

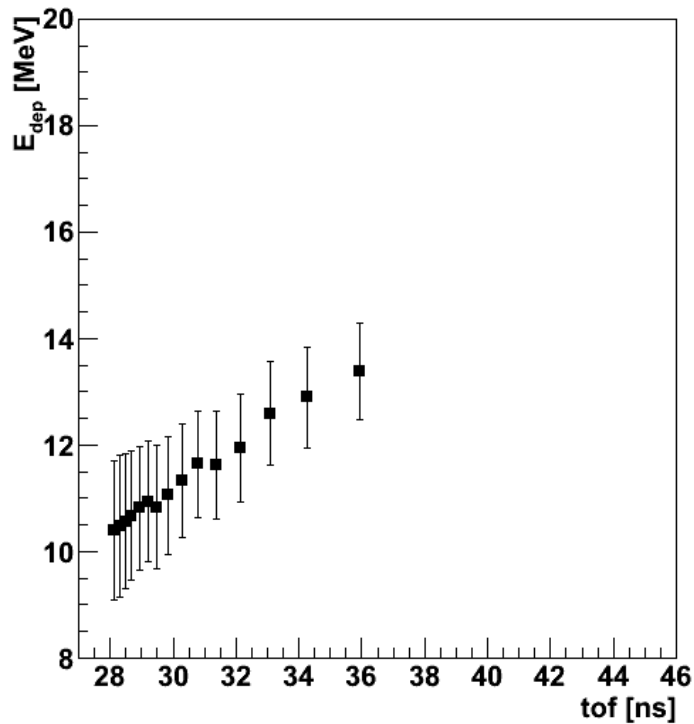
# Proposal for Beam Purity Evaluation

Vassil Verguilov  
DPNC – University of Geneva  
10/11/11

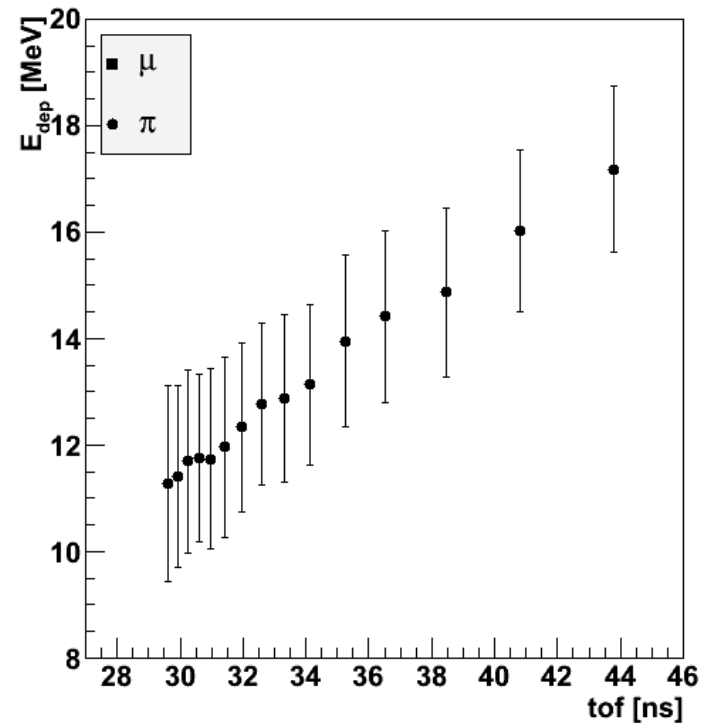
# Concept

The idea is to use  $E_{\text{dep}}$  in TOF and KL (see Mariyan's talk) to determine pion contamination of the beam.

G4MICE



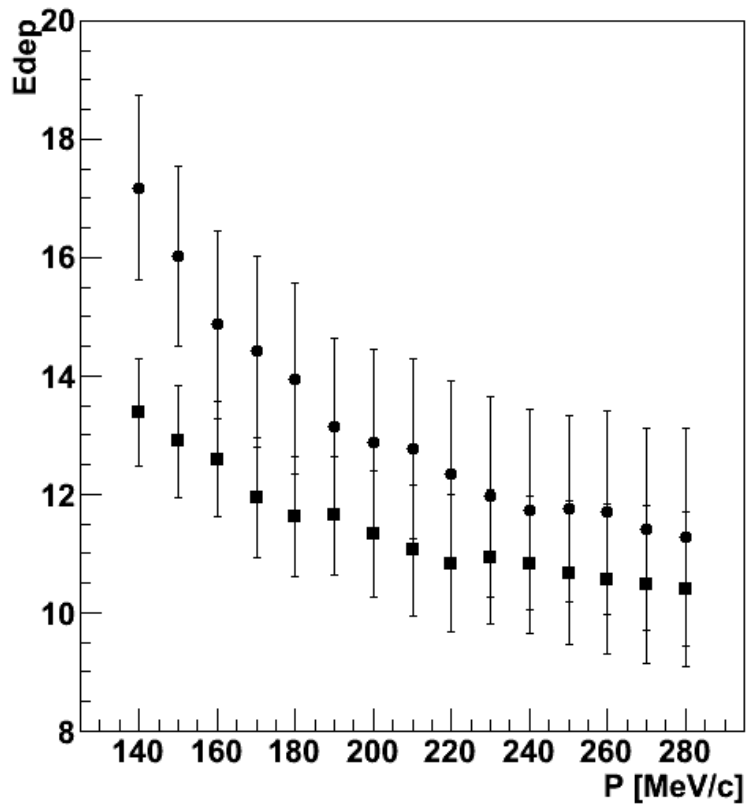
G4MICE



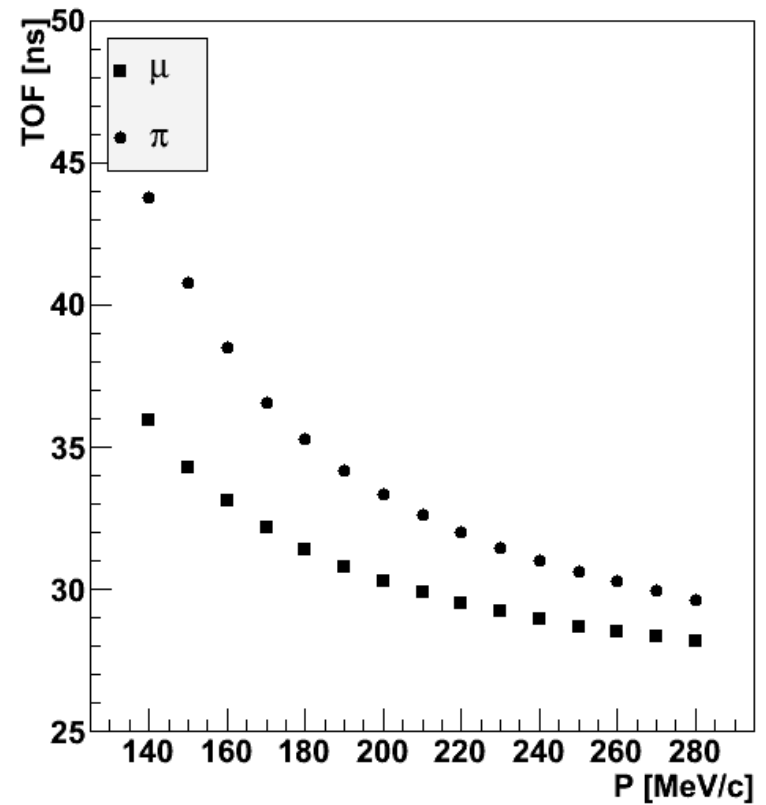
$E_{\text{dep}}$  vs. ToF in TOF (simulation)

# Simulation

G4MICE



G4MICE

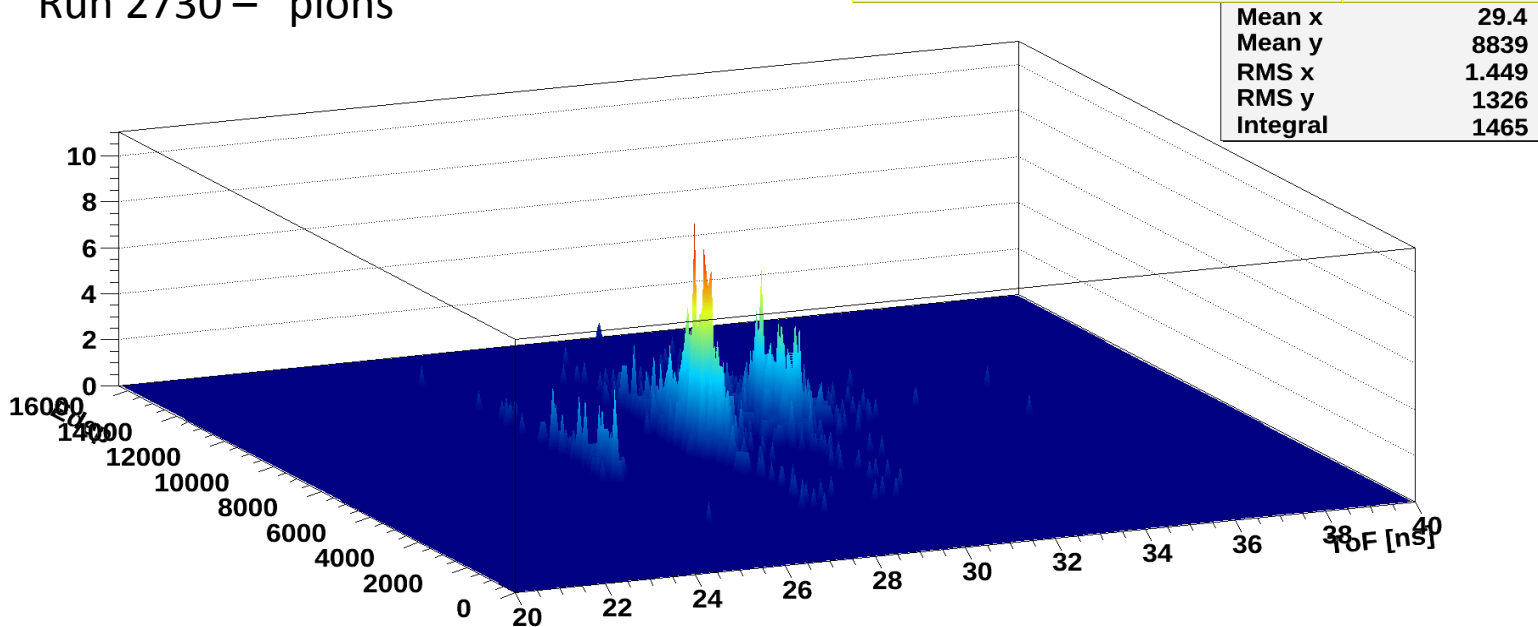
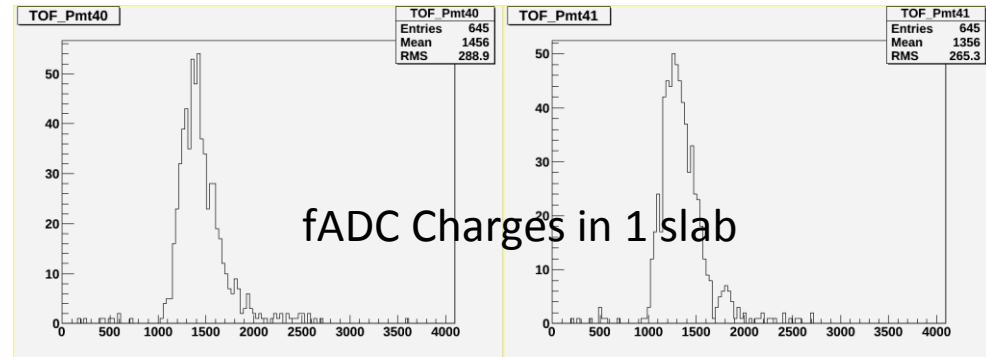


$E_{dep}$  / TOF vs. P in TOF (simulation)

# Analysis

$E_{\text{dep}}$  is estimated as the sum of the 4 fADC charges in 1 TOF pixel

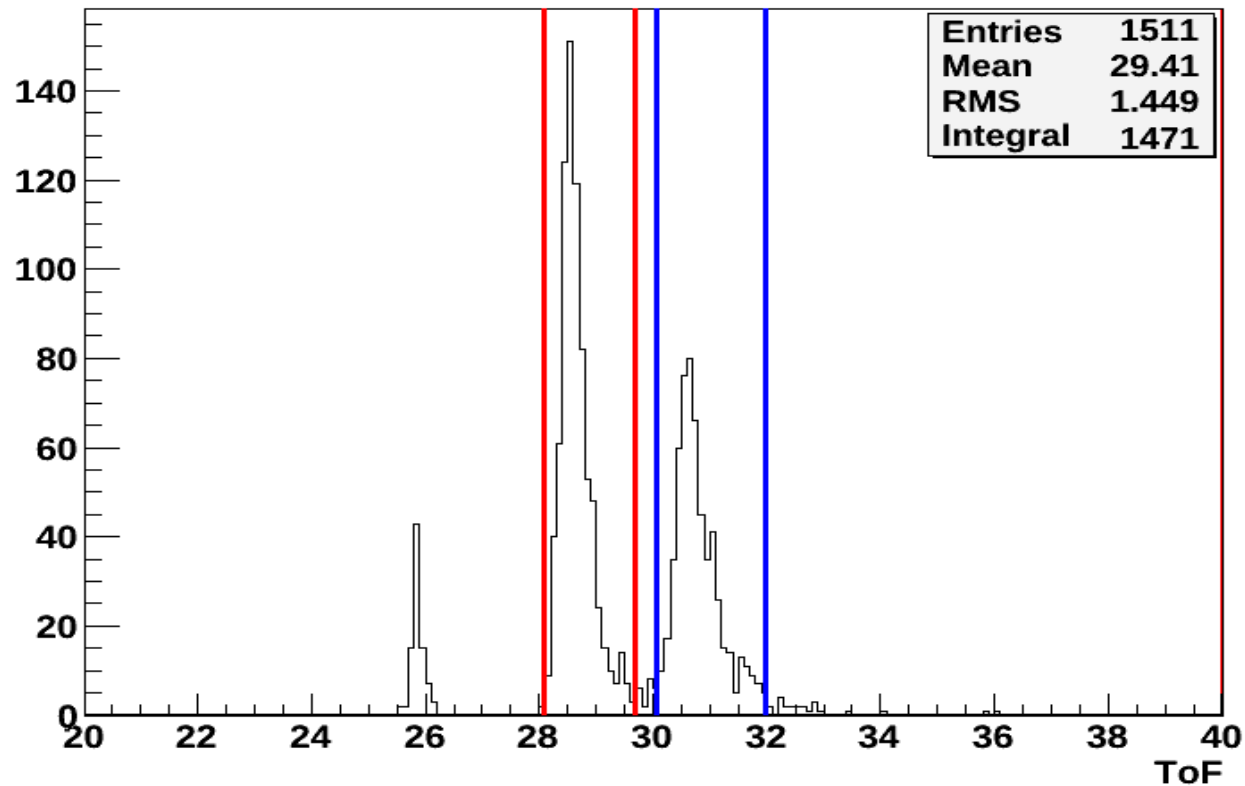
Run 2730 – “pions”



ToF vs. Edep (Sum of the 4 ADCs in pixel 4-2 of TOF0)

# Analysis

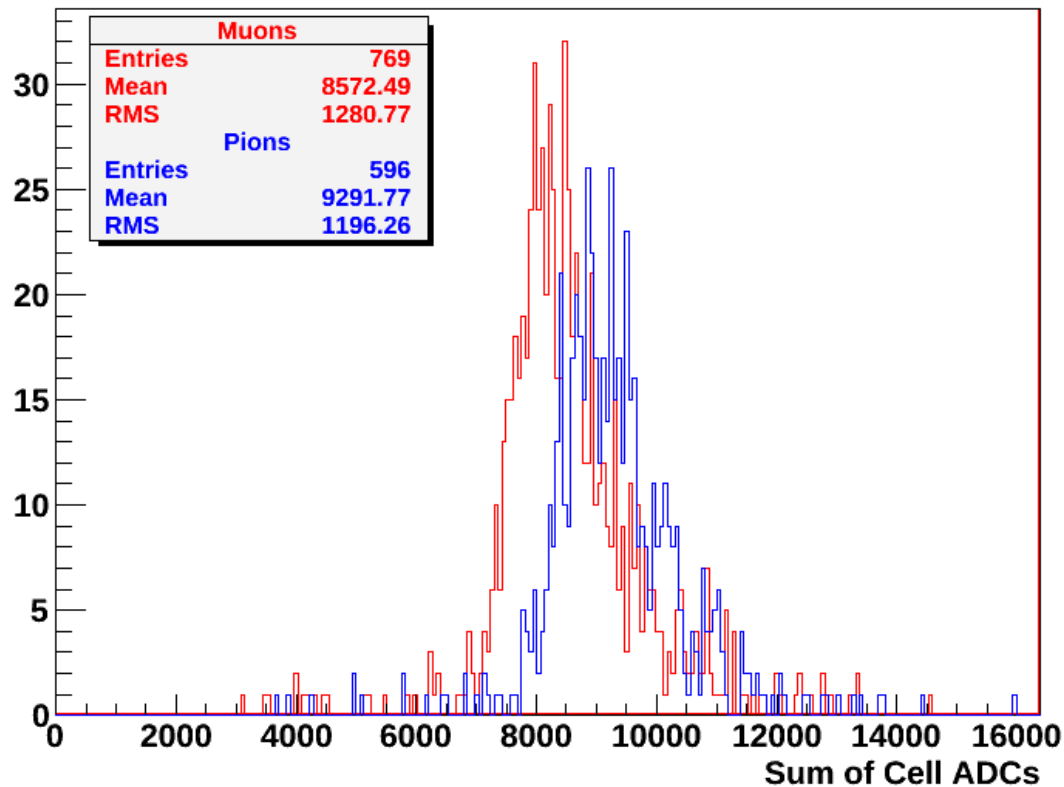
## 1.) Select cuts according to the ToF



Select cuts for pions and muons

# Analysis

2.) Apply the cuts for the  $E_{\text{dep}}$  data



(Charges data is not normalized on this plot!)

# Requirements

- Data taking:
  - “Pion” beam
  - Momentum at (the beginning of) TOF1 (after TOF0):  
100, 132, 174, 230, 304, 402, 450 MeV/c
- Online Reconstruction:
  - ToF vs. Charge Plot: (requires fADC data)