



Proton rates and capture optimisation



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A decorative graphic on the left side of the slide, consisting of overlapping red, green, and blue shapes with a black crosshair.

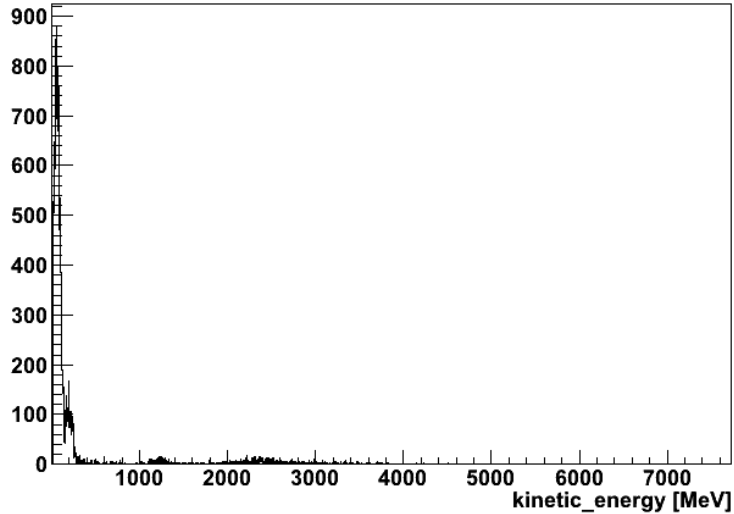
Overview

- Proton rates
 - Vs angle
 - Vs absorber thickness
- RF capture optimisation in G4Beamline
 - 100 mm absorber
 - 200 mm absorber

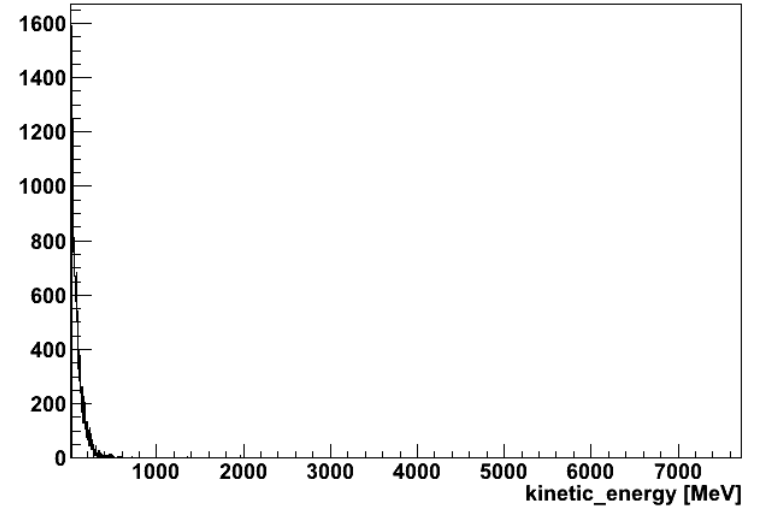
Proton Rates – no absorber



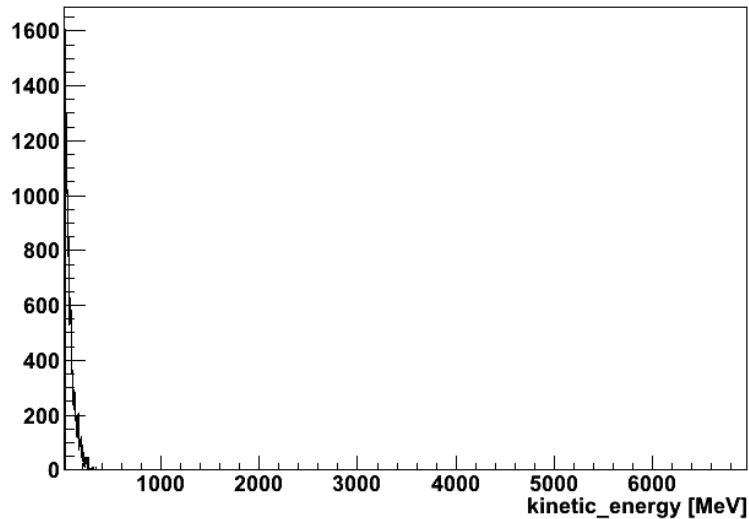
$d\theta=0.001^\circ$ thickness= $1e-09$ mm total energy= 8.97 [TeV]



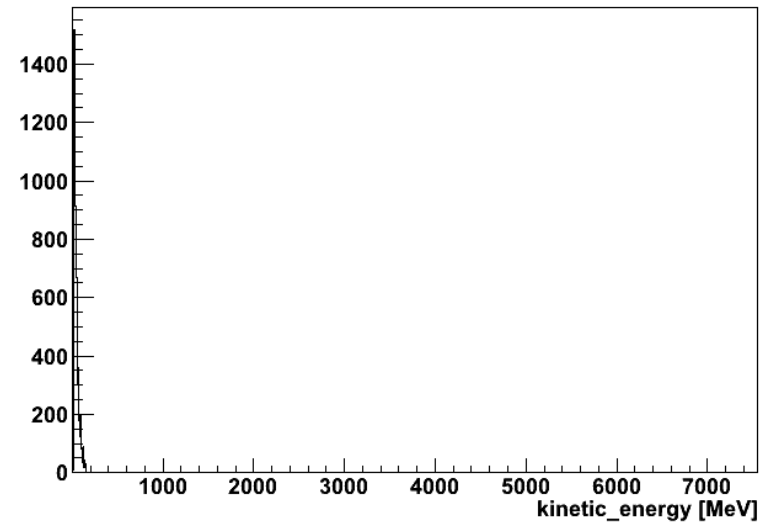
$d\theta=1.0^\circ$ thickness= $1e-09$ mm total energy= 3.74 [TeV]



$d\theta=1.25^\circ$ thickness= $1e-09$ mm total energy= 2.15 [TeV]

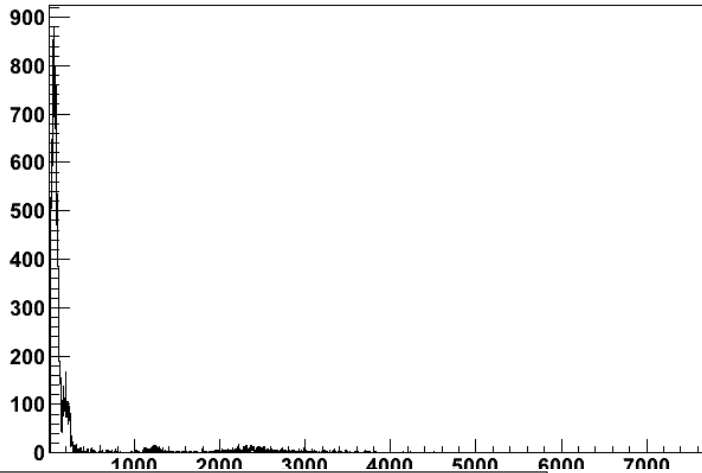


$d\theta=1.75^\circ$ thickness= $1e-09$ mm total energy= 0.64 [TeV]

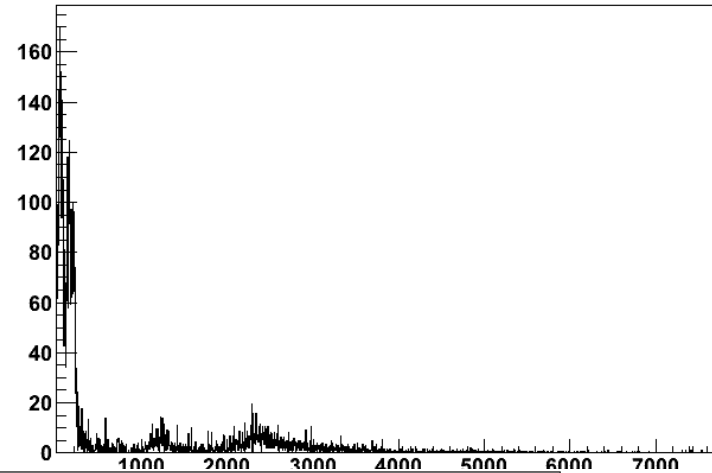


Proton Rates – no chicane

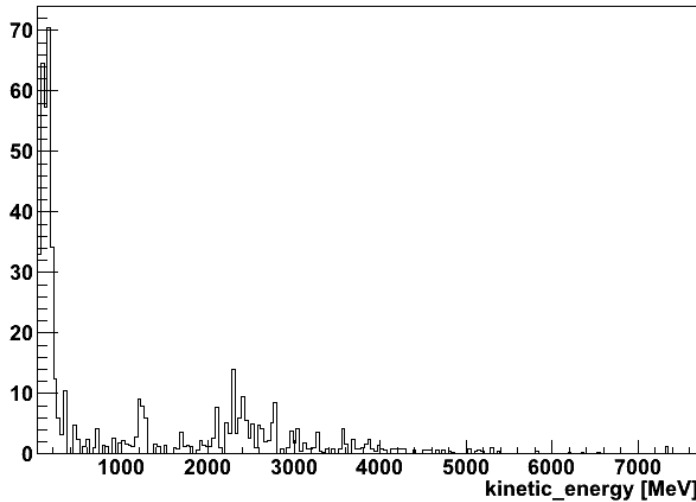
$d\theta=0.001^\circ$ thickness=1e-09 mm total energy=8.97 [TeV]



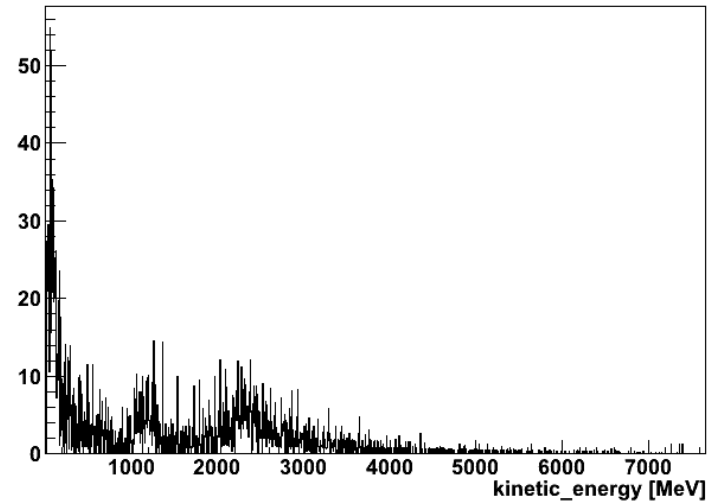
$d\theta=0.001^\circ$ thickness=50.0 mm total energy=7.06 [TeV]



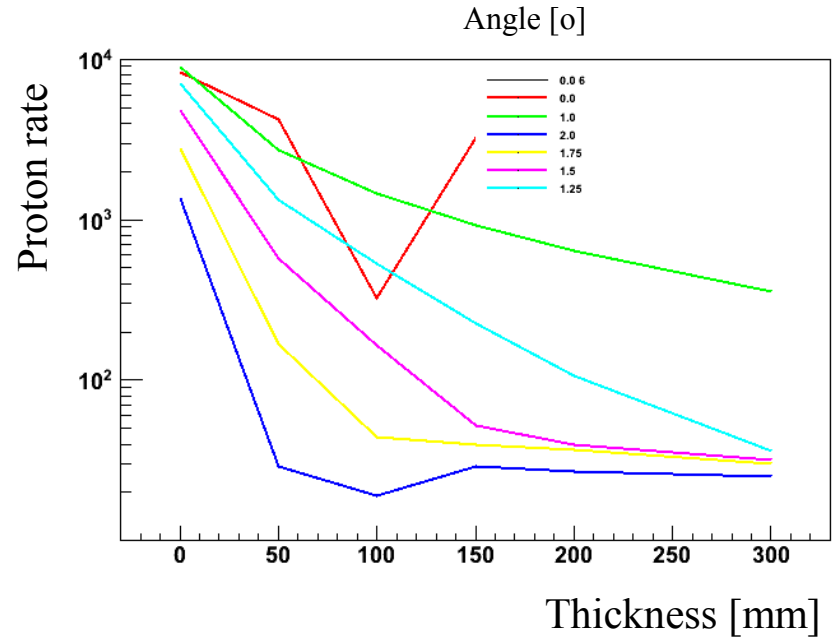
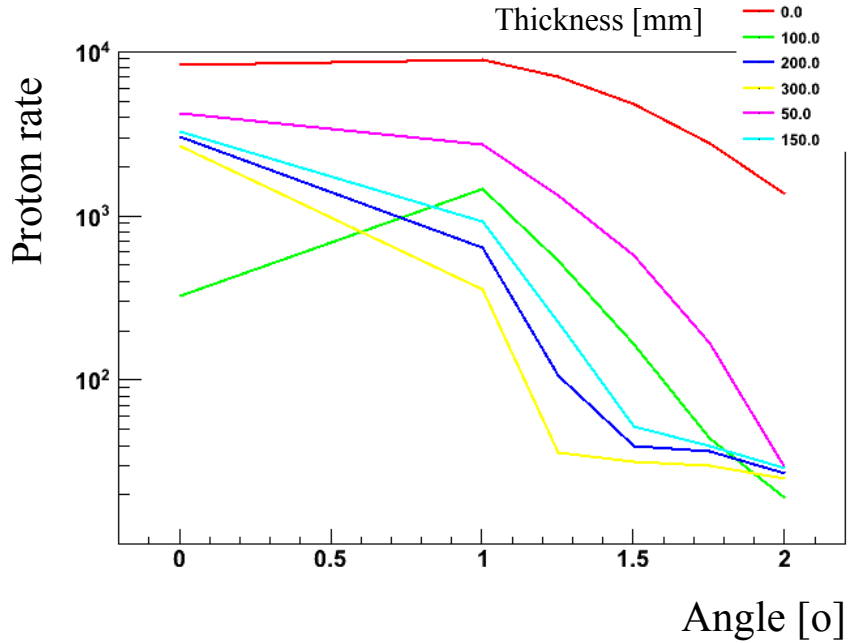
$d\theta=0.001^\circ$ thickness=100.0 mm total energy=0.59 [TeV]



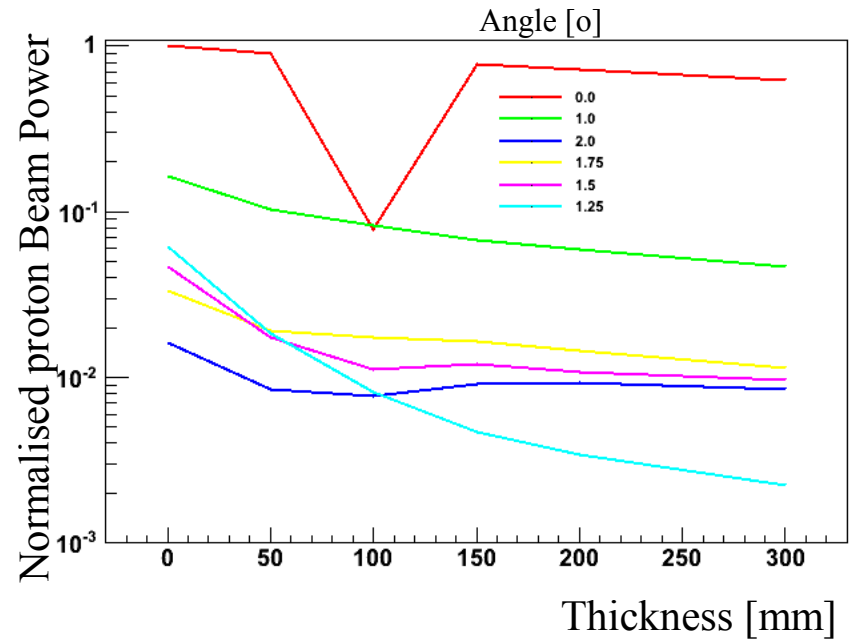
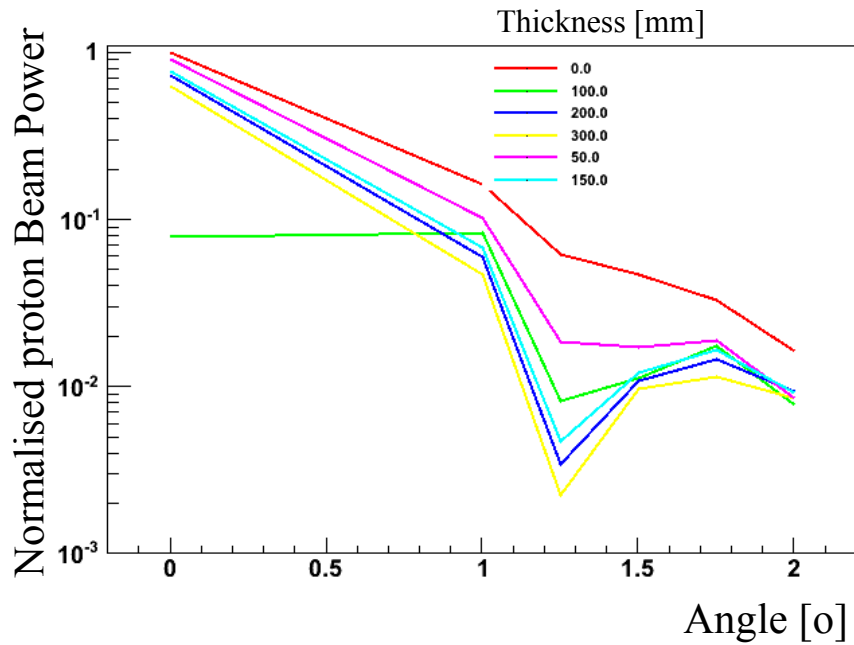
$d\theta=0.001^\circ$ thickness=200.0 mm total energy=5.36 [TeV]



Proton Rates – “2D” plots

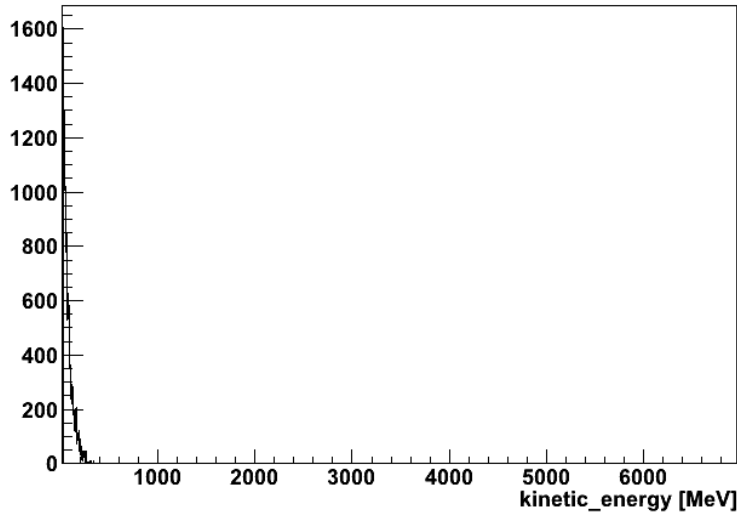


Proton Rates – “2D” plots

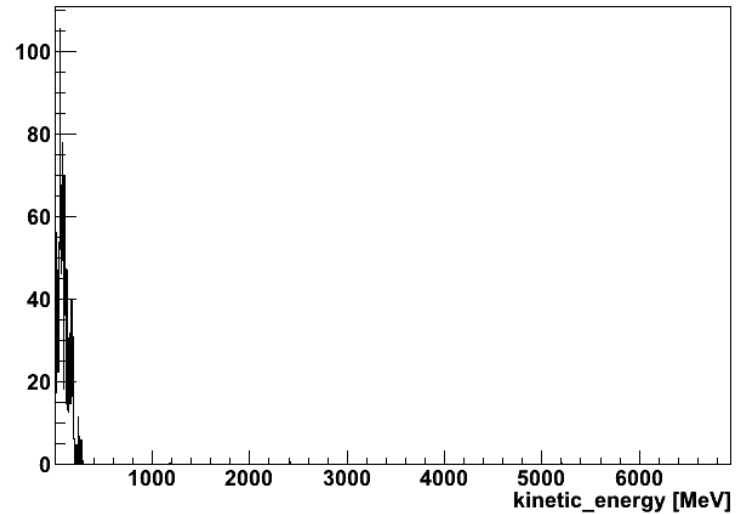


Proton Rates – 1.25° chicane

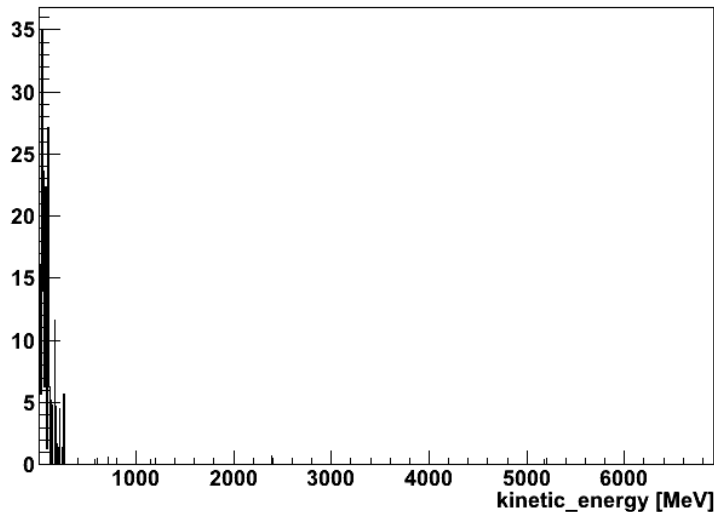
$d\theta=1.25^\circ$ thickness= $1e-09$ mm total energy= 2.15 [TeV]



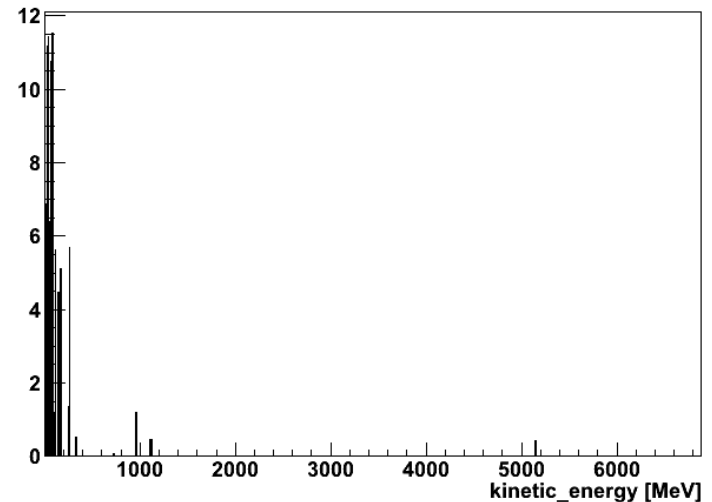
$d\theta=1.25^\circ$ thickness= 100.0 mm total energy= 0.22 [TeV]



$d\theta=1.25^\circ$ thickness= 200.0 mm total energy= 0.04 [TeV]



$d\theta=1.25^\circ$ thickness= 300.0 mm total energy= 0.01 [TeV]



RF Capture optimisation

