Gural Aydin – 05/04/06

Searching for Elastic Scattering at 59 GeV

The Selected Events are required to have:
- Only one beam track and only one reconstructed track.
- Both of them are same particle (pion-pion, kaon-kaon, proton-proton, all positive 59GeV).

Today we show:
- The angle distributions of these events for targets (Be and LH) and empty runs.
- Angle cut selection to extract the background
- Total and transverse momentum of particles with polar angles higher than the cut.

Pion - Scattering:

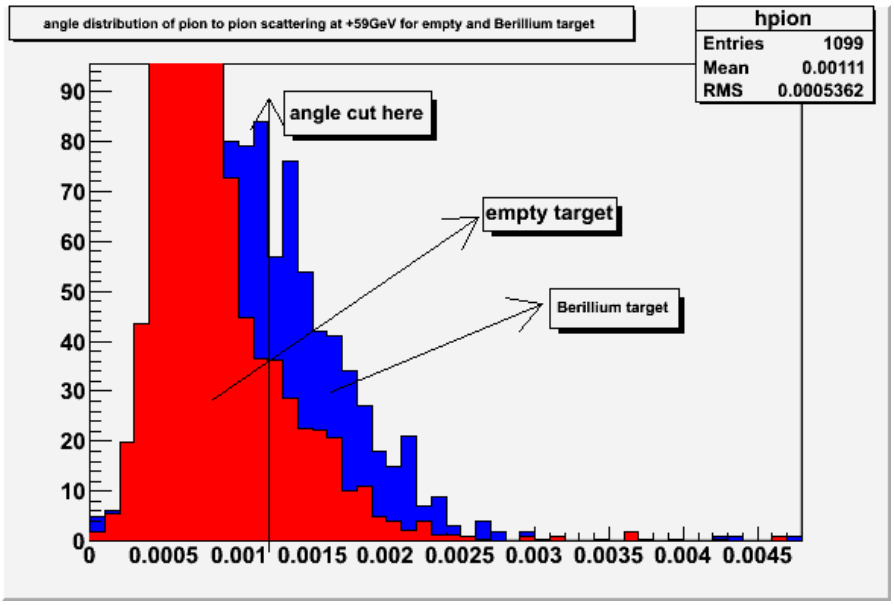

Fig1: Angle distribution of pions at 59 GeV for Be target.

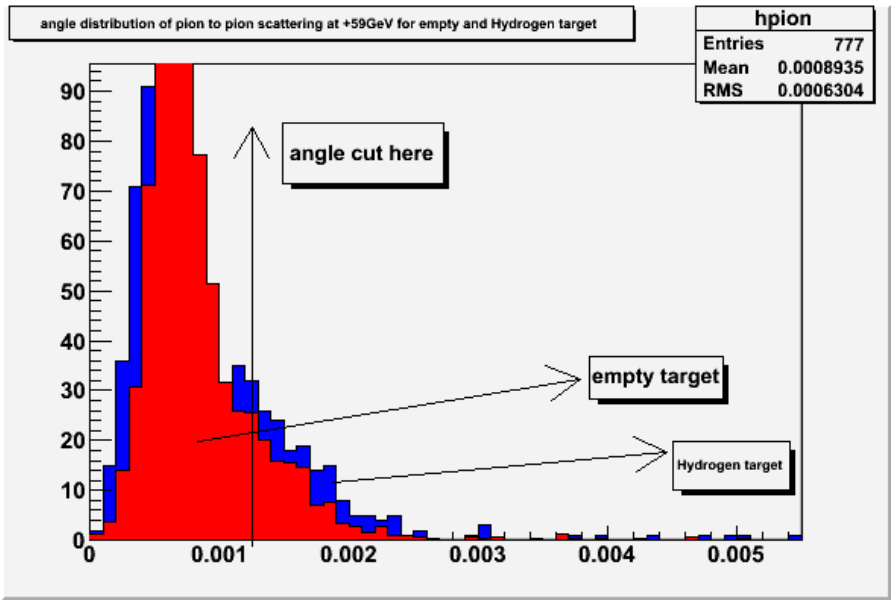

Fig 2: Angle distributions of pions at Liquid Hydrogen target.

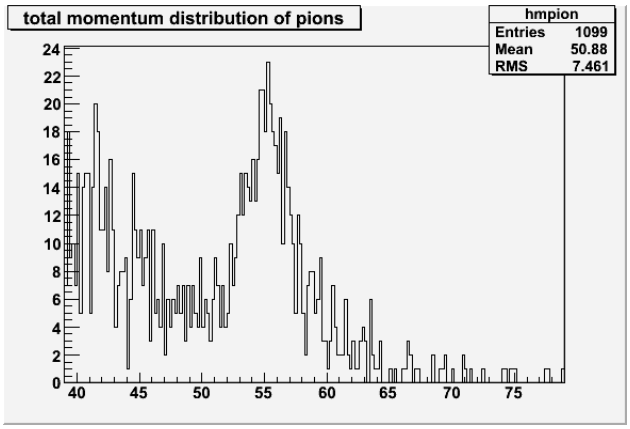

Fig 3: Total momentum distribution of pions before angle cut at Be target.

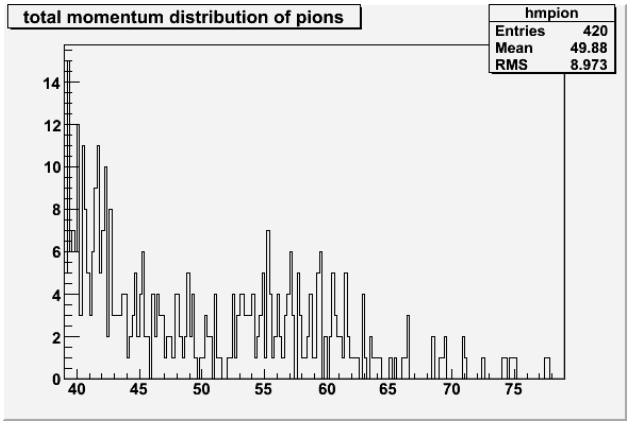

Fig 4: Total momentum distributions of pions after cut at Be target.

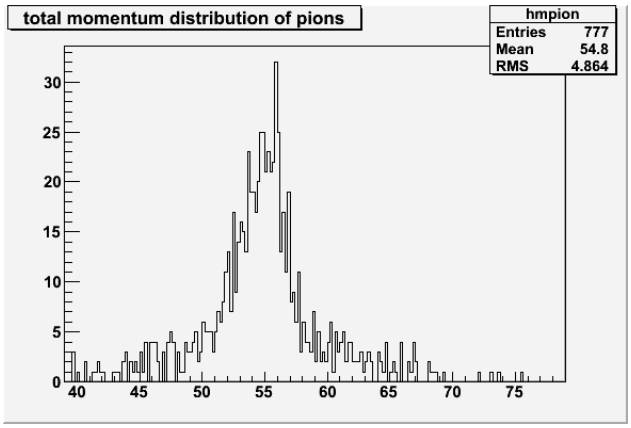

Fig 5: Total momentum distribution of pions before cut at LH target.

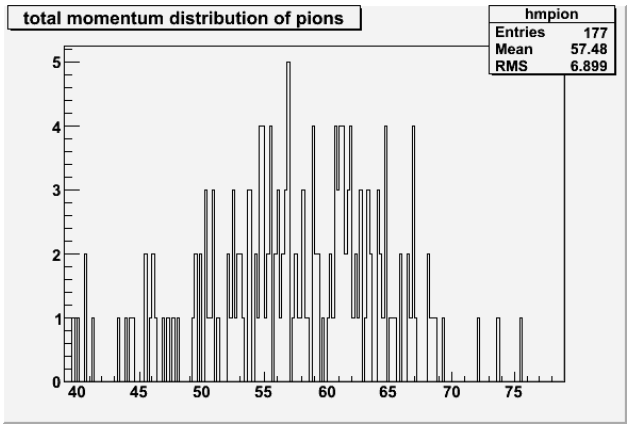

Fig 6: Total momentum distribution of pions after cut at LH target.

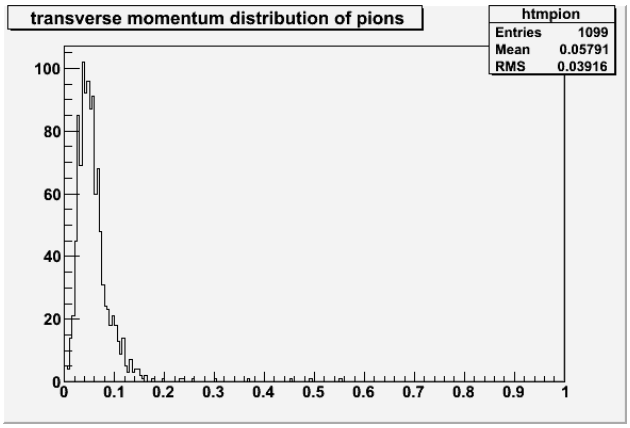

Fig 7: Transverse momentum distributions of pions before cut at Be target.

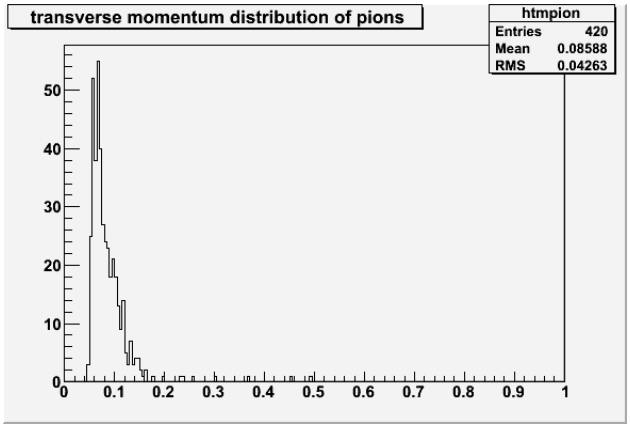

Fig 8: Transverse momentum distributions of pions after cut at Be target..

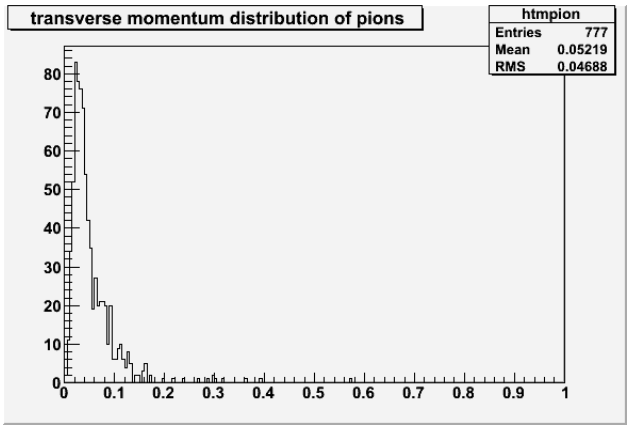

Fig 9: Transverse momentum distribution of pions before cut at LH target.

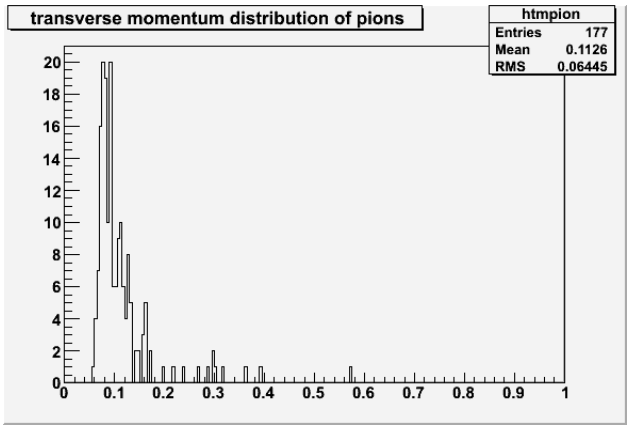

Fig 10: Transverse momentum of pions after cut at LH target.

Kaon - scattering:

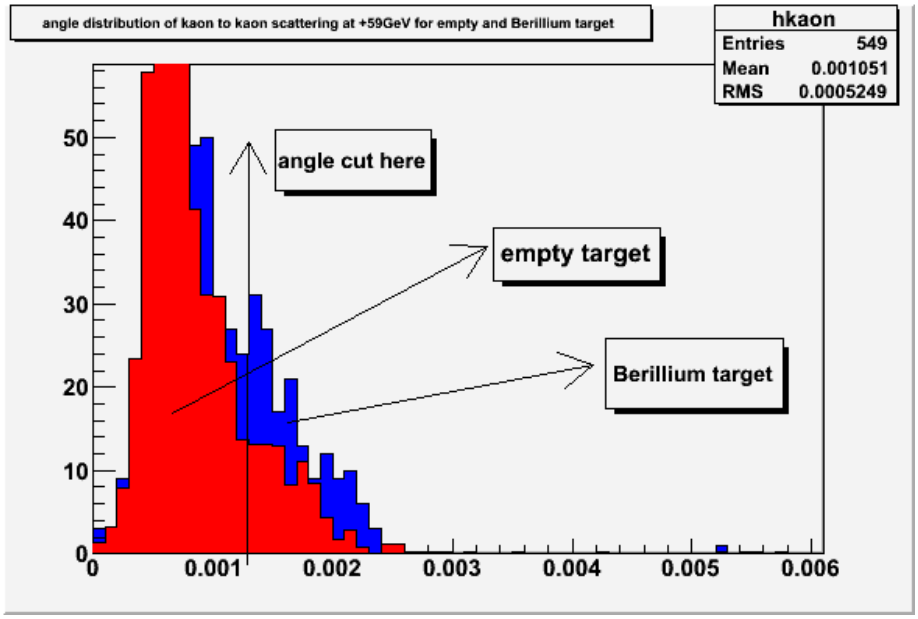

Fig 11: Angle distribution of kaons at Beryllium target(x axis shows angle as rad).

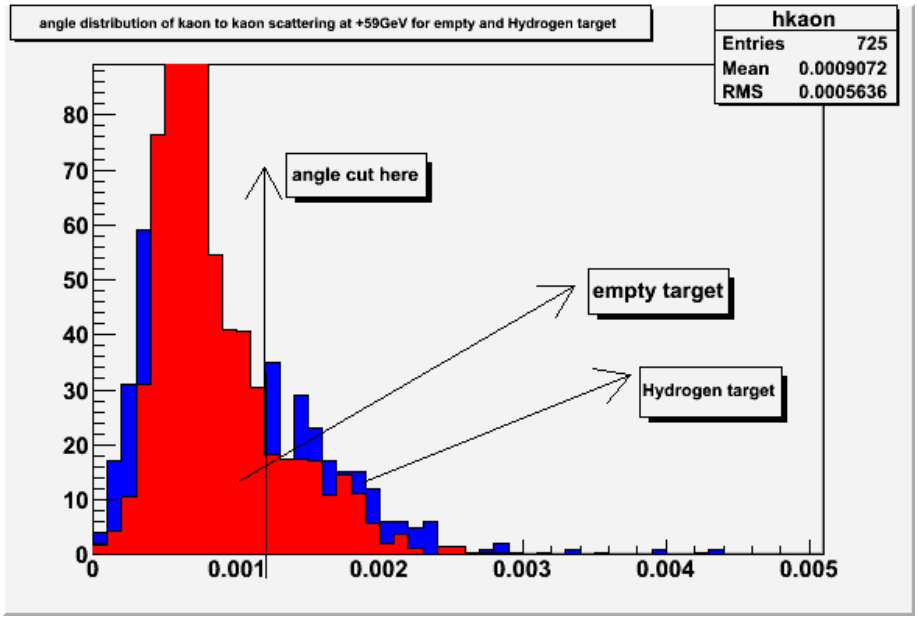

Fig 12: Angle distribution of kaons at Liquid Hydrogen target(x axis shows angle as rad).

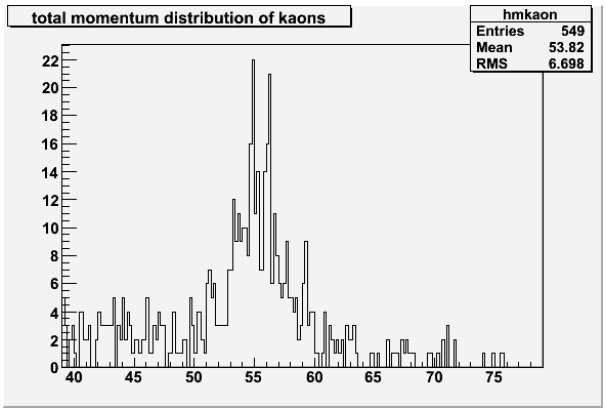

Fig 13: Total momentum distributions of kaons before cut at Be target.

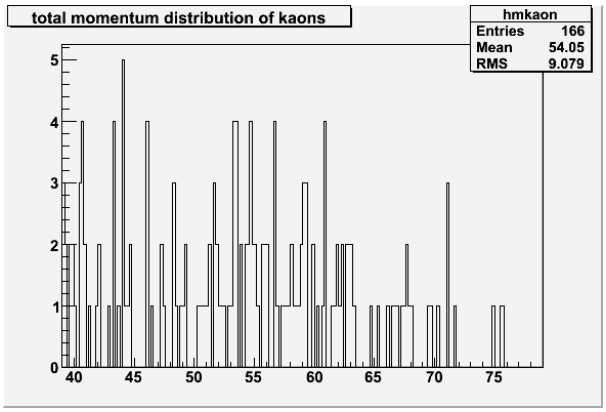

Fig 14: Total momentum distributions of kaons after cut at Be target.

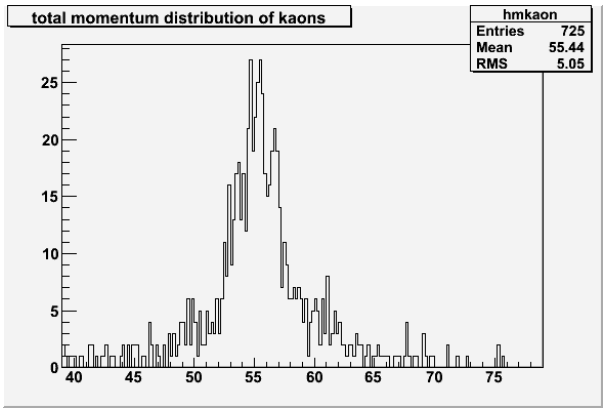

Fig 15: Total momentum distribution of kaons before cut at LH target.

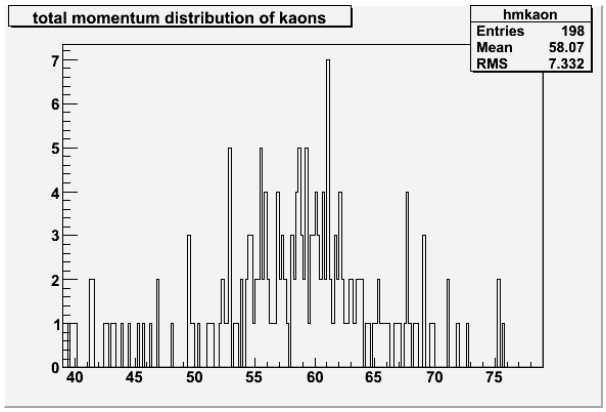

Fig 16: Total momentum distribution of kaons after cut at LH target.

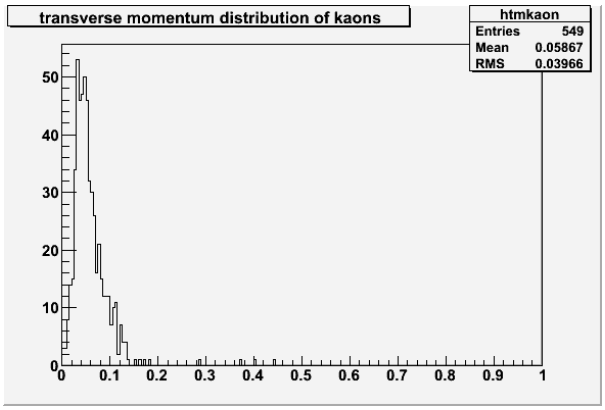

Fig 17: Transverse momentum distribution of kaons before cut at Be target.

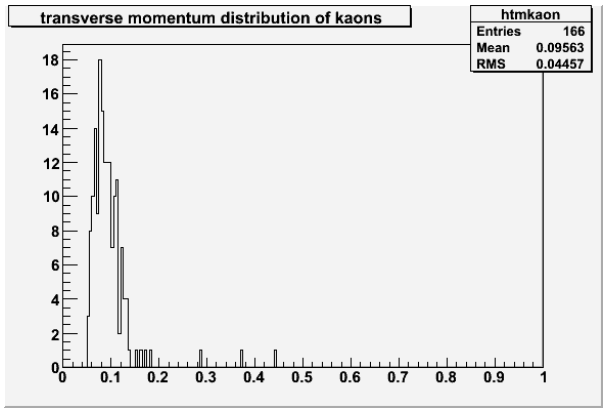

Fig 18: Transverse momentum distribution of kaons after cut at Be target.

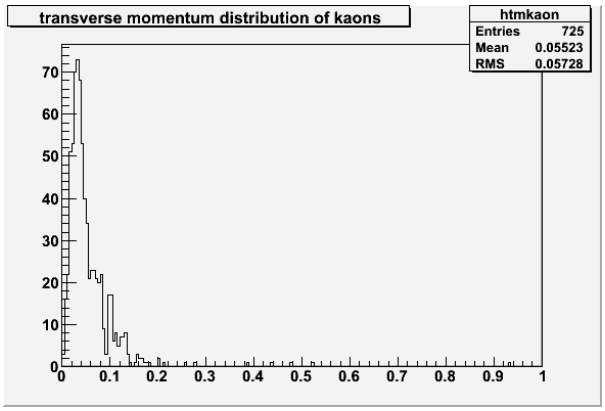

Fig 19: Transverse momentum distribution of kaons before cut at LH target.

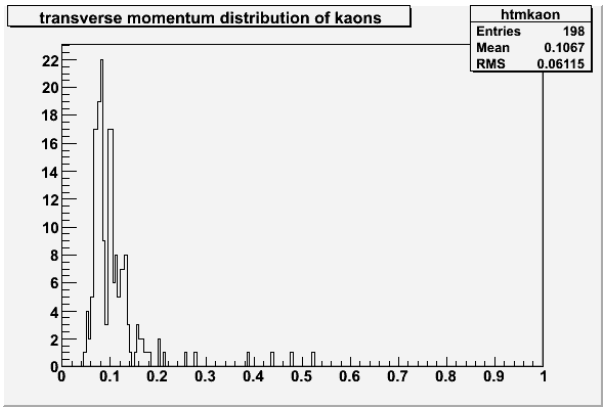

Fig 20: Transverse momentum distribution of kaons after cut at LH target.

Proton - scattering:

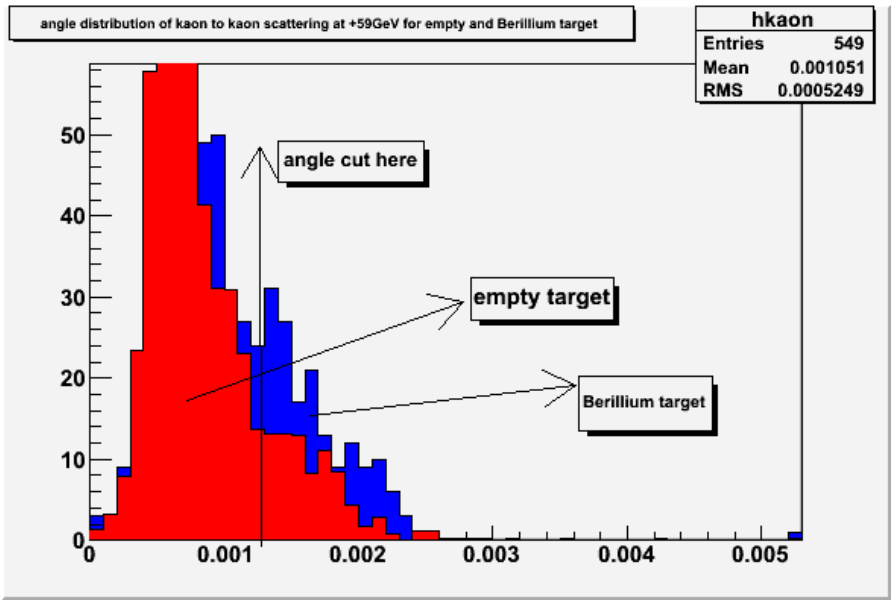

Fig 21: Angle distribution of protons at Beryllium target(x axis shows angle as rad).

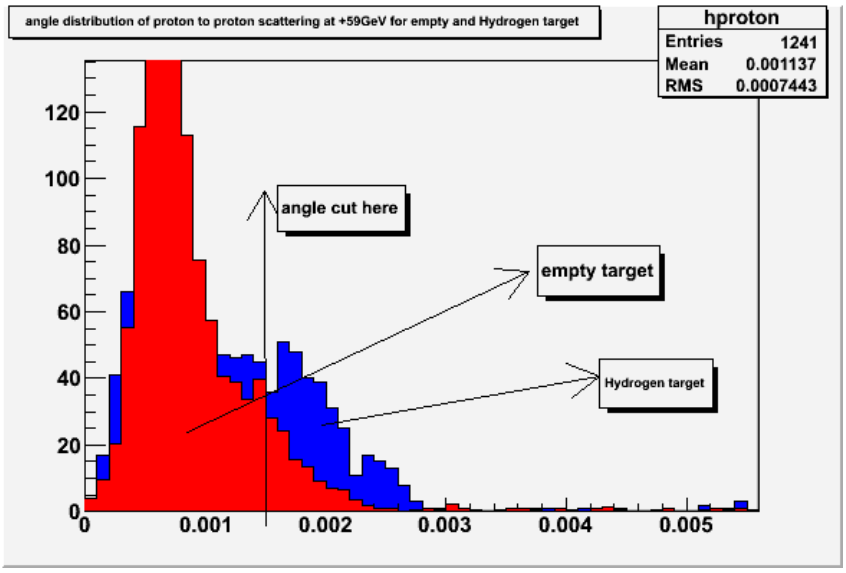

Fig 22: Angle distribution of protons at Liquid Hydrogen target.

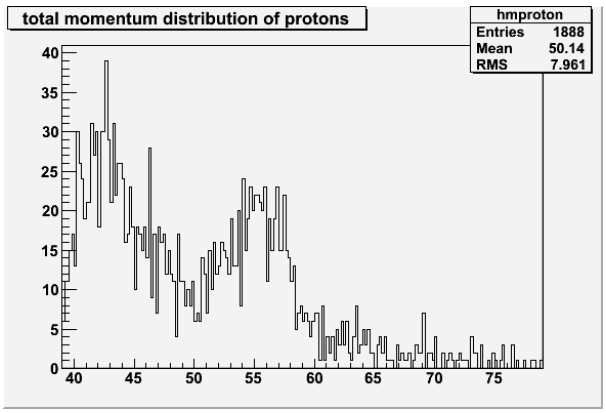

Fig 19: Total momentum distribution of protons before cut at Be target.

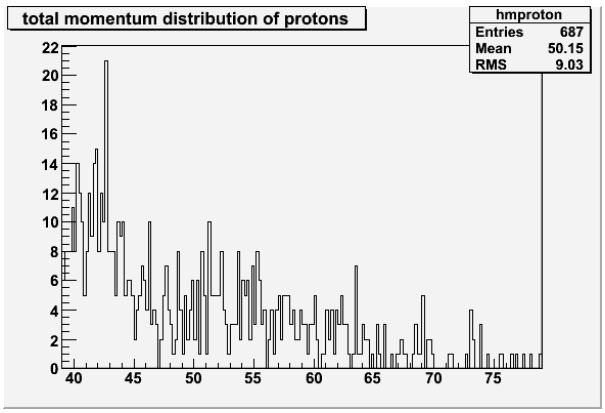

Fig 20: Total momentum distribution of protons after cut at Be target.

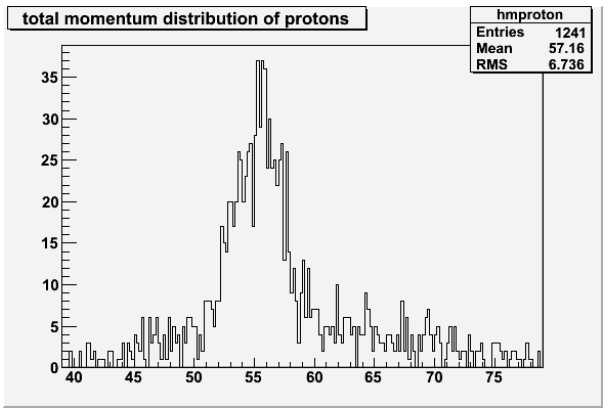

Fig 21: Total momentum distribution of protons before cut at LH target.

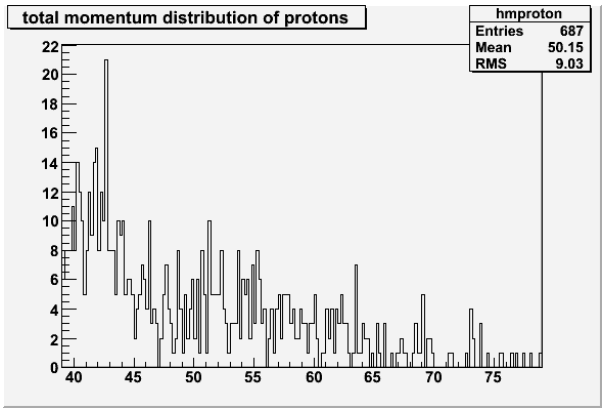

Fig 22: Total momentum distribution of protons after cut at LH target.

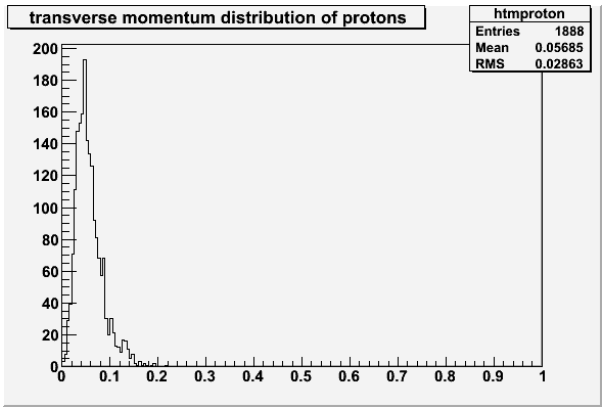

Fig 23: Transverse momentum distribution of protons before cut at Be target.

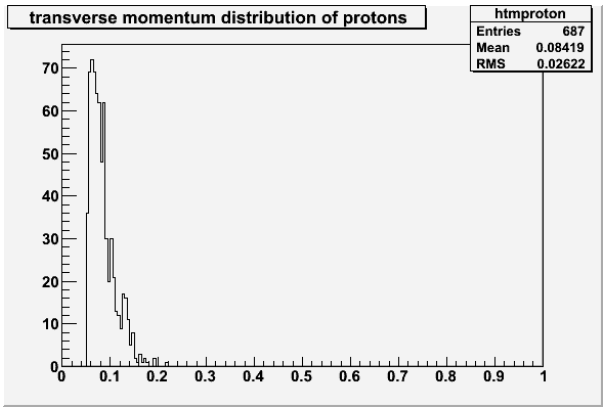

Fig 24: Transverse momentum distribution of protons after cut at Be target.

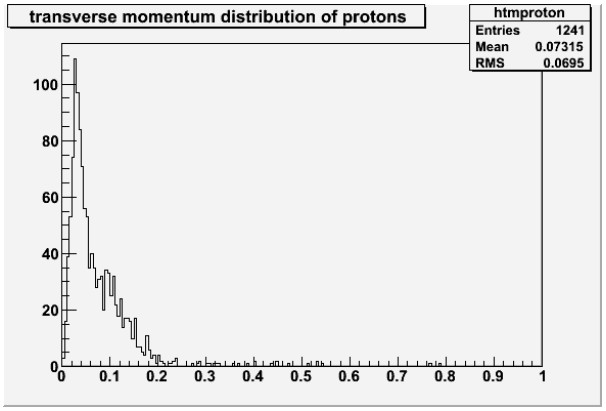

Fig 25: Transverse momentum distribution of protons before cut at LH target.

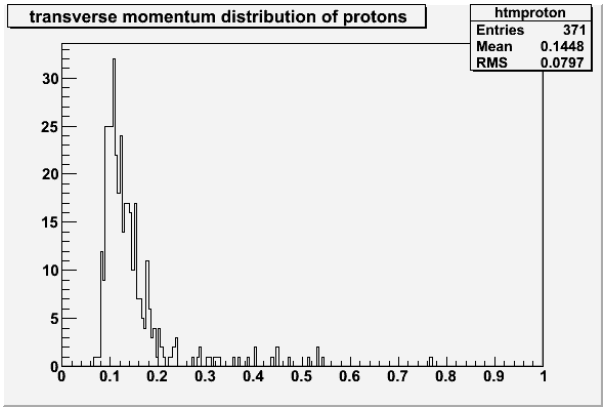

Fig 26: Transverse momentum distribution of protons after cut at LH target.

Conclusion:

We are searching for elastically scattered pion, kaon, and protons from different targets at 59 GeV. Since we only used the particle ID from RICH, we are limited in acceptance angle. We do not see a substantial number of tracks scattered in this angle. With increased particle ID from time of flight we hope to have more.