

Status on SDT simulation

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Update

- Change the radius from the baseline configuration

Outer radius of the TPC : $R=1800$ mm



-- Outer radius of the TPC : $R=1500, 1200$ mm

-- R of SET is shifted the same amount ($\Delta R_{\text{SET}} = 300, 600$ mm)

Comment on the radius of the tracker

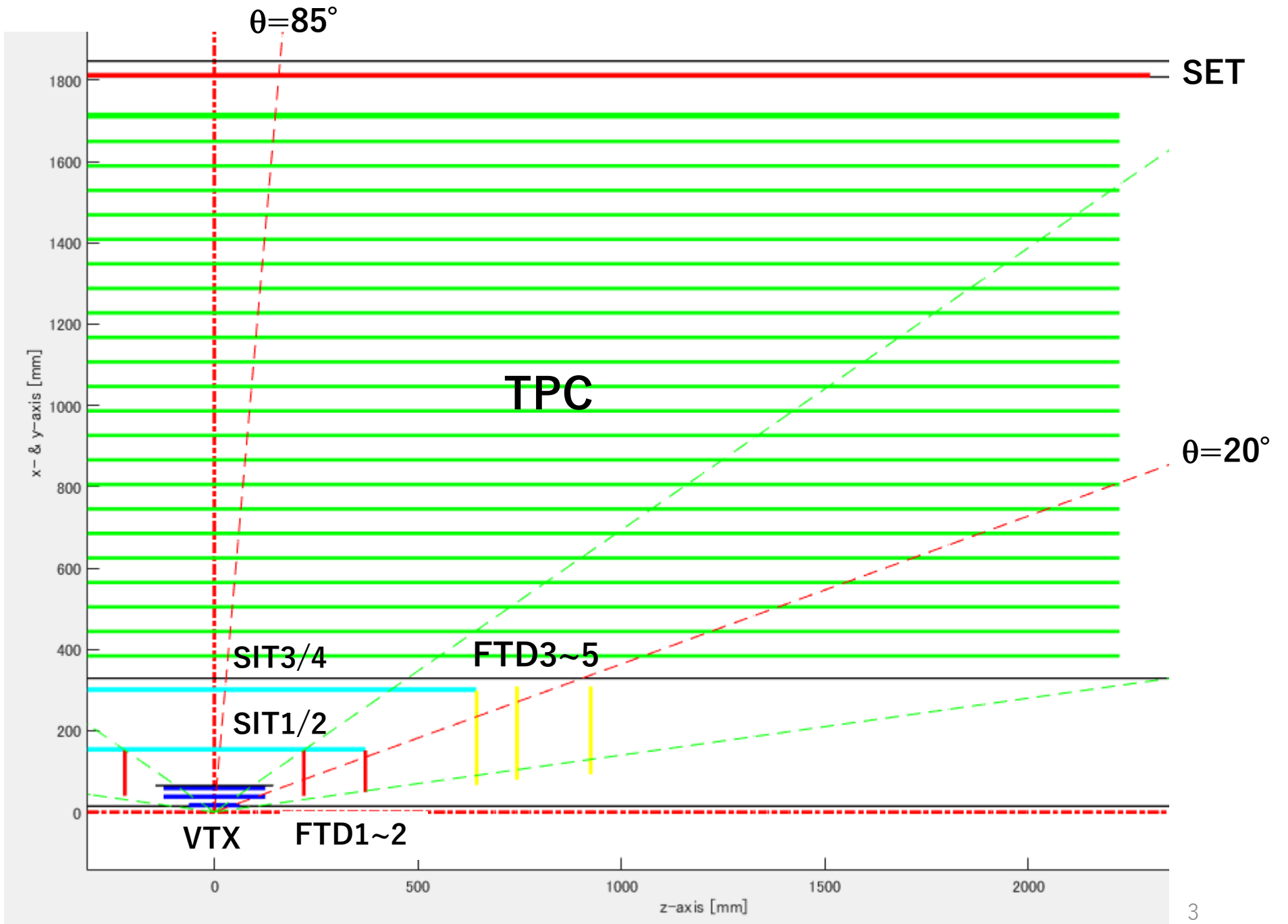
“One of the consequences of a crystal ECAL is likely to be a smaller tracking volume to reduce crystal cost. For example, what if the radius of the tracking volume is reduced from 1.8m to 1.5m or even 1.2m, what will be the impact? How do we design the tracker with this constraint? “

“baseline configuration”

(from previous slide)

Colored lines:
active layers

Black lines:
passive layers

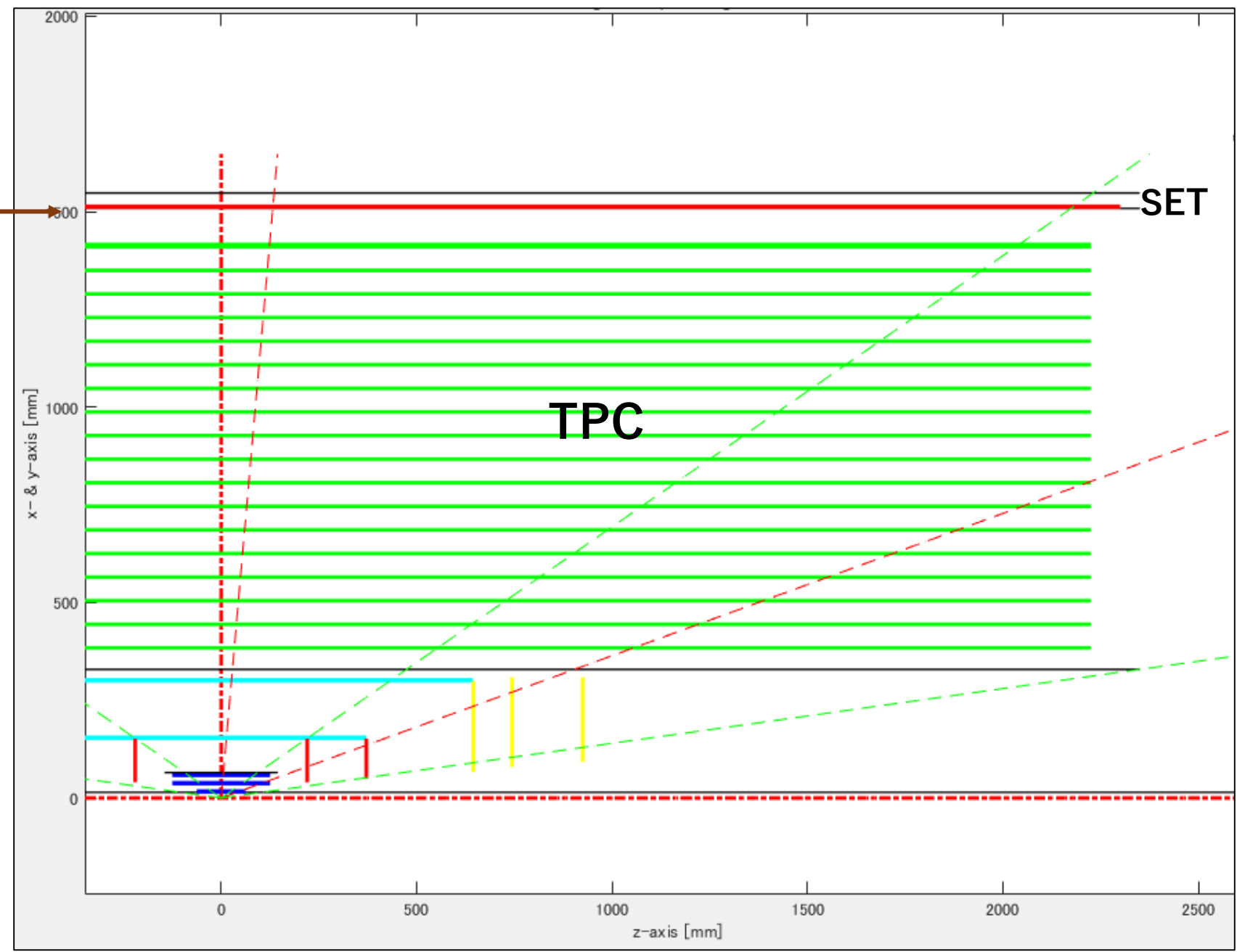


$R_{\text{TPC_Max}} = 1500\text{mm}$
configuration

$R=1500$

Number of layers of TPC:
 $R=[384, 1716]$,
222 layers (baseline)
↓
 $R=[384, 1416]$,
172 layers (changed)

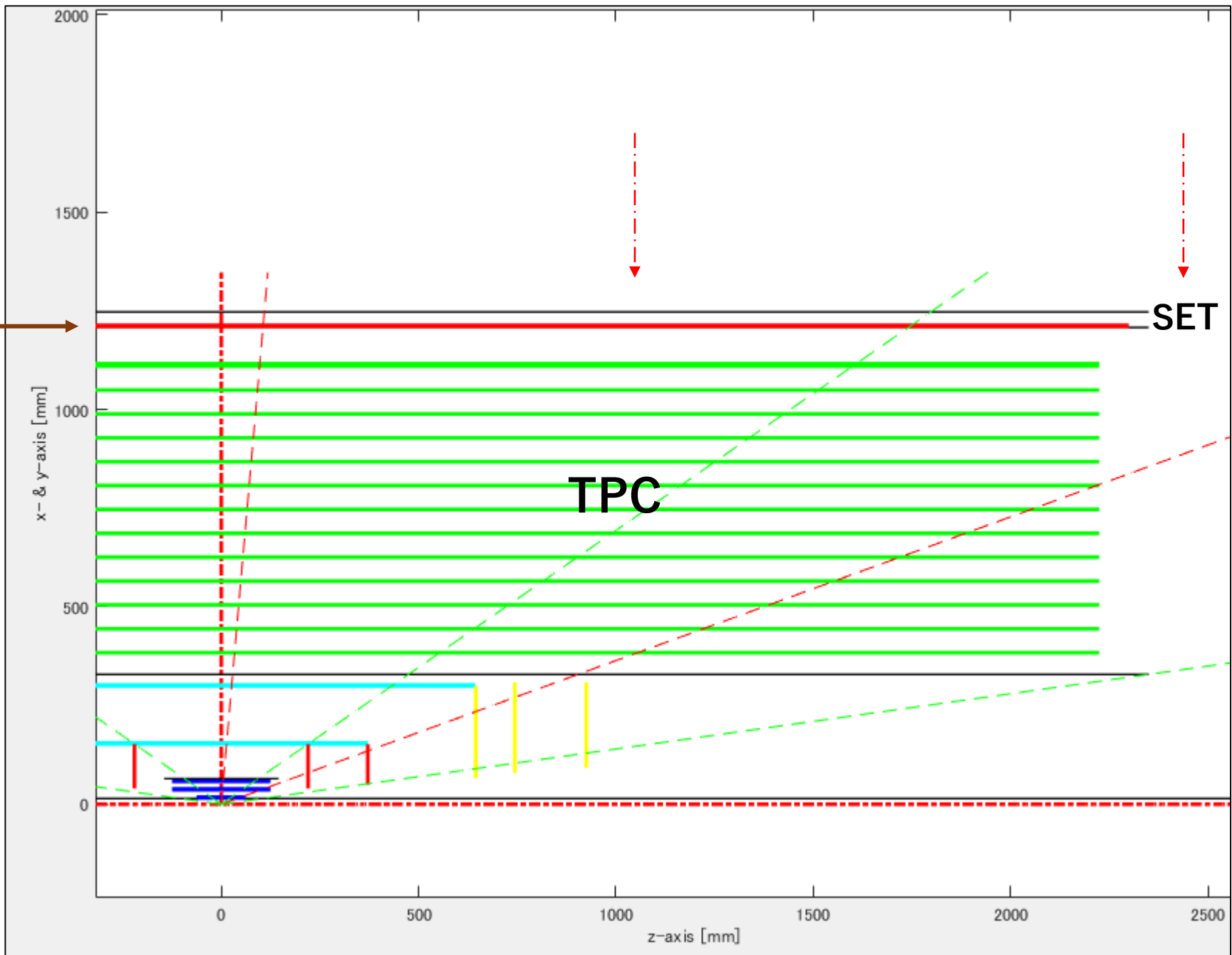
TPC outermost radius & SET's location is moved



$R_{\text{TPC_Max}} = 1200\text{mm}$
configuration

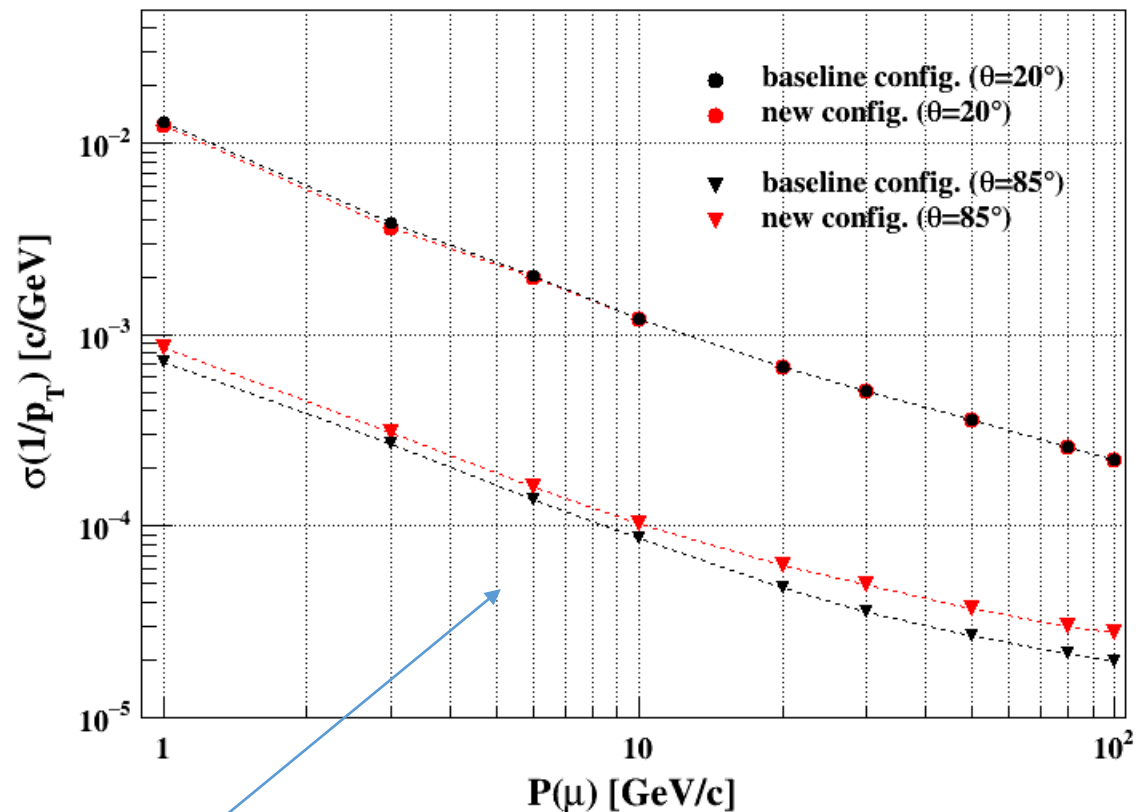
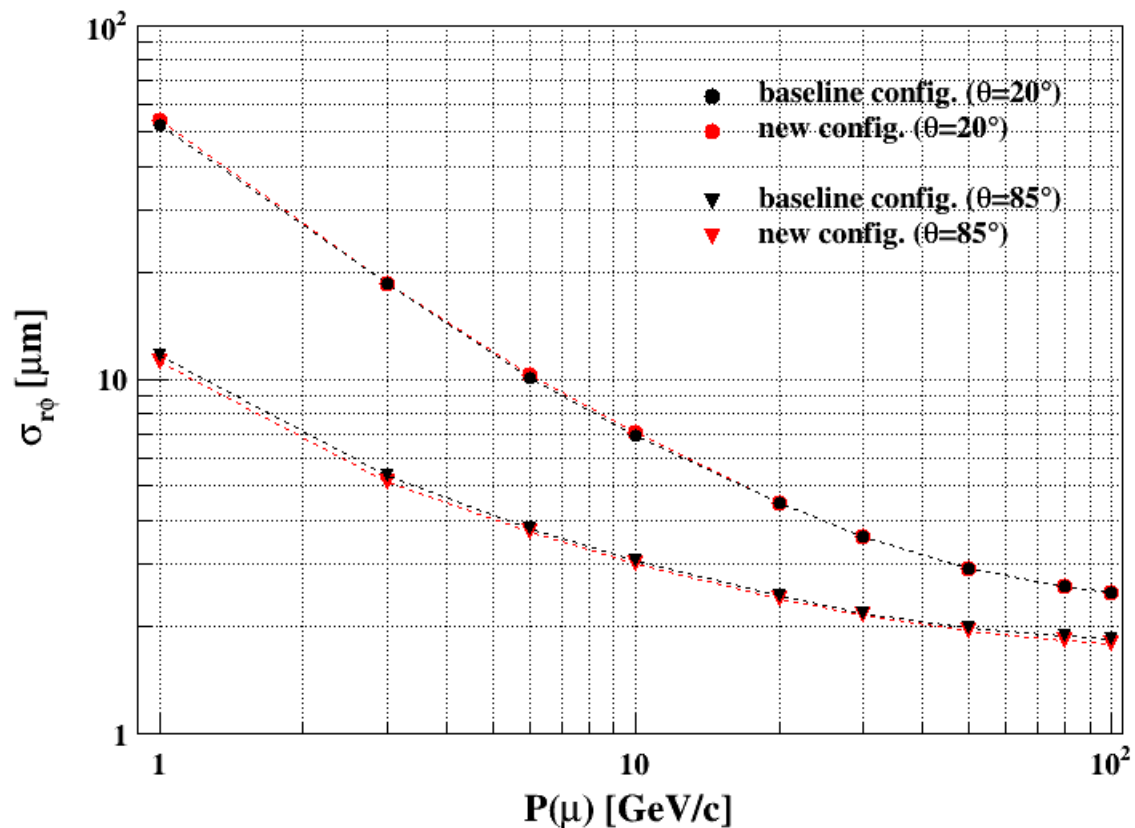
Number of layers of TPC:
 $R=[384, 1716]$,
222 layers (baseline)
↓
 $R=[384, 1116]$,
122 layers (changed)

TPC outermost radius & SET's location is moved



Comparison of performance

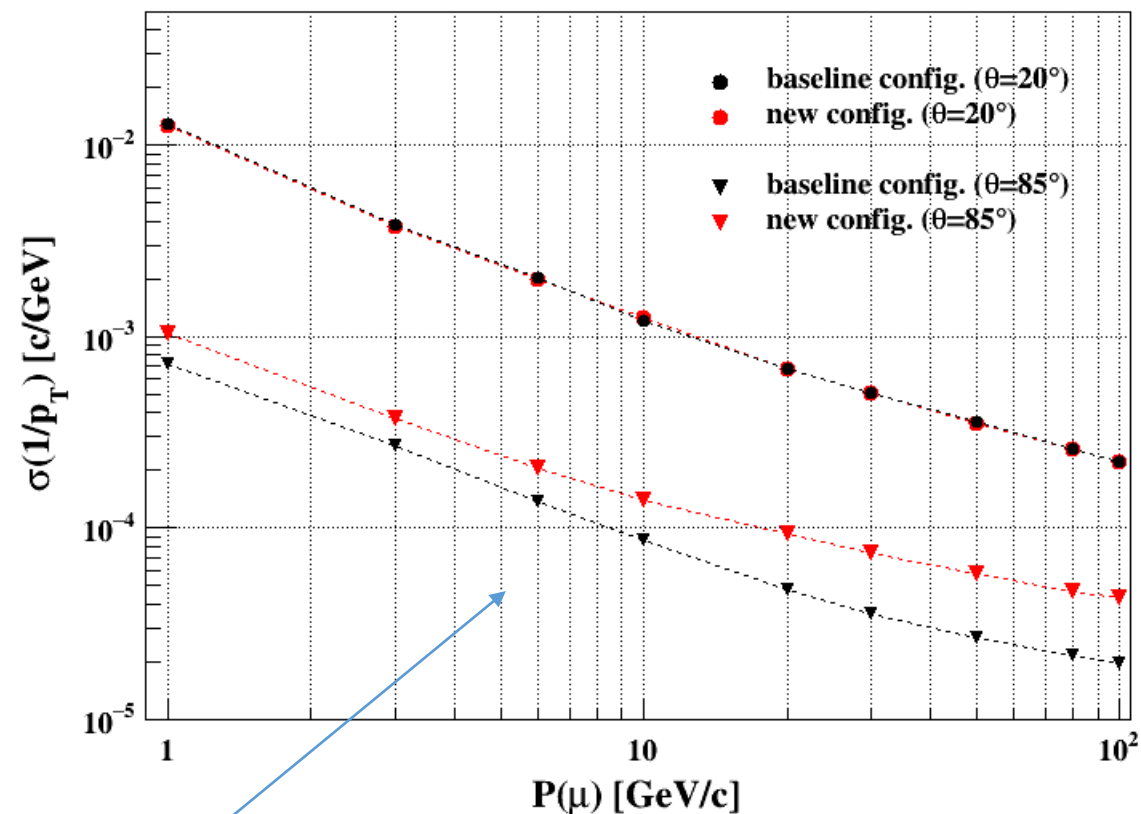
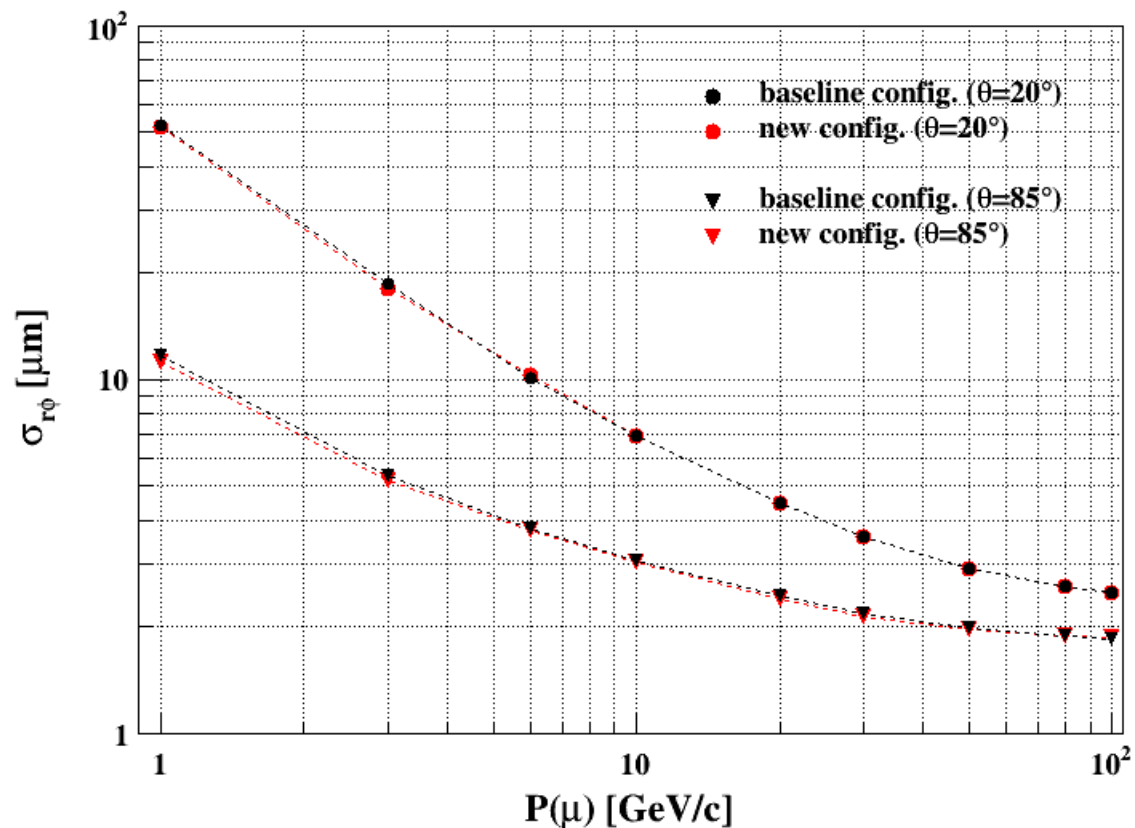
-- “R1500” configuration --



Momentum resolution became worse ($\theta=85^\circ$)

Comparison of performance

-- “R1200” configuration --



Momentum resolution became worse ($\theta=85^\circ$)

Ref: from CDR

