



FACULTY OF
NUCLEAR SCIENCES
AND PHYSICAL
ENGINEERING
CTU IN PRAGUE

Backward HCal for ePIC

Angular resolutions of the nHCal with neutron simulations

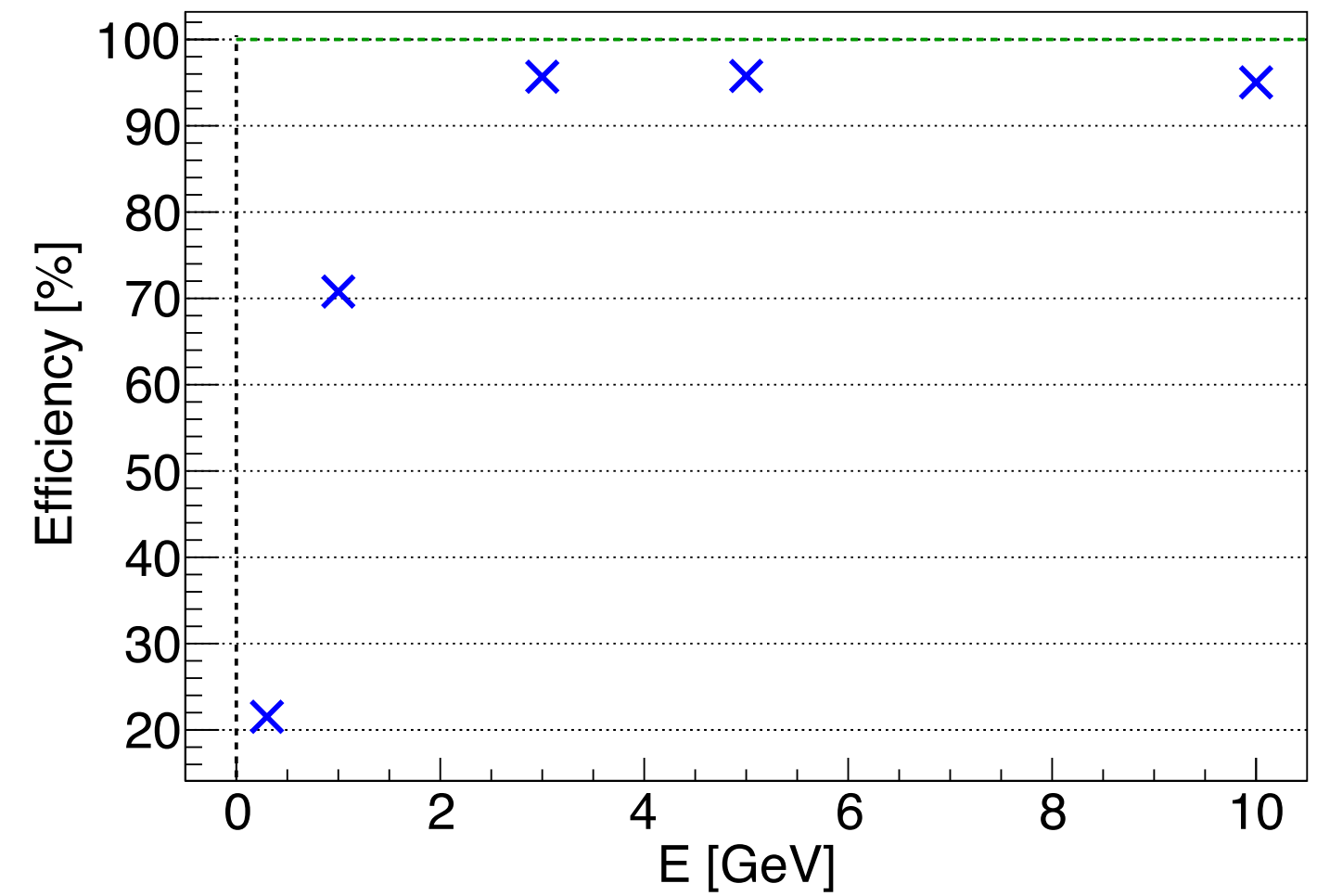
Material λ/λ_0 plot

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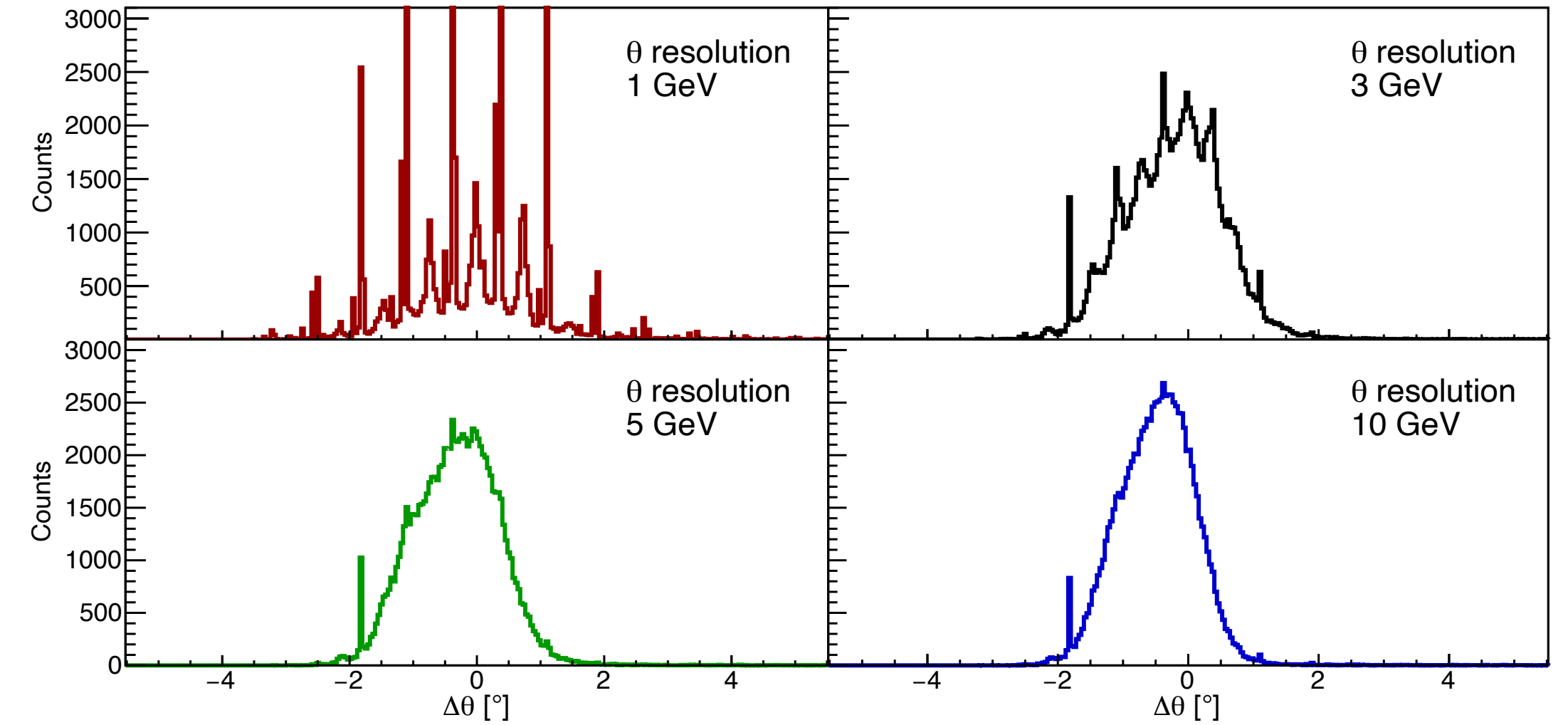
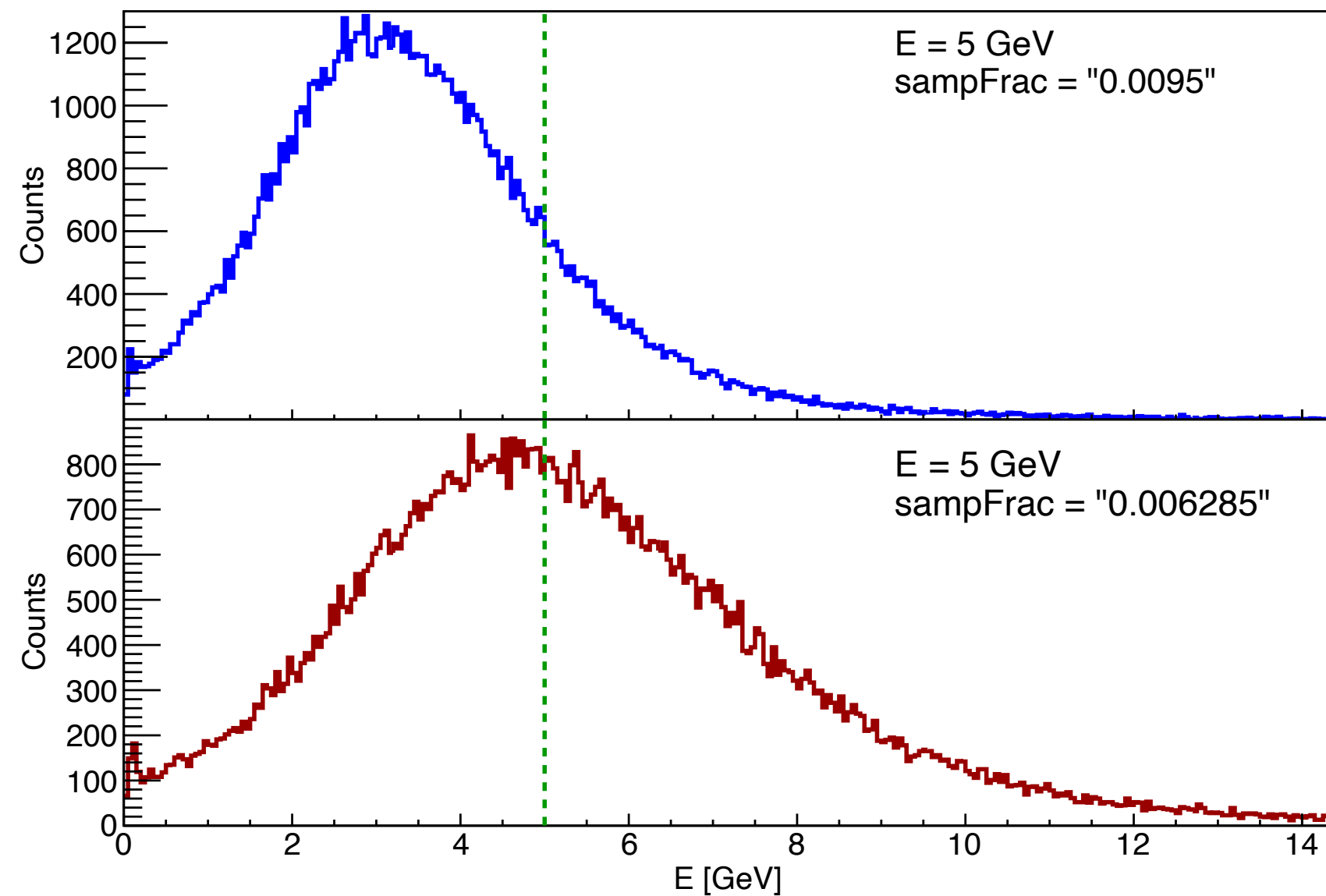


Neutron simulations

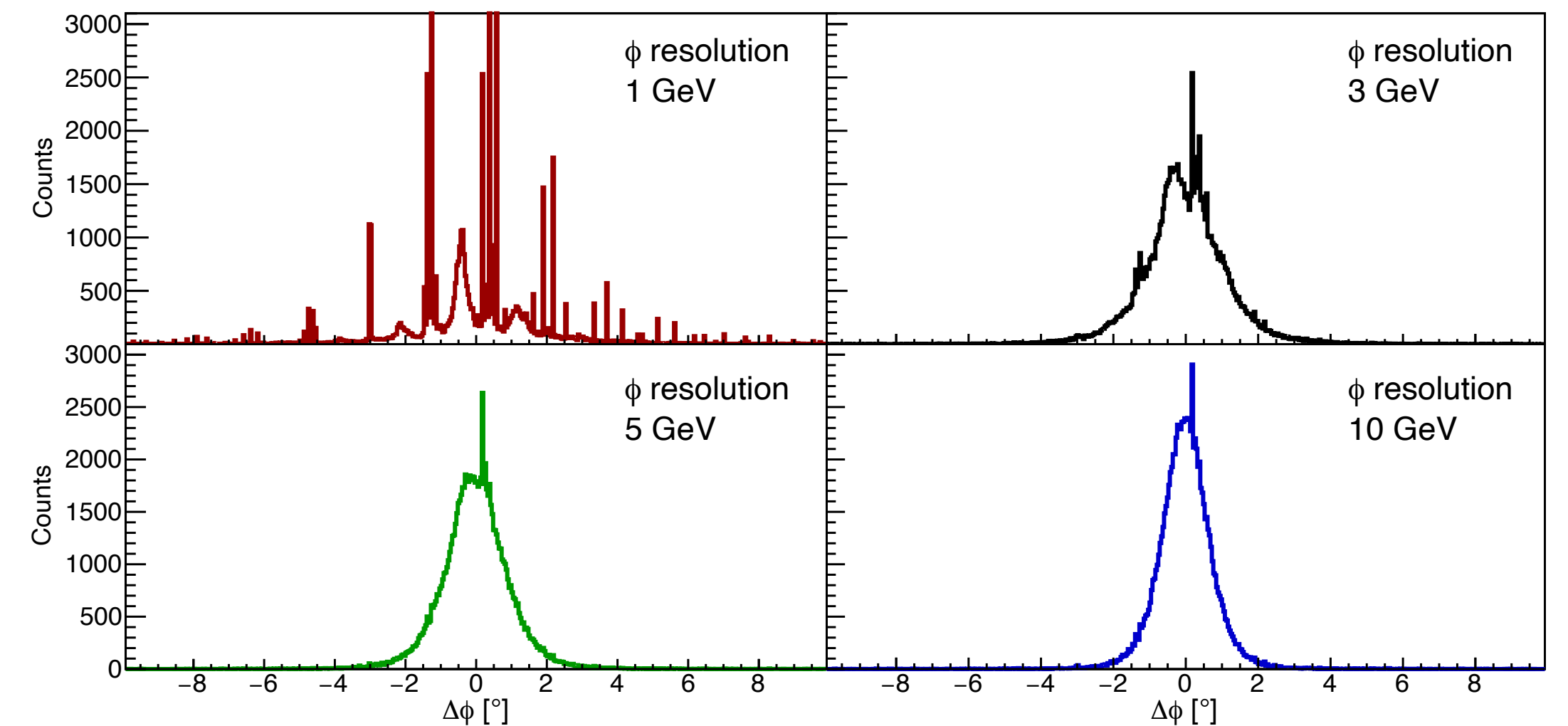
- 100 000 events (single neutrons)
- nHCal only geometry
- $\theta = 150^\circ$, $\phi = 45^\circ$ at 300 MeV and 1, 3, 5, 10 GeV



$$\text{efficiency} = \frac{\text{\#reconstructed particles}}{\text{\#simulated particles}} \cdot 100 \%$$

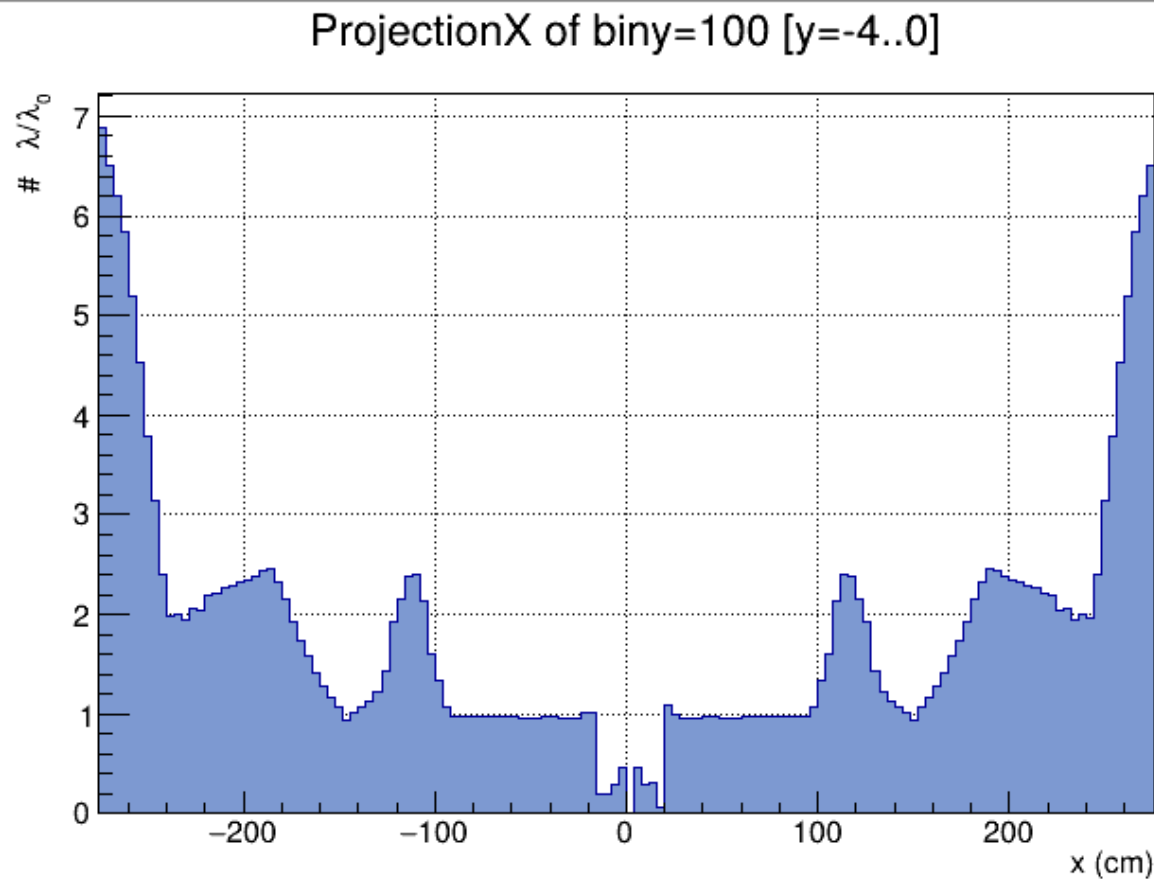
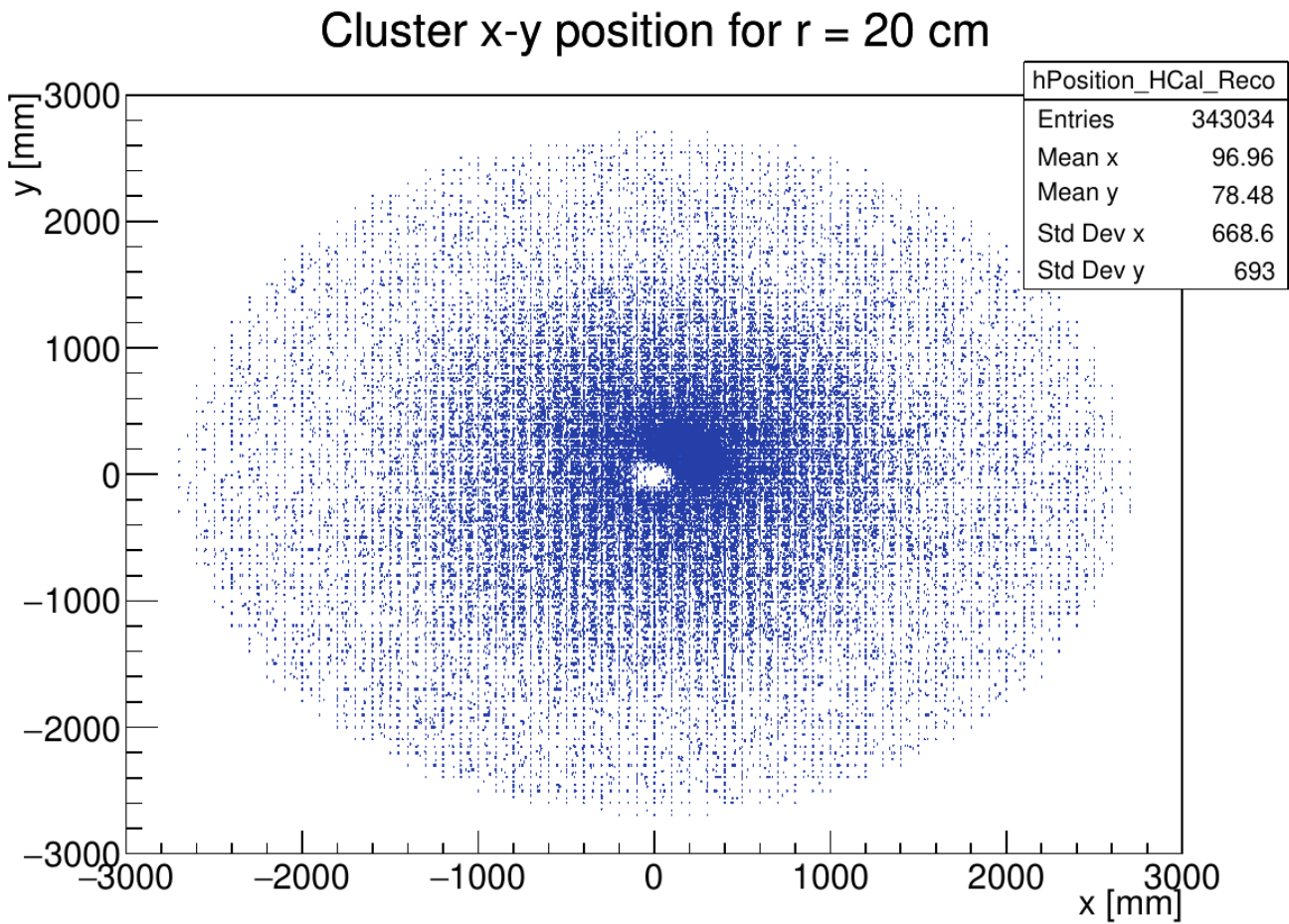
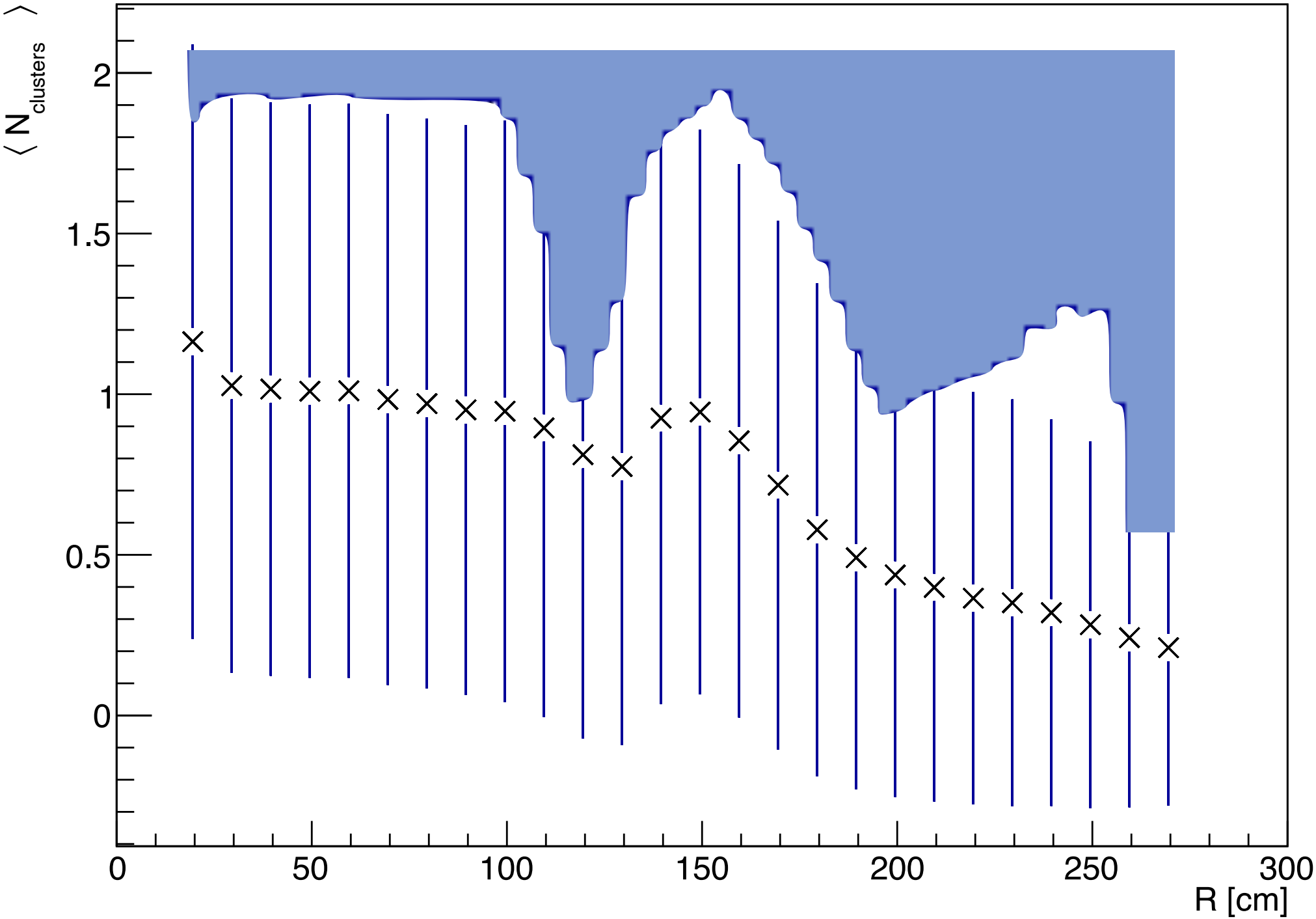
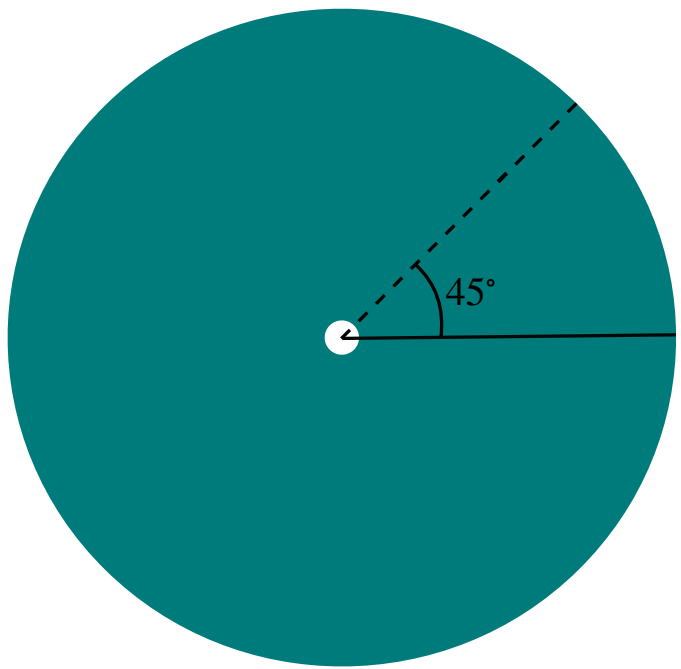


$\Delta(\text{angle}) = \text{reconstructed (angle)} - \text{Monte Carlo (angle)}$



Material in front of nHCal

- 500 000 events (single neutrons)
- full ePIC geometry
- $\phi = 45^\circ$ at 10 GeV
- R from 20 cm to 270 cm with 10 cm steps



- amount of material in front of nHCal in number of interaction lengths

