

HRS Status and Tasks

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Transversity Collaboration Meeting

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Kinematics for E06-010/E06-011

$E_e = 6$ GeV, Pion

$E_{e'}$	$\theta_{e'}$	x	W	Q^2	θ_q	y	$\frac{1-y}{1-y+\frac{y^2}{2}}$	P_π	θ_π	z	P_\perp
-0.815	-30.0	0.135	3.050	1.310	4.40	0.864	0.267	± 2.40	16.0	0.464	0.483
-1.246	-30.0	0.225	2.793	2.003	7.22	0.792	0.398	± 2.40	16.0	0.506	0.367
-1.612	-30.0	0.315	2.554	2.592	9.93	0.731	0.501	± 2.40	16.0	0.548	0.254
-1.925	-30.0	0.405	2.331	3.095	12.52	0.679	0.582	± 2.40	16.0	0.590	0.146

(Kaon: $z/W' = 0.473/2.122, 0.515/1.918, 0.558/1.725, 0.601/1.541$)

Two spectrometer setting for all kinematics!

HRS: $P_0 = -2.4$ GeV, $\theta_0 = 16.0^\circ$ (E06-010)

HRS: $P_0 = +2.4$ GeV, $\theta_0 = 16.0^\circ$ (E06-011)

HRS PID Detectors

Singles: π^- 1.01k; K^+ 0.05k; e^- 0.17k; π^+ 1.69k; K^+ 0.34k; p 0.96k; e^+ 0.00k

- **Scintillators:** $\pi^\pm(K^\pm)/p$ separation with TOF (7σ with resolution of 0.85 ns)

- **Pion Rejector:** $\pi^\pm(K^\pm)/e^\pm$ separation

- **RICH:** π^\pm/K^\pm separation \longrightarrow need to be upgraded to achieve the rejection factor greater than 1000.

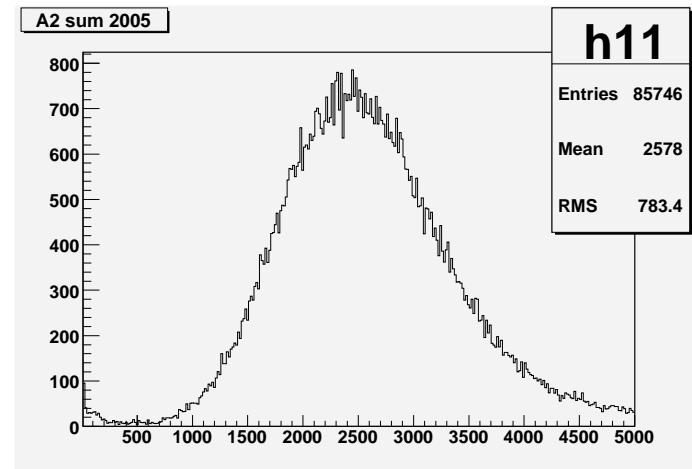
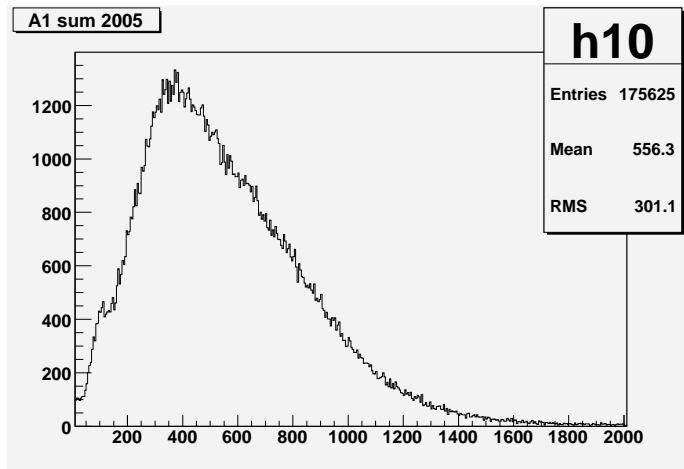
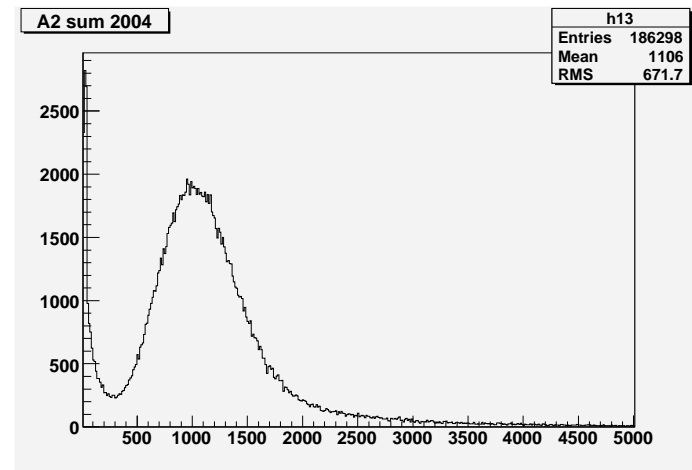
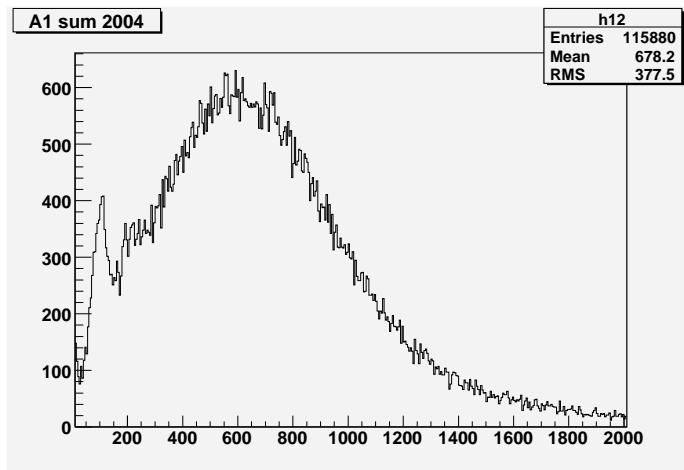
a different kind of Freon (C_5F_{12} with $n=1.24$) and larger gap of 15.5 cm, \$20+k.

Alternatively, one can may **pressureized gas Cherenkov detector** \longrightarrow under construction for Pentaquark experiment, $\sim 50k$

- **Aerogel Detectors A1($n=1.015$) and A2($n=1.055$):** additional π^\pm/K^\pm and $\pi^\pm(K^\pm)/p$ separation \longrightarrow used in the summer of 2005 and re-building might be necessary.

A1/A2 Performance in 2004/2005

From Pete Markowitz, FIU



Both A1/A2 were rebuilt right before the summer of 2005.

On A1/A2 Re-building

From Pete Markowitz, FIU

- New aerogel tiles: biggest worry.
- 4-6 month leadtime:
For each detector, it takes about a month to rebuild for 2 people working full time.

The detectors should better be tested about 6 months before the experiment.