Analisi preliminare dei dati ottenuti tramite il rivelatore RiCH





Cherenkov Angle: Angle between Incident Particle and Cherenkov Photon directions



Unambiguous Kaon identification required by several experiments from Hypernuclear Spectroscopy to SIDIS physics

Proximity Focusing RICH at JLab

Radiator15 mm thick Liquid Freon (C_6F_{14} , n=1.28)Proximity gap175 mm, filled with Methane at STPPhoton converter300 nm CsI film evaporated on each pad planePosition detector5 x pad plane = 2015 x 646 mm²Multi Wire/Pad Proportional Chamber, HV= 1050-1100 VPad Plane403.2 x 640 mm² (single pad: 8.4 x 8 mm²)FE Electronics19200 analog chs, multiplexed S&H (Gassiplex)Evaporation Fac. Cyl. vacuum chamber on site.









Segnale in differenti zone del Pad Plane





Segnale al variare del numero di Hit



Segnale durante lo stesso Run



Study of the Signal



Comparison during the same Run Correlation coeff. = 0.998

RICH - Stability Check (E. Cisbani)



-Average pion angle pretty stable within sigma: average value consistent with n=1.2865 -Freon quality improved after standby



Proximity RICH / Preliminary Performance (E. Cisbani)

Mean number of PhotoElectrons for π : N_{PE} ~ 9 Error in angle reconstruction: $\sigma_{\vartheta\pi}$ ~7 mr

Hadron identification technique by using coincidence time (preliminary, reduced stats)





CONCLUSIONS:

-RICH operation in transversity experiment seems stable (work in progress)
-Good hadron identification using RICH + TOF
+ Cherenkov counters
-RICH is a complex detector and data analysis is still in progress