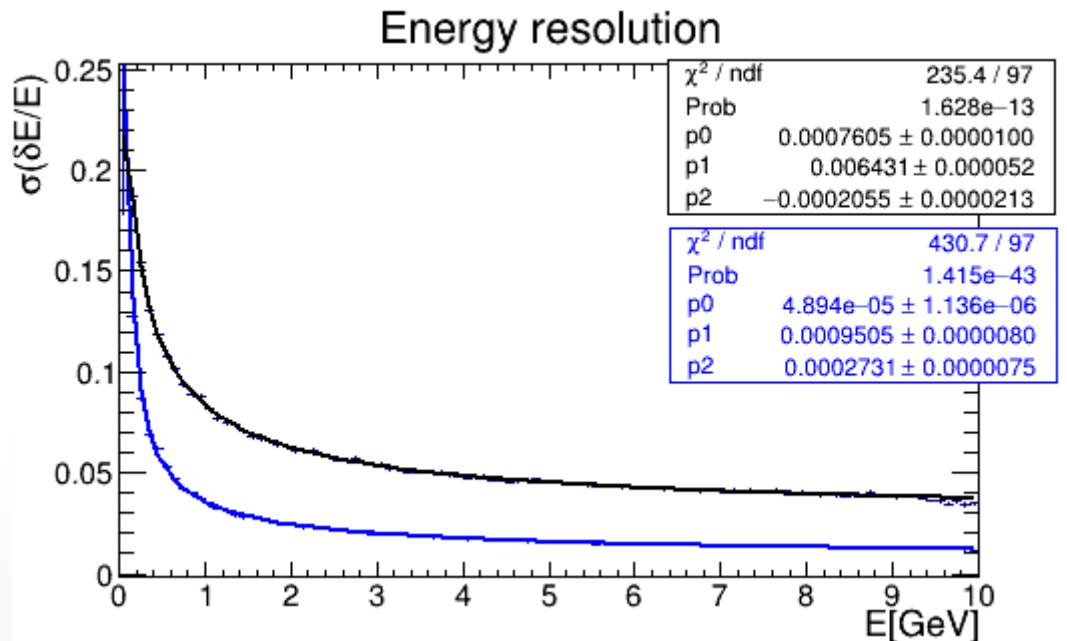


Island update

Simon Taylor/JLab

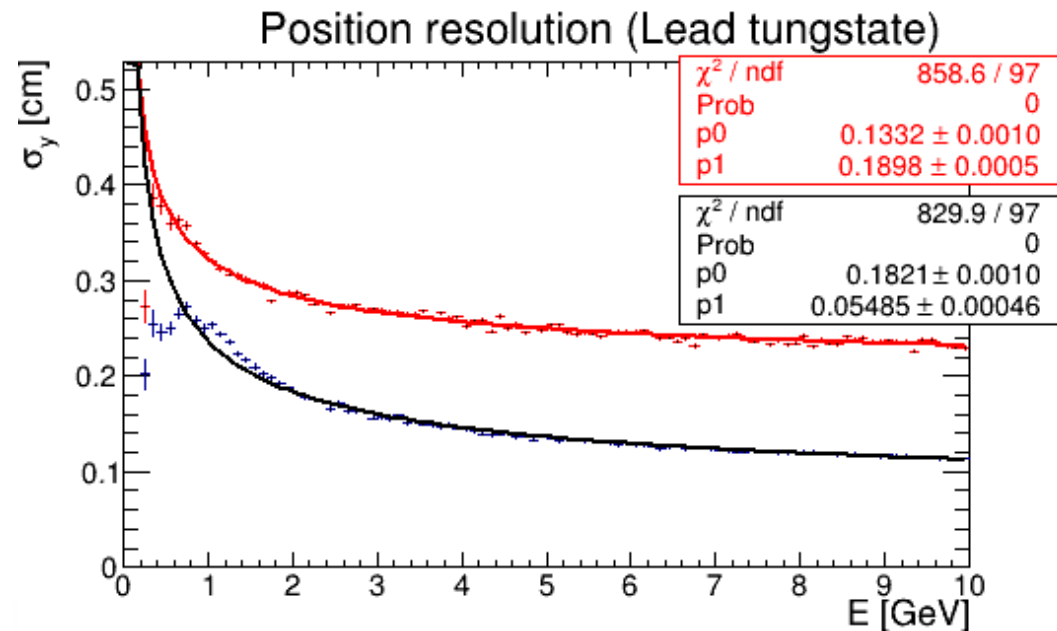
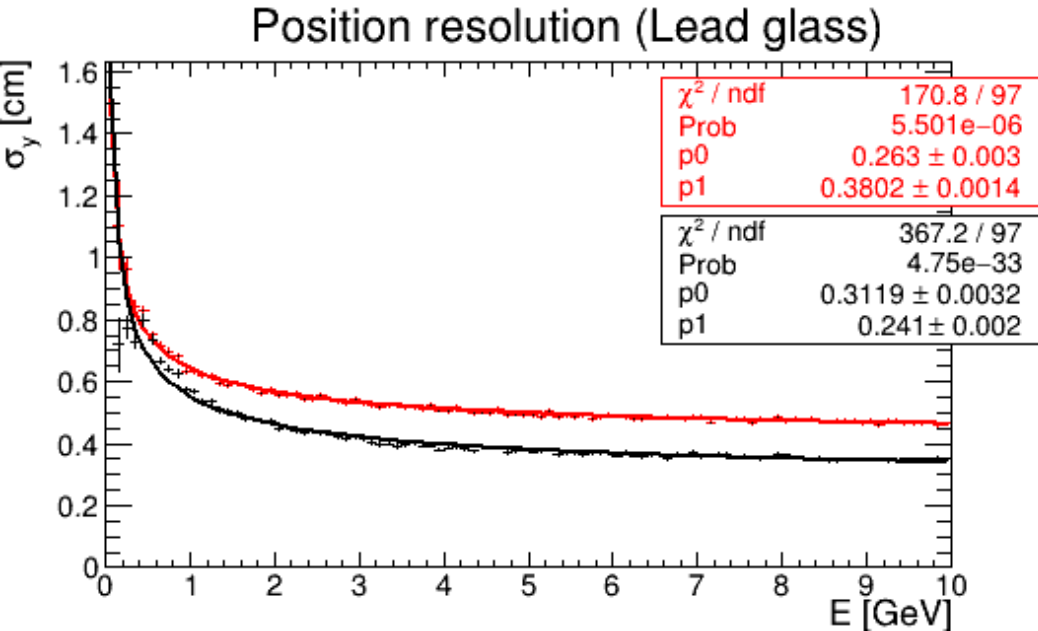
- Photon gun simulations: $E_\gamma = \{0.1, 10.1\}$ GeV
 - Insert (Lead tungstate) region: $\theta = 2.5^\circ$
 - Outer (Lead glass) region: $\theta = 6^\circ$
- Reconstruction using Island algorithm
 - Shower width parameters:
 - $b(\text{Lead tungstate}) = 0.315$ cm
 - $b(\text{Lead glass}) = 0.675$ cm
- New:
 - Code does not add additional photon candidates if separation with other clusters within a group of adjacent hits is not physical
 - Position-dependent S-curve correction removed
 - Issue at interface between insert and rest of FCAL fixed



Position resolution

- Comparison of **default algorithm** to island algorithm

$$\sigma_y = p_0 / \sqrt{E + p_1}$$

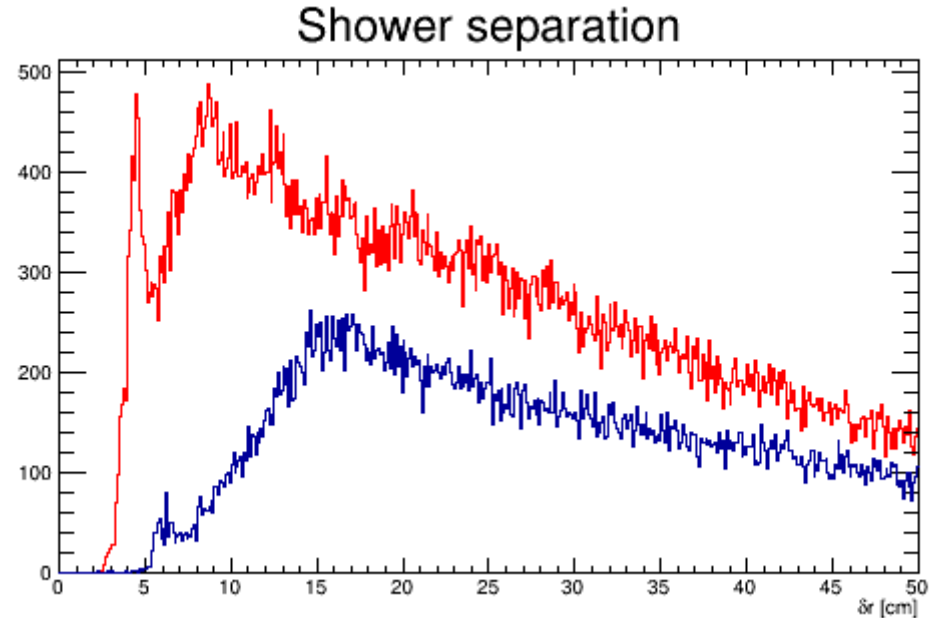
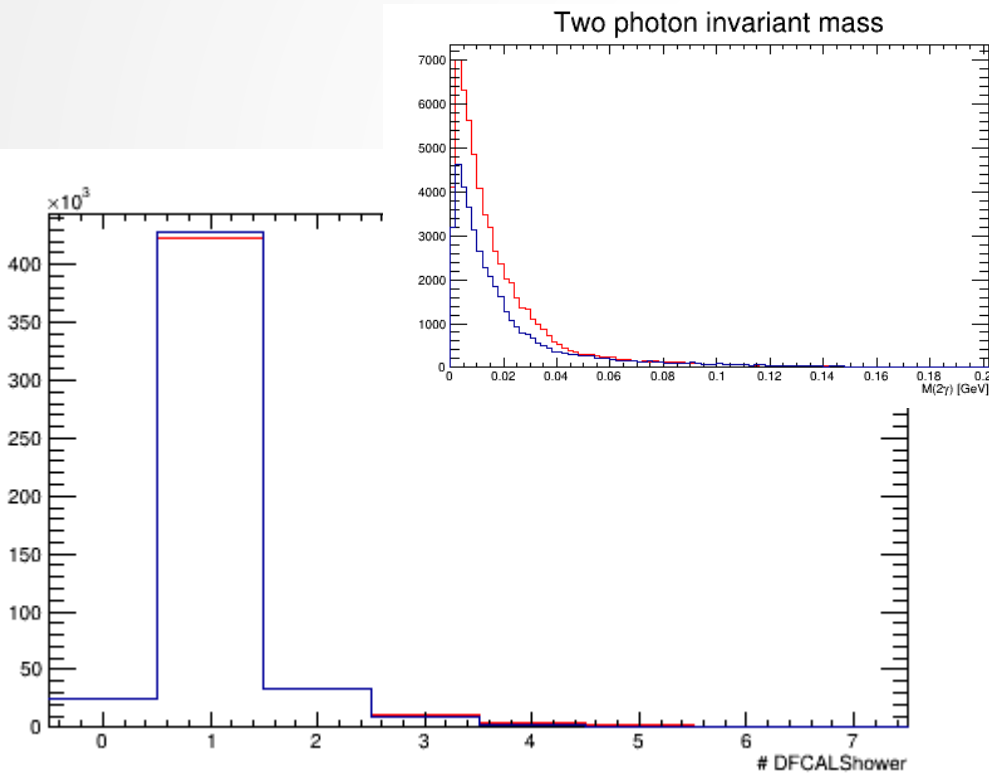


Note: not applying S-curve correction for island peak position result

More default/island algorithm comparisons

- Photon gun simulation: $E_\gamma = \{0.1, 10.1\}$ GeV, $\theta = 0-11^\circ$

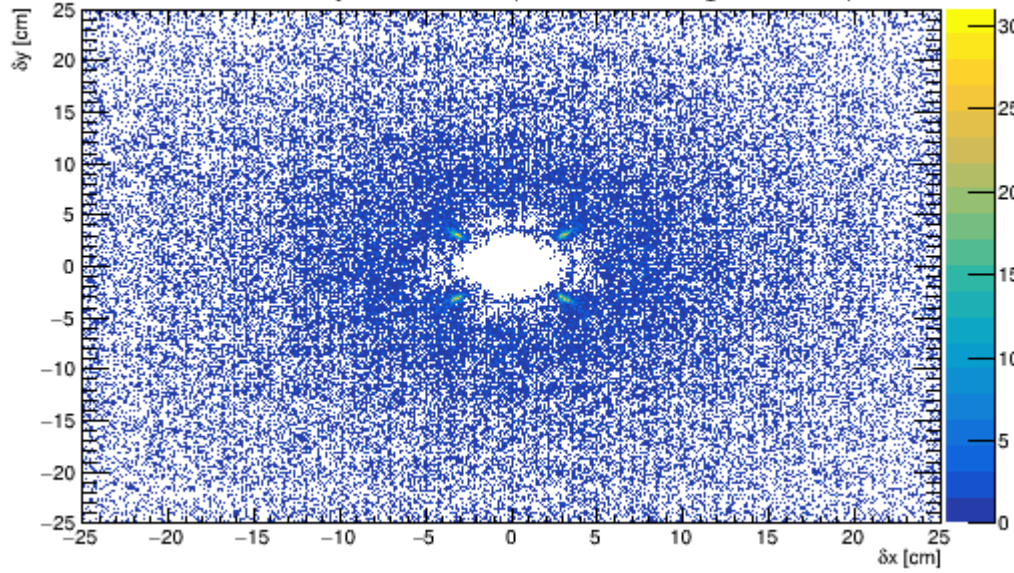
default algorithm
island algorithm



More default/island algorithm comparisons

- Photon gun simulation: $E_\gamma = \{0.1, 10.1\}$ GeV, $\theta = 0-11^\circ$

Show separation (default algorithm)



Shower separation (island)

