

Activity Report

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June 16th, 2009

MDT + Magnet

TO061609

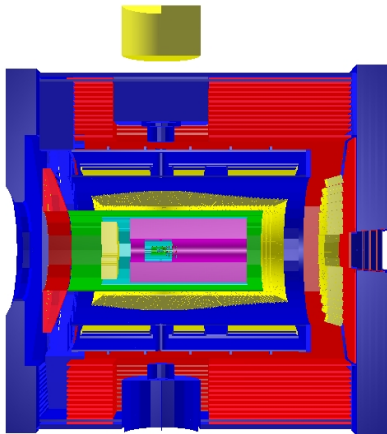
G.C. Serbănuț

Design

Cuts

Results DY

Results Pionic
Background



MDT + Material Budget

TO061609

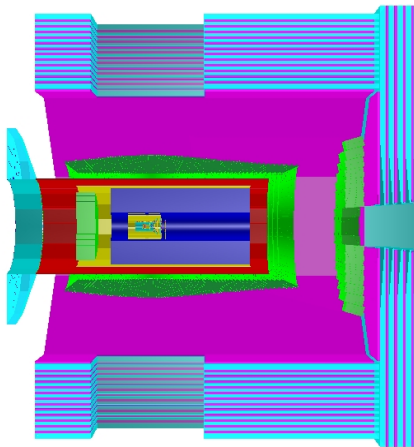
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Events distribution in the Q range

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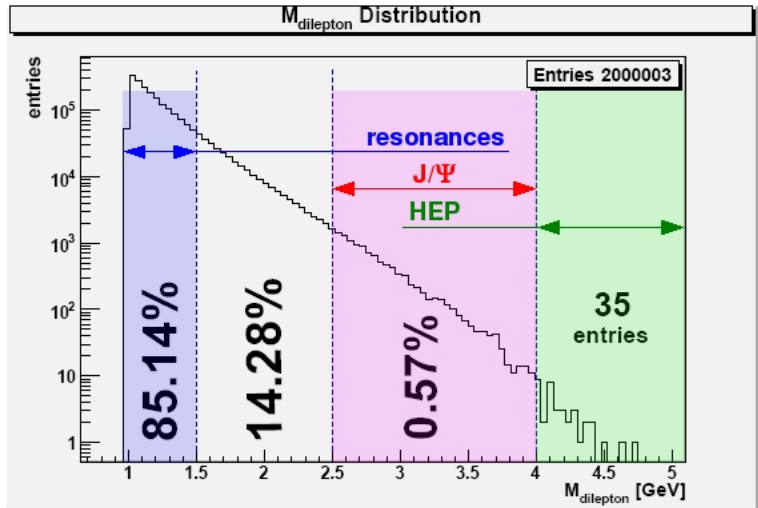
Design

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- 1 $1.5 \text{ GeV} \leq M_{pair} \leq 2.5 \text{ GeV}$
- 2 $p_T^{pair} \geq 0.75 \text{ GeV}$
- 3 *register a hit at the MDT entrance*
- 4 $\theta = \arccos \left(\frac{\vec{p}_{secondary} \cdot \vec{p}_{primary}}{|\vec{p}_{secondary}| \cdot |\vec{p}_{primary}|} \right) \leq 3^\circ$

Results from 10^4 Drell-Yan events in [1.5; 2.5] GeV

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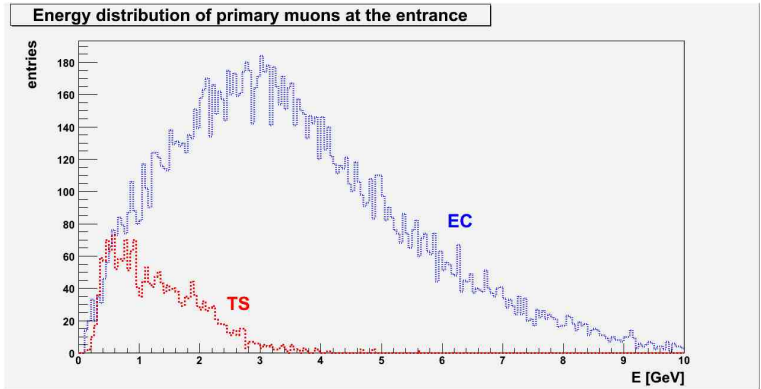
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Entries: $TS = 13.09\% \times EC$

Results from 10^6 pionic background events from Pythia8

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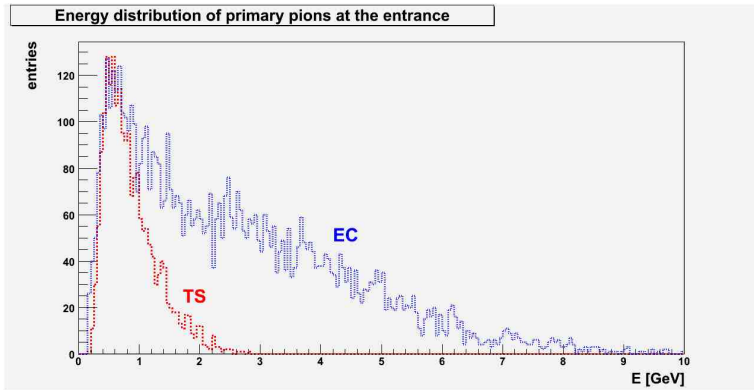
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Design

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Results DY

Results Pionic
Background



Entries: **TS** = 30.76% \times **EC**

Results from 10^6 pionic background events from Pythia8

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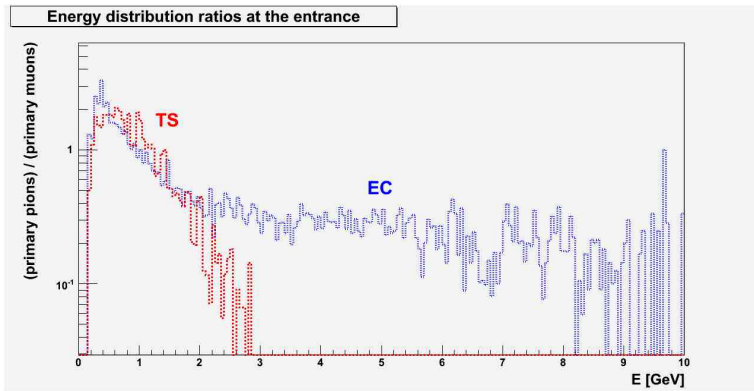
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Results DY

Results Pionic
Background



no scaling

Results from 10^6 pionic background events from Pythia8

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G.C. Serbănuț

Design

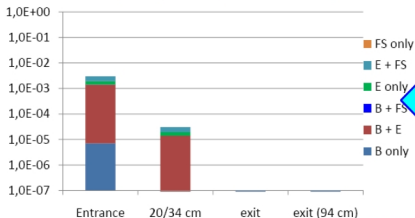
Cuts

Results DY

Results Pionic
Background

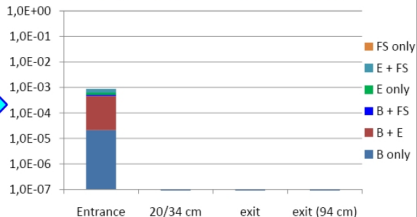
Hadronic background distribution

Primary Background Rejection: $P\pi + P\pi \rightarrow S\mu$



$1.5 < M_{\mu\mu} < 2.5 \text{ GeV}/c^2$
Very crude requirements
on track length
 $p_{T,\mu\mu} > 0.75 \text{ GeV}/c$

Secondary Background Rejection: $S\pi + S\pi \rightarrow S\mu$



$1.5 < M_{\mu\mu} < 2.5 \text{ GeV}/c^2$
Very crude
requirements
on track length
 $p_{T,\mu\mu} > 0.75 \text{ GeV}/c$

Results from 10^6 pionic background events from Pythia8

TO061609

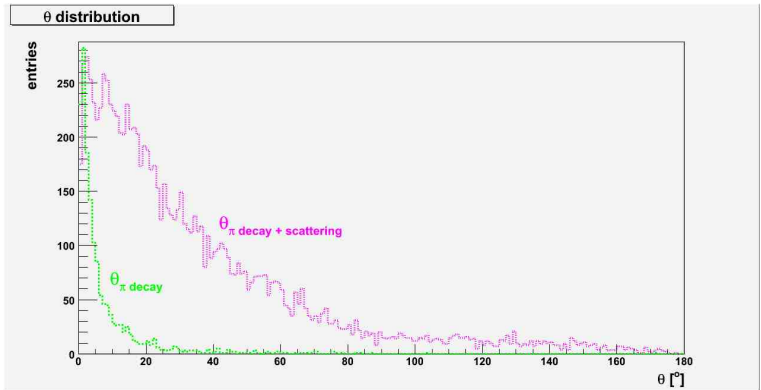
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decays = 14.74% from total (decays + scattering)

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Results DY

Results Pionic
Background

- Confirming the results obtained with MISS for a rejection factor in TS of $\geq 10^{+6}$ for $\theta \leq 3^\circ$.
- Confirming the results obtained with MISS for a rejection factor in EC of $5 \times 10^{+4}$ for $\theta \leq 3^\circ$.
- Need for global tracking.

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