

Endcap Layout Simulation

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6.07

Tracker Dimension (Barrel)

Components	Radius(mm)	Half Z (mm)	$\sigma_{R\phi}(\mu\text{m})$	$\sigma_z(\mu\text{m})$	Thickness(X_0 %)
Beam Pipe	10.35	-	-	-	0.172
VTX (3 double layers)	12.3/14.7/27.9/30.8/43.8/47.5	130/130/247/247374/374	3/3/3/3/3/3	3/3/3/3/3/3	0.17
VTX-shell	84		-	-	0.139
SITs (3 layers)	150/250/500	740/1340/1890	7.2	86.6	0.650
TPC inner wall	610	2980	-	-	0.110
TPC cell	612-1800	-	400	700	0.00127×2300
DC outer wall	1802	-	-	-	1.349
SET	1811	2980	7.2	28800	0.182

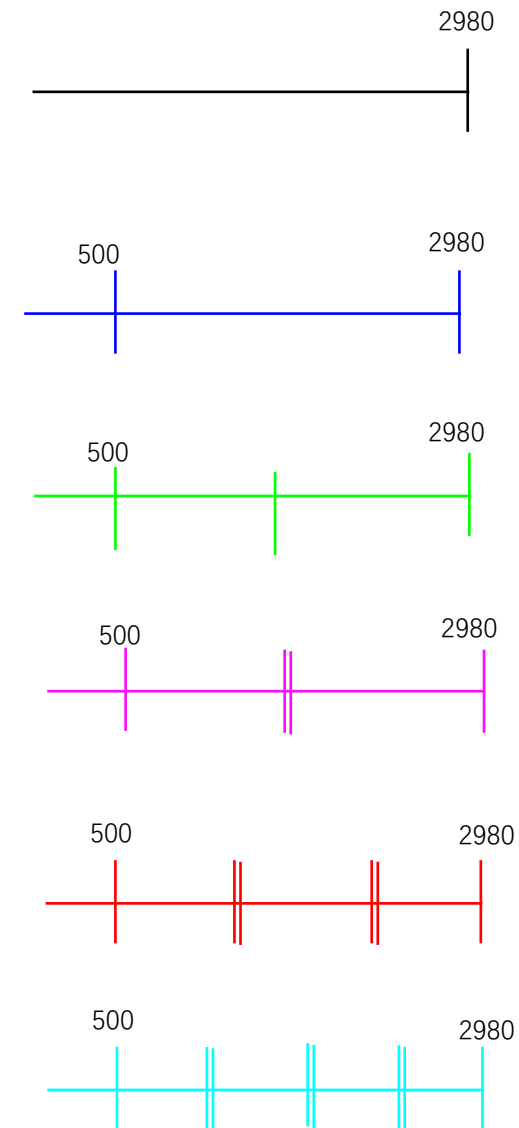
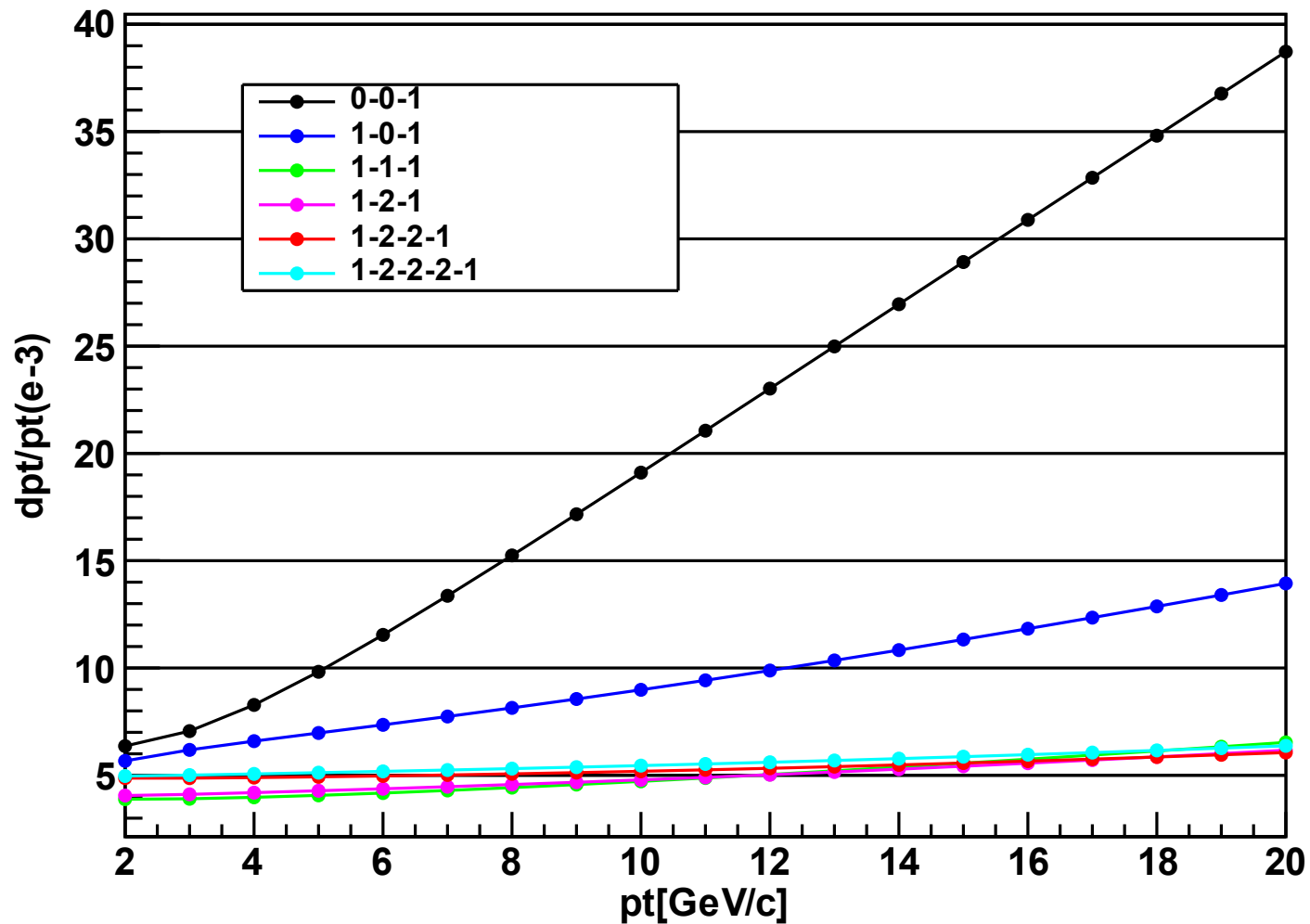
Tracker Dimension (End Caps)

Components	Z (mm)	Rin(mm)	Rout(mm)	$\sigma_{R\phi}$ (um)	σ_R (um)	Thickness(X_0 %)
SIT1	740	105	150	7.2	86.6	0.60
SIT2	1340	191	250	7.2	86.6	0.60
SIT3	1890	269	500	7.2	86.6	0.60
SIT4	2400	342	600	7.2	86.6	0.60
SET	2980	424	1811	7.2	86.6	10

endcap的z 位置与Rin、Rout (红色显示的参数) 会随着endcap不同摆放随之变化

$\theta = 10^\circ$

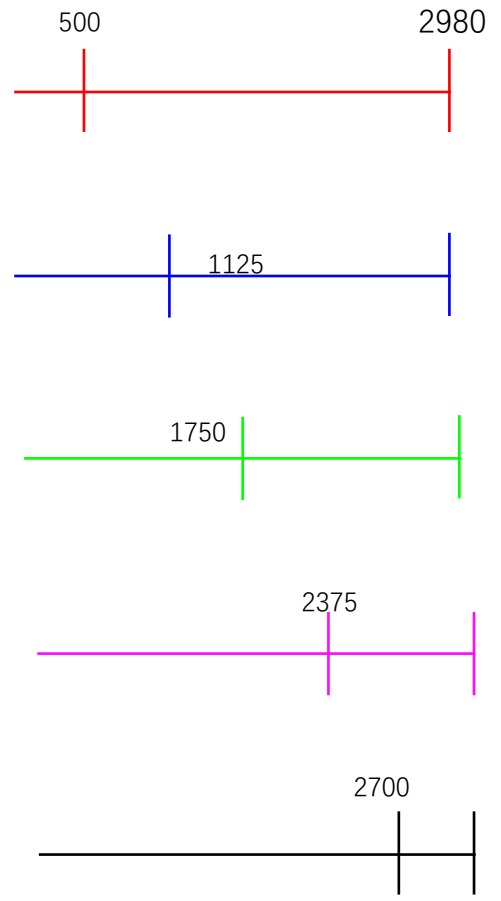
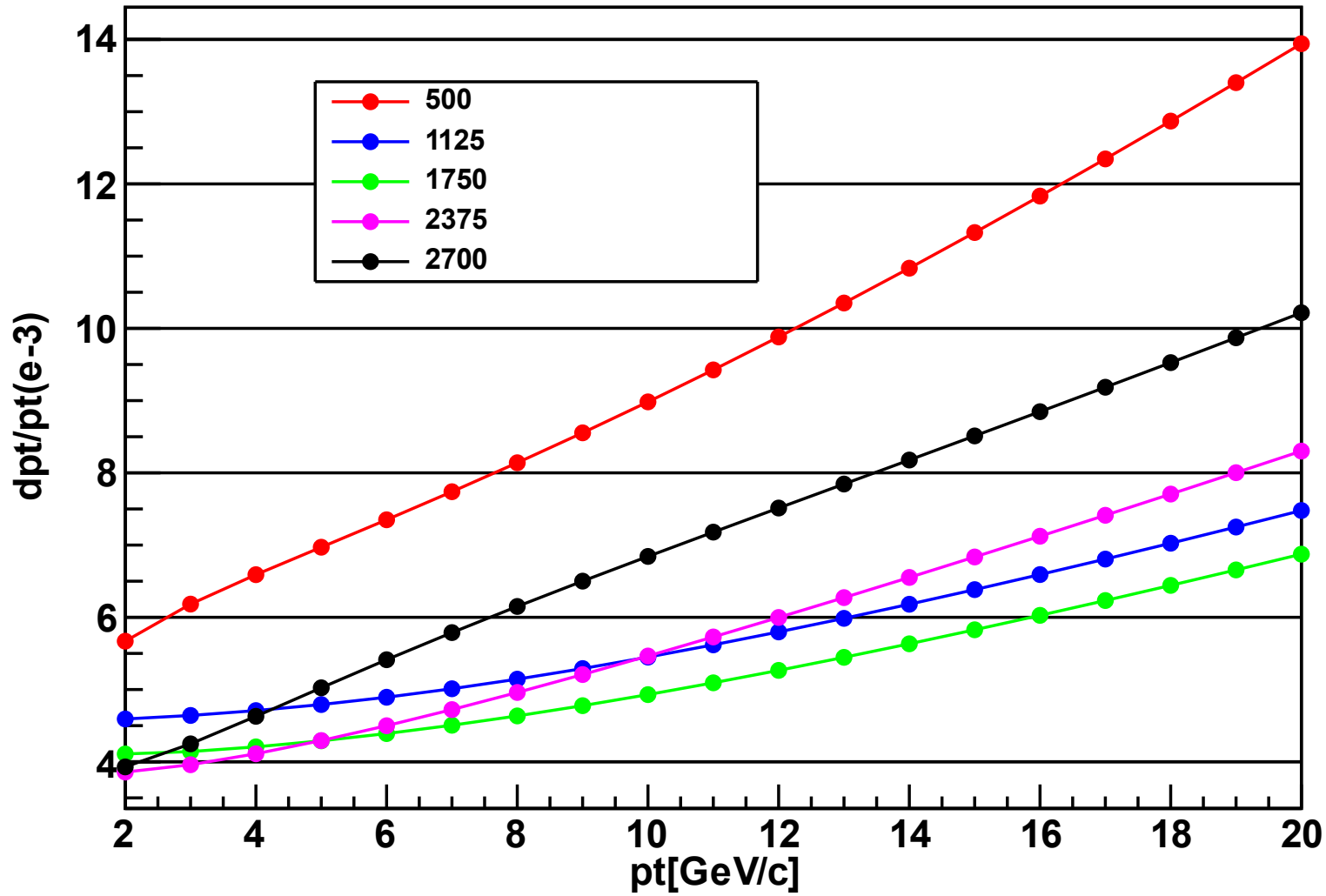
dpt/pt



端盖的数目在两层或以上时，对动量分辨影响的差别已经较小；
使用double layers 和signal layer 基本无差别

只放置一个disk，在不同的位置

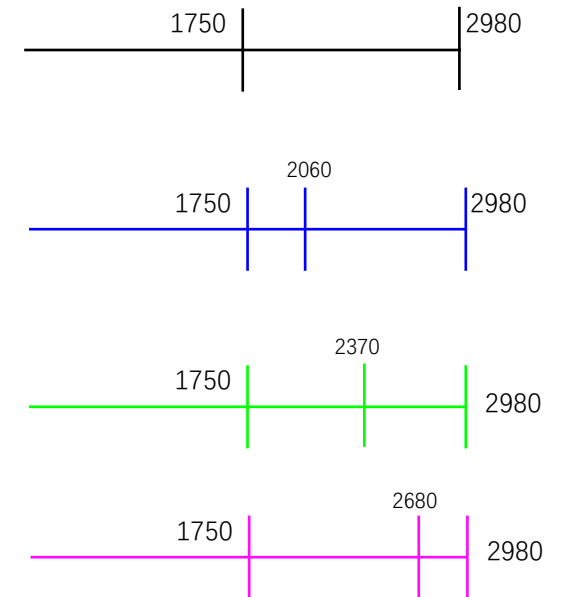
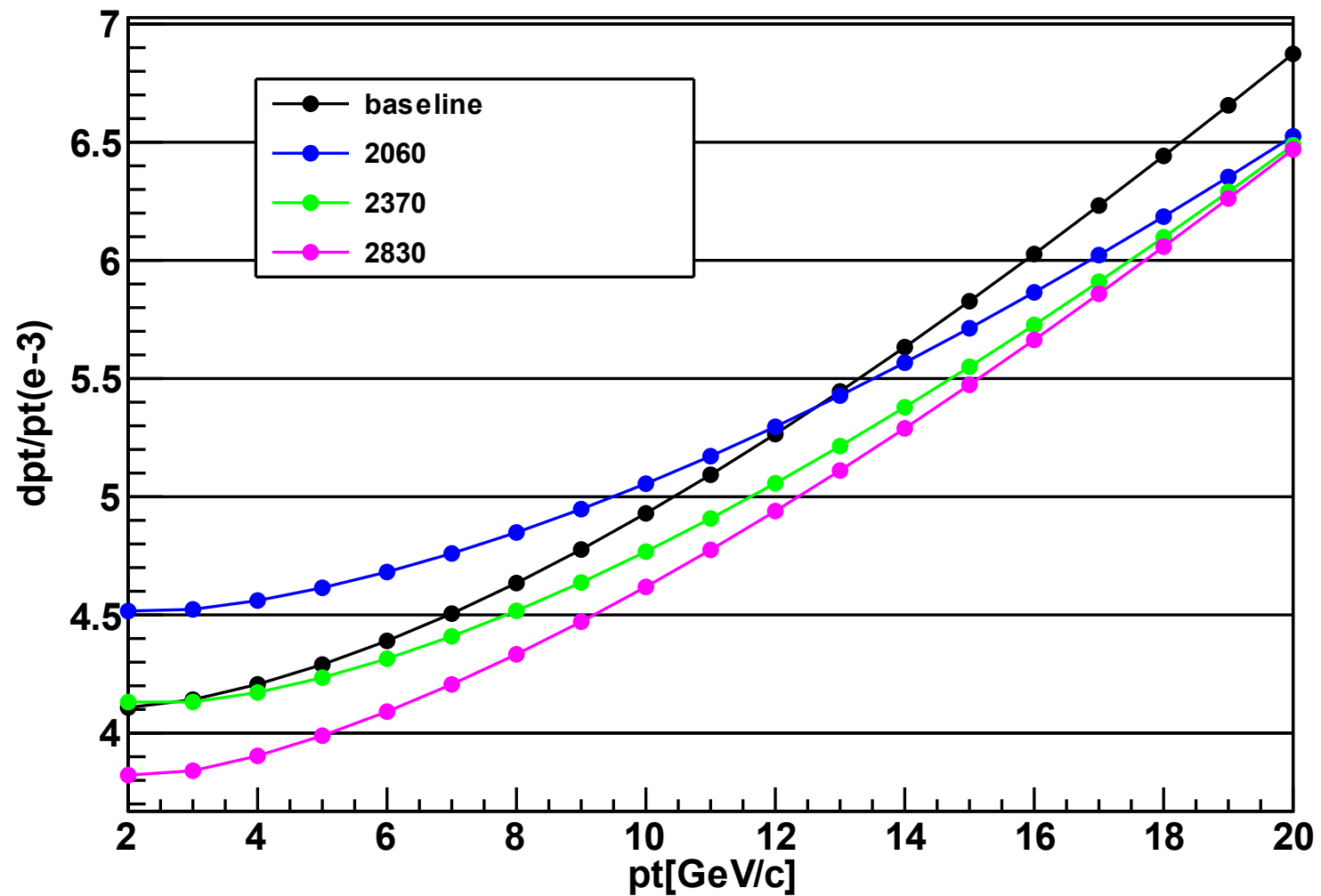
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在只放一个disk的情况下，放在接近中间位置最好

放置两个disk, 最内层在1750mm

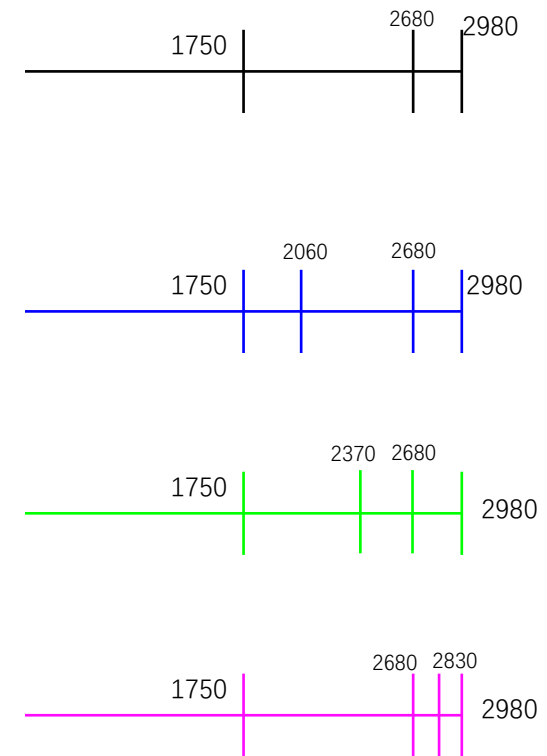
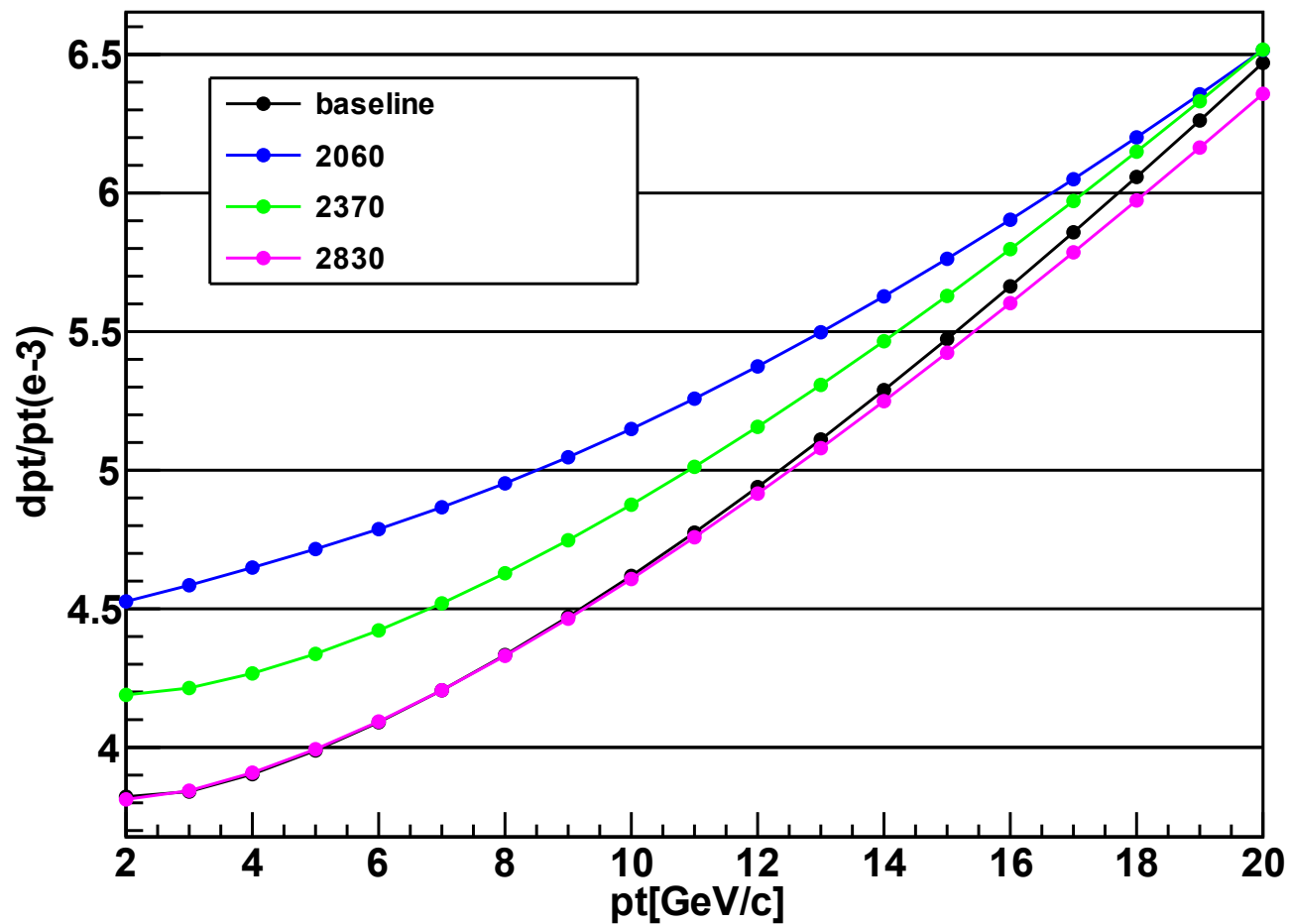
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最内层在1750mm, 放两个disk时, 靠近外侧更好

放置三个disk，最内层在1750mm

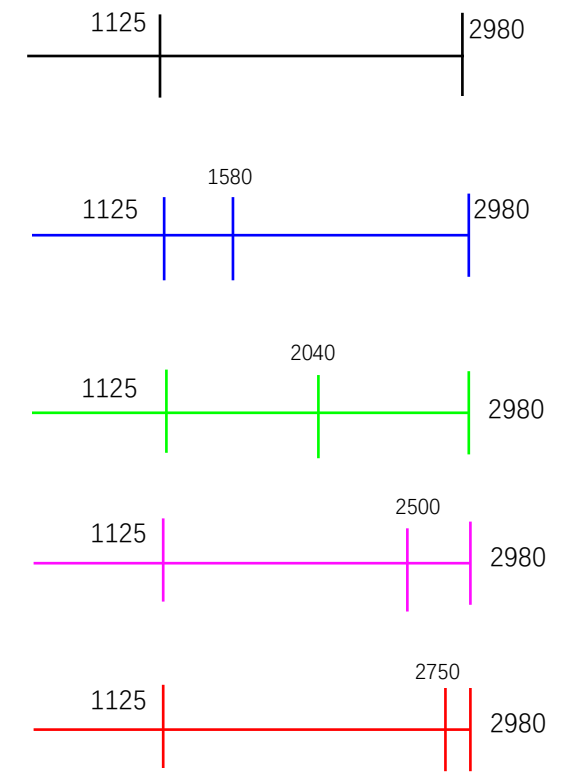
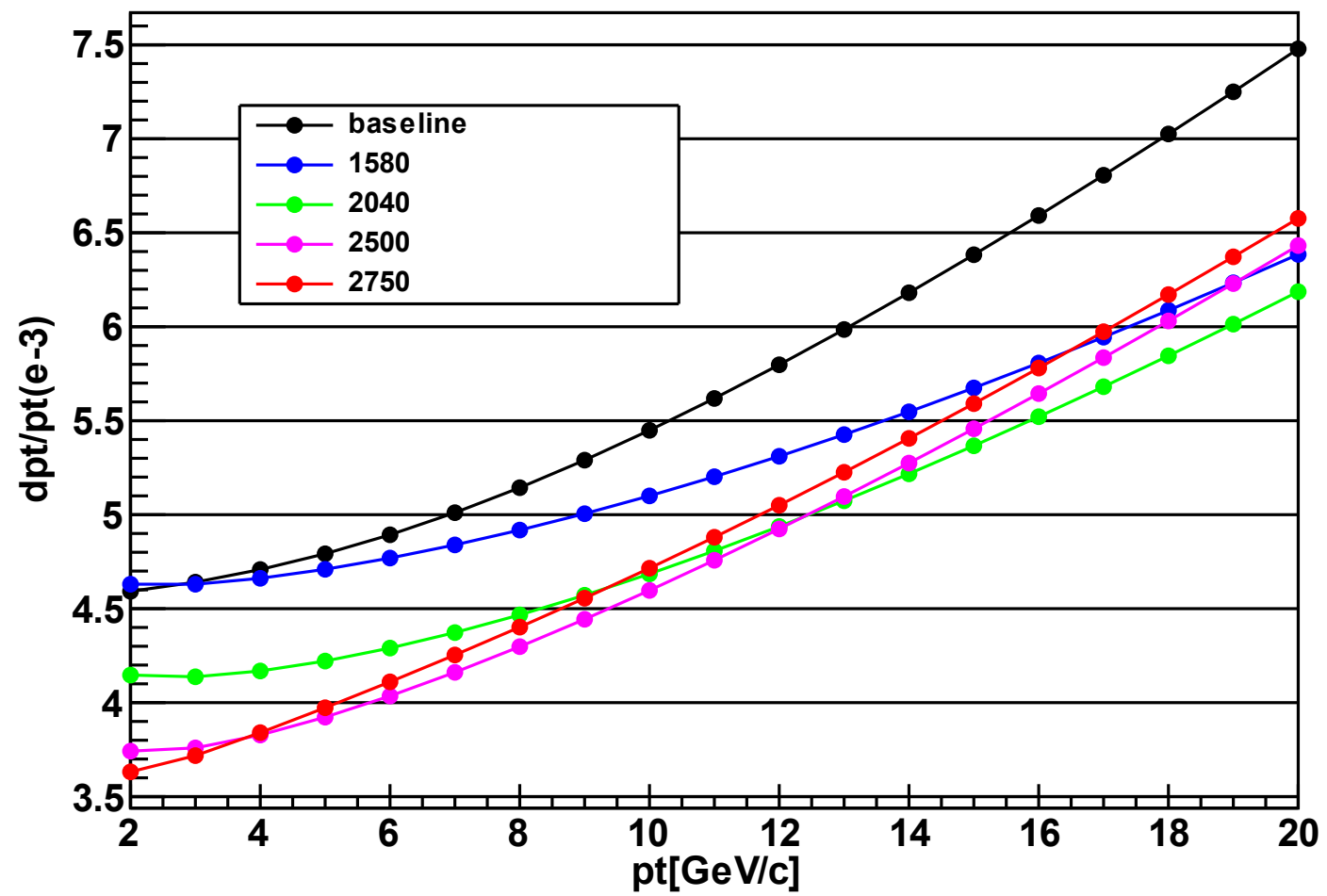
dpt/pt



最内层在1750mm，放三个disk时，靠近外侧放更好

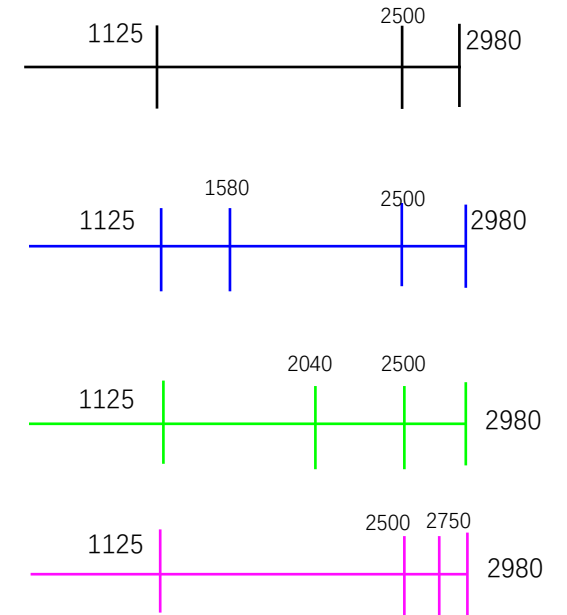
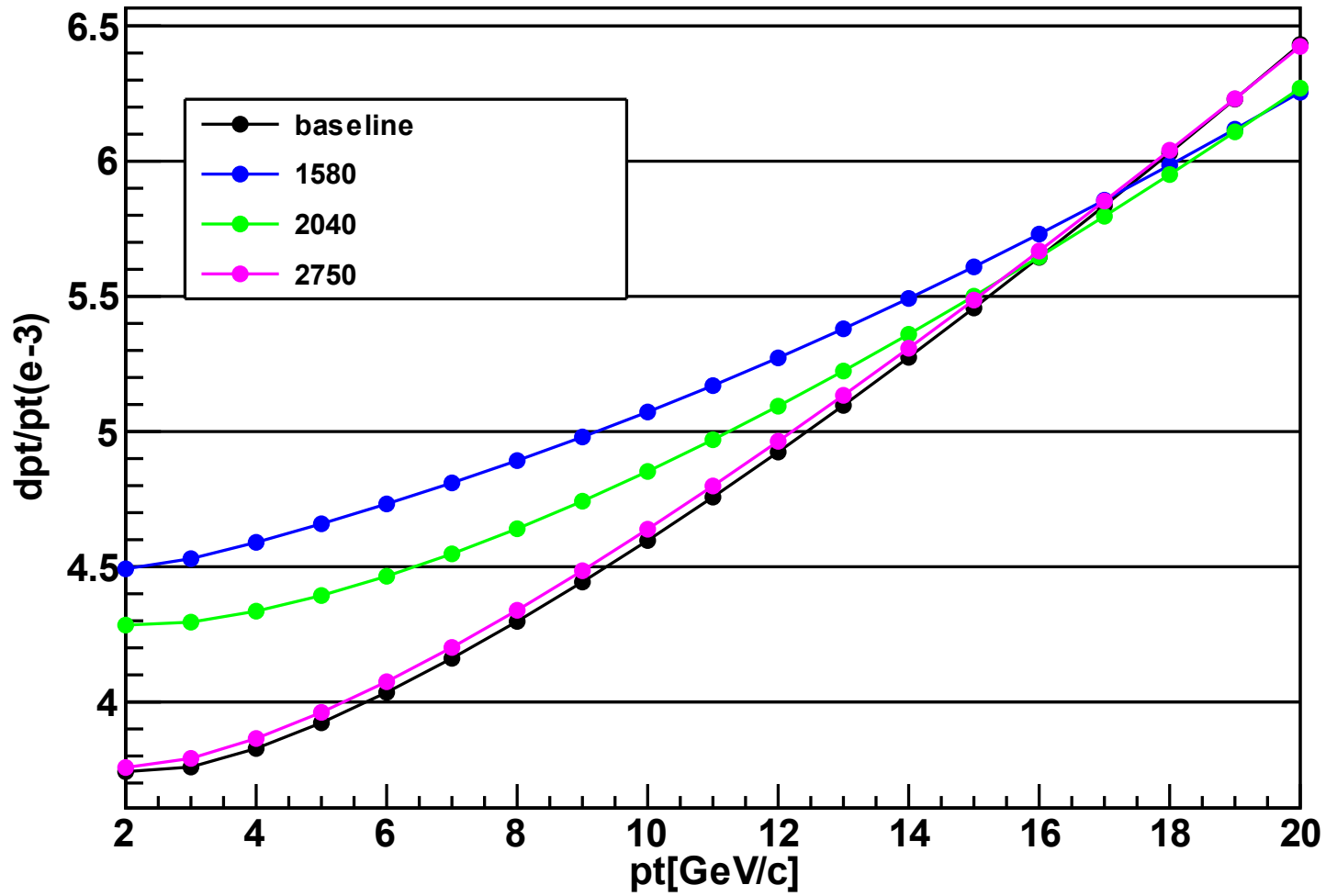
放置两个disk, 最内层在1125mm

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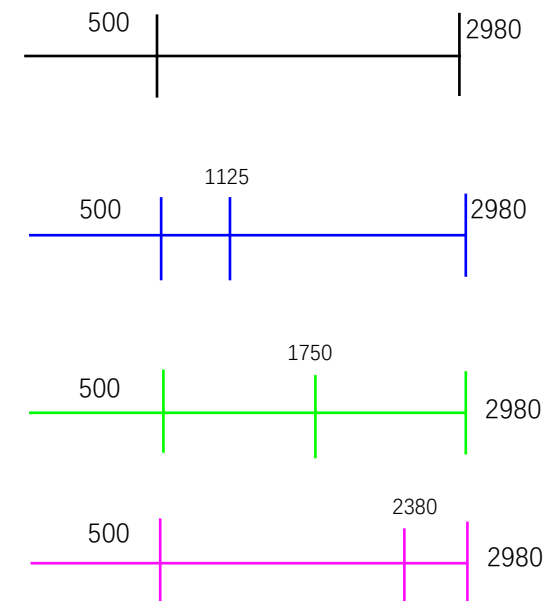
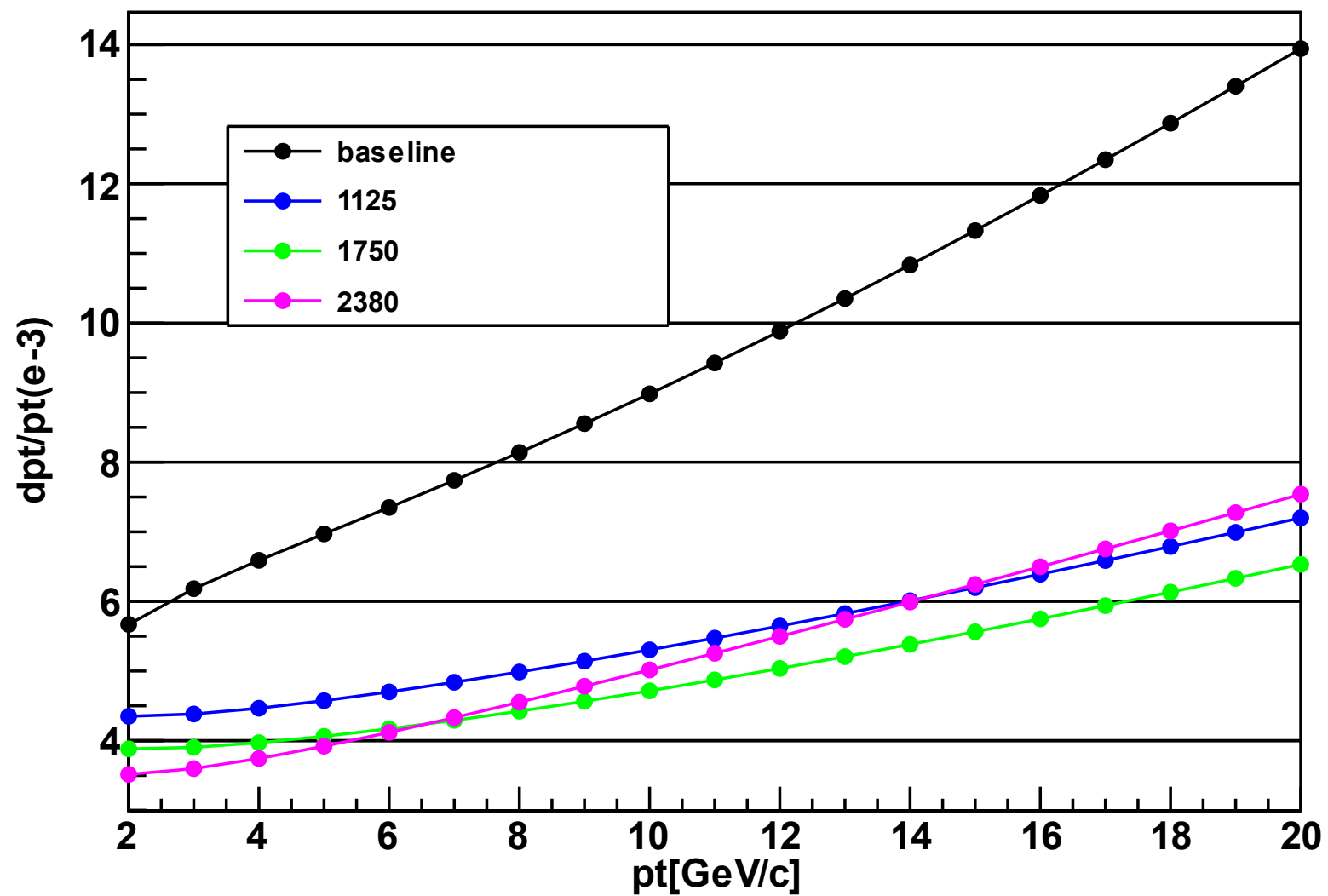
放置三个disk, 最内层在1125mm

dpt/pt



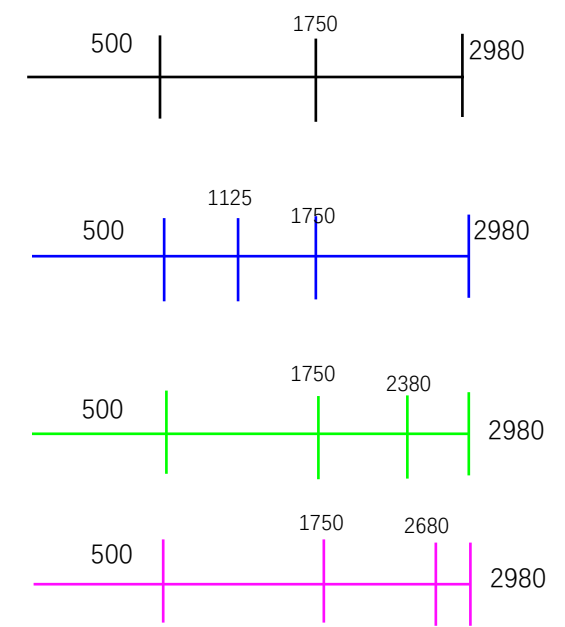
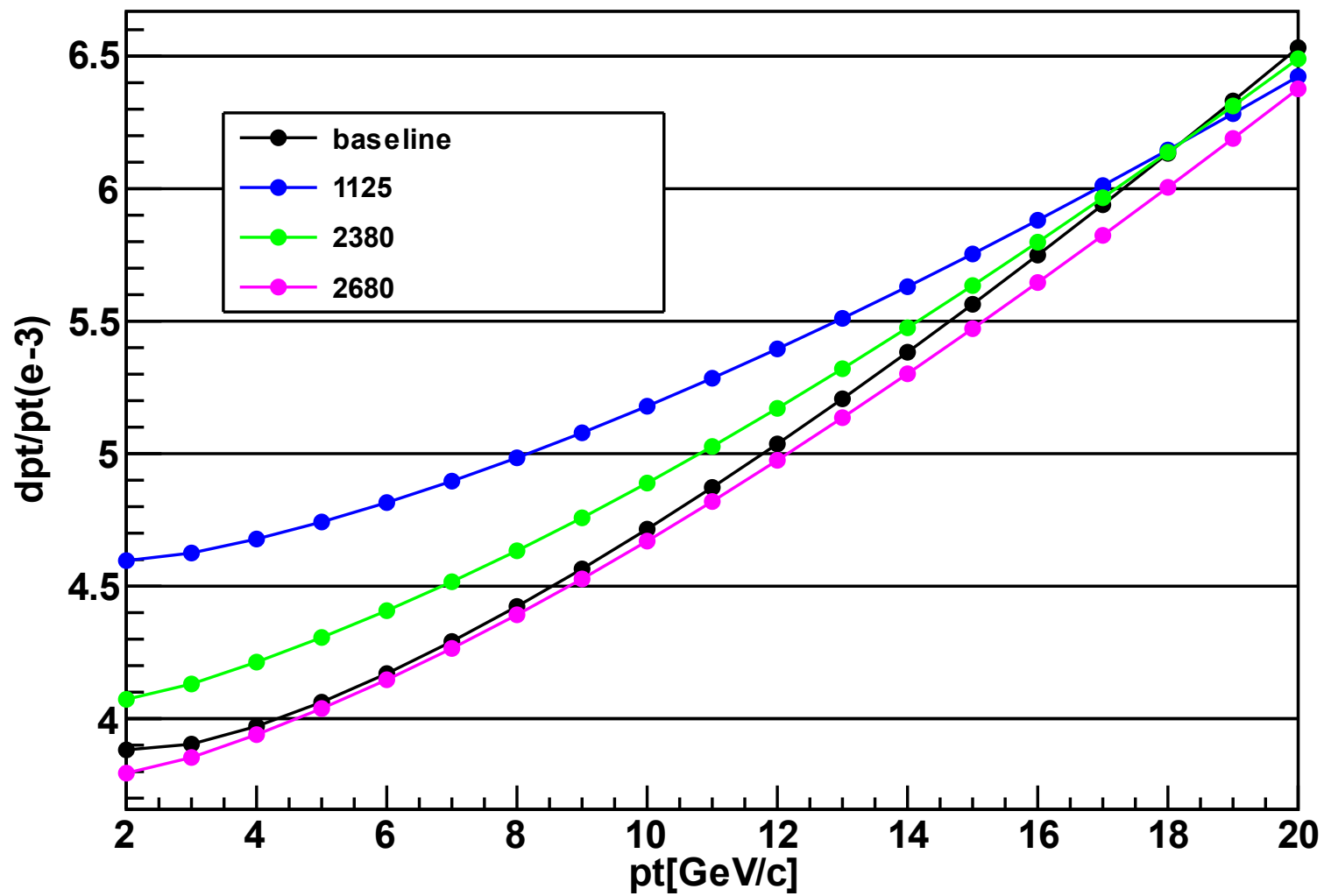
放置两个disk, 最内层在500mm

dpt/pt



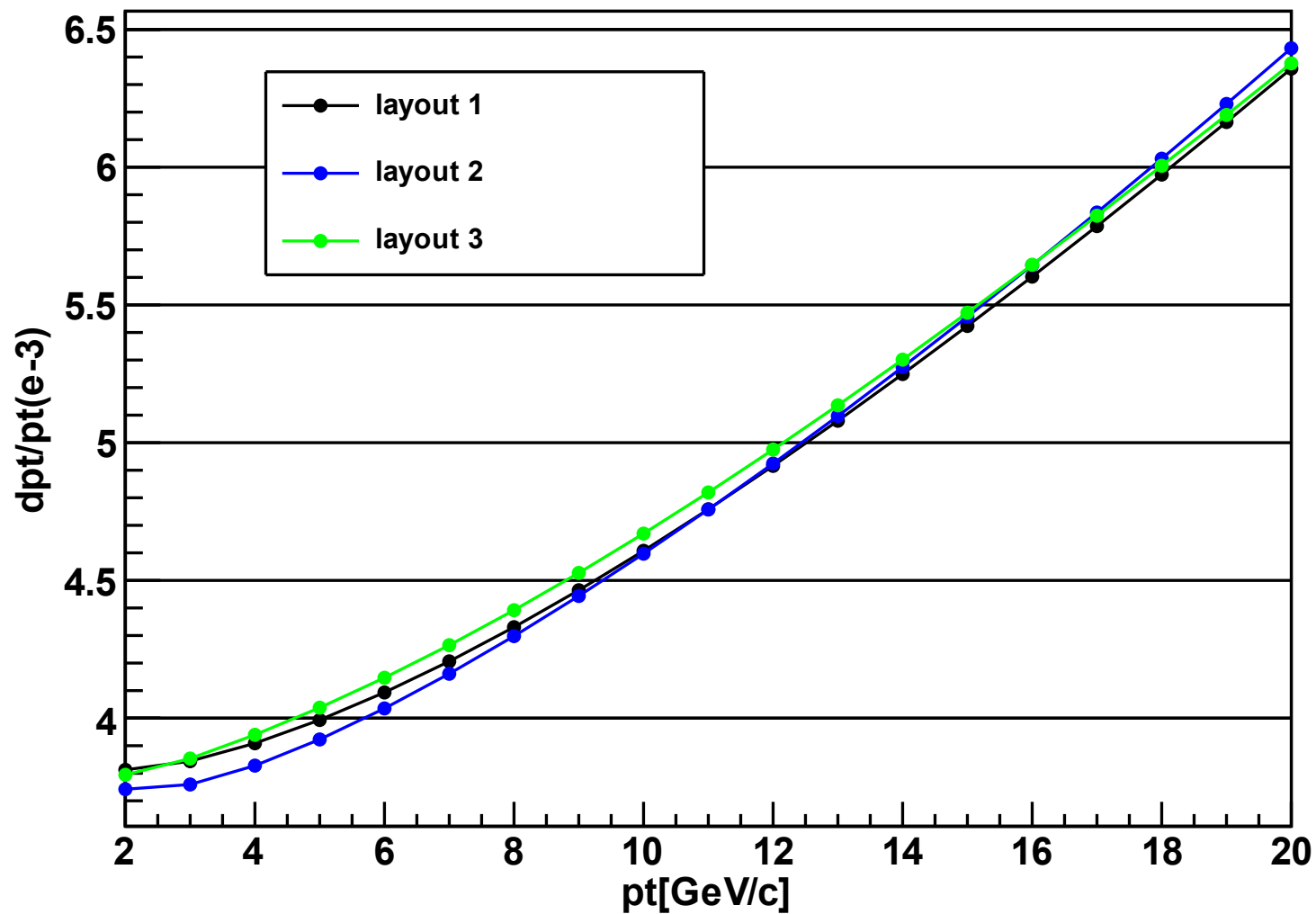
放置三个disk, 最内层在500mm

dpt/pt

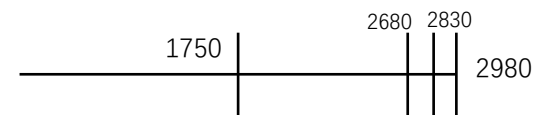


最优结果比较

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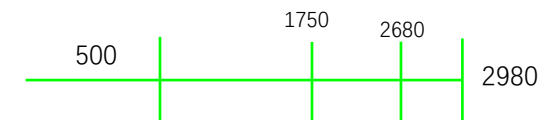
layout 1



layout 2



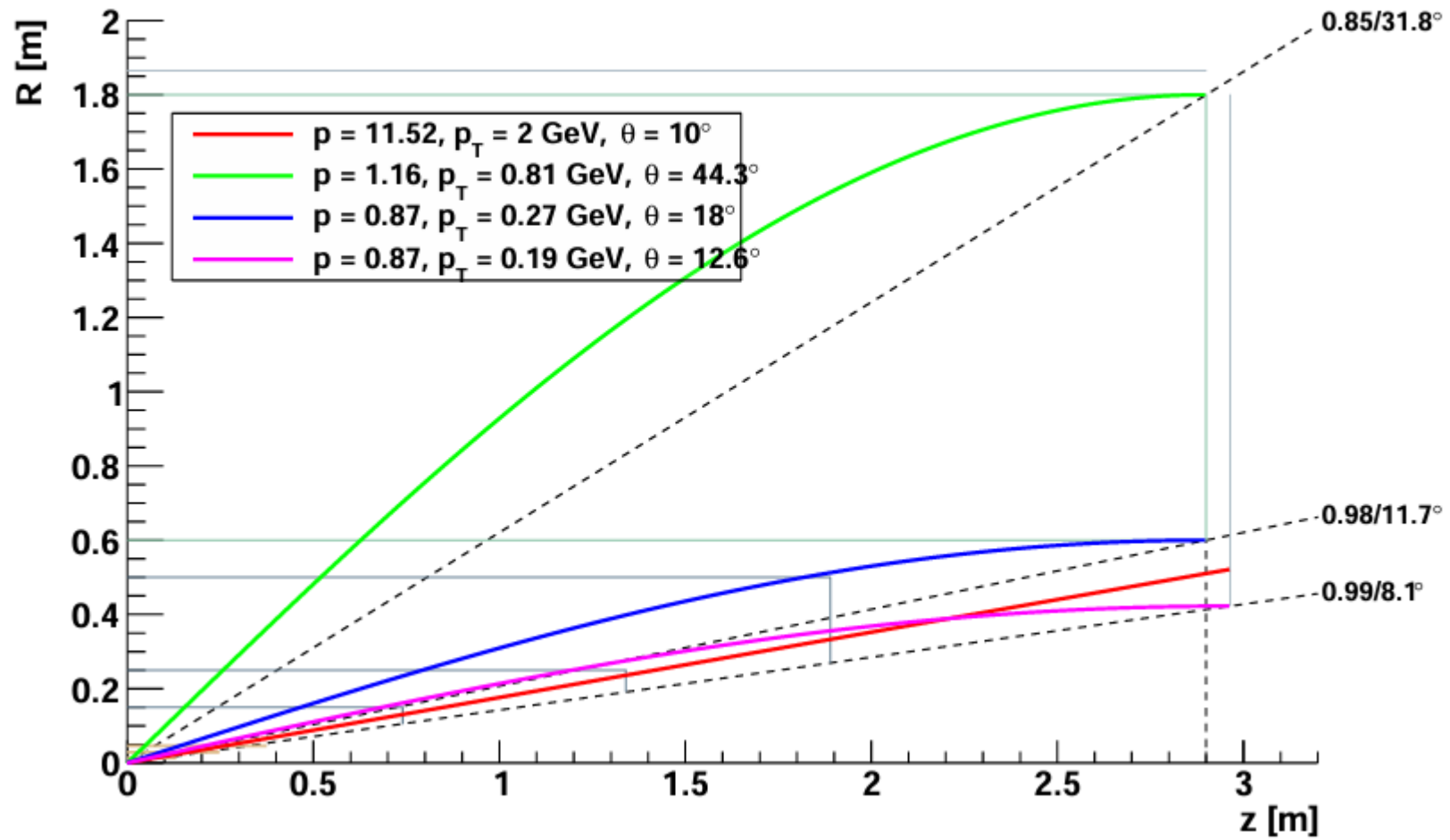
layout 3



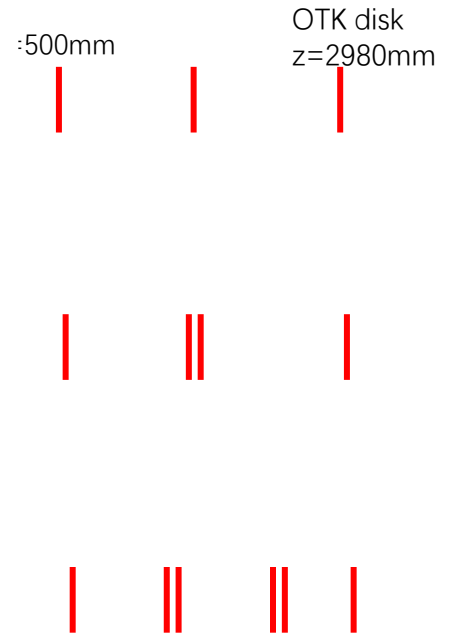
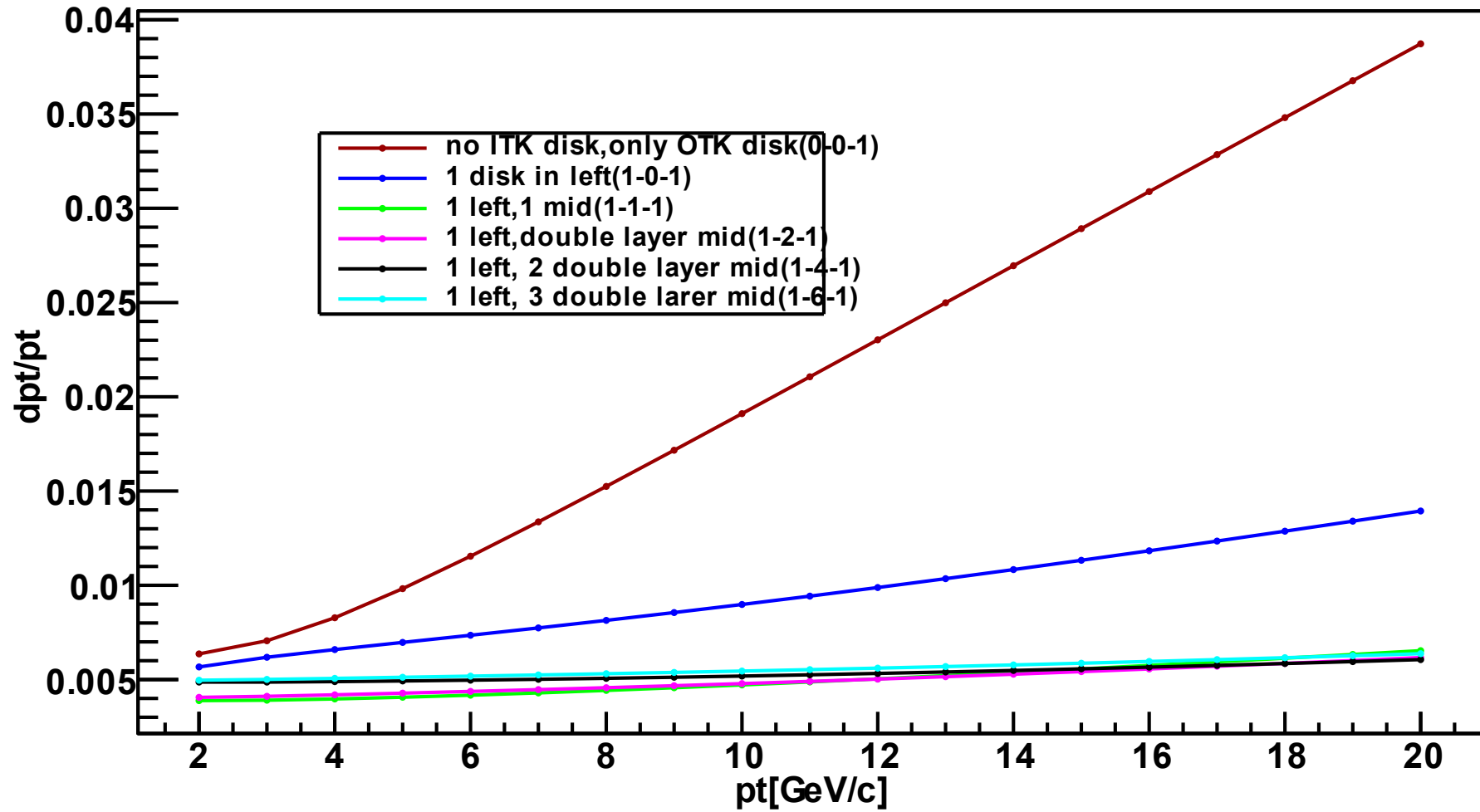
summary

- disk的数目若为1时，放在中间位置结果最好
- disk数目为2或3时，动量分辨的相对差别较小在1‰以内；绝对值在3.5~8‰之间。
- 对disk的位置摆放，更倾向与靠近外侧或中间，动量分辨更好。

Back up

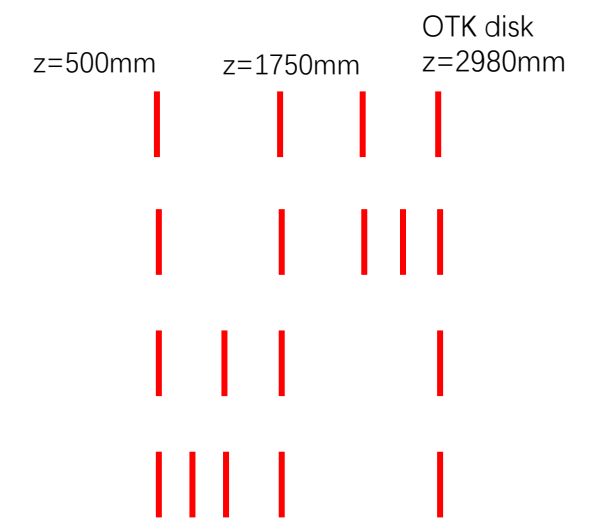
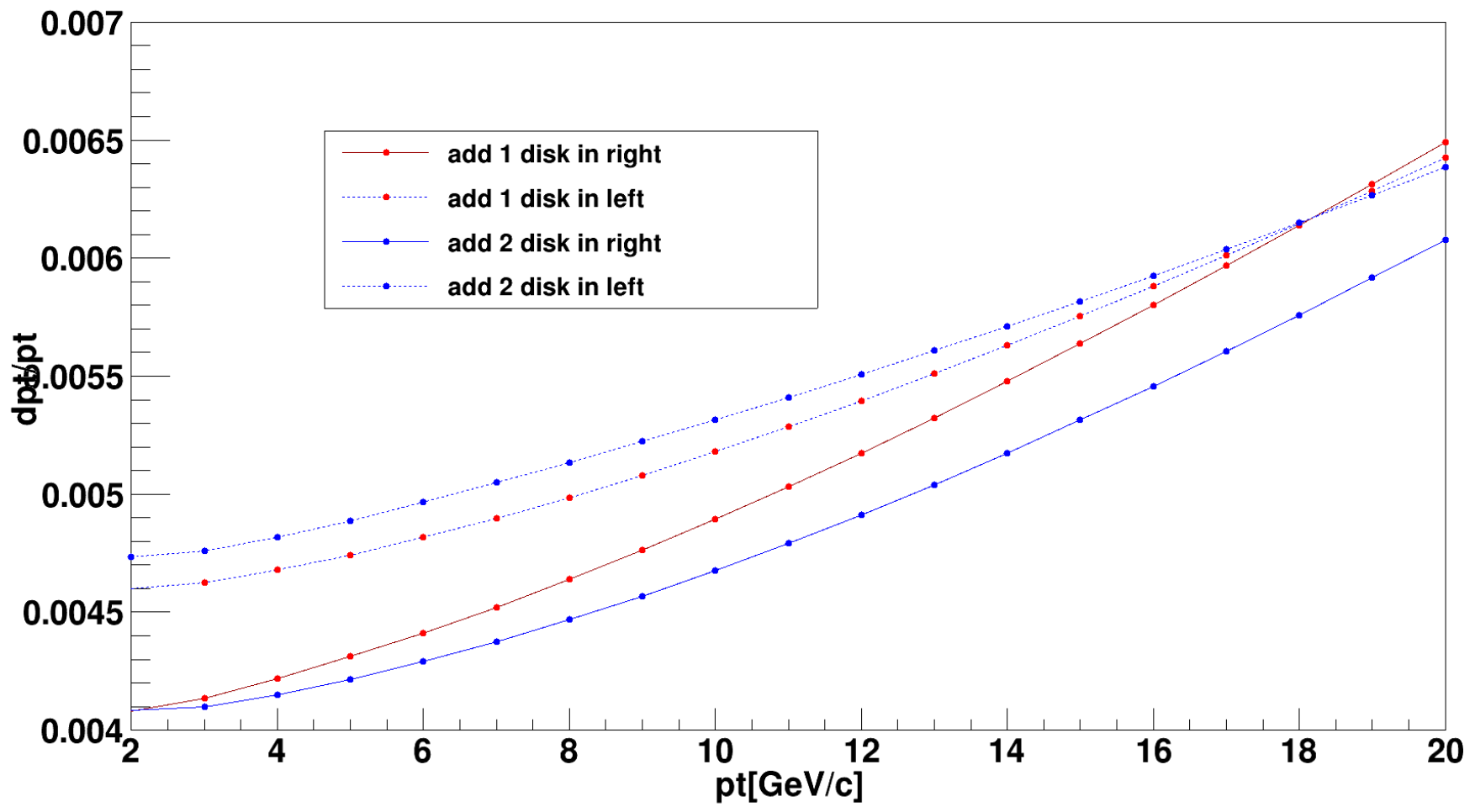


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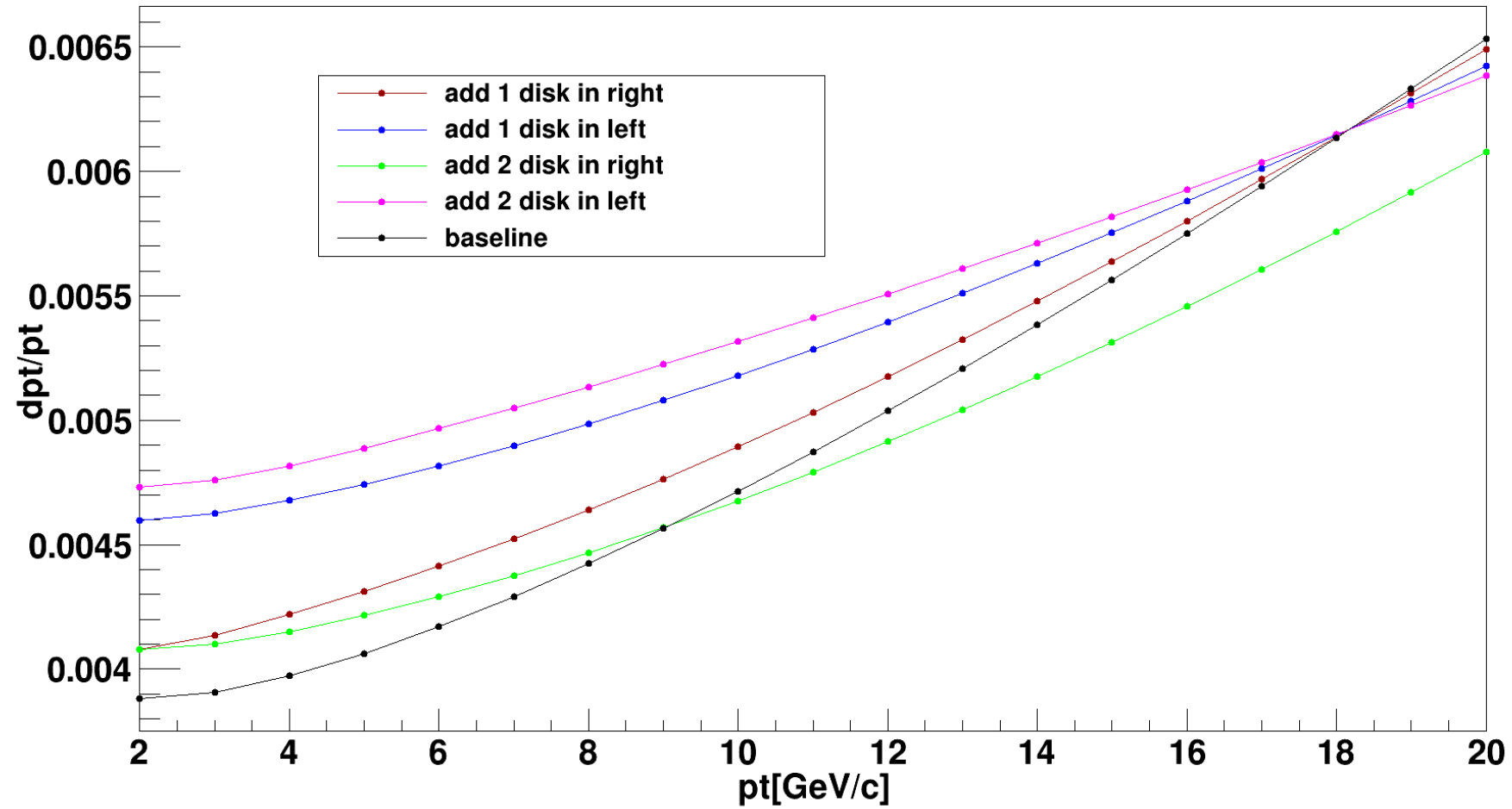


dpt/pt

$\theta = 10^\circ$



dpt/pt



筒部的结果

