K-Koto Meeting

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Hadron & Nuclear Physics Lab

Working List

- Size effect
  - Full active uniform detector (Lead)
    - Shower profile?
    - Angle reconstruction using Step Hit Info.

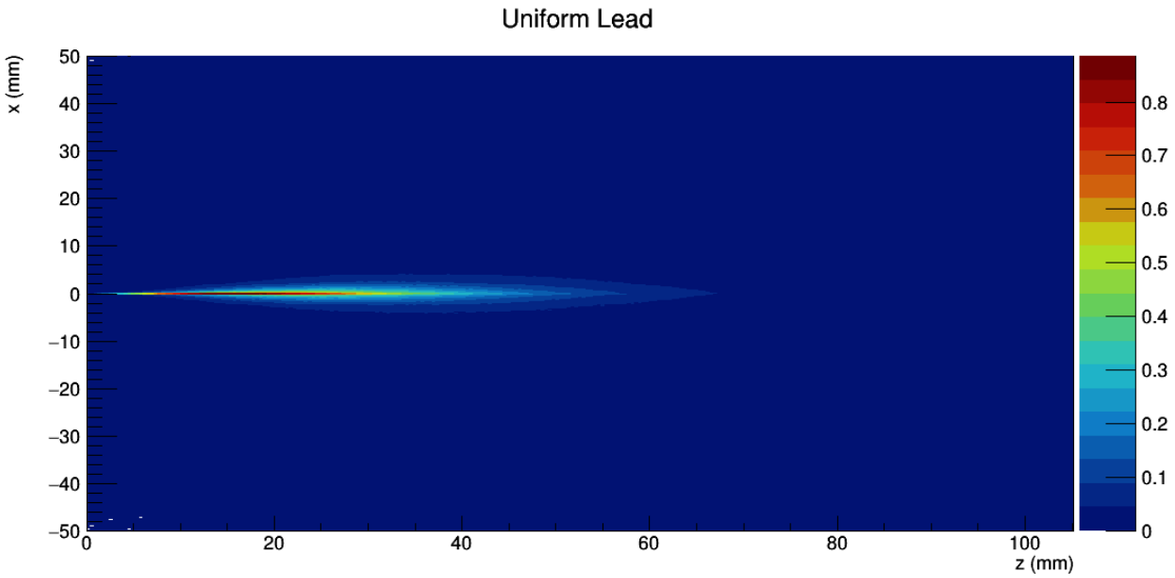
- Cluster properties
  - Energy distribution?
  - Counting rate?
  - Energy threshold (for scintillator segment)?

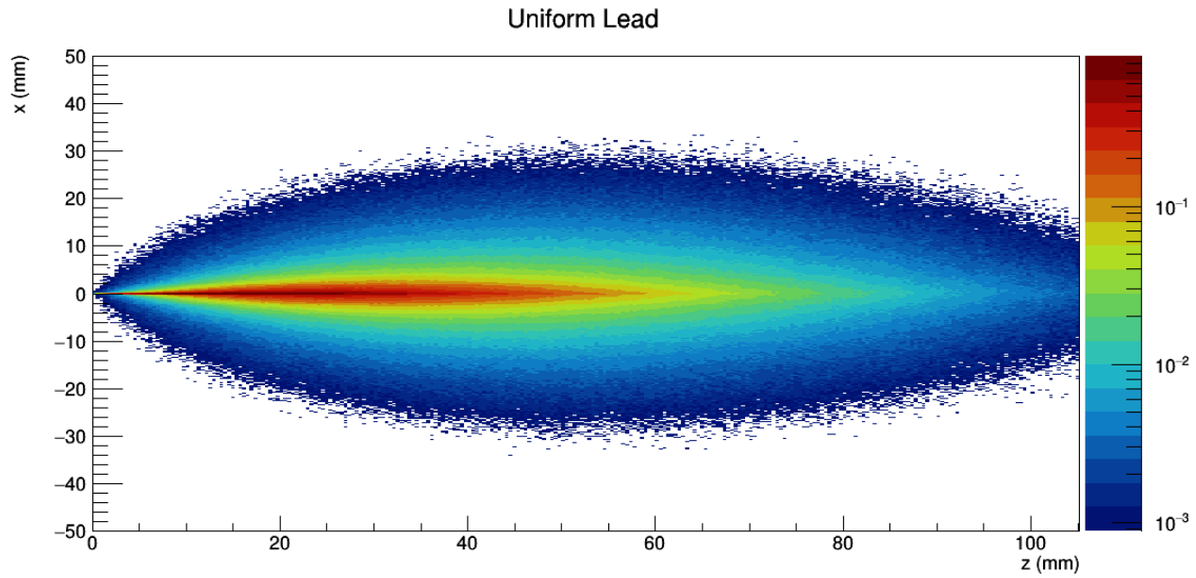
- Detector properties
  - Effective radiation length
  - Effective moliere radius

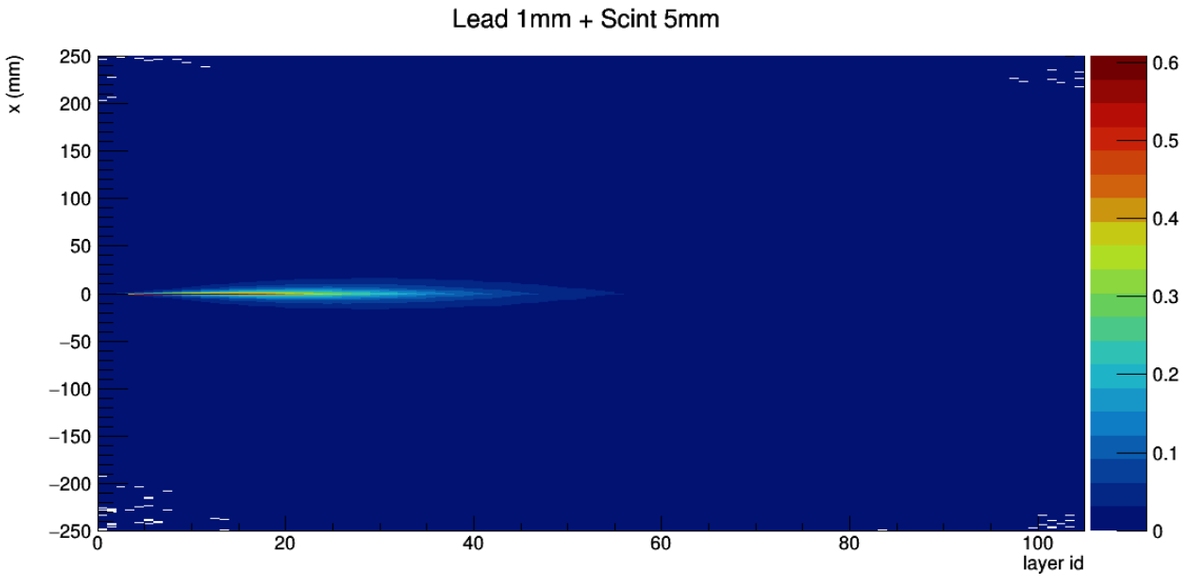
Uniform Lead Detector

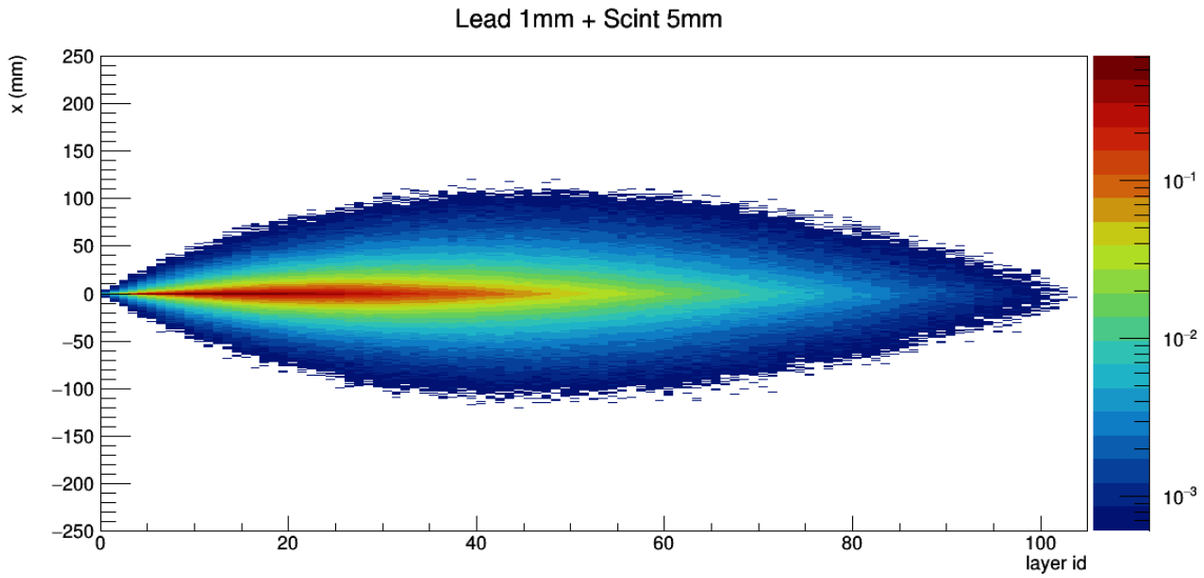
- Full active uniform detector
- Uniform lead, 50cm × 50cm × 50cm Box shape
  - 50cm ~ 89 X_0 for Pb

Uniform Lead Shower Profile







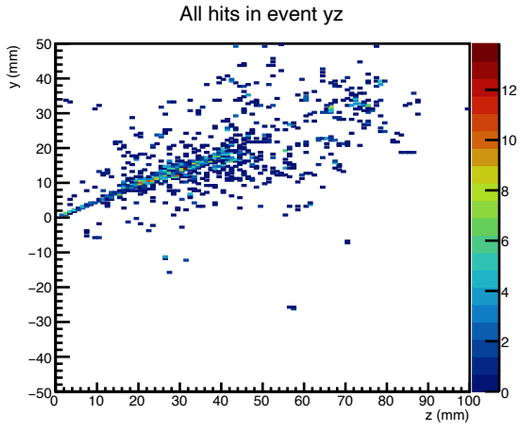


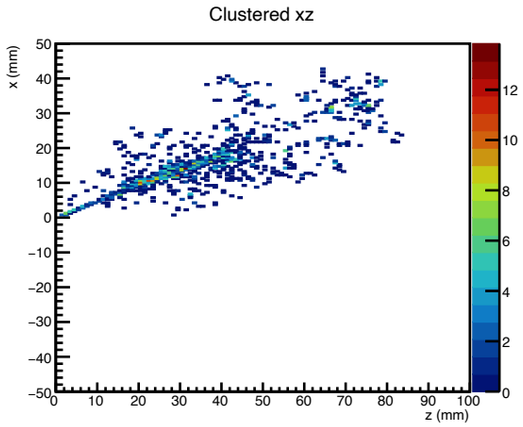
normal scale

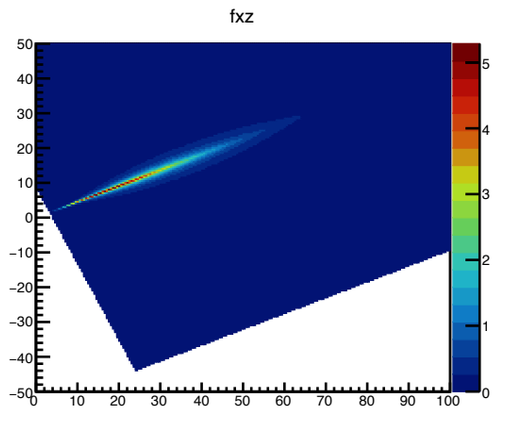
Log z scale

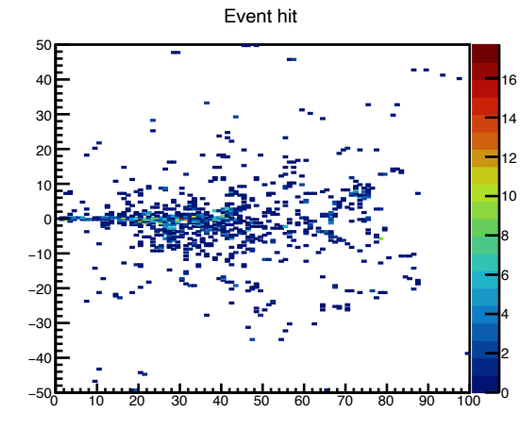
Uniform Lead Detector

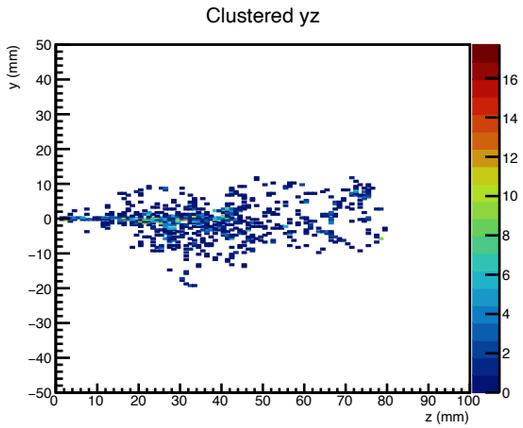
- Angle reconstruction using Step Hit Info.
  - 200 × 200 binning : z (0, 100 mm), xy(-50mm, 50mm)
    - 0.5 mm bin (~ 1 X_0)
  - Get ShowerPDF from the shower histogram instead of parametrization
  - Clustering size Z : ±3 bins, XY : ±3 bins

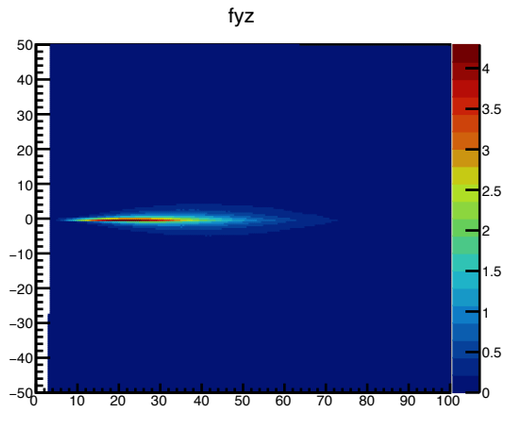




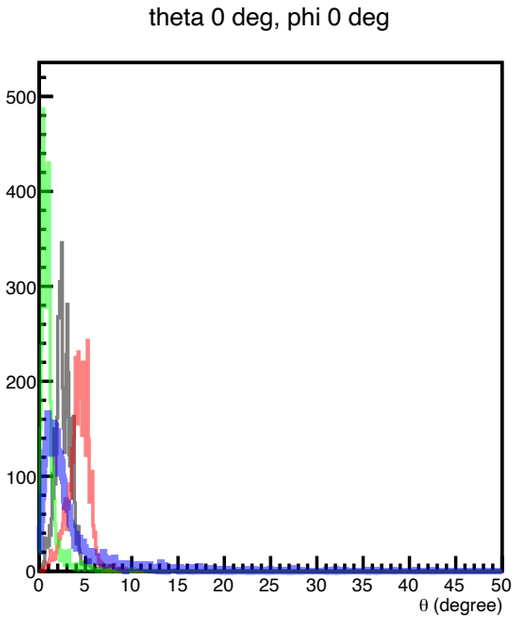


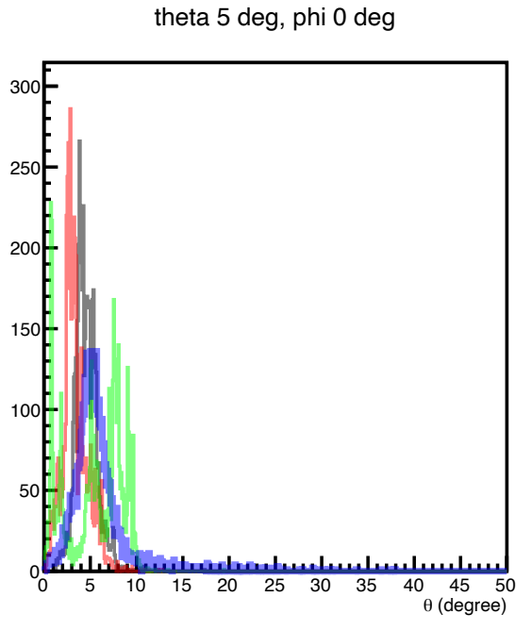


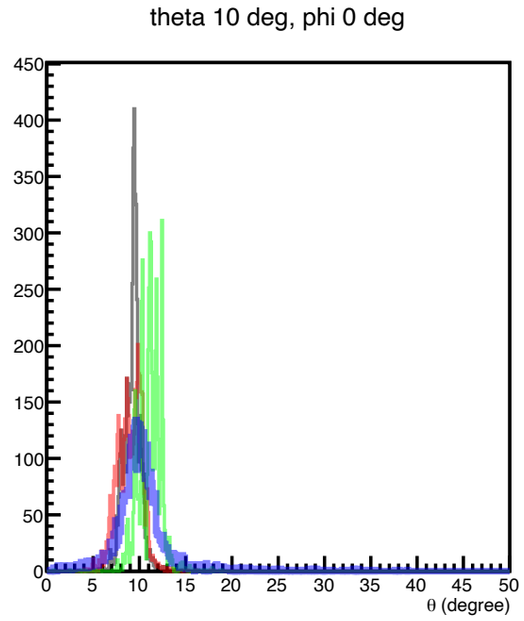


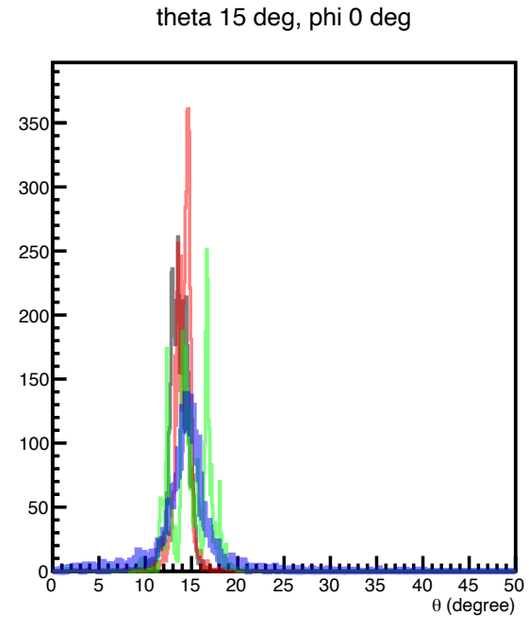


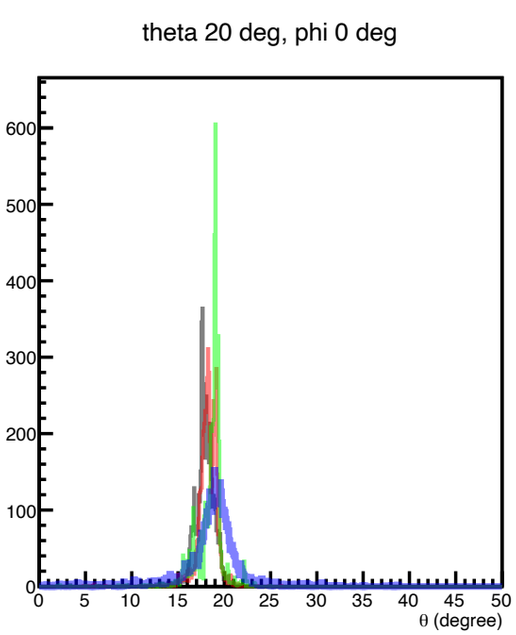
Uniform Lead Detector (Angle Recon.)

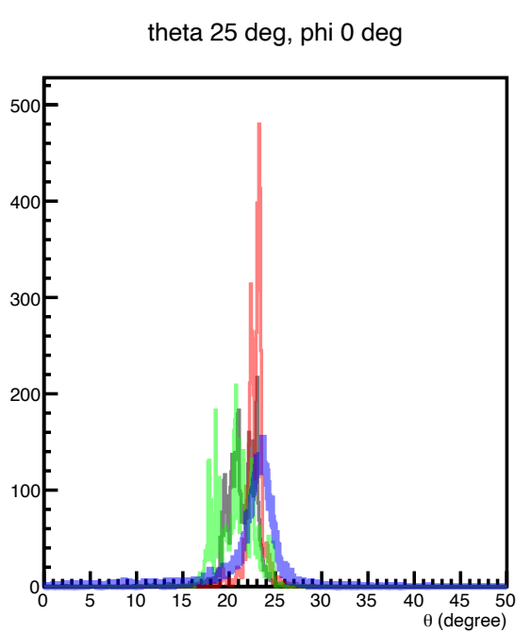


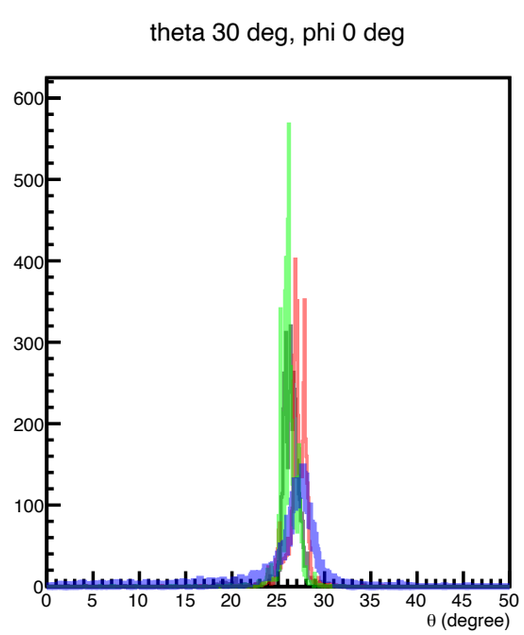












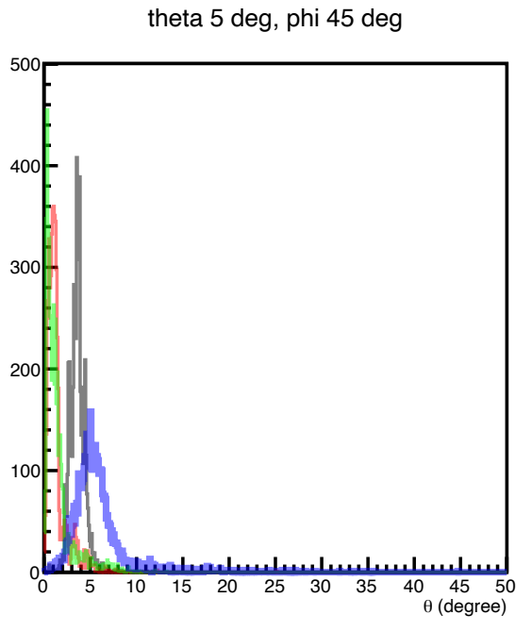
black 5mm

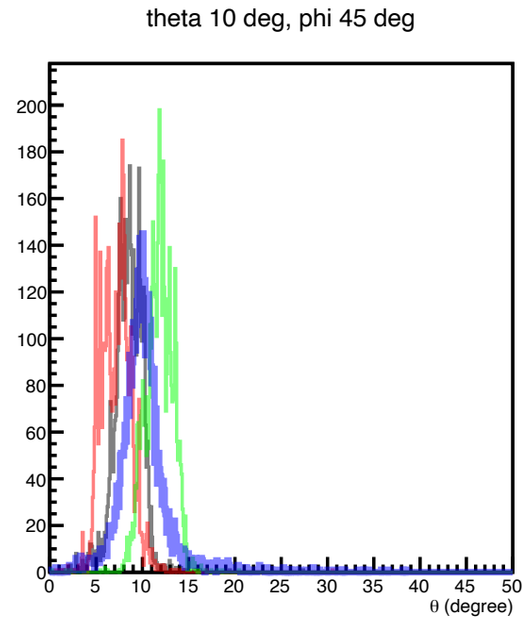
red 1cm

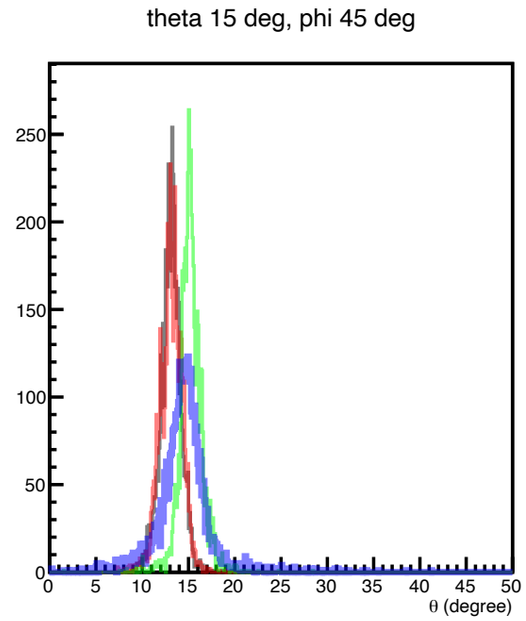
green 2cm

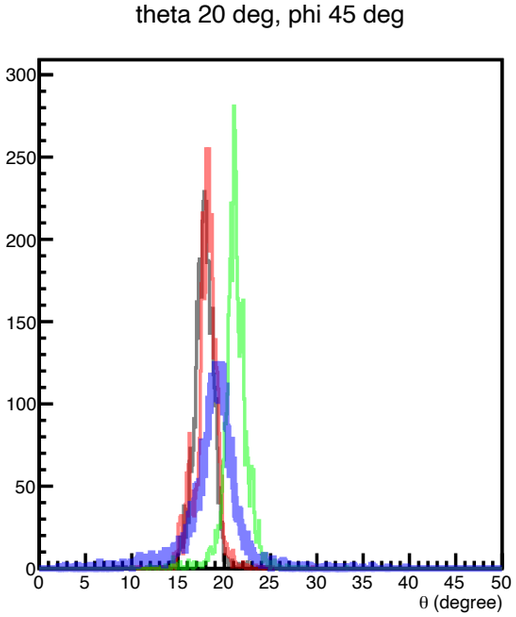
blue Uniform Pb

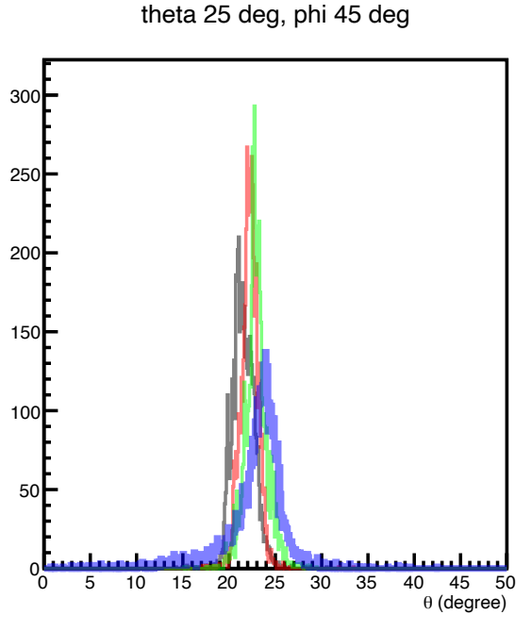
Uniform Lead Detector (Angle Recon.)

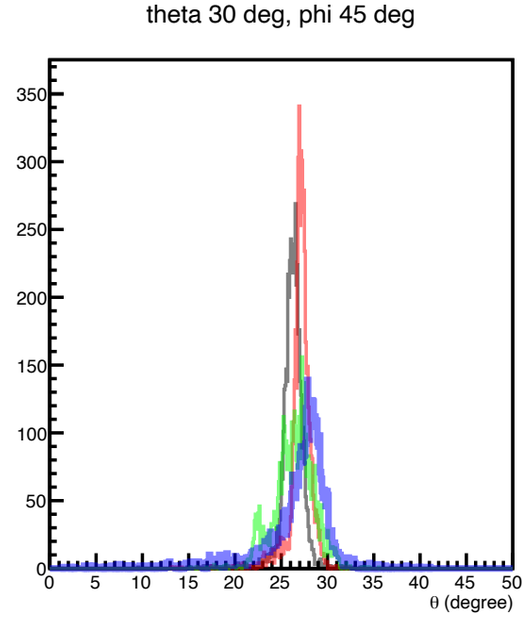












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