

Status of the Trigger Efficiency Studies

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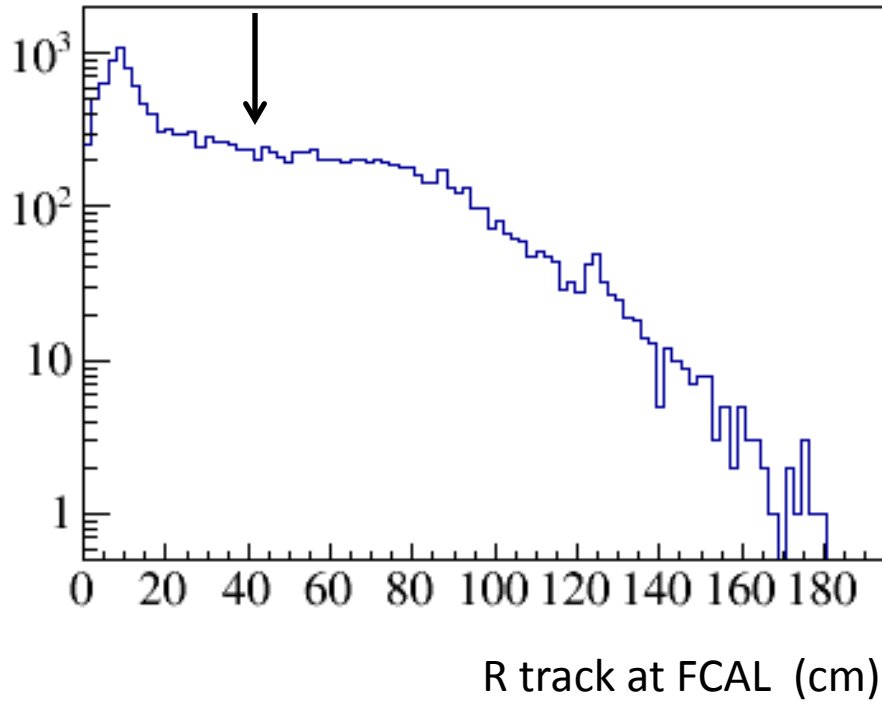
November 16, 2015

Overview

Estimate reconstruction efficiency for MIPs in the FCAL
- study impact of various per cell energy threshold

Run 2115: ST & TOF trigger

Reference Track Slection



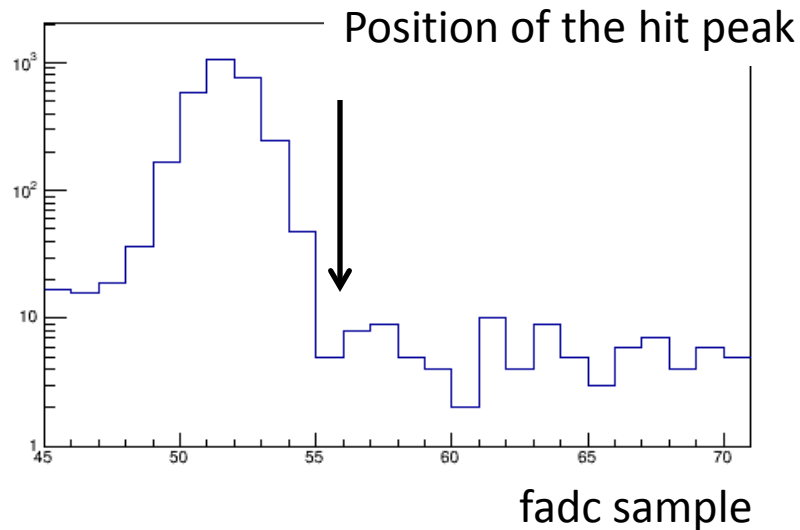
Reference track:

- N track = 1, ndf > 12, $\chi^2 > 0.1$
- P > 1 GeV/c²

extrapolate to the FCAL face

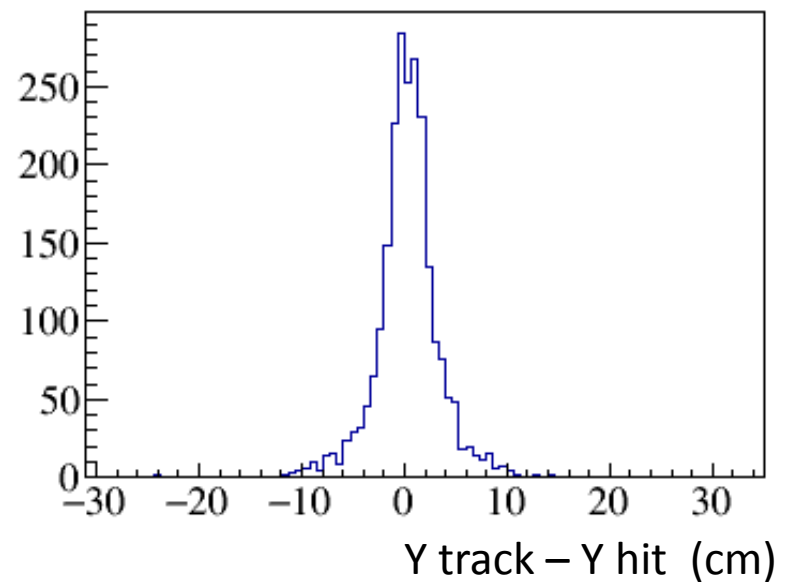
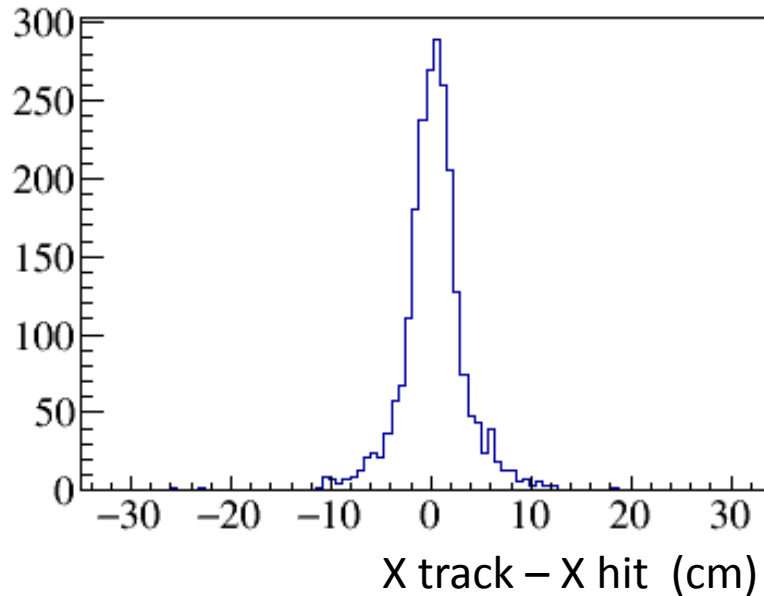
- R_{FCAL} > 40 cm

FCAL Reconstruction



Search for hits around the projection of the reference track to the FCAL face
 $dR = 12$ cm

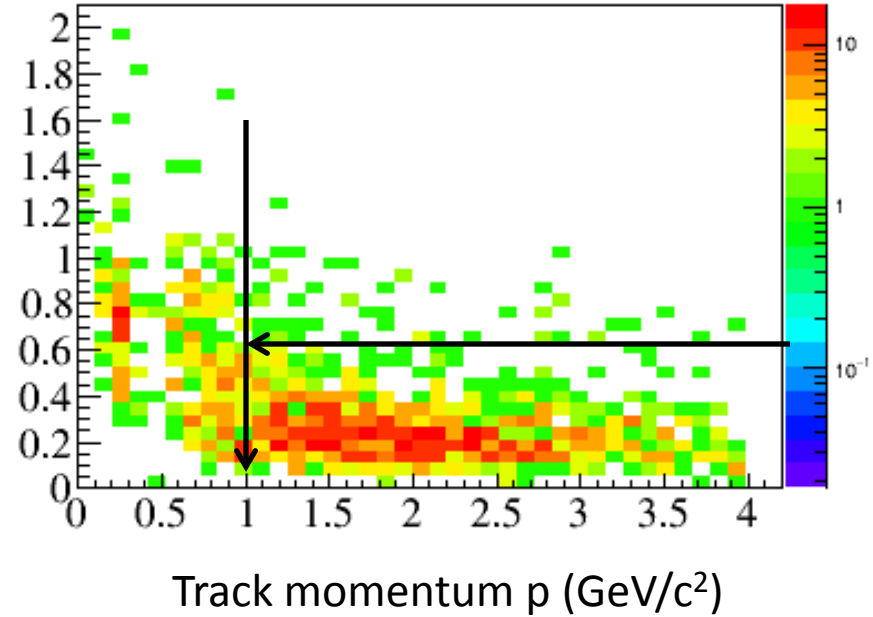
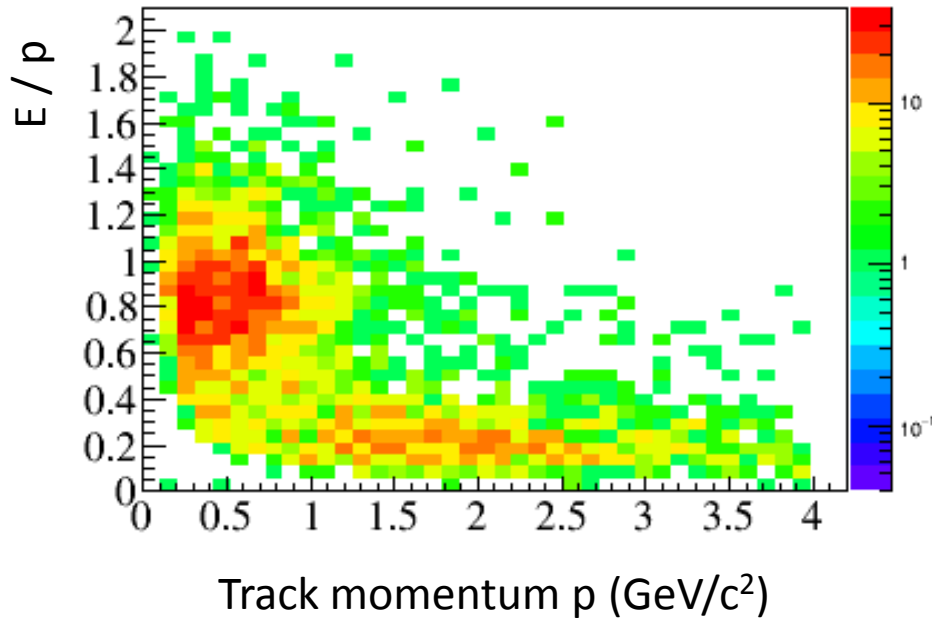
Require FCAL hit to be around the trigger time



Energy versus momentum

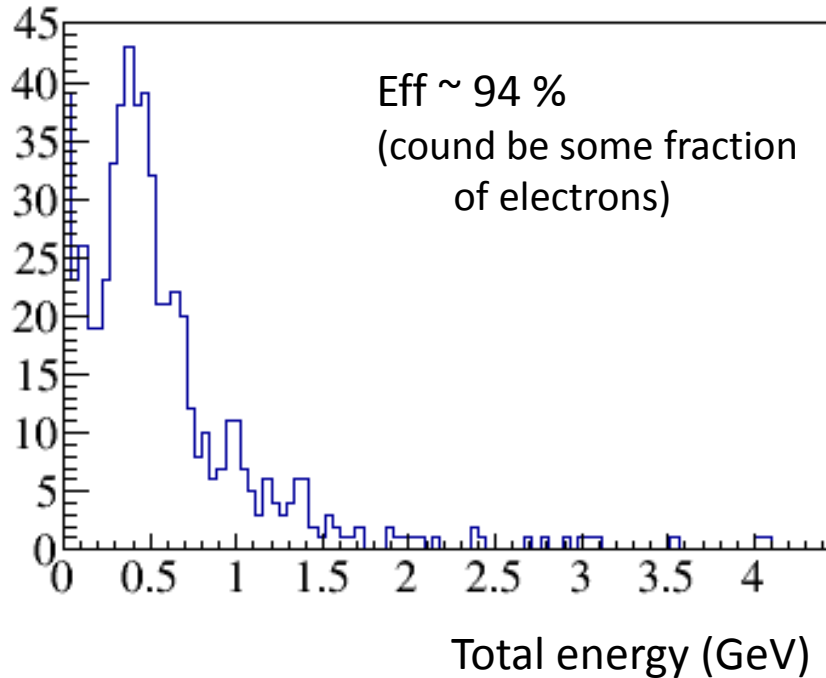
N track = 1, ndf > 12, $\chi^2 > 0.1$

R > 20 cm

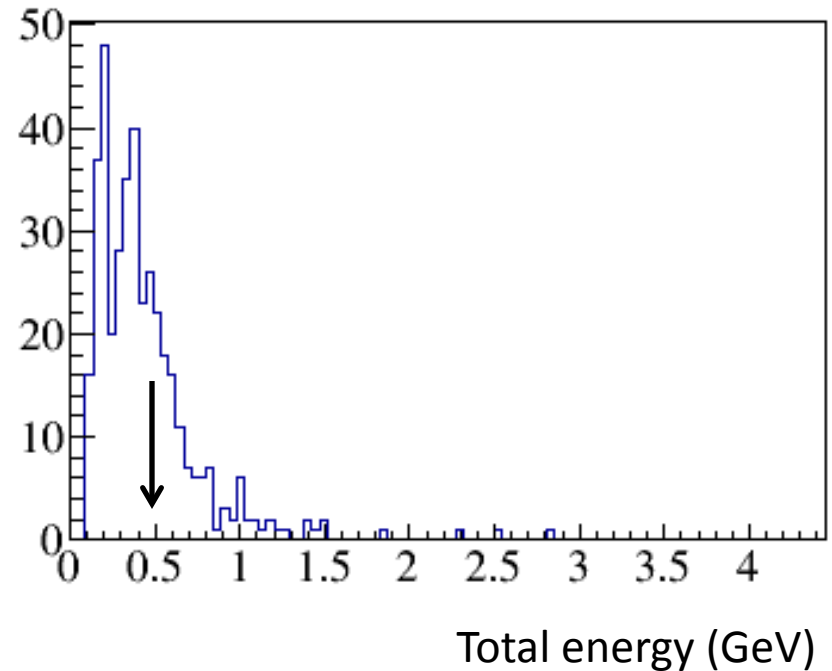


FCAL efficiency

$E_{\text{cell}} > 10 \text{ MeV}$



$E_{\text{cell}} > 130 \text{ MeV}$



Relative efficiency:

E_{cell} (MeV)	Eff (%)
10	100
90	90
130	82

$E_{\text{sum}} > 0.5 \text{ GeV}$, $E_{\text{cell}} > 130 \text{ MeV}$
Eff ~ 23 %
(23 * 2 = 46 % for two tracks)

Hit Multiplicity

