Foreseen results from Dec11 Run

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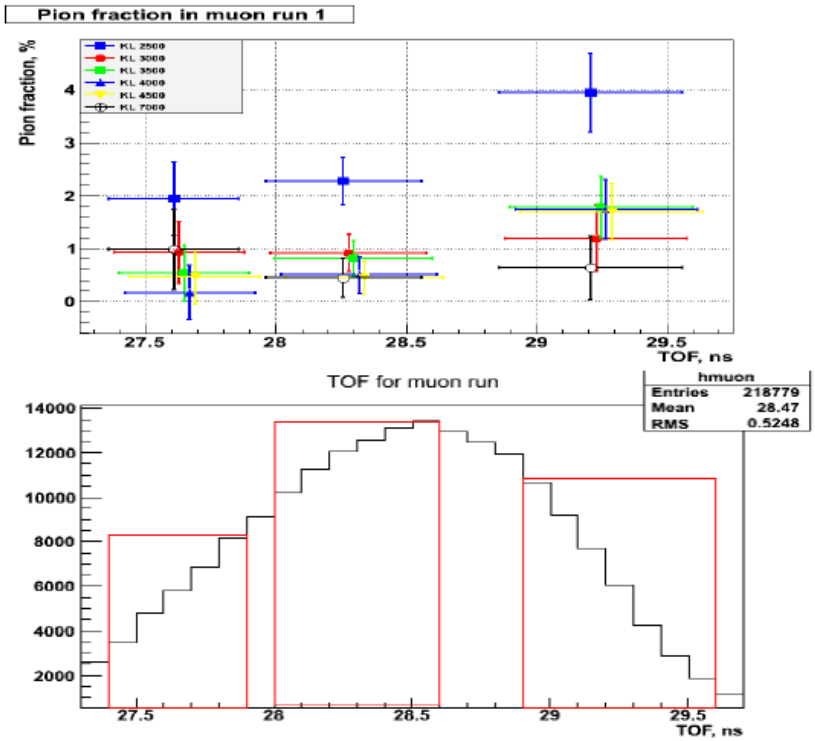
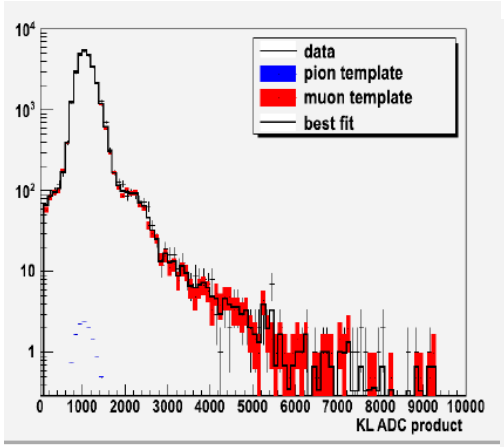
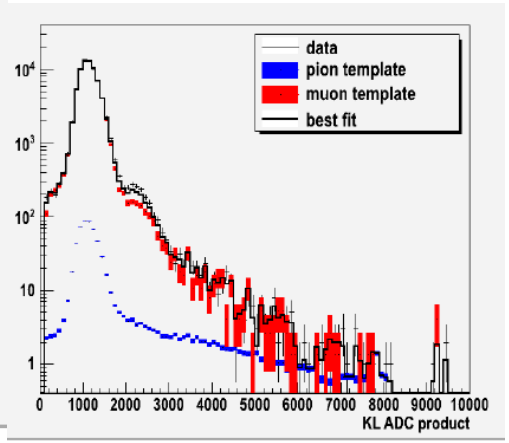
Pion contamination in Muon beam

Nominal ref. muon beam.

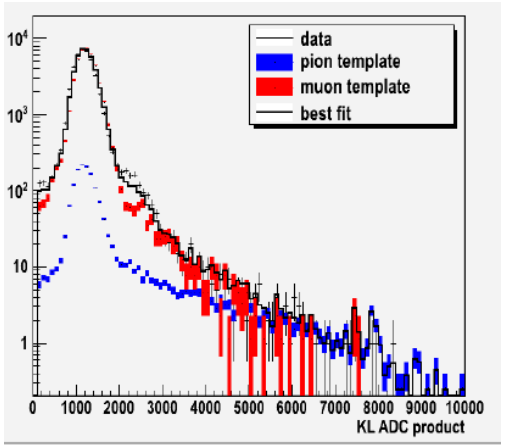




Muon fraction: (100 pm 1) %
Pion fraction: (0 pm 0.5) %



Muon fraction: (99.2 pm 0.6) %
Pion fraction: (0.8 pm 0.3) %

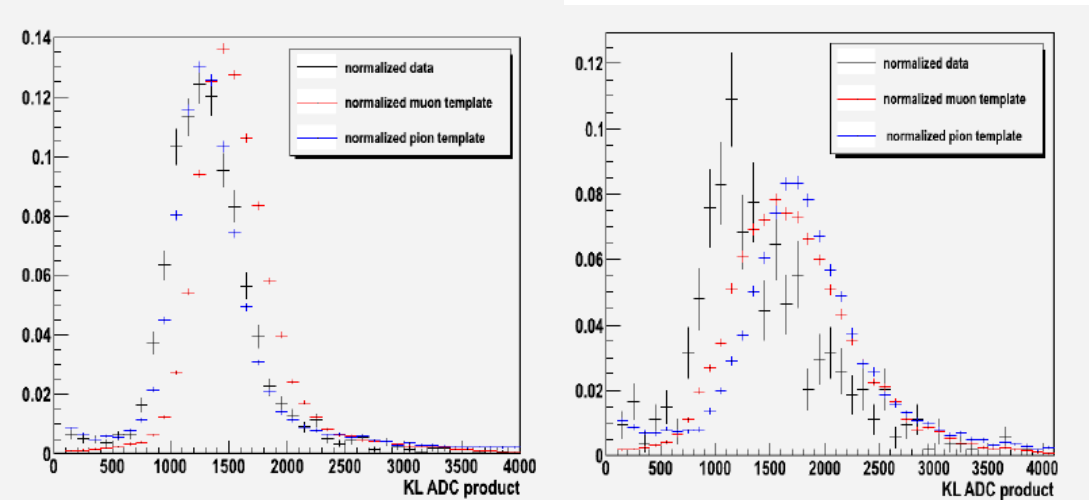


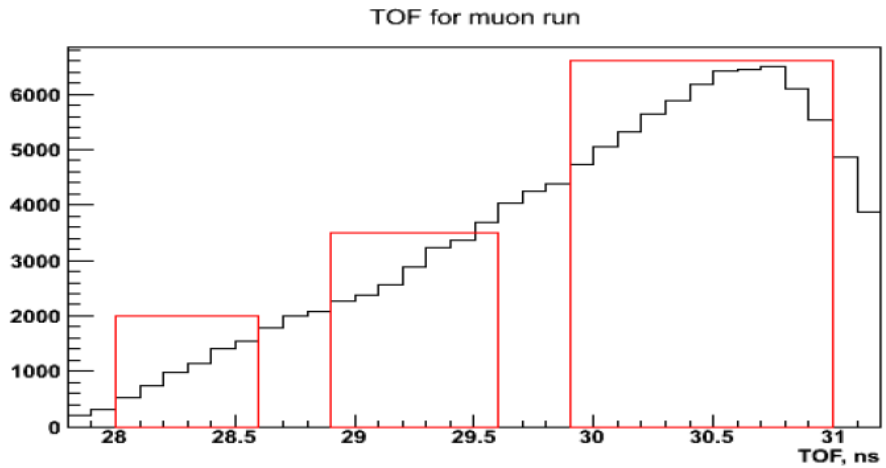
Muon fraction: (96 pm 1) %
Pion fraction: (3.6 pm 0.6) %

The two approaches give similar results for the pion contamination in the Nominal ref. muon beam.

Pion contamination in Muon beam

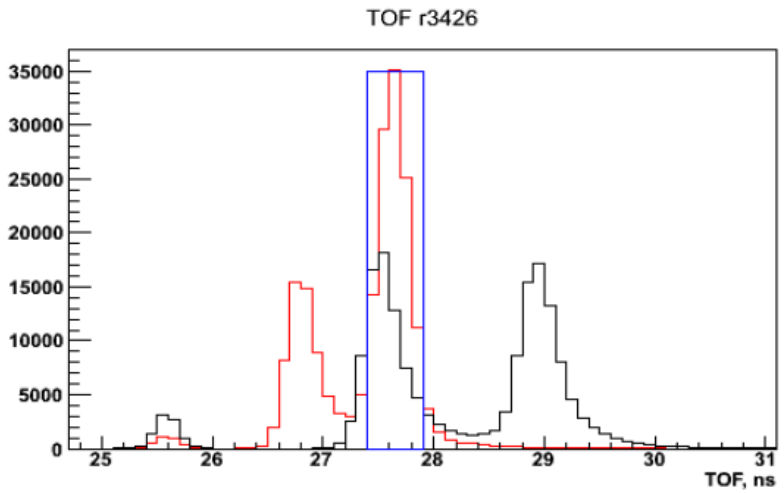
$140 MeV/c$ 6π muon beam.

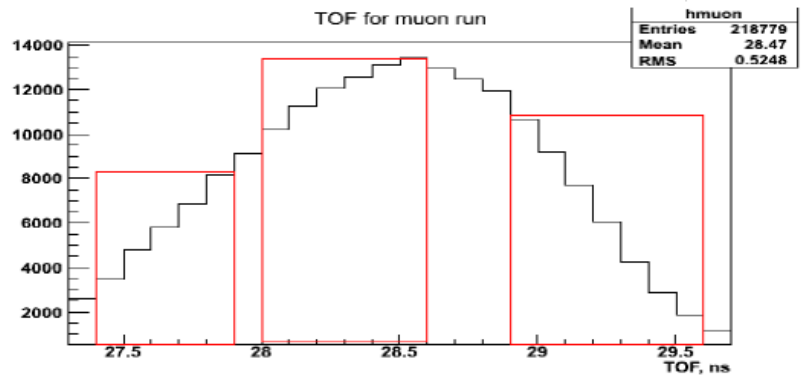




Lack of understanding of the systematic problems at low momentum.

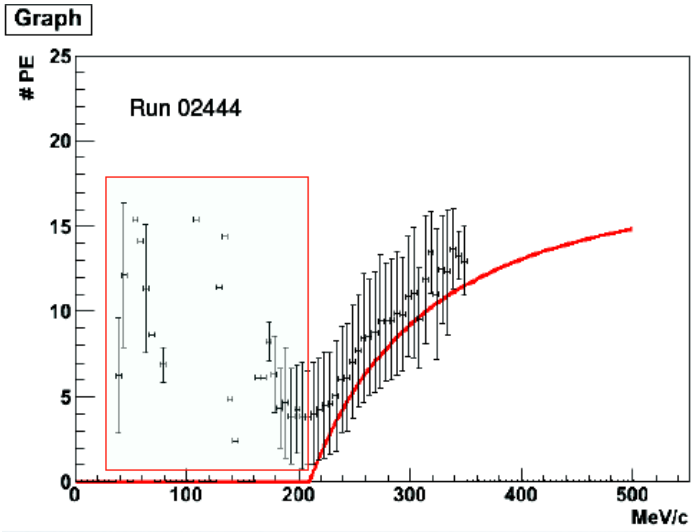
Pion contamination in Muon beam

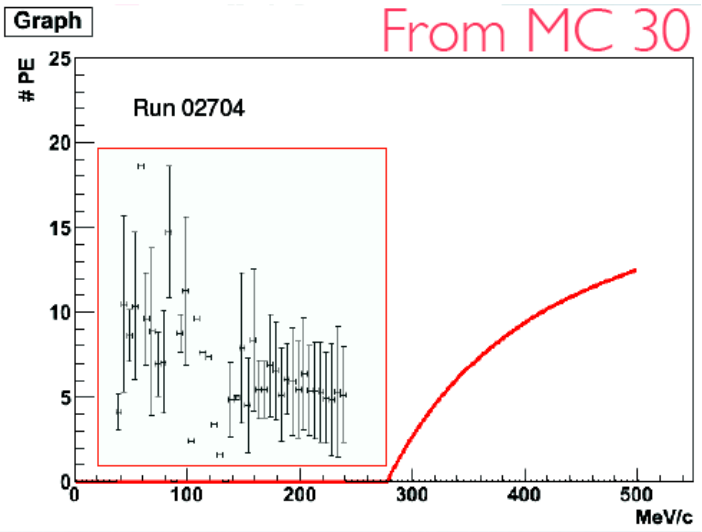


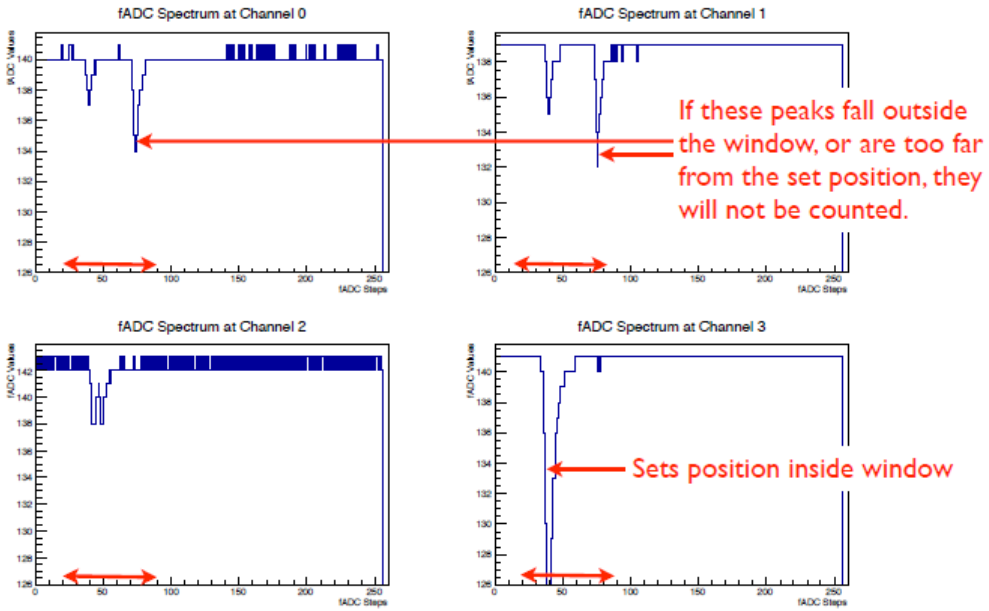


- Different mean momenta in the muon and pion templates and in the muon beam data.
- Try to reweigh the distributions and make them flat.

Prove that the Ckov detector is able to contribute to the pi/mu identification

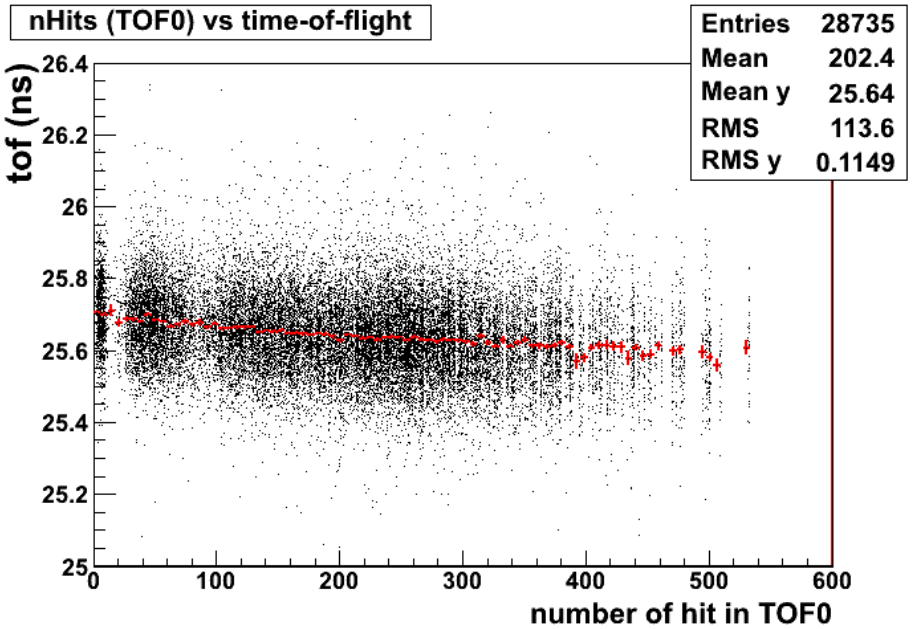


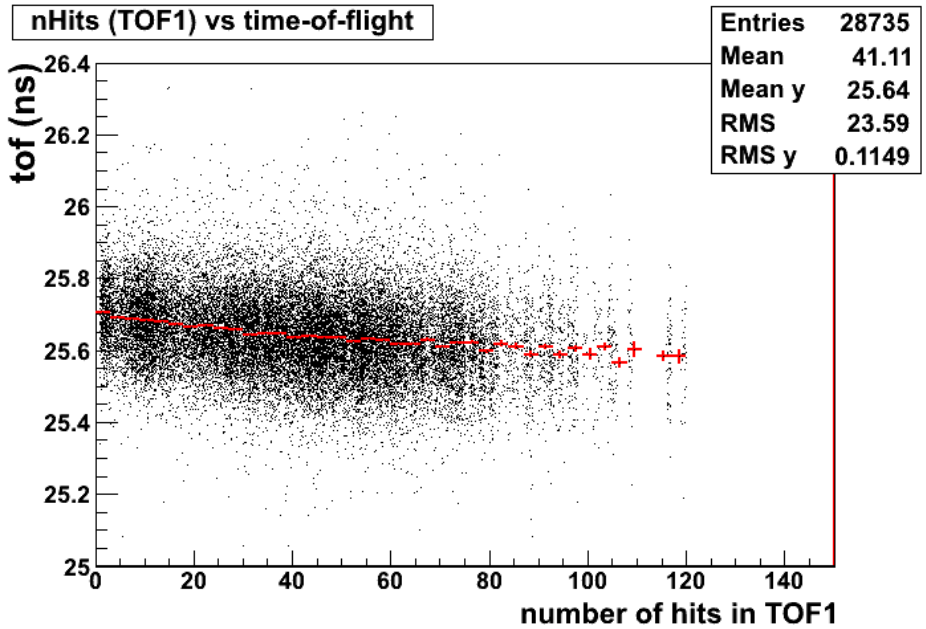




- We hope to see no signal below momenta threshold in the Dec11 data.
- We have to understand the origin of the multiple hits.

e^+e^- puzzle.





- The variation of the number of particle trigger per spill introduces difference in the measured time-of-flight ($\sim 100\ ps$).
- We need to find explanation for this problem and to find the best way to correct the measured time.

Decay Solenoid study

The DS has been run with reversed polarity.

Runs	Description	amount of data
3512, 3513, 3514, 3515, 3516	pi/mu-, nominal, ref., 237 MeV/c at D2; Negative beam polarity; Decay Solenoid is ON.	~5000 target pulses
3537, 3539	pi/mu+, nominal, ref., 237 MeV/c at D2; inverted DS polarity, positive beam polarity; Decay Solenoid is ON.	~2200 target pulses
3545, 3547	pi/mu-, nominal, ref., 237 MeV/c at D2; inverted DS polarity, negative beam polarity; Decay Solenoid is ON.	~2500 target pulses

- Does this affect the number of good muons we get?
- Does this affect the time-of-flight of the electrons/positrons?

Volunteer is needed for this analysis.