

# **Primary vertexing performance with 5 $\mu\text{m}$ and 10 $\mu\text{m}$ gold coating**

Barak Schmookler

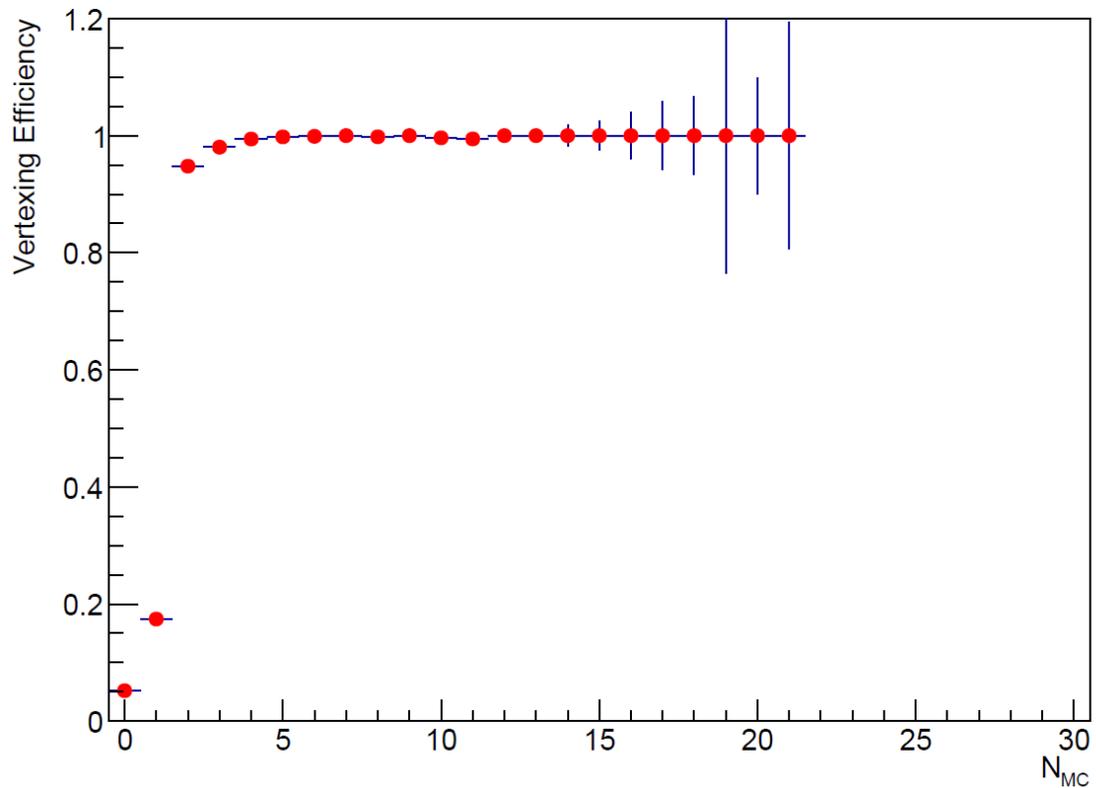
# Simulation settings

- Ran Pythia DIS events with  $Q^2 > 1 \text{ GeV}^2$  through the ePIC simulation with the 26.02 release. 10,000 events per setting.
  1. Used standard configuration (5um gold coating)
  2. Used configuration with 10um gold coating in both xml file and material map
- Ran the DIS tracking/vertexing benchmark to study primary vertexing performance.

# Primary vertexing efficiency

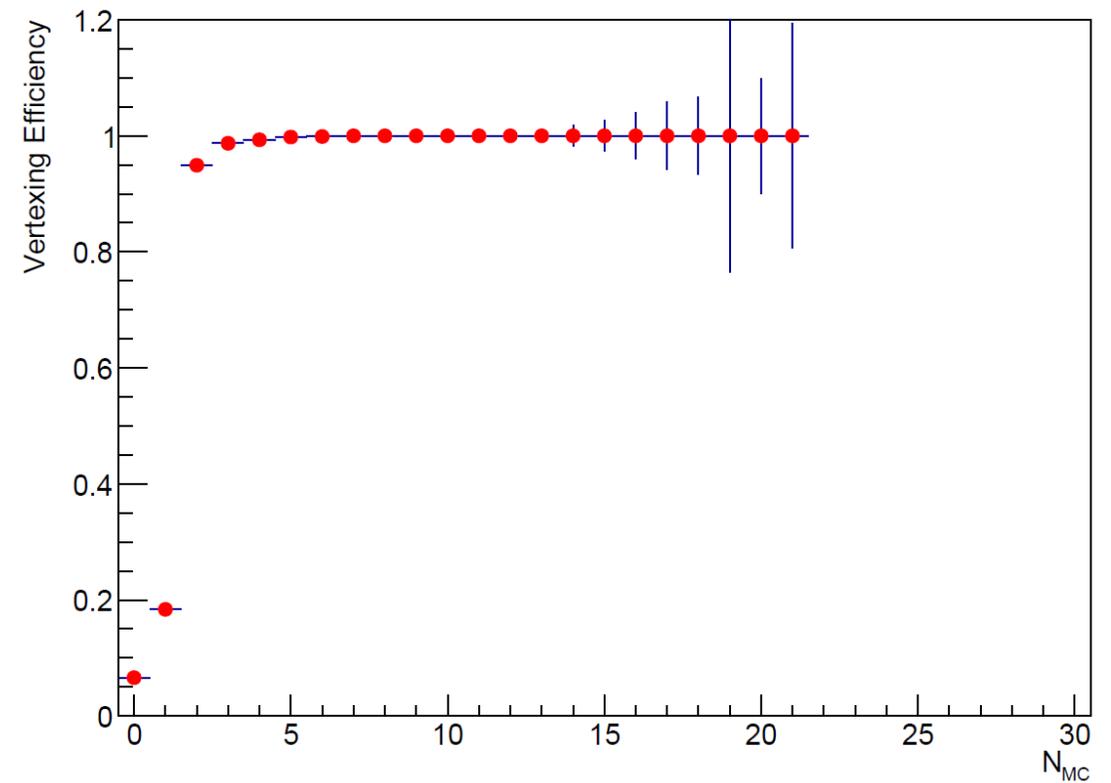
5 um gold coating

Vertexing Efficiency vs MC Tracks



10 um gold coating

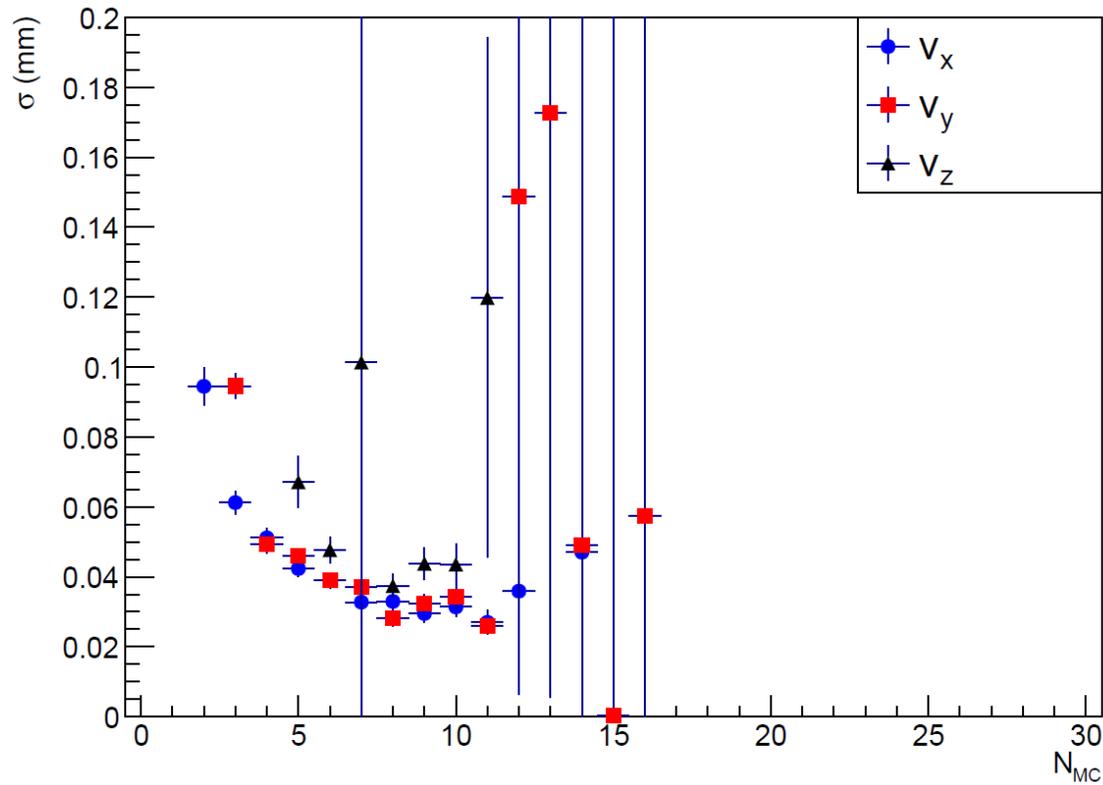
Vertexing Efficiency vs MC Tracks



# Primary vertexing resolution

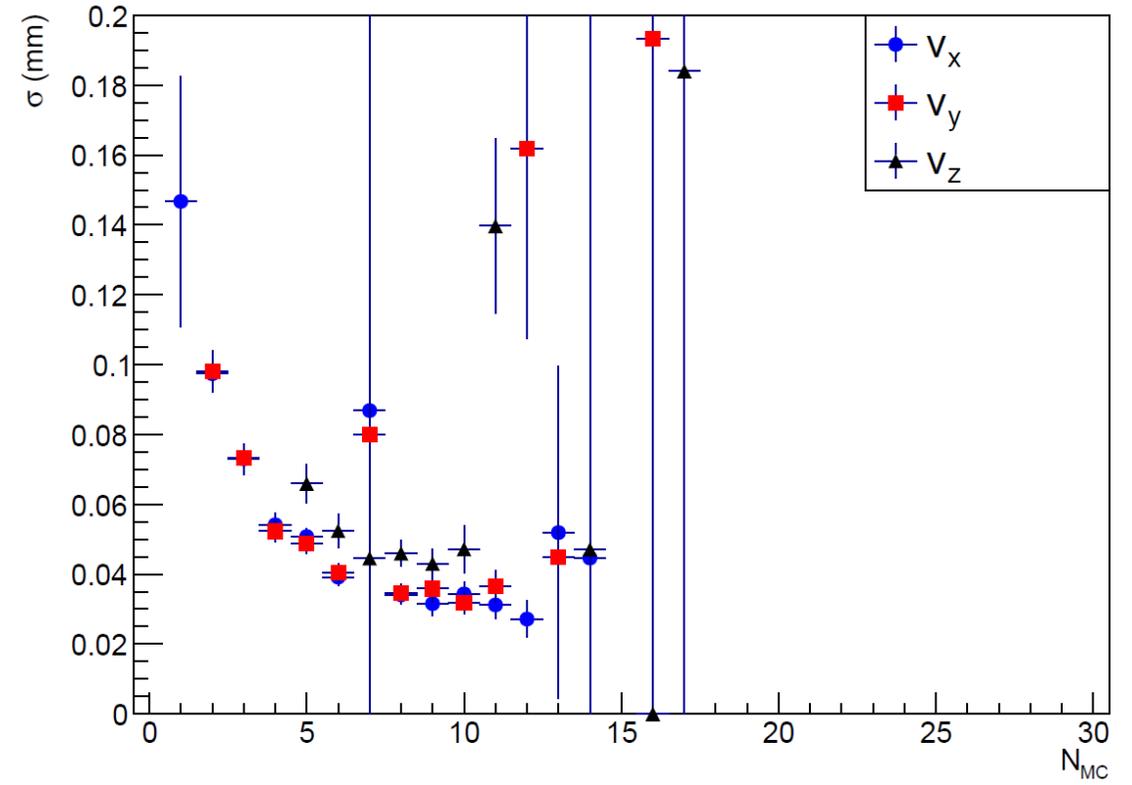
5 um gold coating

Vertex Resolution Sigma vs MC Tracks



10 um gold coating

Vertex Resolution Sigma vs MC Tracks



# Conclusions

- Primary vertexing performance does not show any significant change when increasing the gold coating thickness. This is consistent with the single-particle results.
- Some statistical fluctuations in the current results – will repeat study with 100k events instead of 10k events.