

# **EPIC dRICH Software Update**

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dRICH Meeting  
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# IRT Recovery Status



Optics Geometry for IRT



Stand-alone Reader macro



Juggler IRTAlgorithm

- Juggler will not be supported in the future
- We will need to port/re-write this in EICrecon (JANA)
- It is useful to have *now*, however, since Juggler already uses the new data model



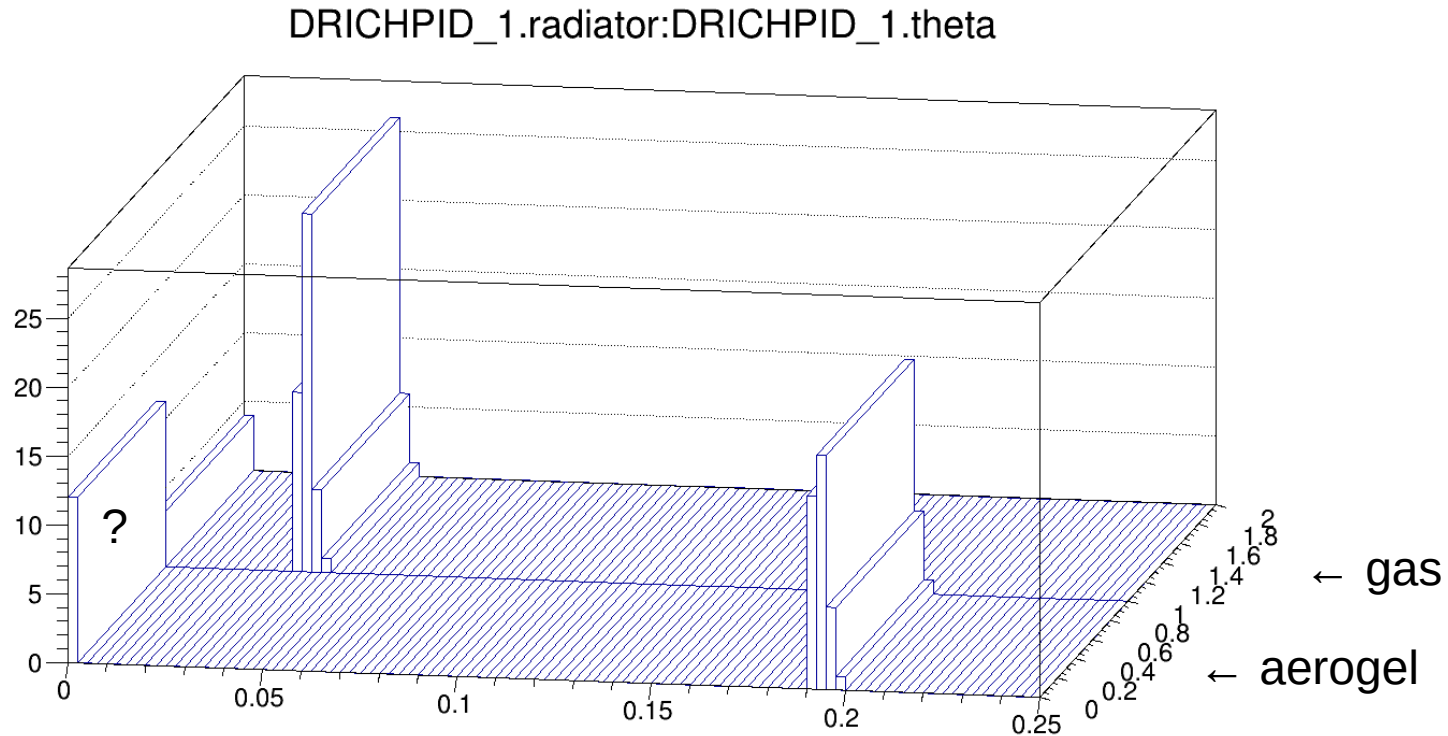
Evaluation and Performance plots

- Stuck on another weird bug... not sure if the culprit is Juggler or PODIO
- PID data and truth information “collections” are written out, but only the PID collection is actually readable

**Today's slides: very preliminary “sanity check” plots,  
produced from Juggler IRTAlgorithm**

## Reconstructed Cherenkov Angle

Thrown 8 GeV pions, reconstructed Cherenkov angle from IRT produces expected values for the 2 radiators



produced from EPIC + updated Juggler IRTAlgorithm

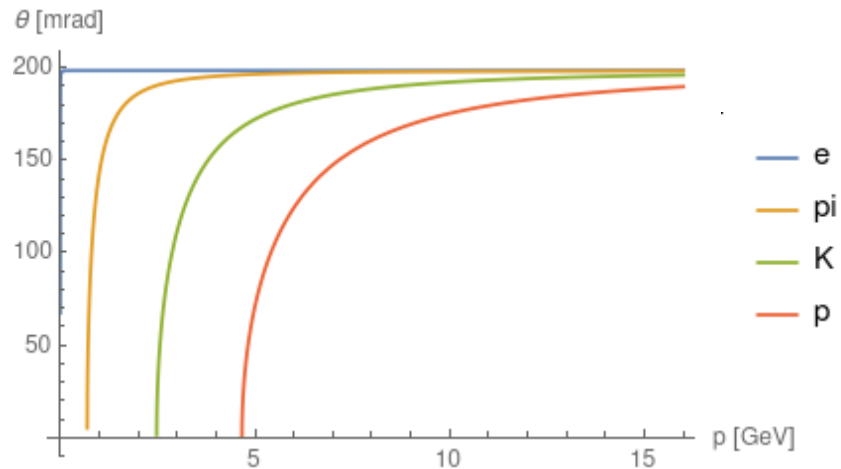
# Expected Cherenkov angles

assuming

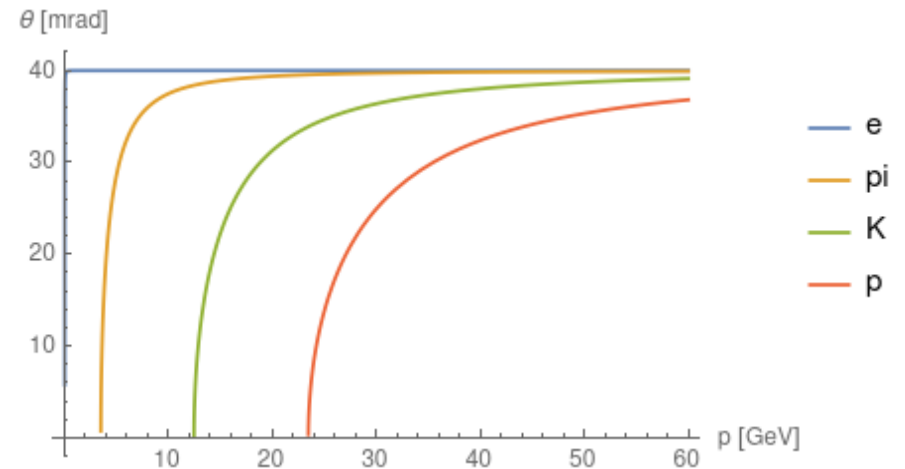
$n = 1.0008$ ; (\*gas\*)

$n = 1.02$ ; (\*aerogel\*)

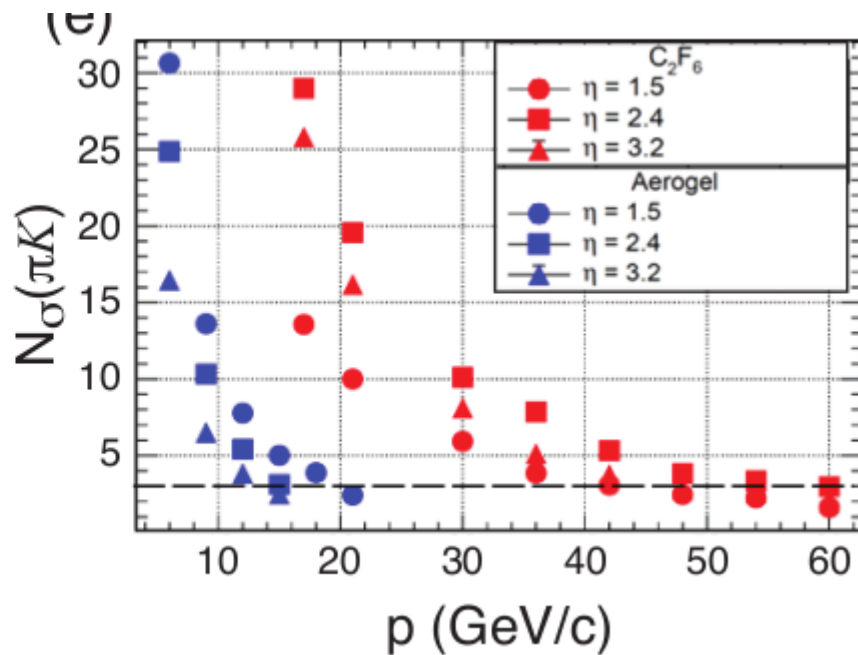
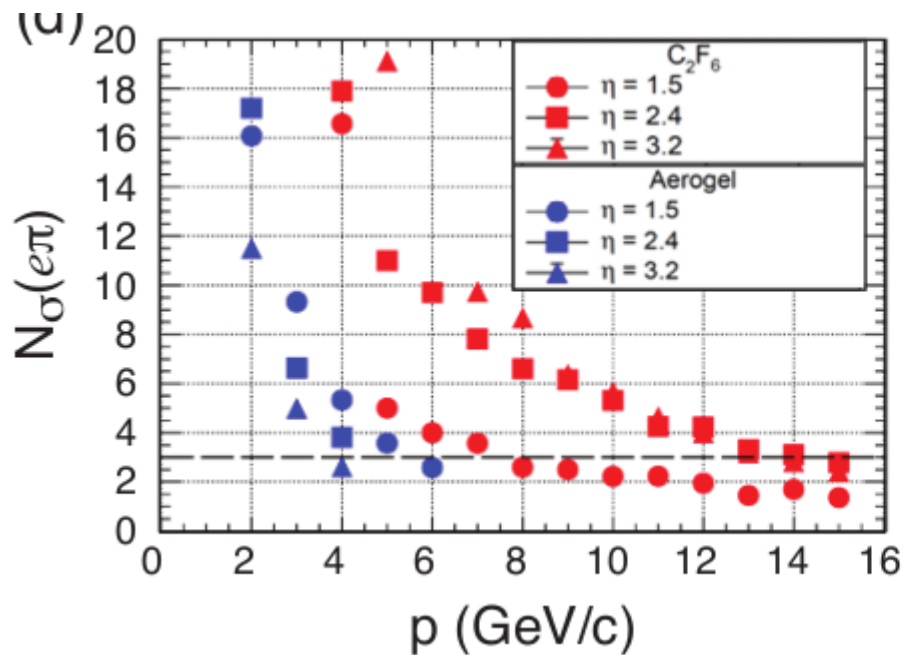
## Aerogel



## Gas



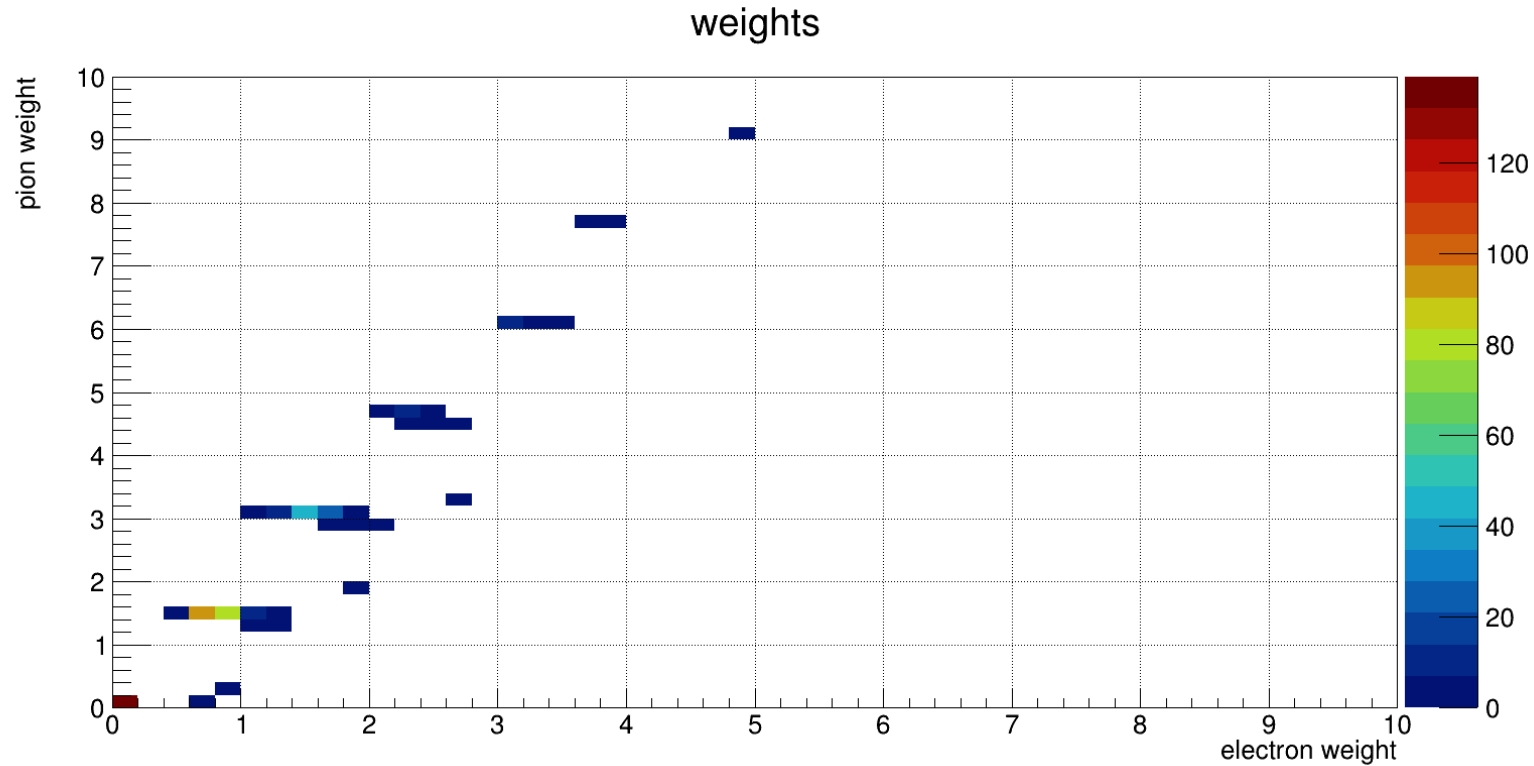
## PID Separation, from ATHENA proposal supplementary material



# PID hypothesis weights

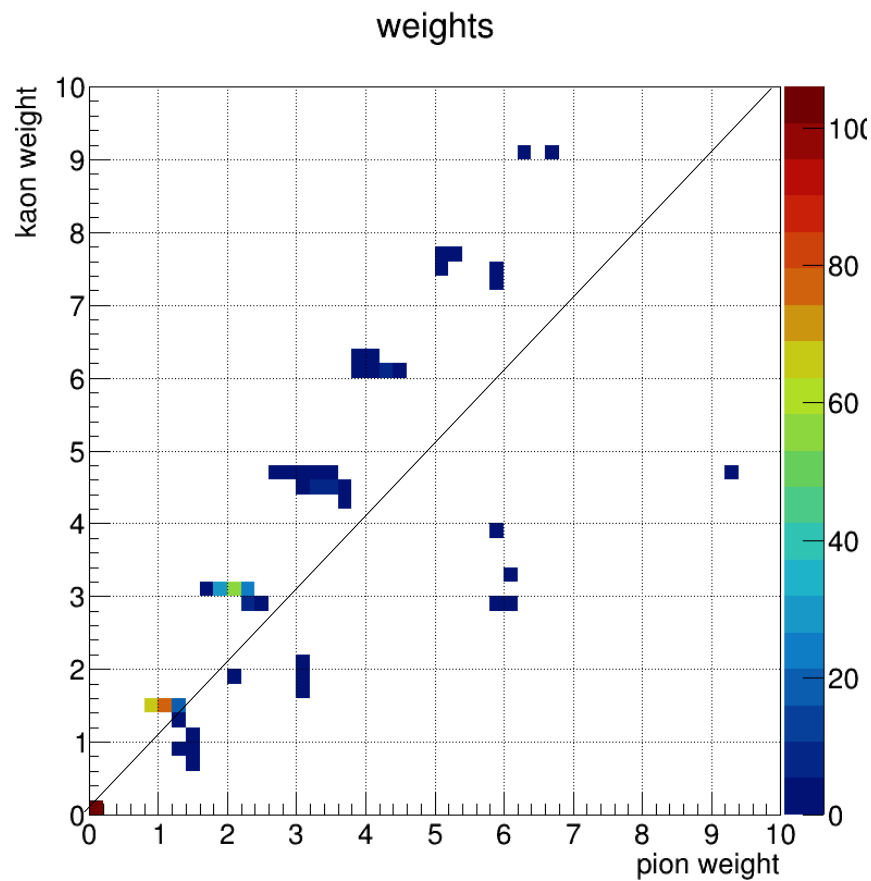
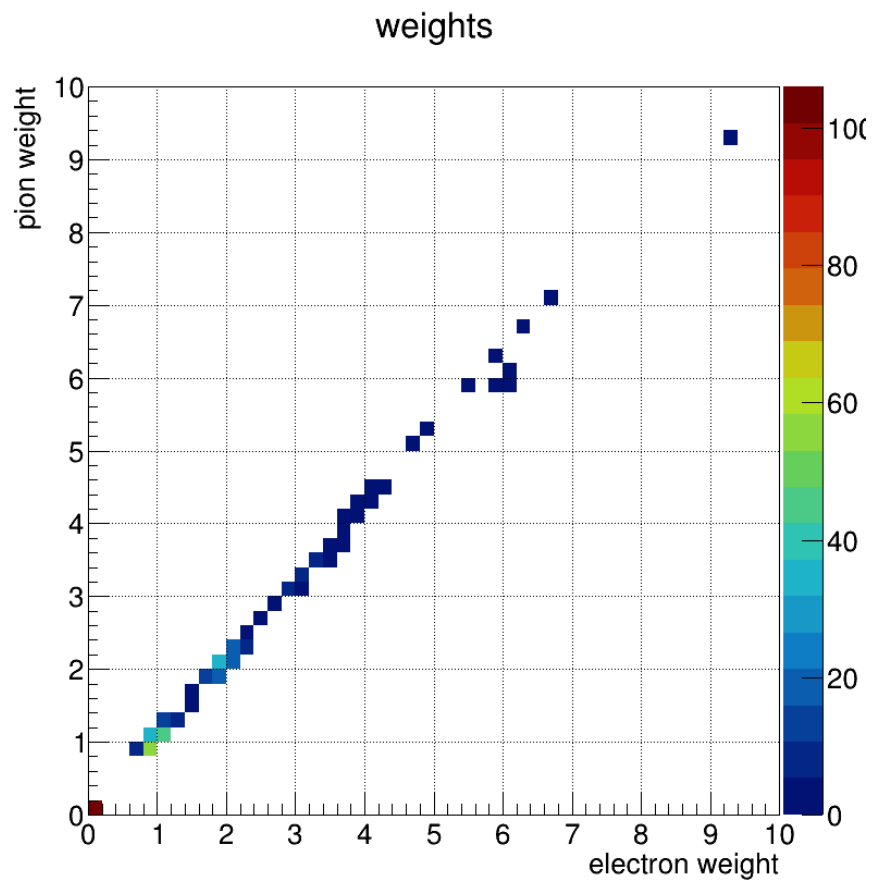
Thrown 4 GeV pions

Evaluating gas radiator only (weights from aerogel seem incorrect)



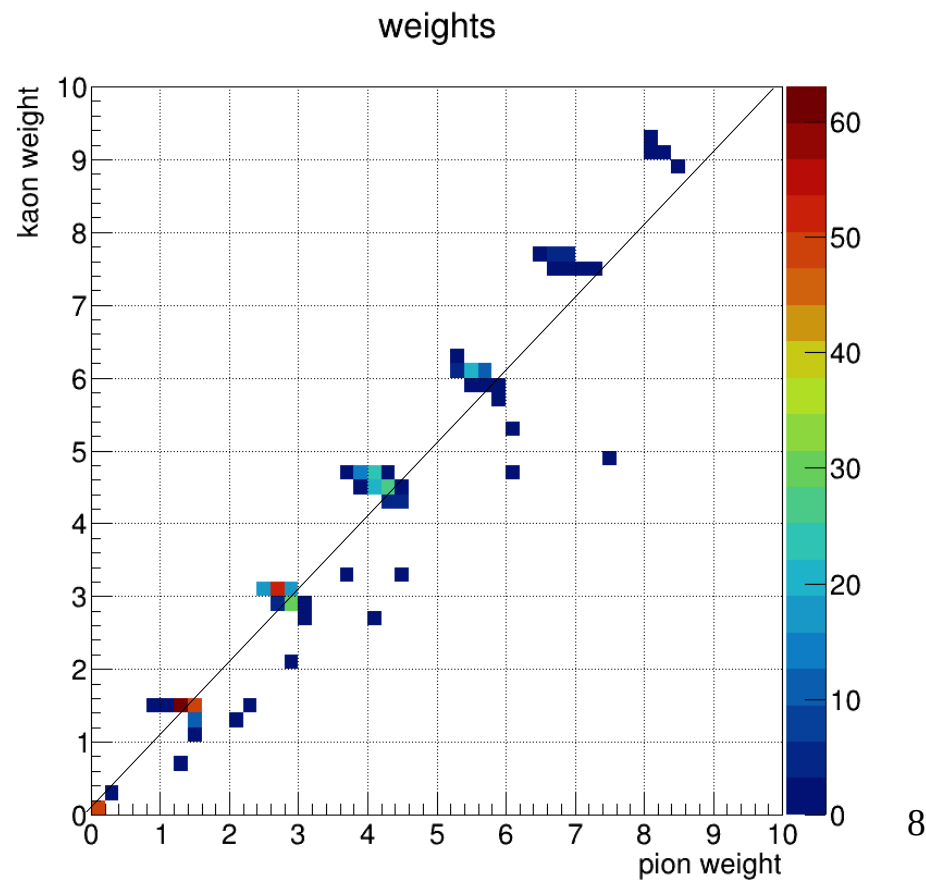
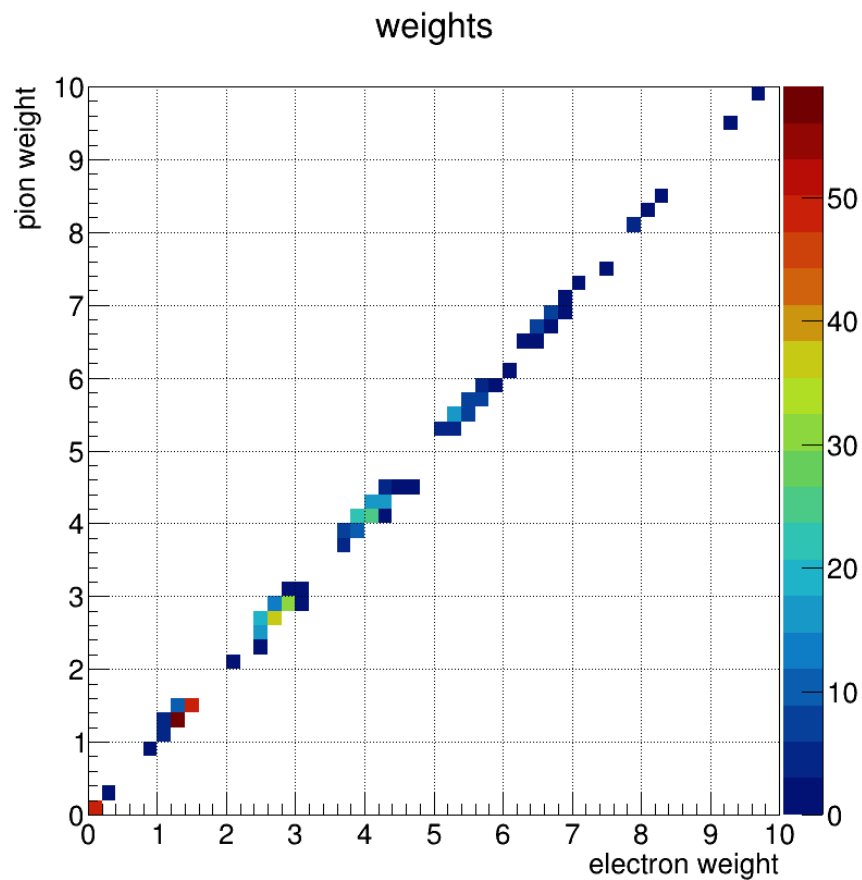
# PID hypothesis weights

Thrown 15 GeV kaons



# PID hypothesis weights

Thrown 18 GeV kaons





## Next Steps

- Resolve the EVALUATION script bug
  - This will be important for general analysis with PODIO
  - Evaluate current dRICH performance
- Future: Port / re-write Juggler IRTAlgorithm to ElCrecon
  - Having a working Juggler implementation is useful now, but the future will be using ElCrecon
- See the project board for more...
  - <https://github.com/orgs/eic/projects/4/views/1>

## EPIC dRICH Software Stack

