Some possible EIC R&D efforts (for the discussion and critics)

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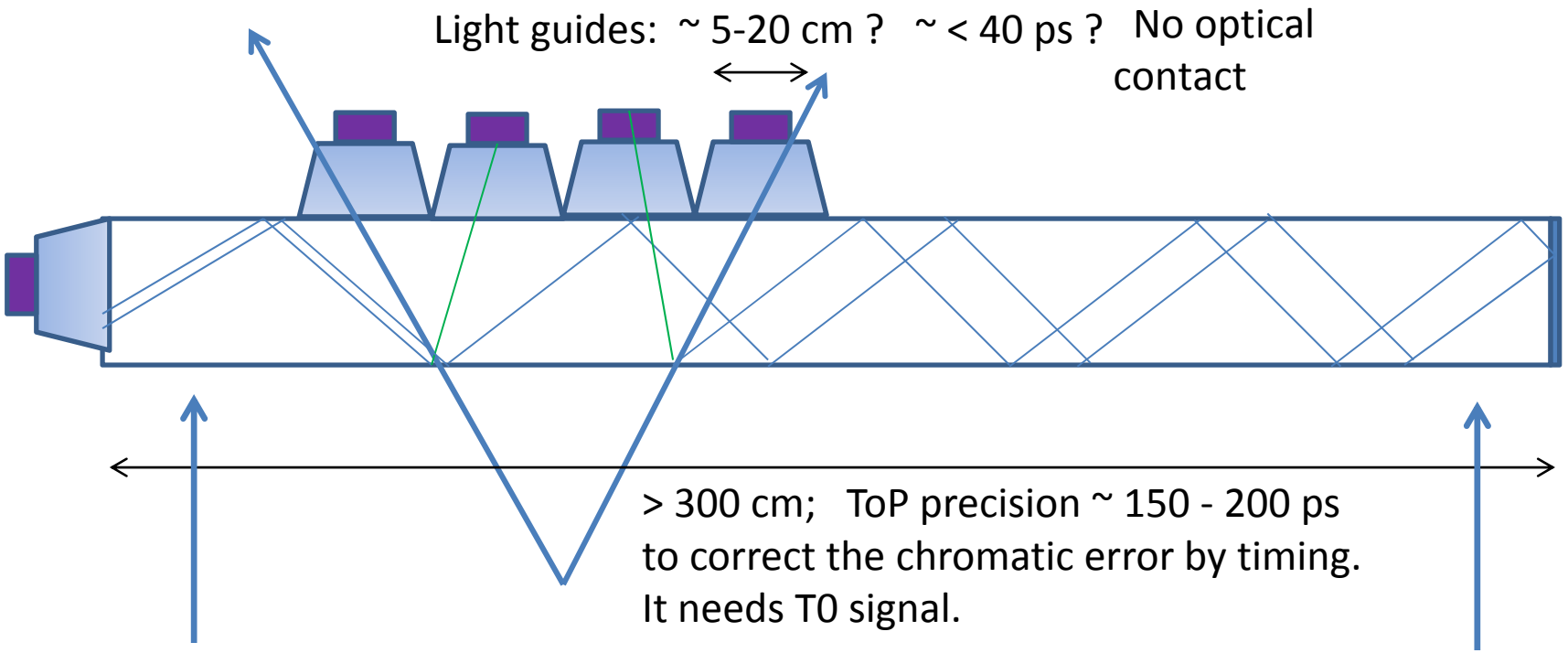
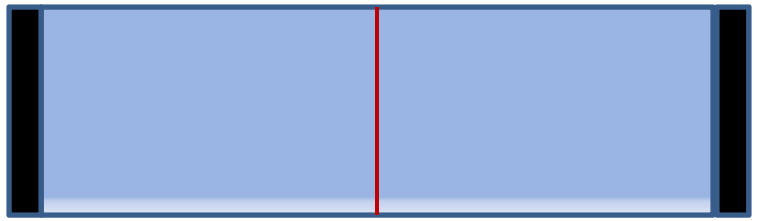
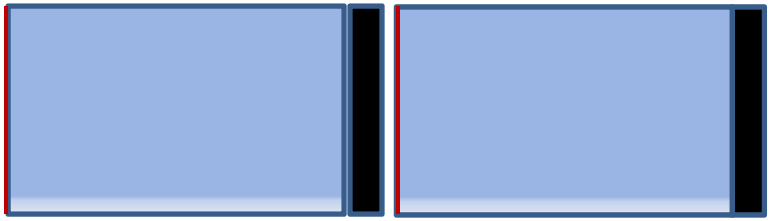
DIRC & ToF


Light guides: ~ 5-20 cm ? ~ < 40 ps ? No optical contact
> 300 cm; ToP precision ~ 150 - 200 ps
to correct the chromatic error by timing.
It needs T0 signal.
Pos. 1
Pos. 2
dt (Pos.2 – Pos.1) ~ 40 ns

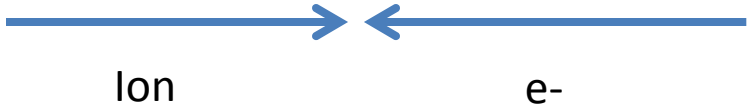
How to use TPC but minimize N of X0 for e-



Standard TPC



Two TPCs
But – the “rapidity hole” in an acceptance
(can be selected, not symmetrical setup)



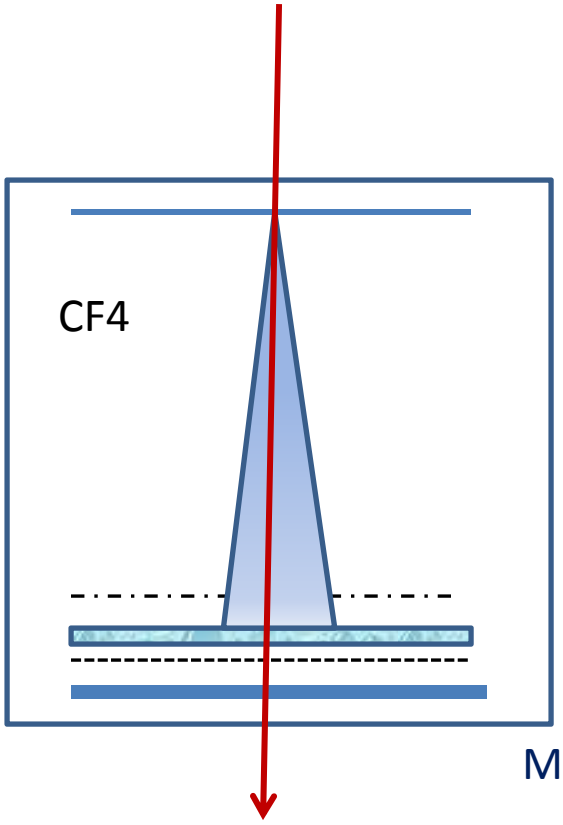
In “electron endcap” position.

Like ***HBD***, e-π Yes/No up to ~4 GeV/c.

PS detector (!?), and coordinate inform (!?)

For low Momentum – ToF can be useful for PiD

With EMC data (not e-) and Momentum ~ (4 -14) GeV/c - π/K PiD



Cathode / (Anode !?) (TPC)

Wire grid.

Distance to GEM-top ~ 40 µm (fishing-line !?)

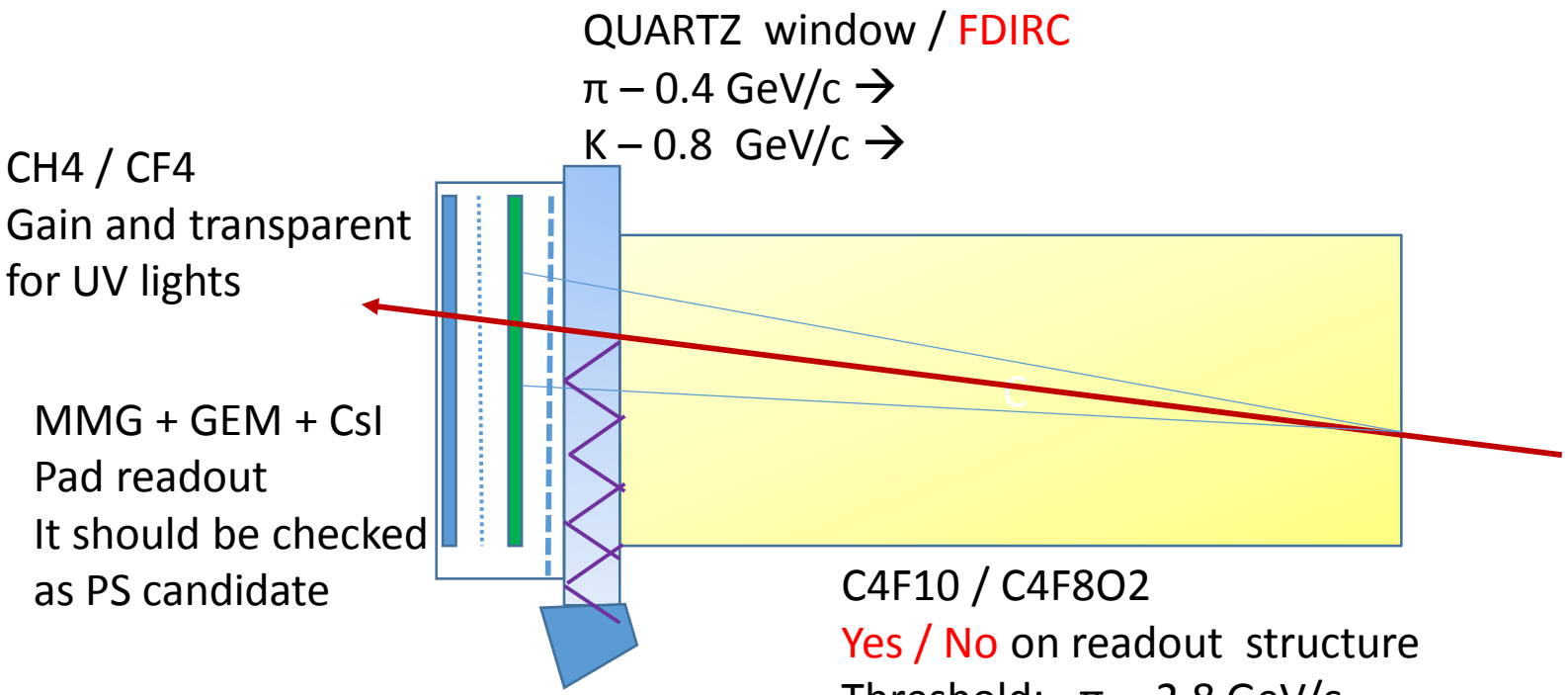
GEM foil. GEM top with CsI.

Distance GEM-bottom to MMG mesh ~ (0 – 20 µm)

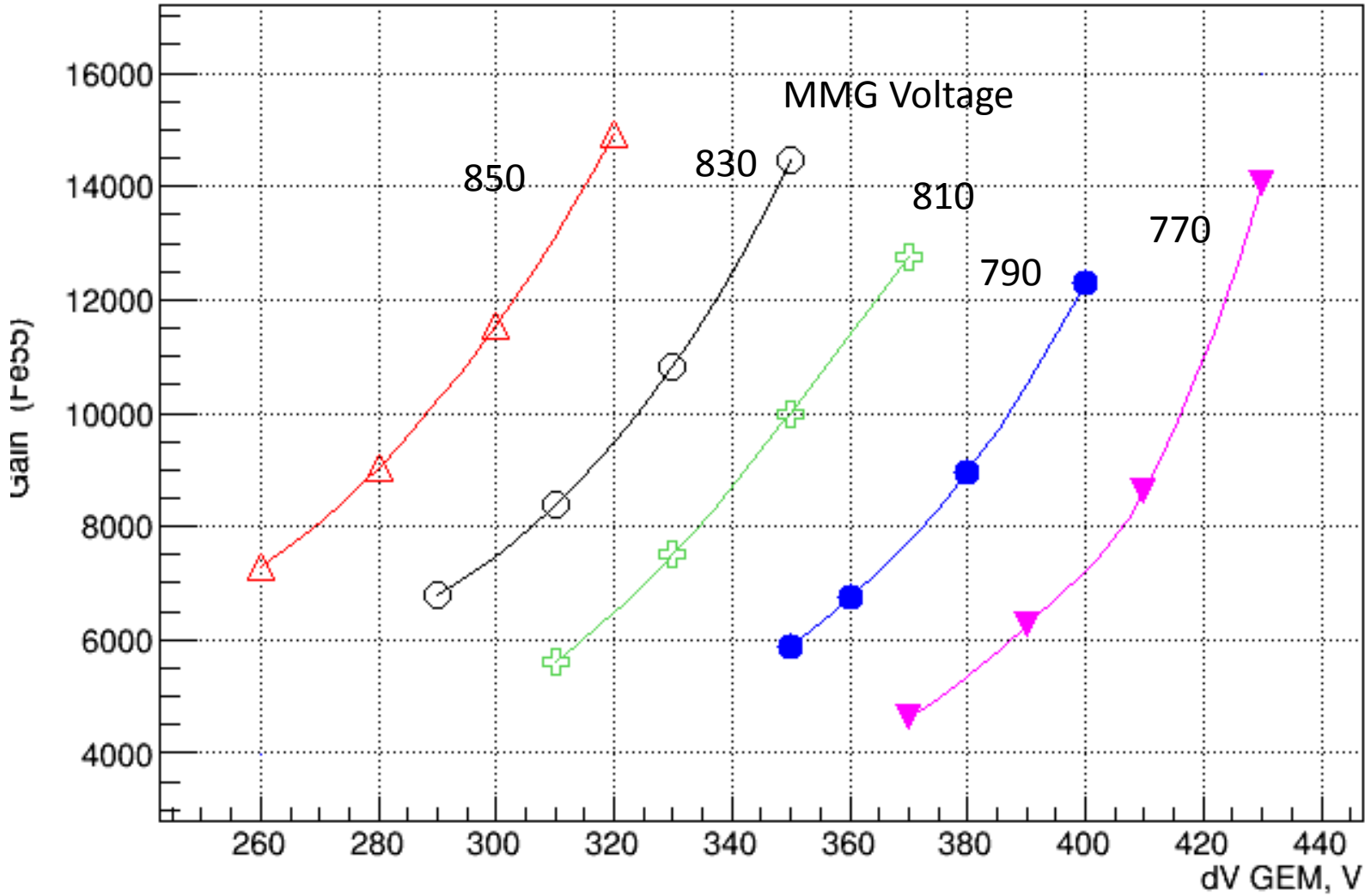
MMG readout with R-protection and ZZ- shape pads.

MI - GAS option !?

One more combination, needs space and R&D



Gain. MMG + GEM in CF4 Drift field: 0.4 kV/cm, Extraction field: 1.2 kV/cm



Gain. MMG only in CF4