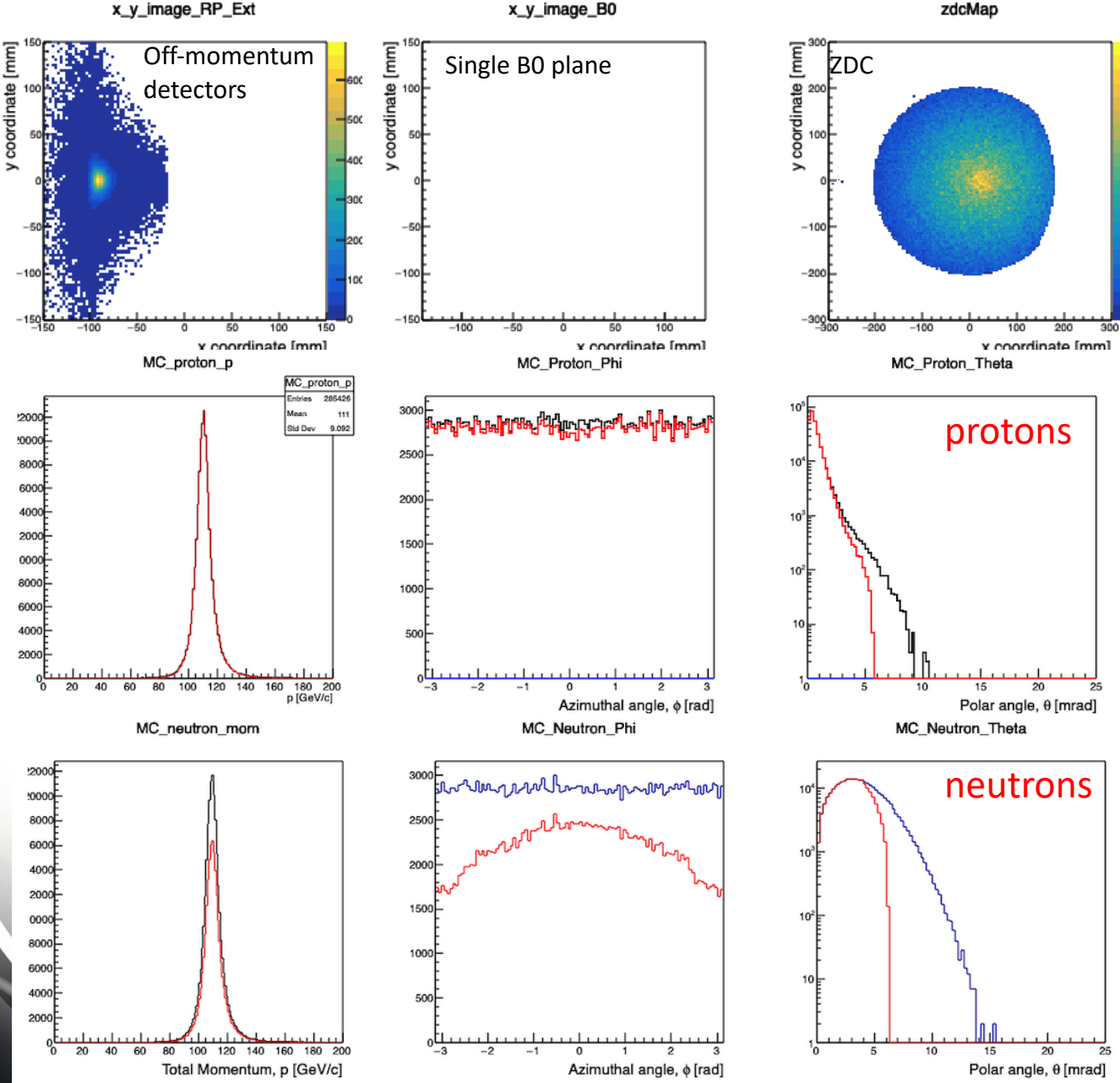


Particular process in BeAGLE: incoherent diffractive J/psi production off bounded nucleons.

Neutron spectator case.



Results from e+D nuclear breakup



Particular process in BeAGLE: incoherent diffractive J/psi production off bounded nucleons.

Proton spectator case.