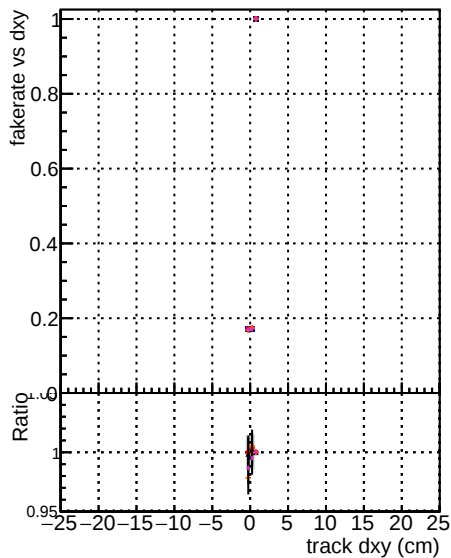


### Fake rate vs dxy



### Duplicates Rate vs Dxy



### Pileup rate vs dxy



Fake rate vs d

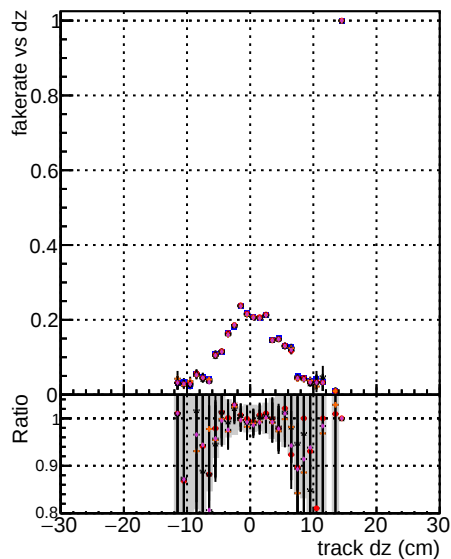


Figure 1 is a scatter plot showing the ratio of the pile-up rate to the pile-up rate at zero track  $dz$  as a function of track  $dz$  (cm). The y-axis, labeled 'Ratio', ranges from 0 to 0.01 with major ticks every 0.001. The x-axis, labeled 'track dz (cm)', ranges from -30 to 30 with major ticks every 10 units. The data points are black dots, and they form a nearly horizontal line at a ratio of approximately 0.0008 across the entire range of track  $dz$ .