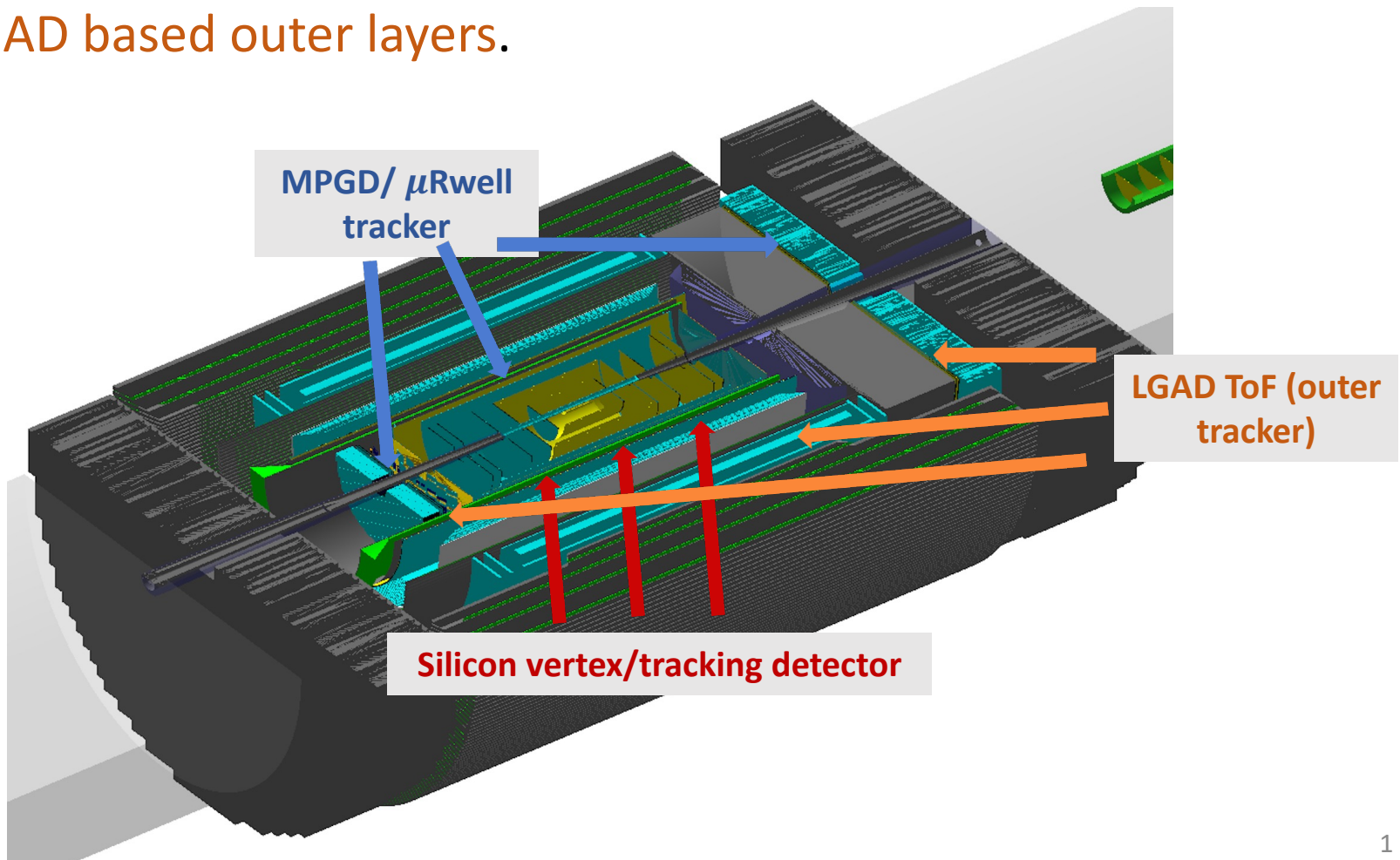


# Integrated ECCE Detector implemented in Fun4All

- July concept ECCE tracking detector consists of
  - MAPS based silicon vertex/tracking layers/planes.
  - MPGD/ $\mu$ Rwell gas tracker.
  - LGAD based outer layers.



# ECCE July concept silicon tracking detector geometry

- Barrel layer geometry:

Layer index	R (cm)	$z_{\min}$ (cm)	$z_{\max}$ (cm)	Sensor pixel size (micron)
1	3.3	-15	15	10
2	5.7	-15	15	10
3	21	-27	27	10
4	22.68	-30	30	10
5	39.3	-52.5	52.5	10
6	43.23	-57	57	10

# ECCE July concept silicon tracking detector geometry

- Hadron endcap geometry:

Plane index	$R_{\text{inner}}$ (cm)	$R_{\text{outer}}$ (cm)	$z$ (cm)	Sensor pixel size (micron)
1	4	25	35	20 (10)
2	4.5	42	62.3	20 (10)
3	6.5	43	90	20 (10)
4	8.9	44	115	36.4
5	9.5	45	125	36.4

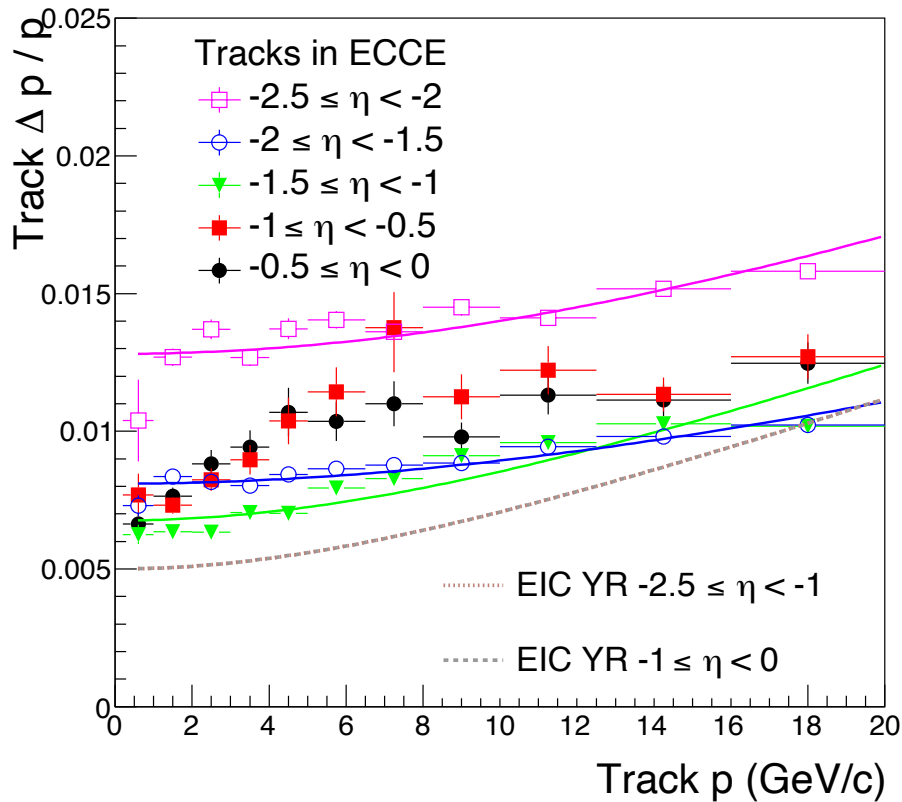
- Electron endcap geometry:

Plane index	$R_{\text{inner}}$ (cm)	$R_{\text{outer}}$ (cm)	$z$ (cm)	Sensor pixel size (micron)
1	4	25	-35	20 (10)
2	4.5	42	-62.3	20 (10)
3	6.5	43	-90	20 (10)
4	8.9	44	-115	36.4
5	9.5	45	-125	36.4

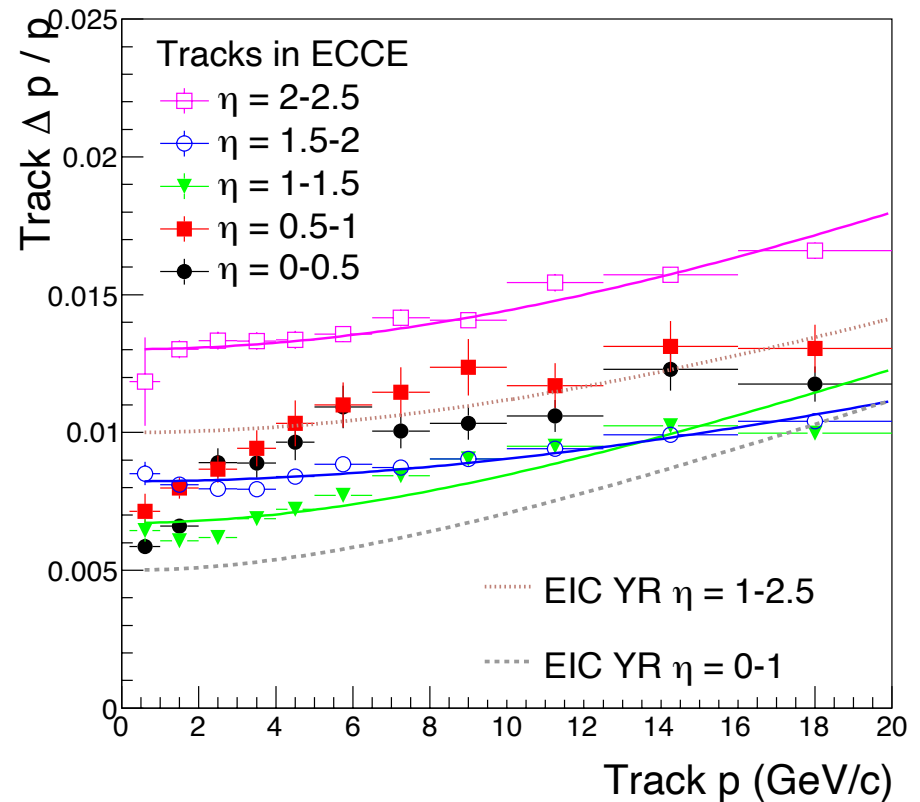
# ECCE July concept tracking performance

- The tracking momentum resolution of the current ECCE design is not far from the EIC Yellow Report requirements.

$\Delta p / p$  VS  $p$  in  $-2.5 \leq \eta < 0$



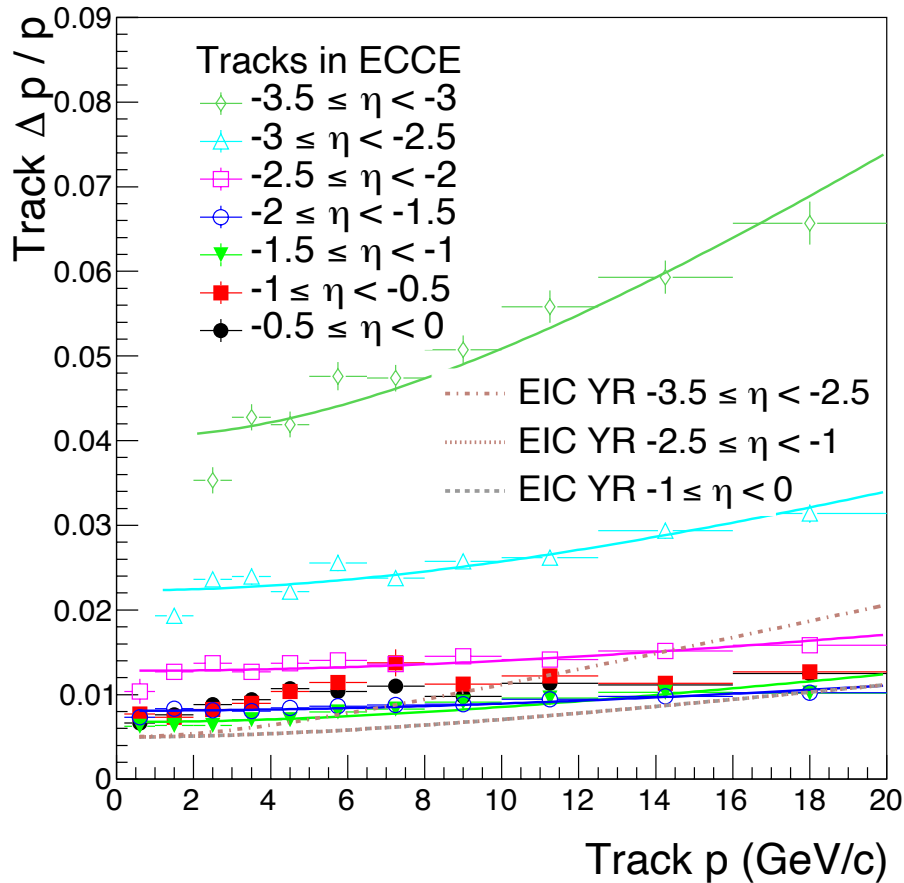
$\Delta p / p$  VS  $p$  in  $0 \leq \eta < 2.5$



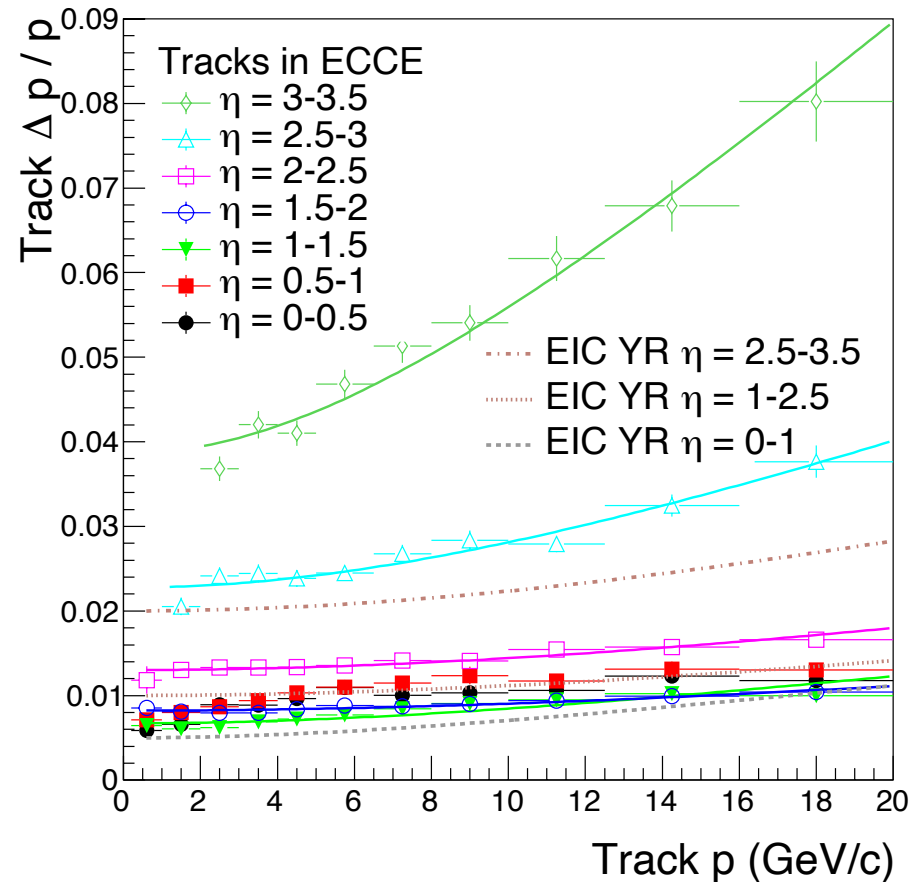
# ECCE July concept tracking performance

- The tracking momentum resolution of the current ECCE design is not far from the EIC Yellow Report requirements.

$\Delta p / p$  VS  $p$  in  $-3.5 \leq \eta < 0$



$\Delta p / p$  VS  $p$  in  $0 \leq \eta < 3.5$



# ECCE Detector Tracking Performance: $DCA_{2D}$ resolution

- The tracking  $DCA_{2D}$  resolution of the current ECCE design meets the EIC Yellow Report requirements.

