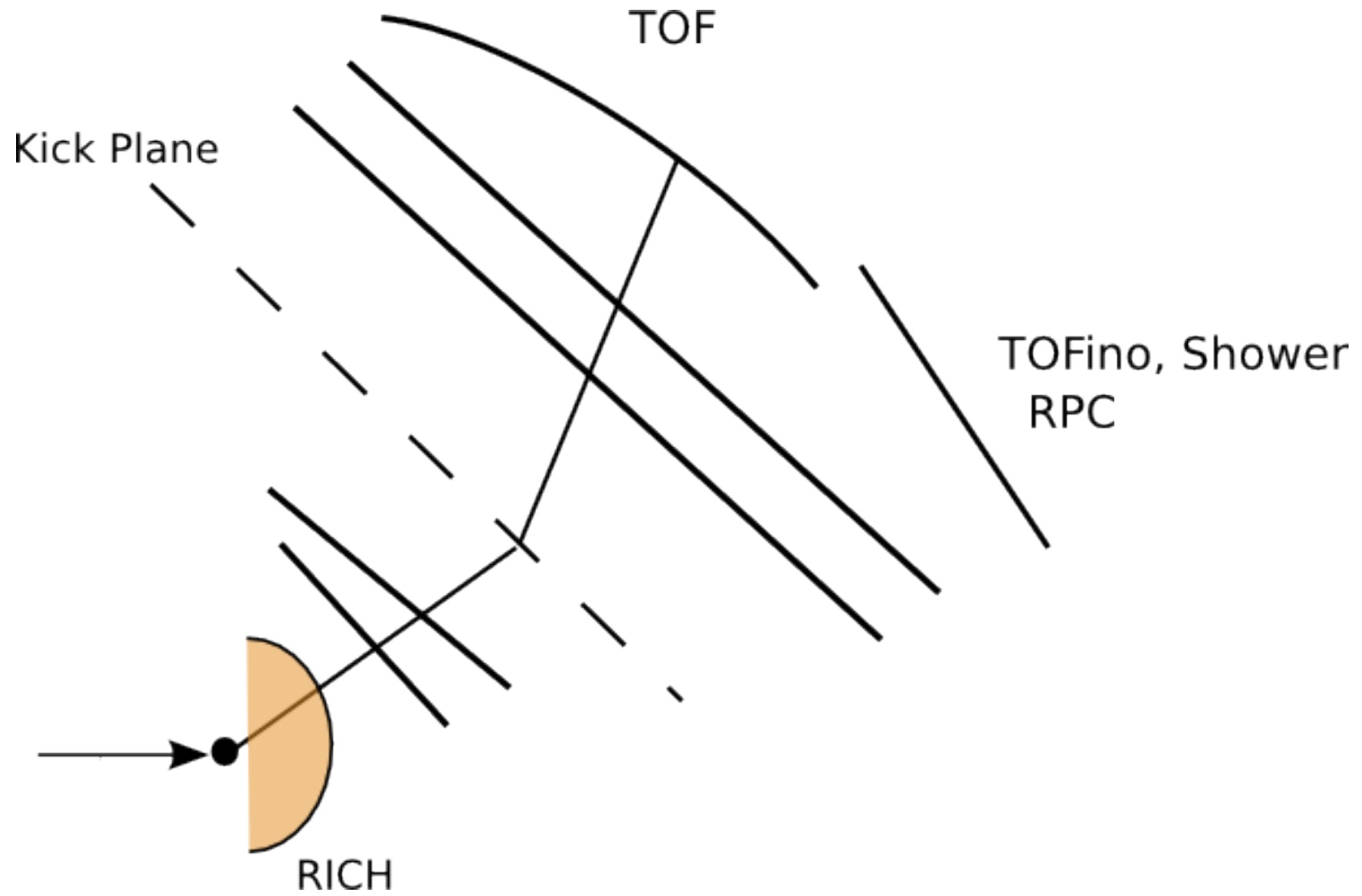# Tof online correlation

We need a high online particle resolution to have a good trigger efficiency and reduction
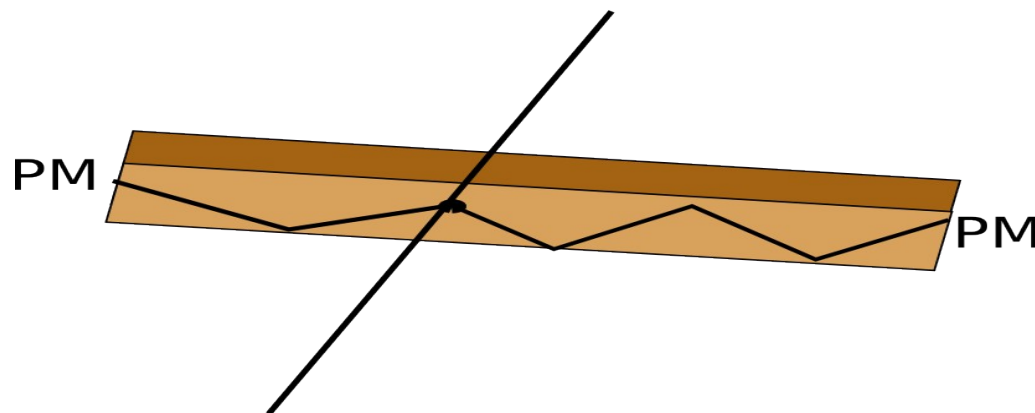
HADES

What is there ?

TOF IPU:
- readout
- calibration , tof , xpos (DSP)
  $x=(Tr*Kr-Tl*Kl)v+a$
  $t=(Tr*Kr+Tl*Kl)/2+b$
  time threshold for PID
- transform to Θ,φ (LUT)

PM

PM

What is there?

Matching Unit

Is there a TOF hit for a given RICH hit in a Θ,φ window?

calculate momentum from $\Delta\Theta,\varphi$ for lepton (LUT)
could be improved with track information from MDC

calculate invariant mass for dilepton (DSP)

What has to be done?

Implement tof algorithm on the Compute Node
time threshold for PID
RPC replaces TOFIno
Shower-RPC correlation

correlation with RICH
implement MU algorithm on compute note

What would be nice ?

include TOF energy loss information
PID

correlation with MDC
path correction for tof
make $\Delta\Theta, \varphi$ window smaller: less combinatorics

What I have done?

Get a text file out of Hydra with calibration parameter and transformation matrixes from tof rod system to global koordinate system

next

calculate position and time of a TOF hit
compare to existing TOF data
include walk and path correction
include enery loss information