

Hit Efficiency as a Function of Layer 2016

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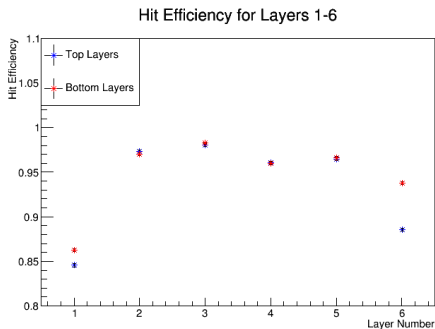
Method

- ▶ Use run 008087 and run the recon with different tracking strategies to isolate each layer
- ▶ Track fits used 5 layers (3 seed, 1 confirm, 1 extend)
- ▶ Extrapolate track to missing layer and see if it lies within acceptance (number of reconstructed tracks)
- ▶ Search for a stereo hit within a narrow region of the extrapolated track - about 5 sigma of unbiased residual - (number of tracks with hits on all layers)

$$efficiency = \frac{\text{number of tracks with hits on all layers}}{\text{number of reconstructed tracks}} \quad (1)$$

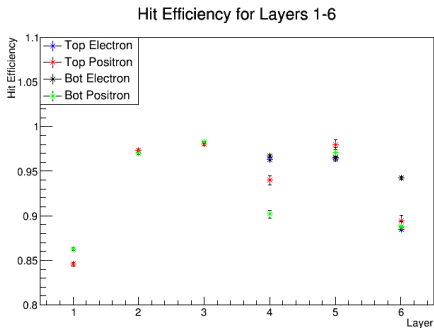
Hit Efficiency 2016

- ▶ Hit efficiency as a function of layer for 2016 data



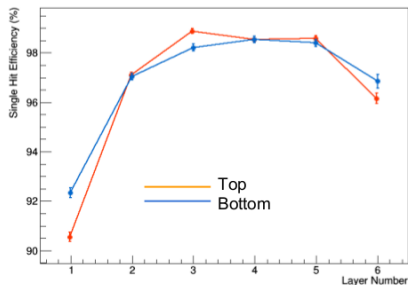
Hit Efficiency 2016

- ▶ Hit efficiency as a function of layer separated for positron/electron side



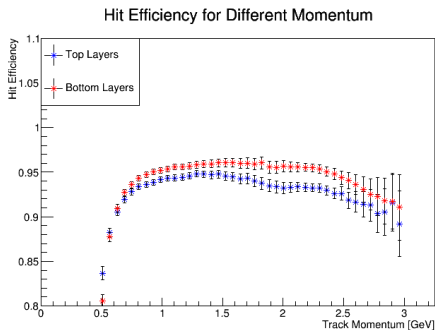
Hit Efficiency 2015

- ▶ Hit efficiency as a function of layer for **2015 data** using **Omar's method**



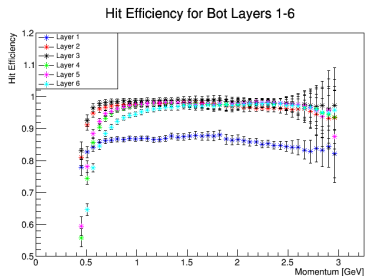
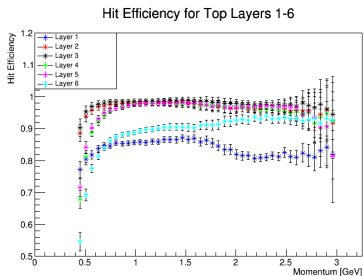
Hit Efficiency 2016

- ▶ Hit efficiency as a function of momentum for 2016 data



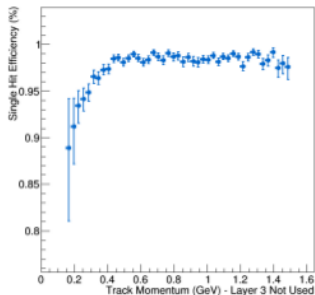
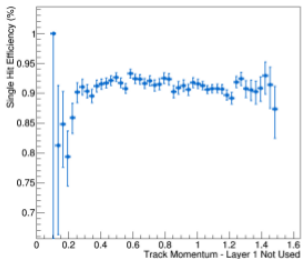
Hit Efficiency 2016

- ▶ Hit efficiency as a function of momentum for 2016 data separated by layer for Top (left) and Bottom (right)



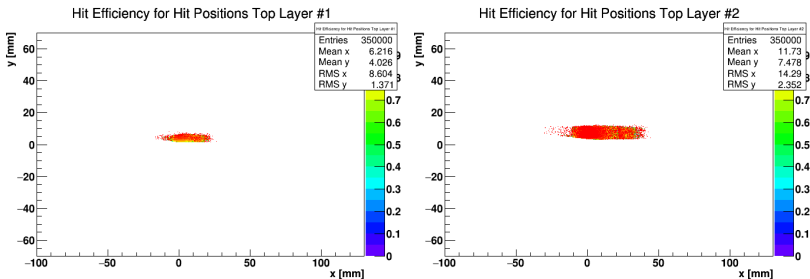
Hit Efficiency 2015

- ▶ Hit efficiency as a function of momentum for 2015 data using **Omar's method**



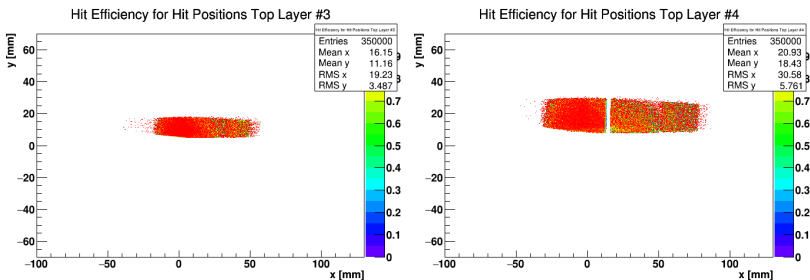
Hit Efficiency 2016 as Function of Hit Position

- ▶ Hit efficiency as a function of hit position for Top layer 1-2



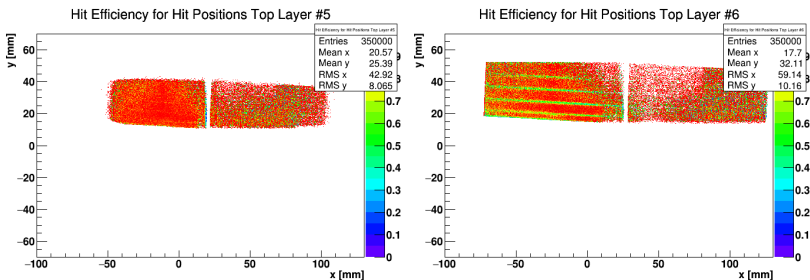
Hit Efficiency 2016 as Function of Hit Position

- ▶ Hit efficiency as a function of hit position for Top layer 3-4



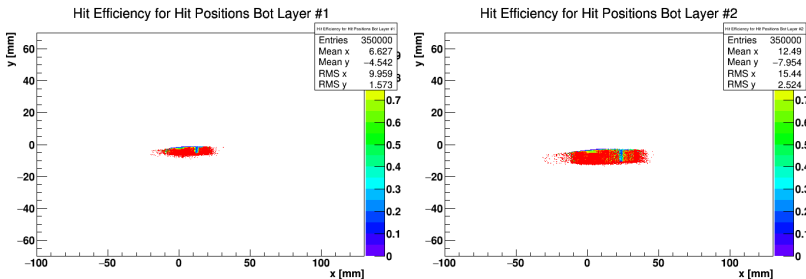
Hit Efficiency 2016 as Function of Hit Position

- ▶ Hit efficiency as a function of hit position for Top layer 5-6



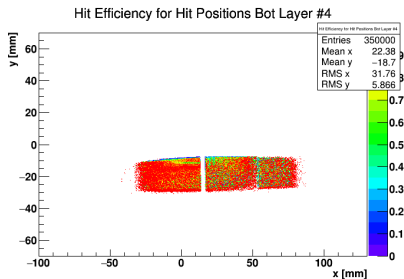
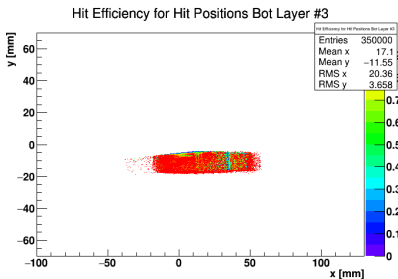
Hit Efficiency 2016 as Function of Hit Position

- ▶ Hit efficiency as a function of hit position for Bottom layer 1-2



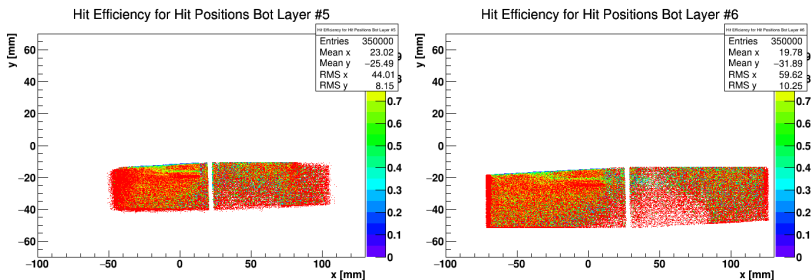
Hit Efficiency 2016 as Function of Hit Position

- ▶ Hit efficiency as a function of hit position for Bottom layer 3-4

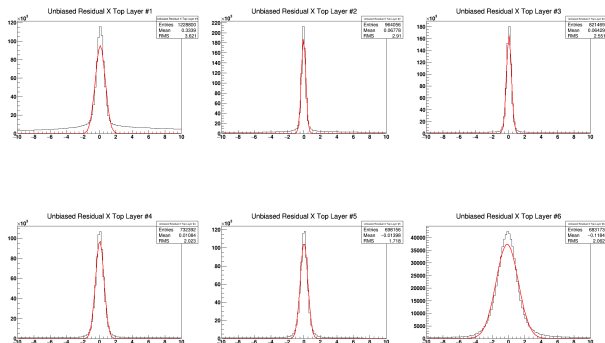


Hit Efficiency 2016 as Function of Hit Position

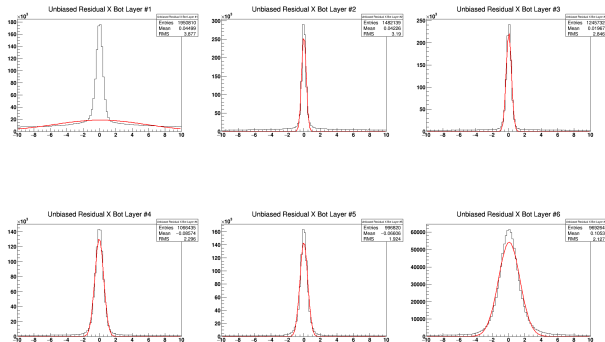
- ▶ Hit efficiency as a function of hit position for Bottom layer 5-6



Fitted Unbiased Residuals in X Top

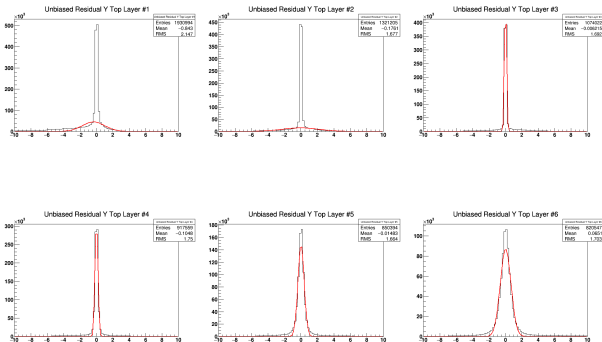


Fitted Unbiased Residuals in X Bottom

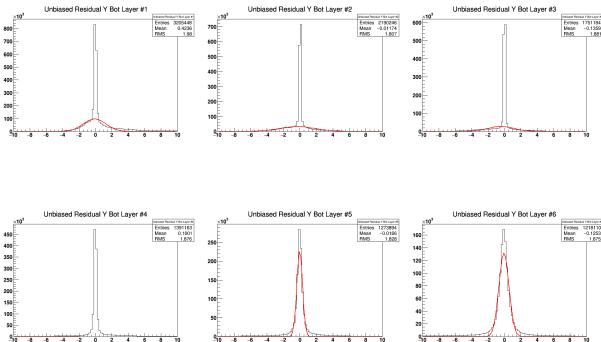




Fitted Unbiased Residuals in Y Top

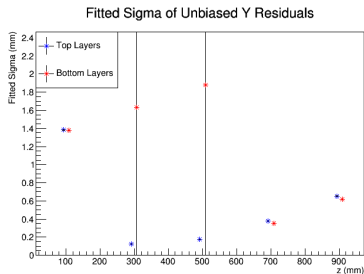
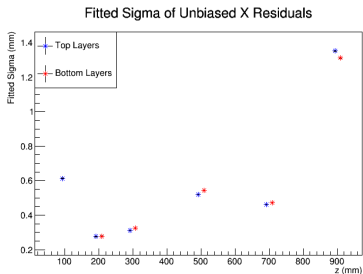


Fitted Unbiased Residuals in X Bottom



Fitted Sigma for Unbiased Residuals

- ▶ Fitted sigma for unbiased residuals for x (left) and y (right). Some fits are poor and not optimized



Things To Do

- ▶ Run over old data
- ▶ Separate hit efficiency into individual sensors
- ▶ Explore inefficient regions in more detail?
- ▶ Refine hit position residual cuts?