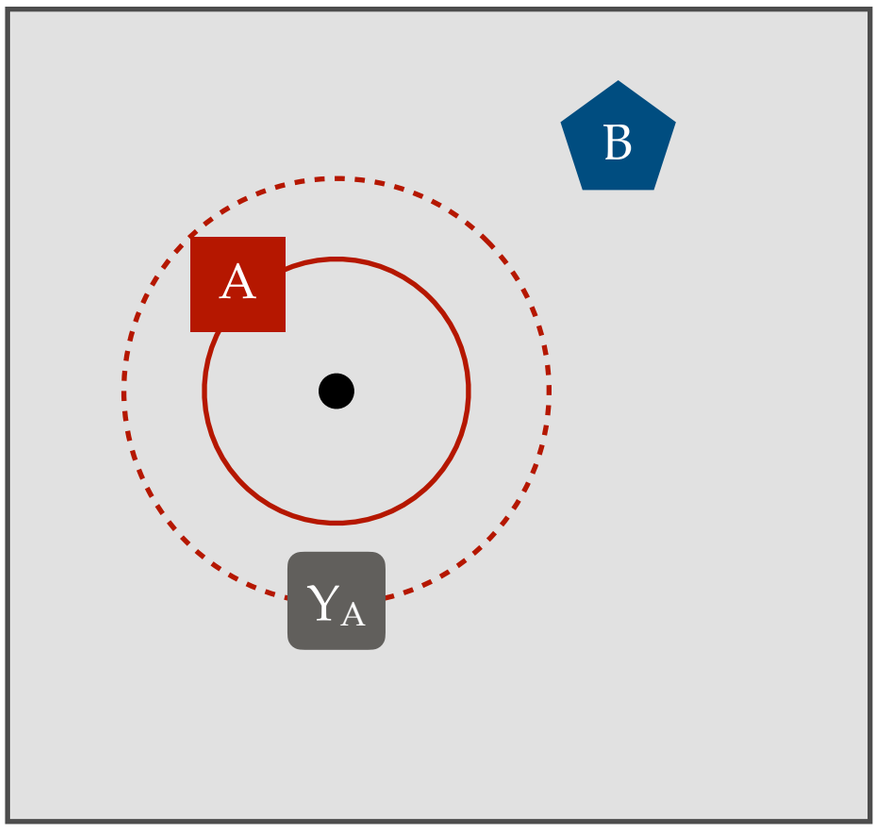
A quick update on TOE

FOOT software meeting

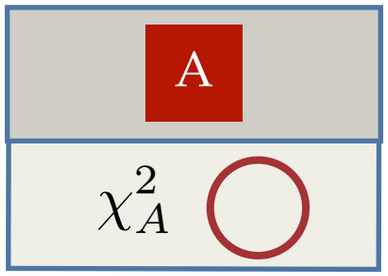
14/10/2021

Confrontation

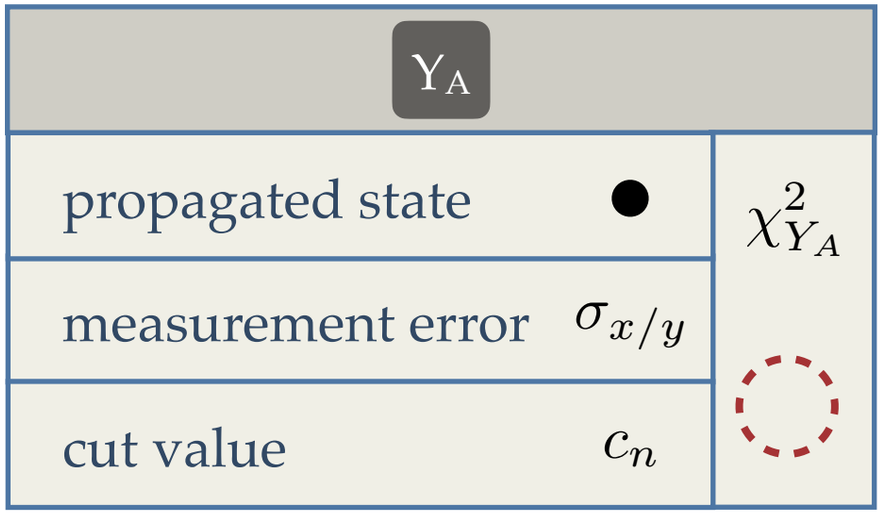
Detection plane n :



Candidates :

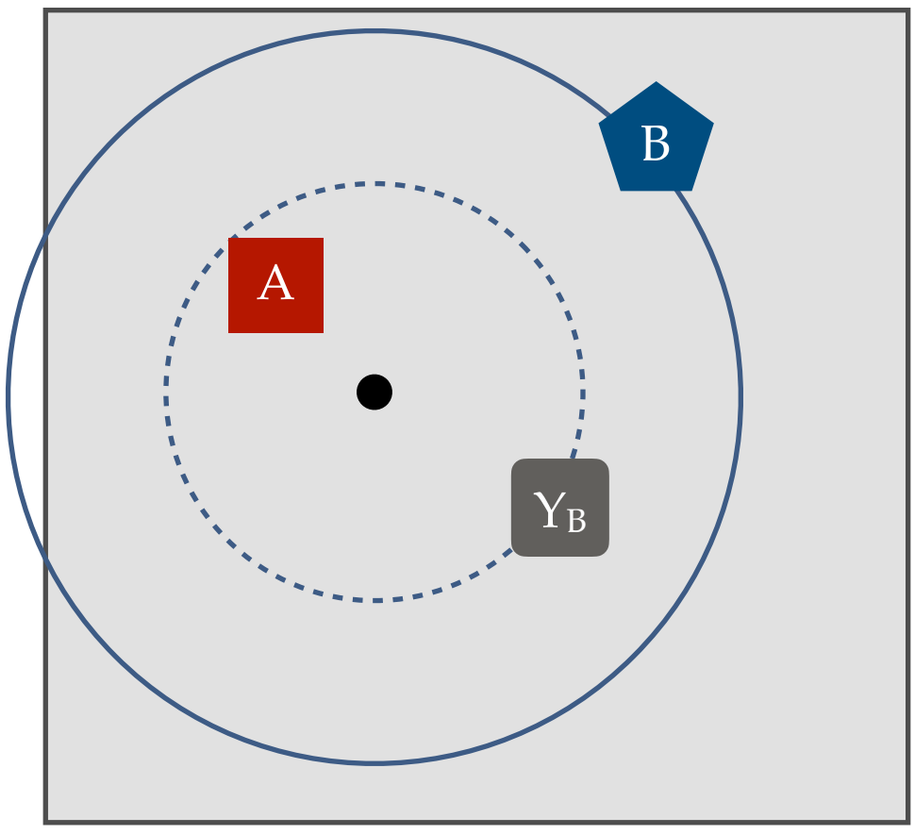


Cutter candidates :

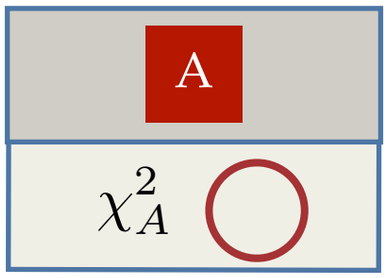


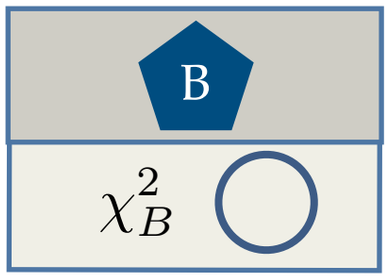
Confrontation

Detection plane n :

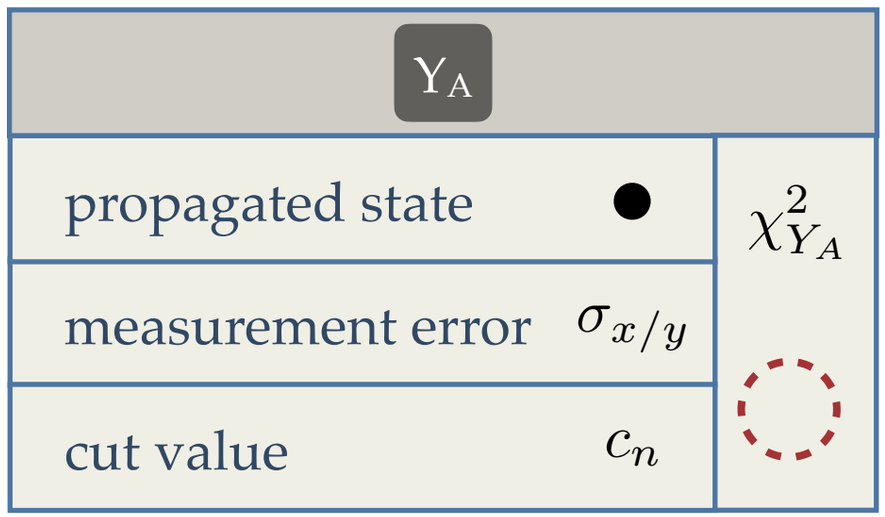


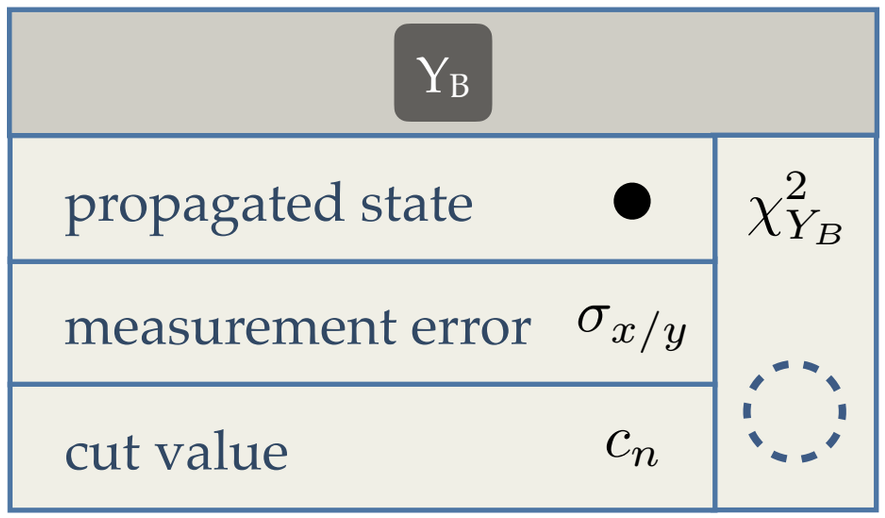
Candidates :





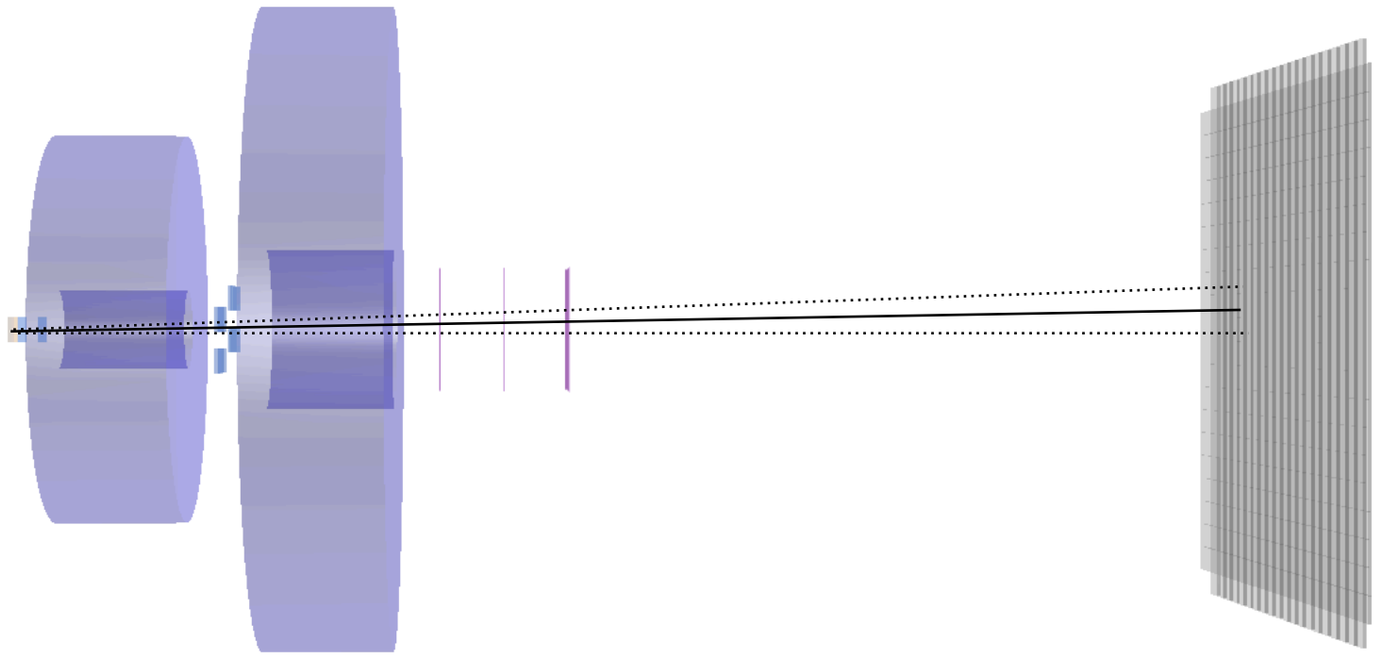
Cutter candidates :





Cut values & optimisation strategies

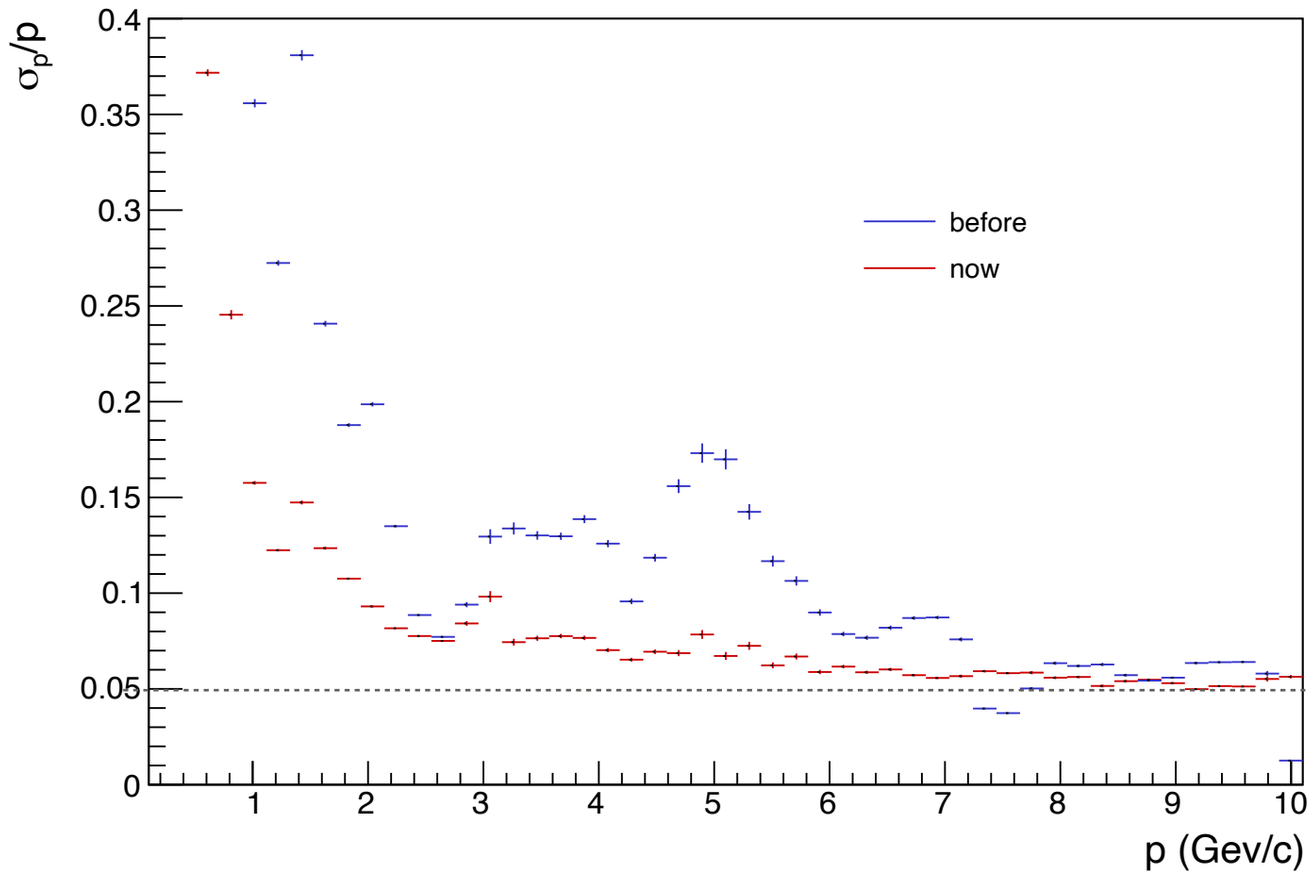
- No scattering in propagation model



- Geometry and beam dependant
- Two optimisation strategies: comb strategy and gradient descent strategy

Improvements

- Before: momentum computed using track length, requiring time-of-flight value
- Now: momentum value is scanned, residuals to deduce best value

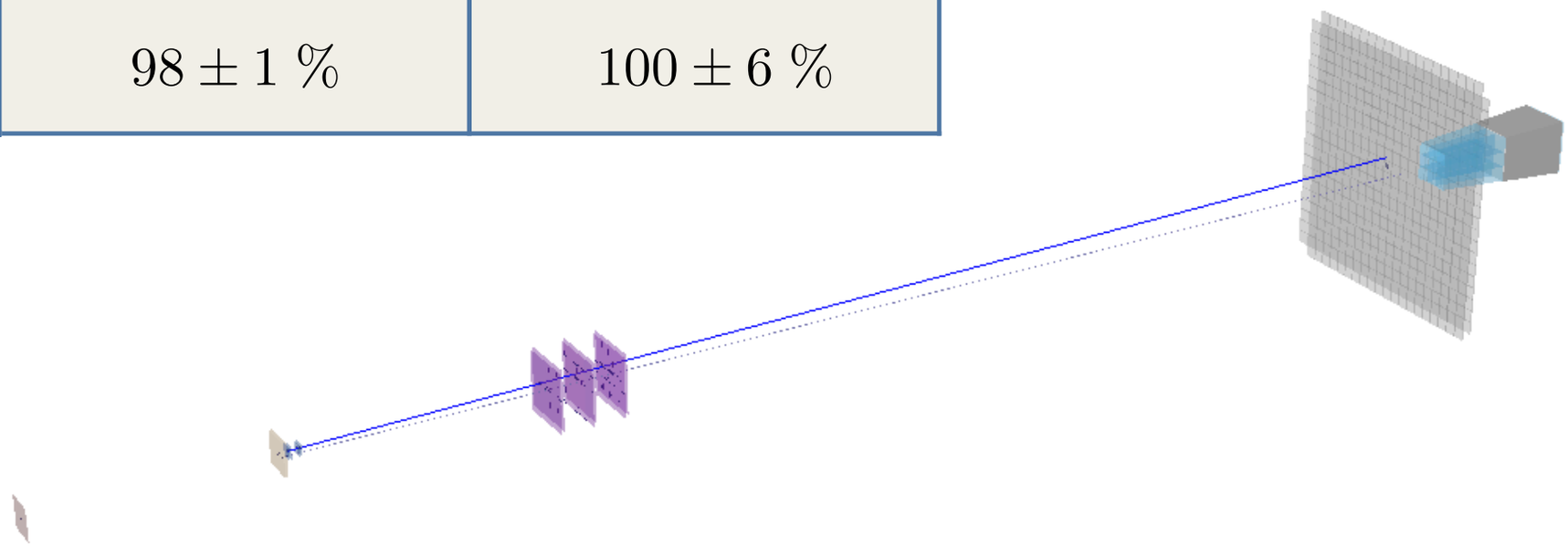


- Simulation : ^{16}O 200 MeV/u on 5 mm C2H4 target, 250 000 events

Current state

- TOE should be functional on GSI data
  - Simulation: GSI2021_MC/16O_400_C_trig_shoe.root, 10 000 events

	with vertex	without vertex
Efficiency	99 ± 5 %	100 ± 6 %
Cluster purity	98 ± 1 %	100 ± 6 %



  - Run 4303: ^{16}O 200 MeV/u on 5 mm C target