

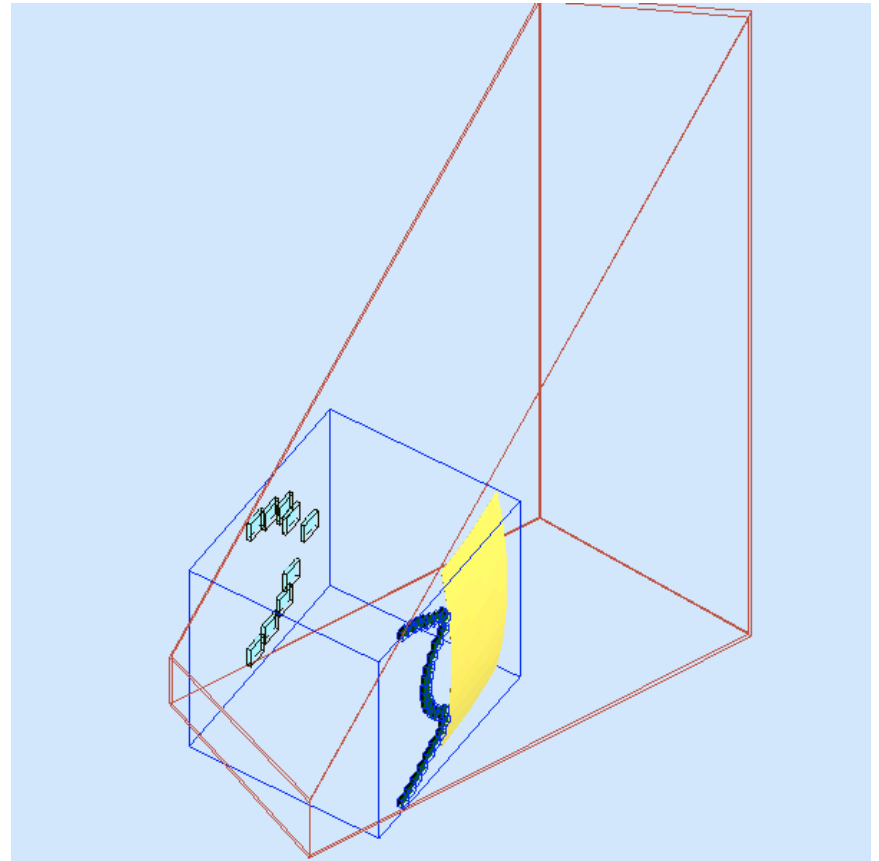
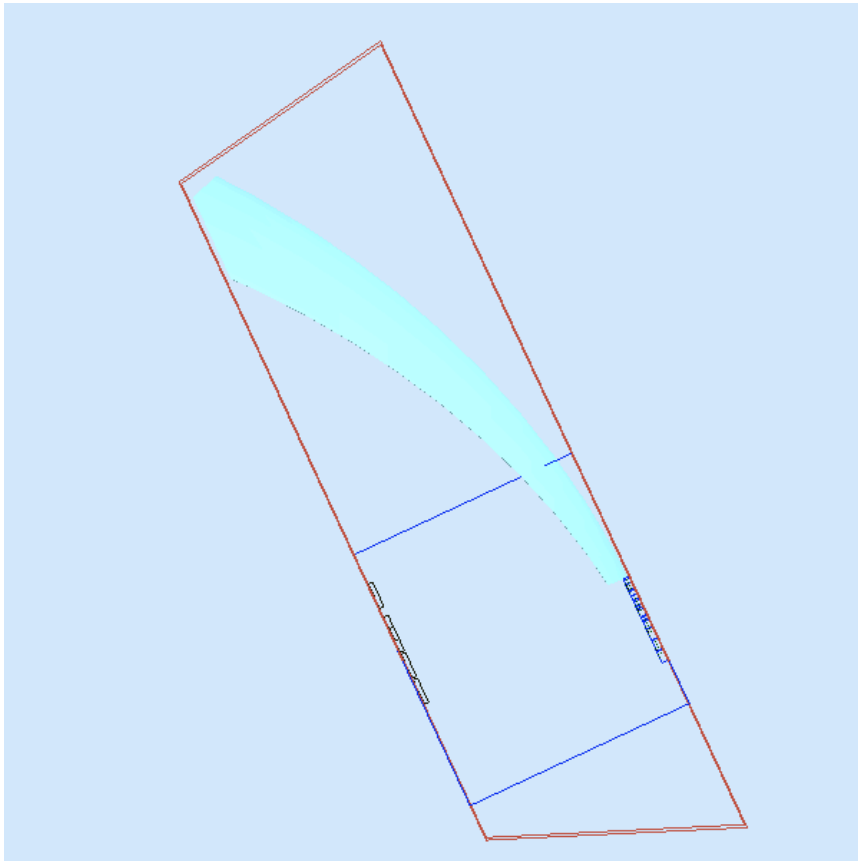
RICH GEMC SIMULATIONS

Contalbrigo Marco & Luciano Pappalardo
& Luca Barion
INFN Ferrara

Rich Meeting, 30 March 2012

LH performances in 2D

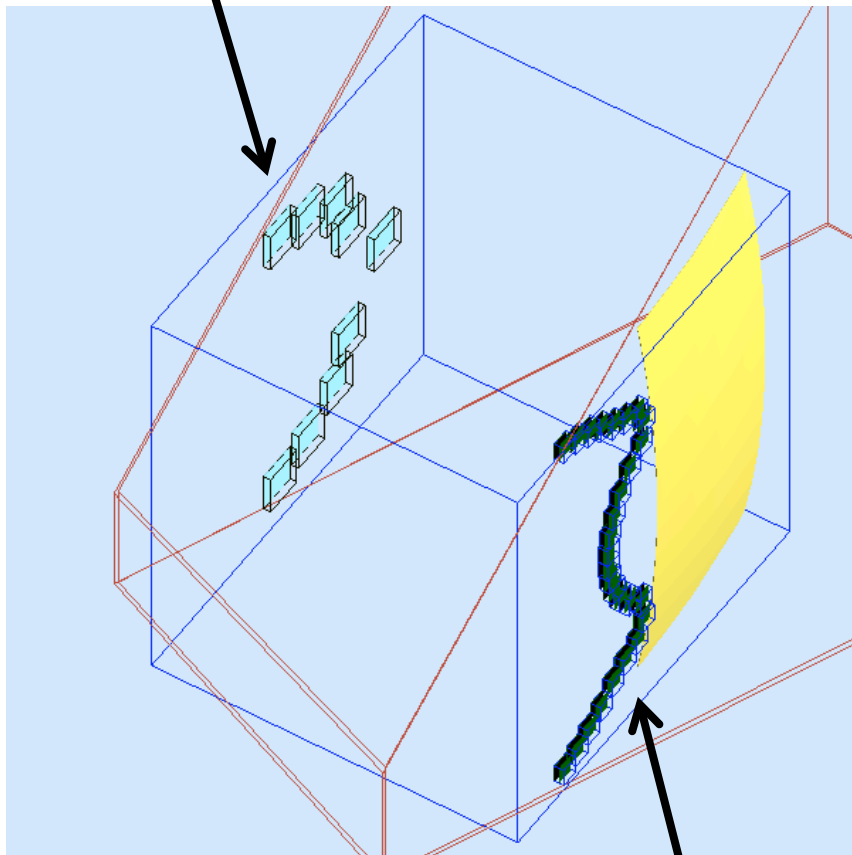
Geometry as close as possible to the CLAS12 RICH design



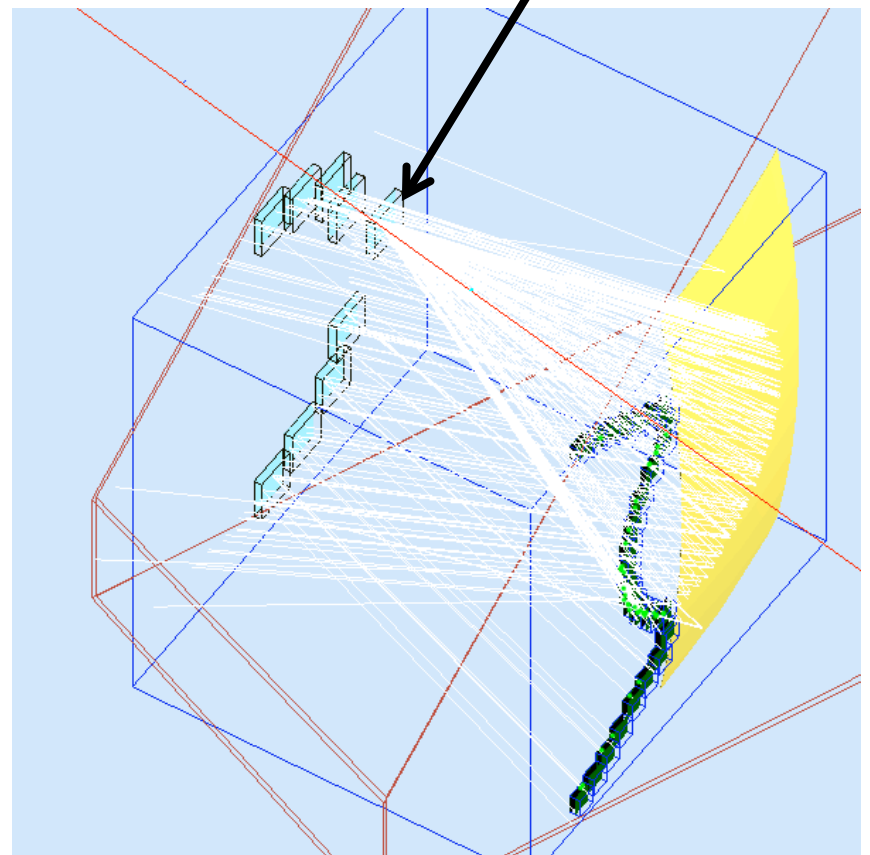
Same gap
Same mirror (portion of)

LH performances in 2D

8 Plane mirror + aerogel sandwiches



1 thick radiator



28 MA-PMTs

LH response at 6 GeV/c 14°

30 % photon hits from reflect light

If ~ 12 Np.e. for full direct ring

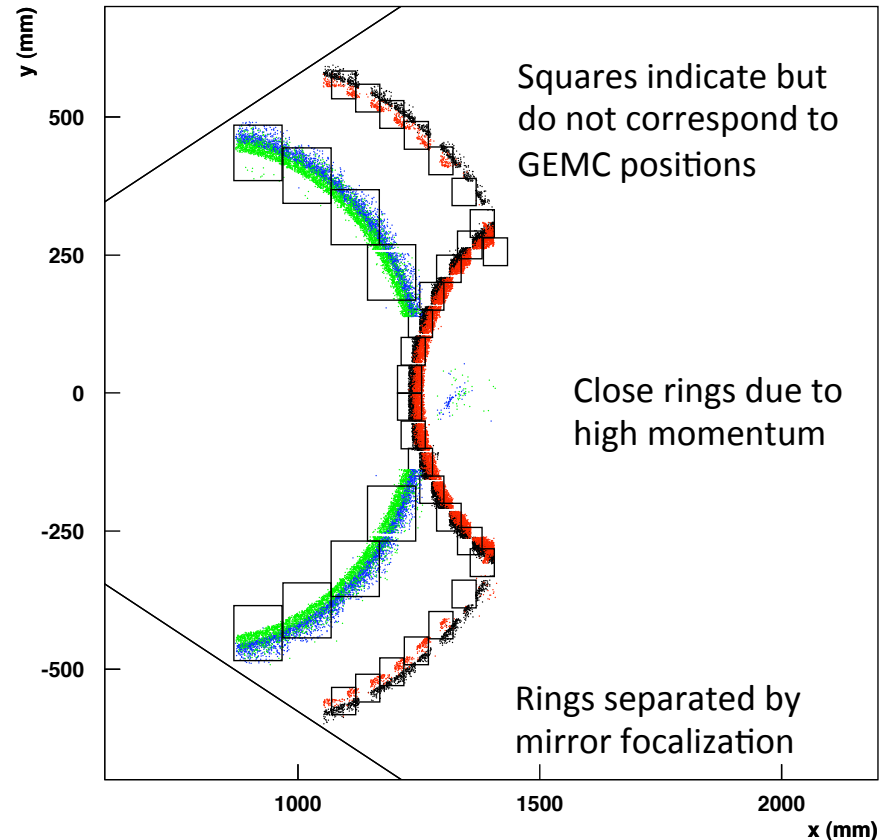
~ 2 hits for reflected light

Enough to see the ring,
but to measure efficiency ?

Potential conflict:

Thick radiator spoil direct ring

Thin radiator spoil reflected ring



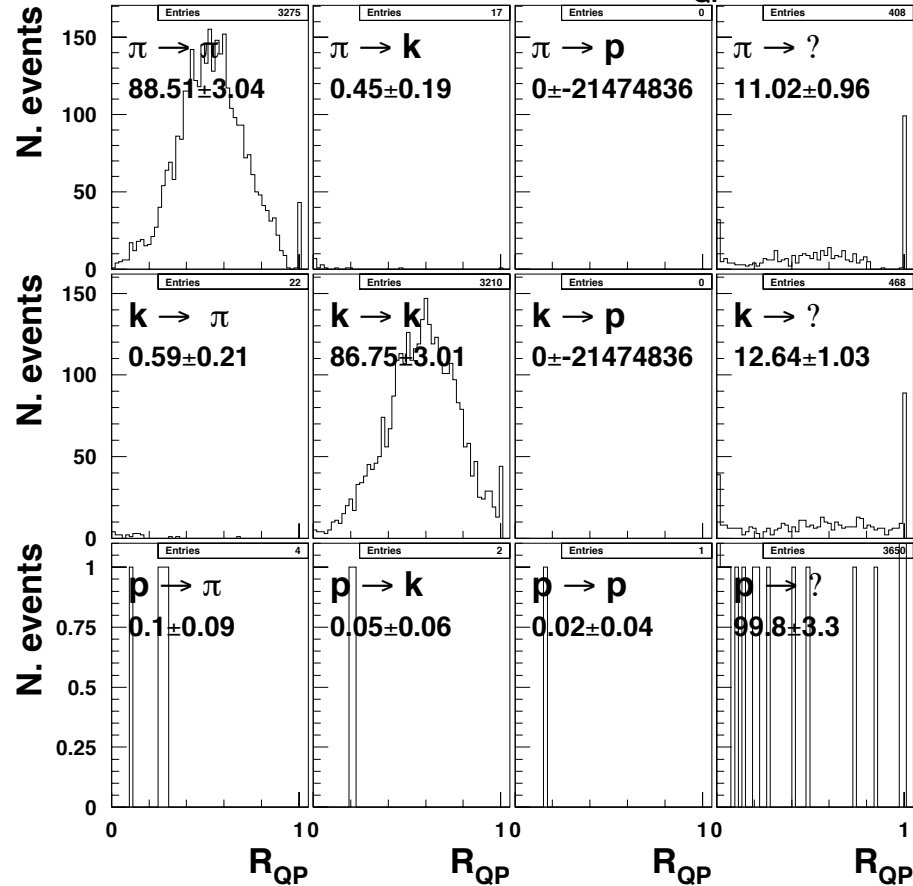
LH response at 6 GeV/c 14°

2 cm aerogel

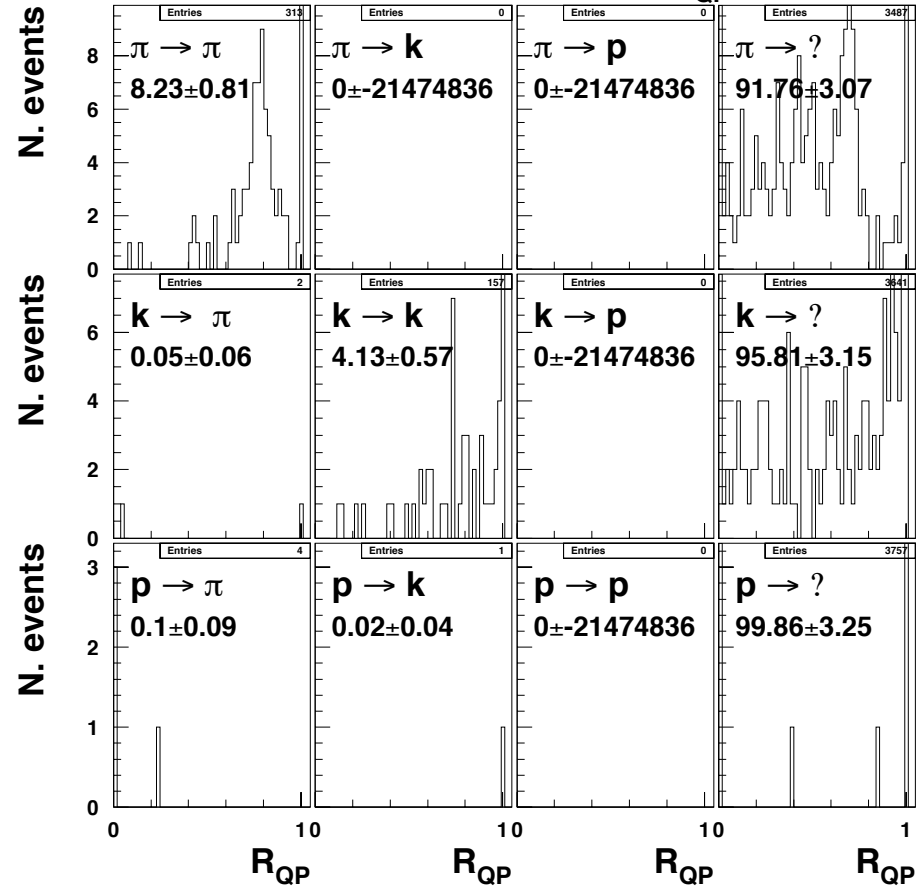
Direct Light

Reflected Light

$3 \leq E \leq 8 \text{ GeV}$ $N. \text{ hit} > 2$ $R_{QP} \geq 0.0$



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LH response at 6 GeV/c 14°

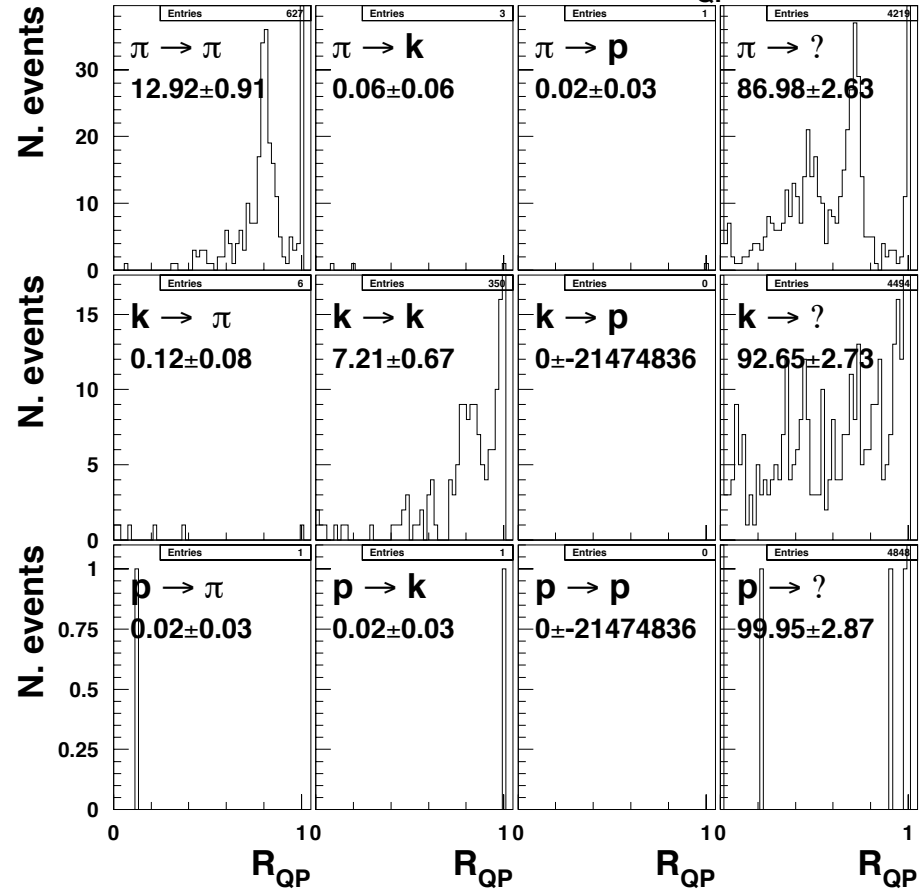
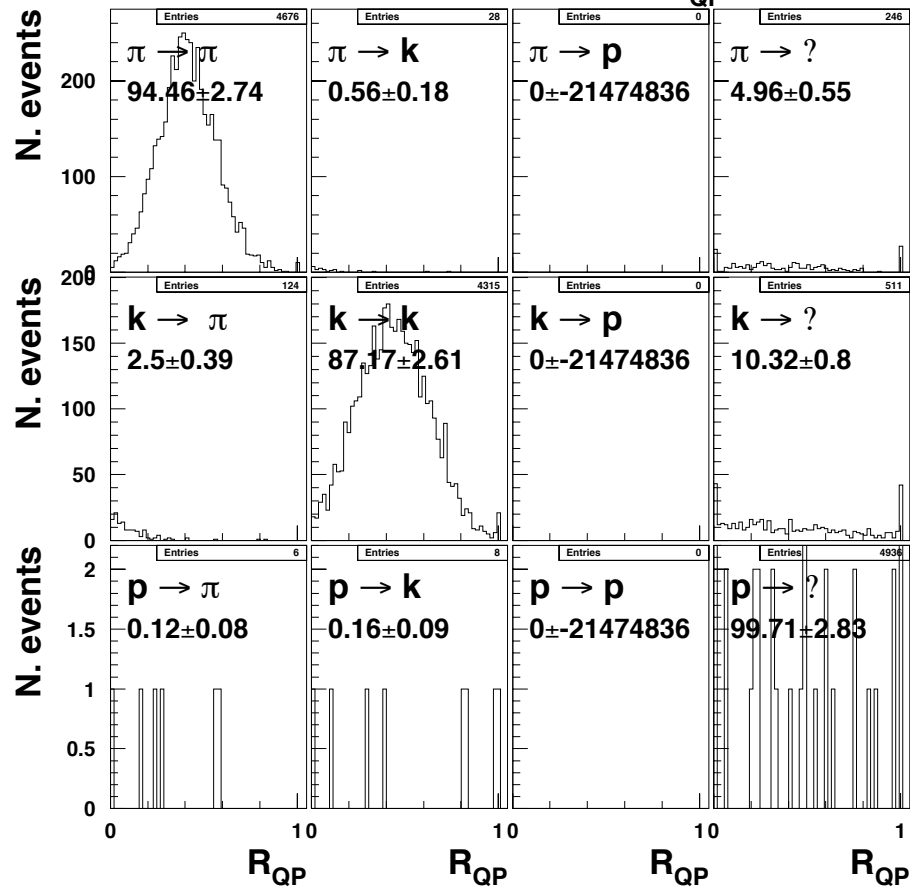
6 cm aerogel

Direct Light

Reflected Light

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LH response at 6 GeV/c 14°

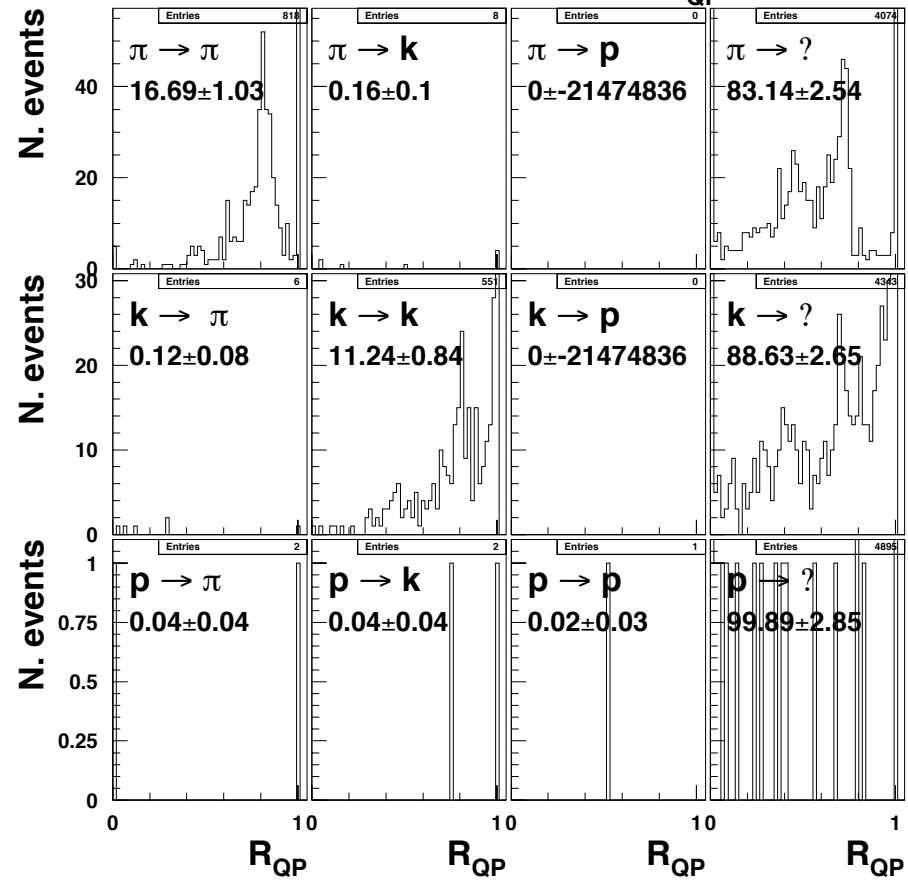
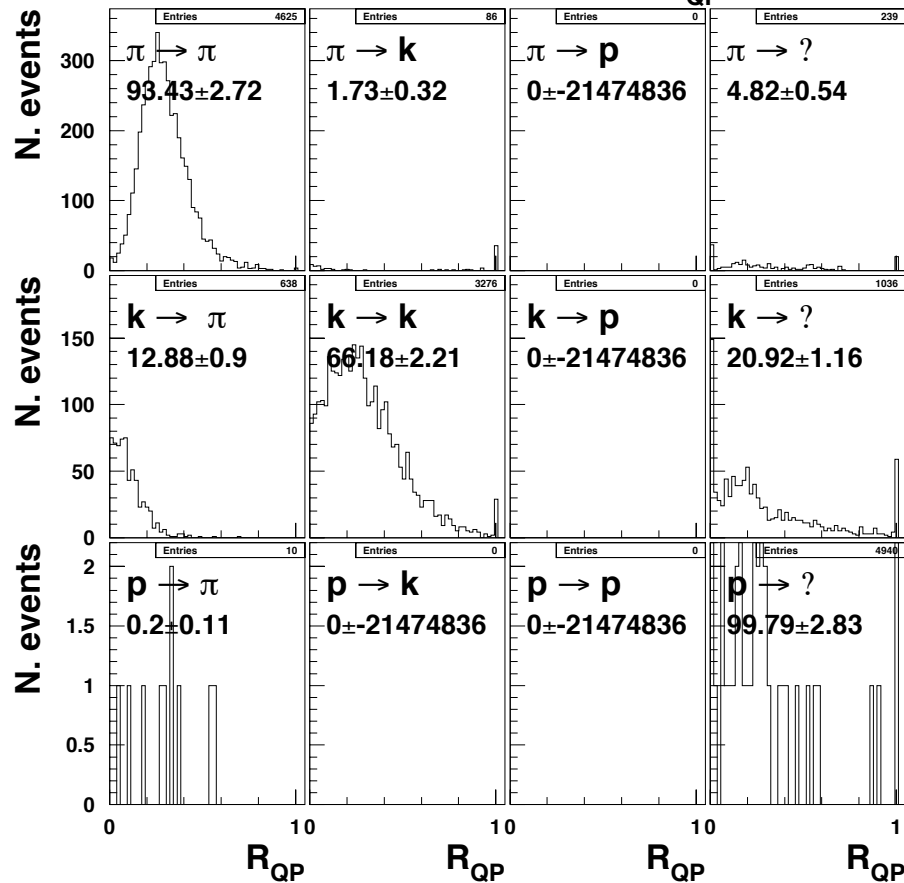
9 cm aerogel

Direct Light

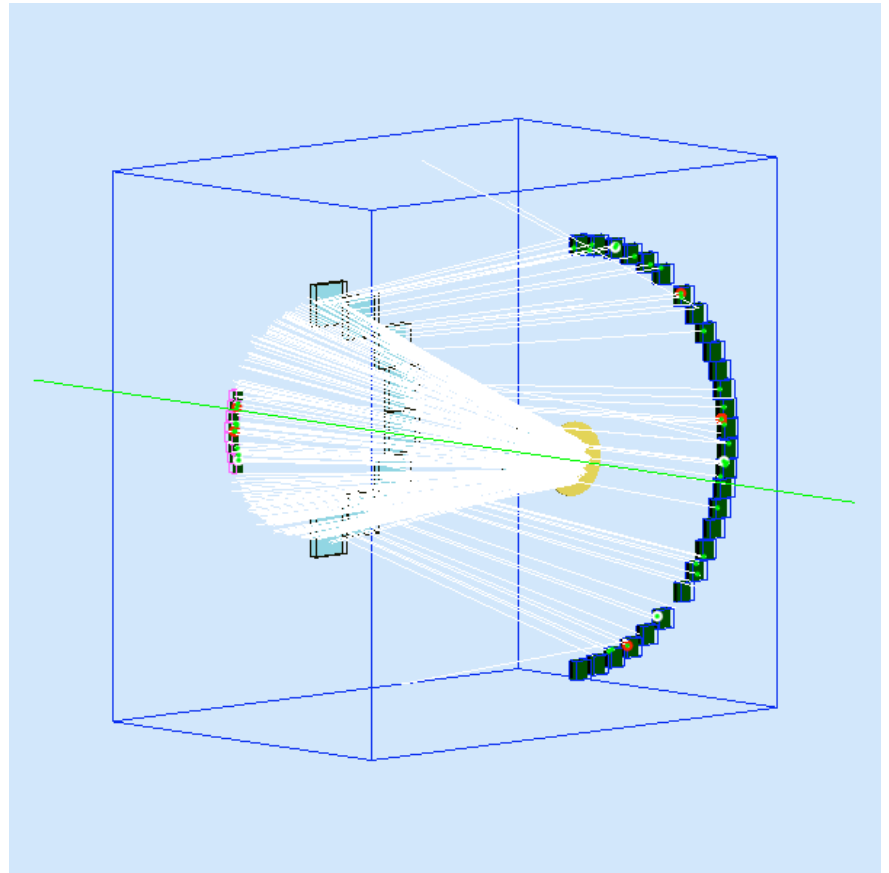
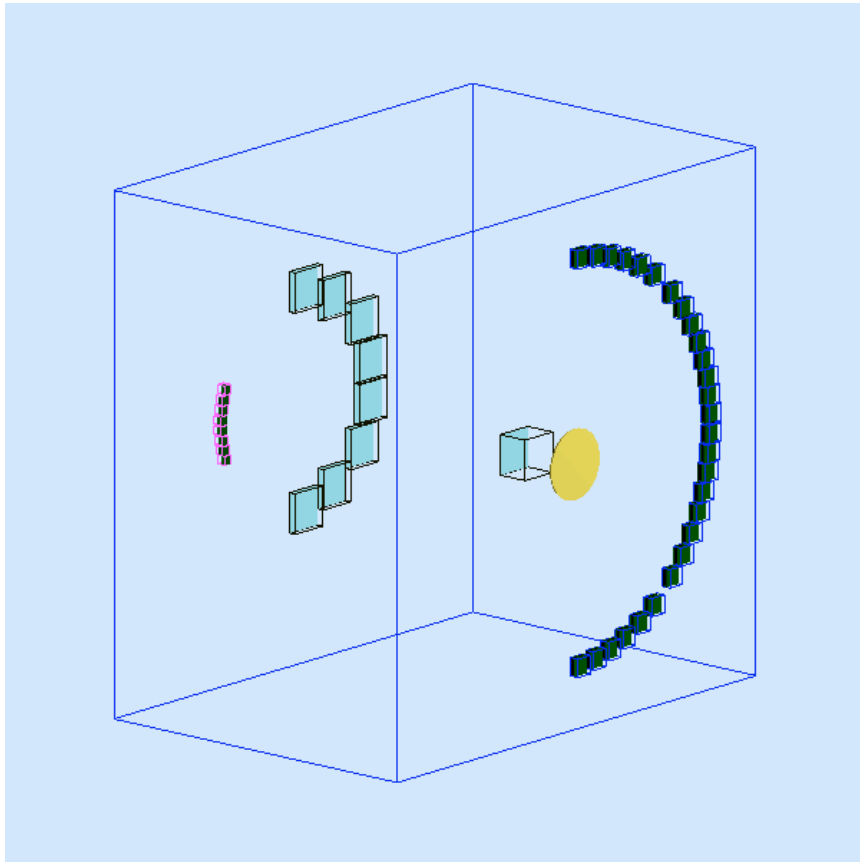
Reflected Light

$3 \leq E \leq 8 \text{ GeV}$ $N. \text{ hit} > 2$ $R_{QP} \geq 0.0$

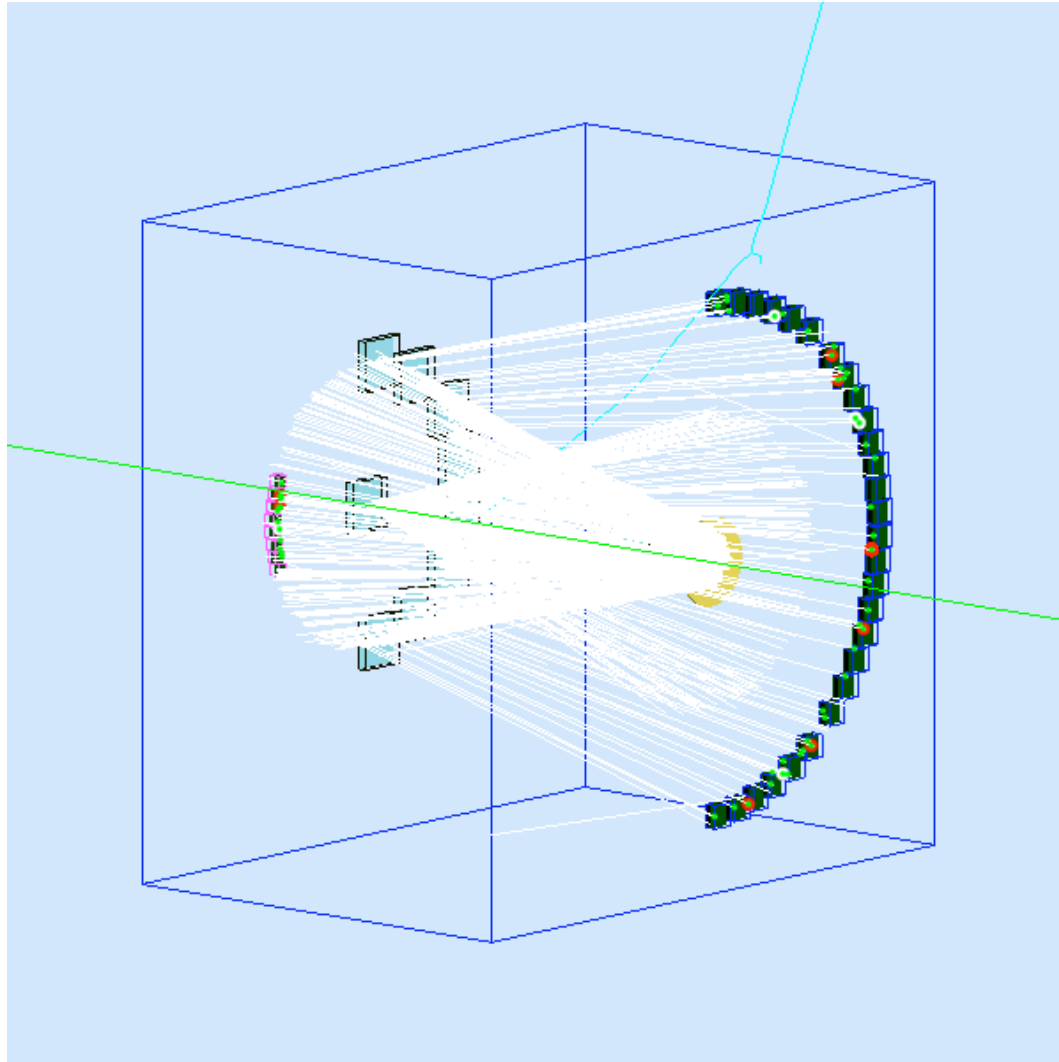
$3 \leq E \leq 8 \text{ GeV}$ $N. \text{ hit} > 2$ $R_{QP} \geq 0.0$



LH response at 6 GeV/c 14°

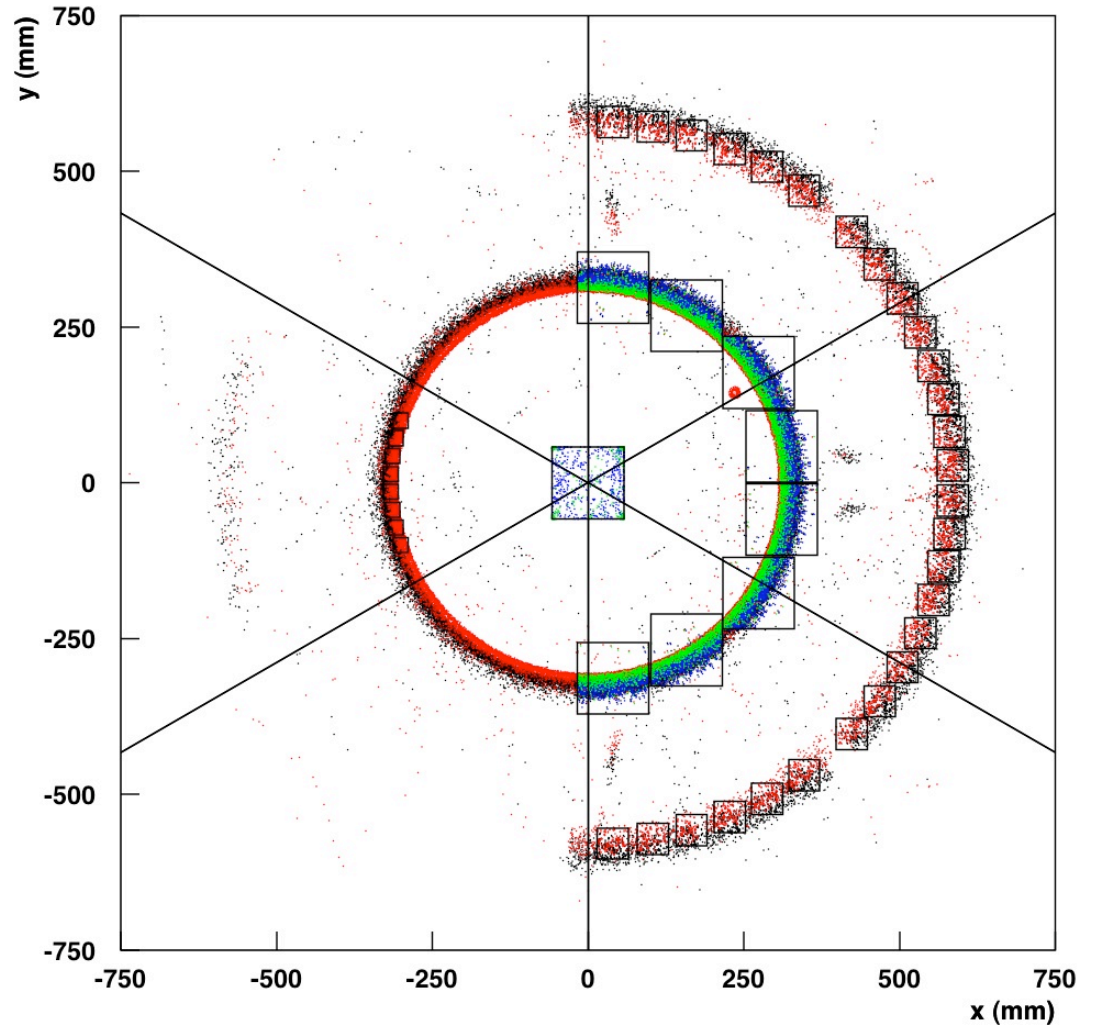


LH response at 6 GeV/c 14°



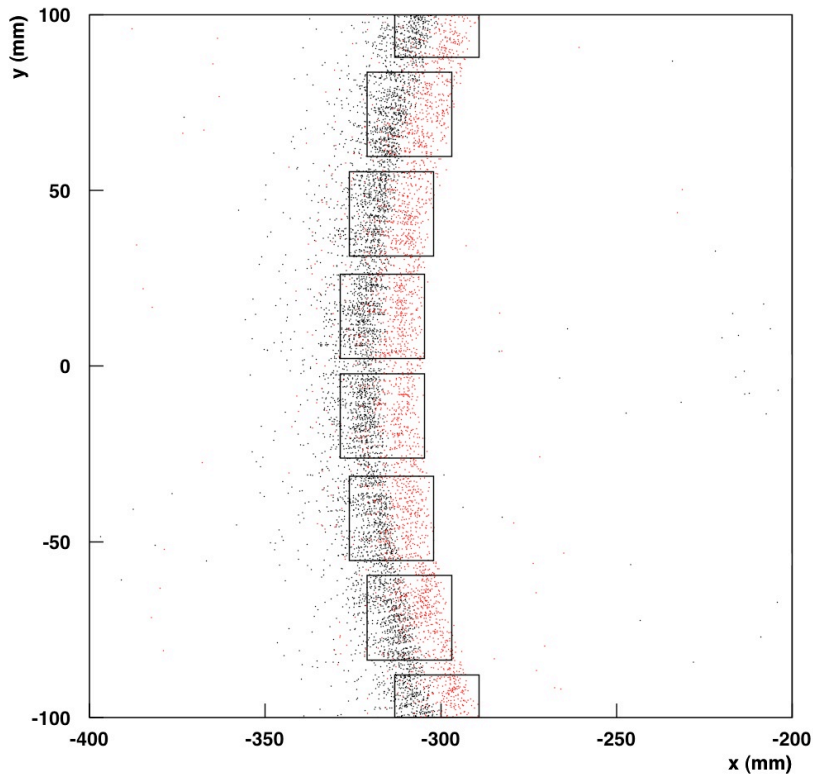
LH response at 6 GeV/c 14°

Mirror: 203.2 mm diameter
914.4 mm focal

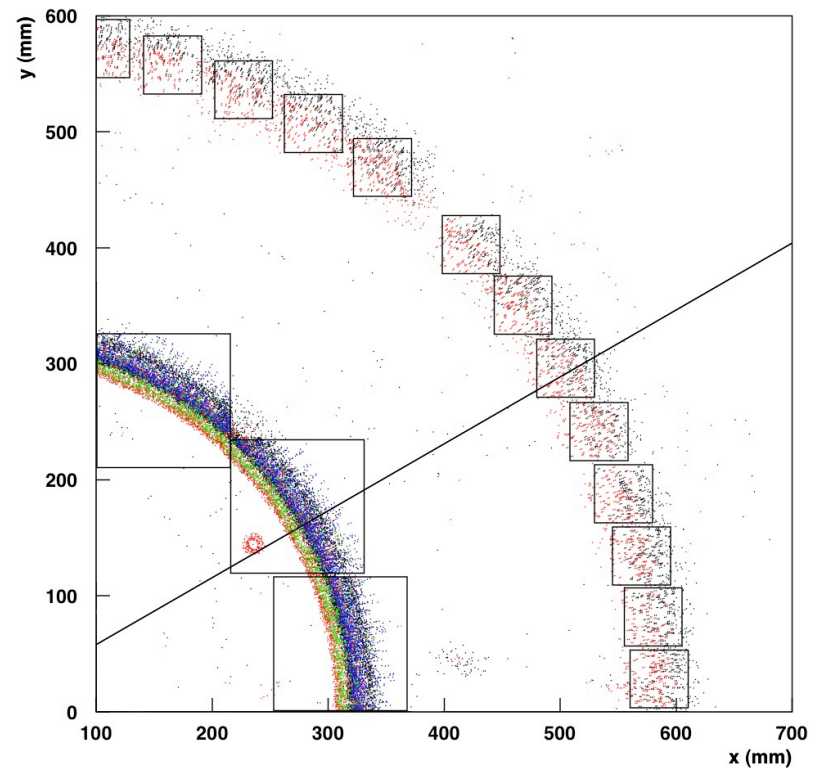


LH response at 6 GeV/c 14°

Mirror: 203.2 mm diameter
914.4 mm focal



30% efficiency
4% kaon contamination



30% efficiency
0.4% mis-identification