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JÜLICH FORSCHUNGSZENTRUM

Description of a Method for Track Finder for the Luminosity Monitor Track Finder

December 10, 2009 | T. Randriamalala, J. Ritman and T. Stockmanns

Outiline

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Effeciency

Conlusion

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- This will be useful to handle multiple track per event or superpostion of events ...

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  $\Longrightarrow$ Operate out of all magnetic fields scope
  $\Longrightarrow$ Tracks are linears.
- Small deviation of the tracks is due to the multiple scattering (small angle):

$$\text{e.g : @ } 6.2 GeV/c \text{ with } 300 \mu m \text{ thickness :}$$
$$\theta^{RMS} = 0.09 mrad$$

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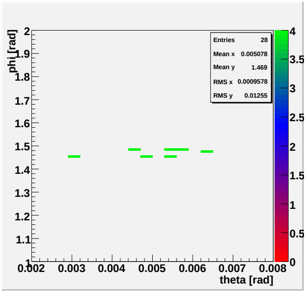
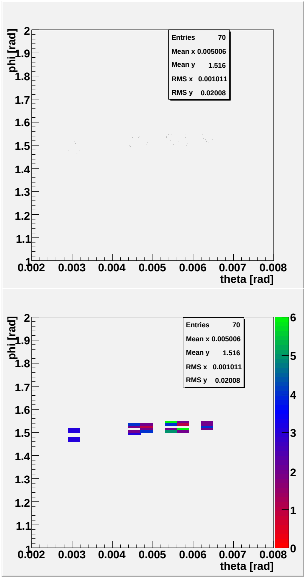
- Plot θ vs ϕ for MC:
  - 7 MCtracks that hit all the 4 planes (4 hits/track)
  - All hits per track sit on the same position in (θ, ϕ) plane.



- $(\theta\ ,\ \phi)$ distribution of the recontruction hits
- Set $\delta\theta$ and $\delta\phi$ to group hits of the same angular range $(\delta\theta \simeq \theta^{RMS})$
  $\Longrightarrow$ 8 "clusters" of hits
- Each cluster is a track candidate



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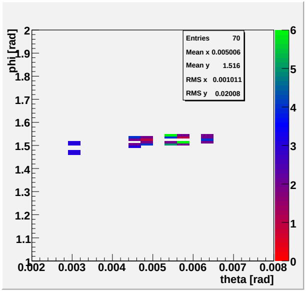

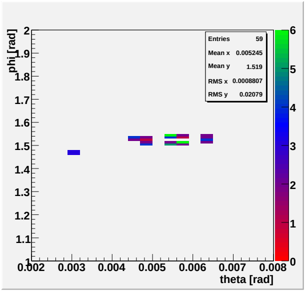

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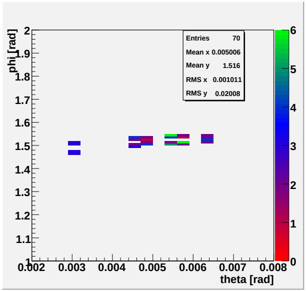

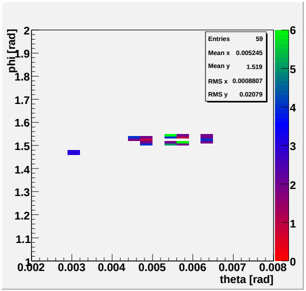

⇒6 clusters (out of 8) are good track candidates

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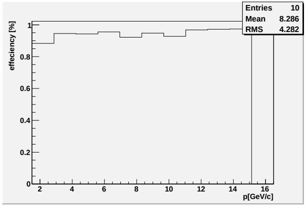

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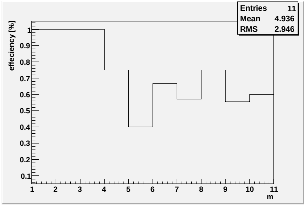

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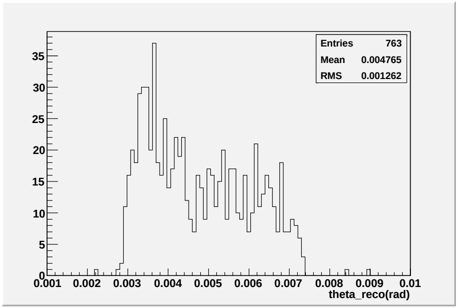

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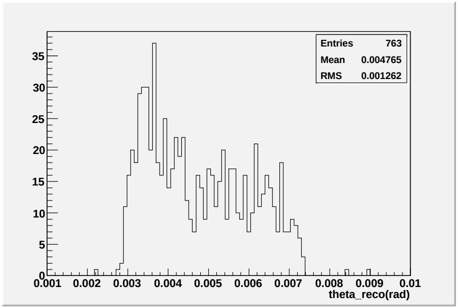

- Tracks correspond to the detector acceptance.

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- Hits found are fitted linearly.