

Status of SDT simulation

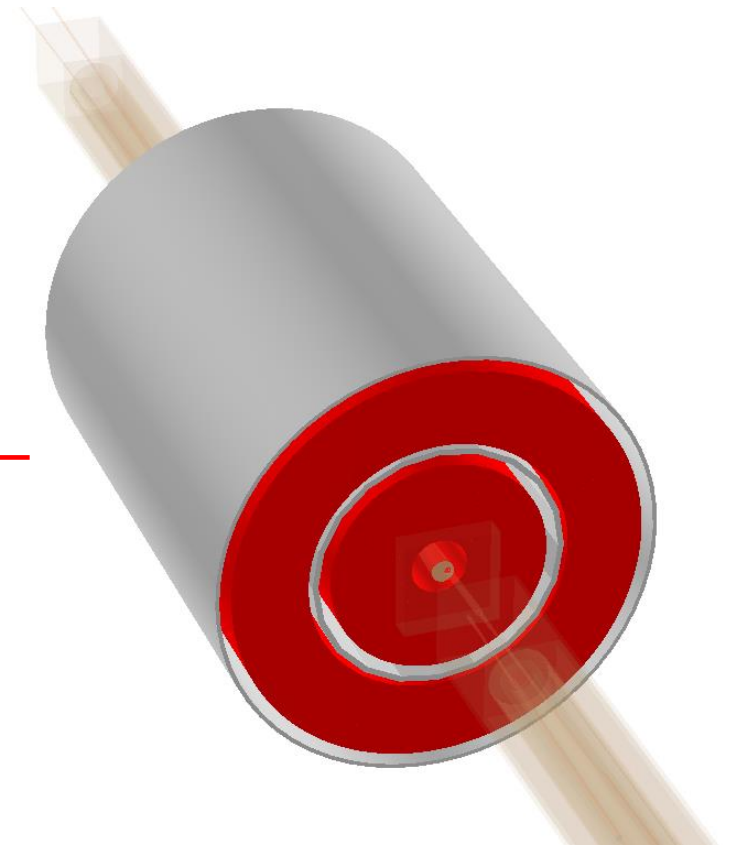
Ryuta

09/14/2020₁

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01 LiC Detector-Toy (barrel)
02 LDC-basic-Japan
03 Version: 120208
04 Vertex Detector (VTX)
05
06 Number of layers : 14
07 Description (optional) : |-Beamt.-|-----Vertex detector-----
08 Names of the layers (opt.) : XBT, VTX1, XVTX1, XVTX2, VTX2, VTX3, XVTX3, XVTX4,
09 Radii [mm] : 14.5, 15.95, 16, 17, 18, 36.95, 37, 38,
10 Upper limit in z [mm] : 4225, 62.5, 62.5, 62.5, 62.5, 125, 125, 125,
11 Lower limit in z [mm] : -4225, -62.5, -62.5, -62.5, -62.5, -125, -125, -125,
12 Efficiency RPhi : 0, 0.99, 0, 0, 0.99, 0.99, 0, 0,
13 Efficiency 2nd coord. (eg. z): -1
14 Stereo angle alpha [Rad] : pi/2
15 Thickness [rad. lengths] : 0.0014, 0.00053, 0.00098, 0.00098, 0.00053, 0.00053, 0.00098, 0.00098,
16 error distribution : 0
17 0 normal-sigma(RPhi) [1e-6m] :
18 sigma(z) [1e-6m] : 2.8, 2.8, 6, 6, 4, 4,
19 1 uniform-d(RPhi) [1e-6m] :
20 d(z) [1e-6m] :
21
22 Silicon Inner Tracker (SIT)
23
24 Number of layers : 11
25 Description (optional) : |-----Inner tracker-----
26 Names of the layers (opt.) : SIT1, XSIT1, XSIT2, SIT2, SIT3, XSIT3, XSIT
27 Radii [mm] : 152.9, 153.1, 154.4, 155.4, 999.9, 1000.1, 1001
28 Upper limit in z [mm] : 371.3, 371.3, 371.3, 371.3, 2350, 2350, 2350
29 Lower limit in z [mm] : -371.3, -371.3, -371.3, -371.3, -2350, -2350, -235
30 Efficiency RPhi : 0.99, 0, 0, 0, 0.99, 0, 0,
31 Efficiency 2nd coord. (eg. z): 0, 0, 0, 0.99, 0, 0, 0,
32 Stereo angle alpha [Rad] : 7*(pi/180), 7*(pi/180), 7*(pi/180), 7*(pi/180), 7*(pi/180), 7*(pi/180), 7*(p
33 Thickness [rad. lengths] : 0.00213, 0.00468, 0.00468, 0.00213, 0.00213, 0.00468, 0.00
34 error distribution : 0
35 0 normal-sigma(RPhi) [1e-6m] : 7
36 sigma(z) [1e-6m] : 7
37 1 uniform-d(RPhi) [1e-6m] :
38 d(z) [1e-6m] :
39
40 Time Projection Chamber (TPC)
41 sigma^2=sigma0^2+sigma1^2*sin(beta)^2+Cdiff^2*6mm/h*sin(theta)*Ldrift[m]
42 Number of layers : 67,63
43 Radii [mm] : 235,905,1085,1716
44 Upper limit in z [mm] : 2225
45 Lower limit in z [mm] : -2225
46 Efficiency RPhi : 1
47 Efficiency z : 1
48 Thickness [rad. lengths] : 0.00005194
49 sigma0(RPhi) [1e-6m] : 50
50 sigma1(RPhi) [1e-6m] : 900
51 Cdiff(RPhi) [1e-6m/sqrt(m)] : 25
52 sigma0(z) [1e-6m] : 400
53 sigma1(z) [1e-6m] : 0
54 Cdiff(z) [1e-6m/sqrt(m)] : 80
55

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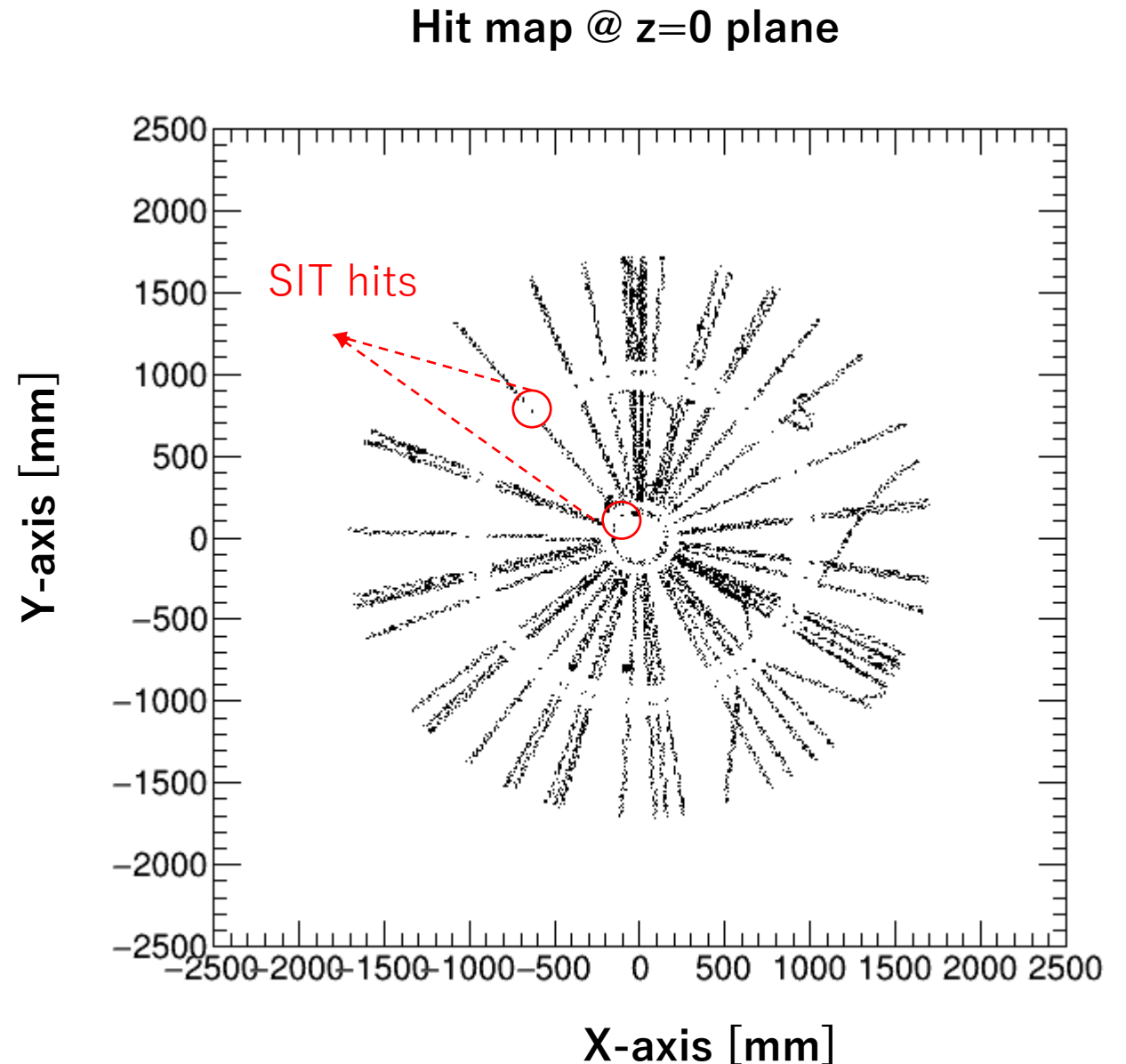


shift SIT3/4 to 1000 mm

prepare (split) two MDCs

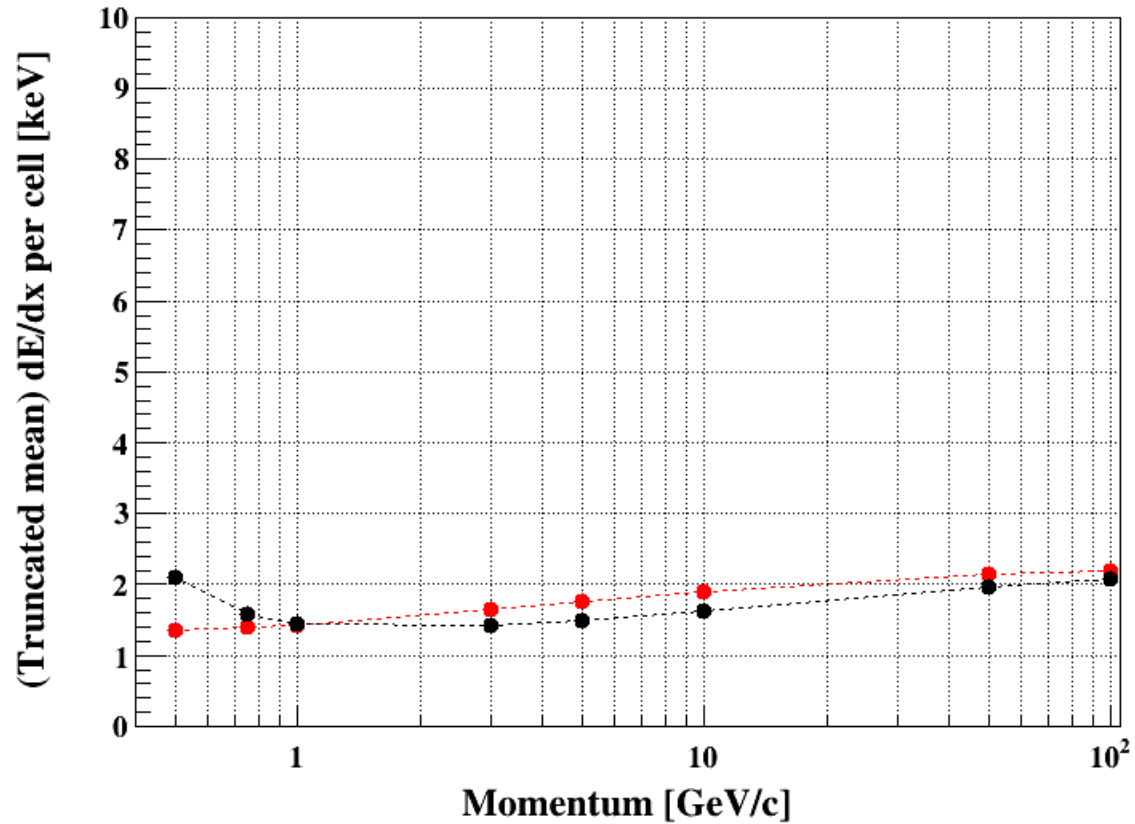
Condition

- VXD – SIT1/2 – MDC1 – SIT3/4 – MDC2 - SET
 - $R_{\max} = 1.8 \text{ m}$ (kept the same)
 - Particle injection : $q=0^\circ$, π/K , particle gun
 - from MDC point of view, almost the same, number of layers, cell size. Just the position is updated.
 - detector “hole” is fixed (as introduced last time)
-
- data analysis (kept the same)
 - only touching MDC hits

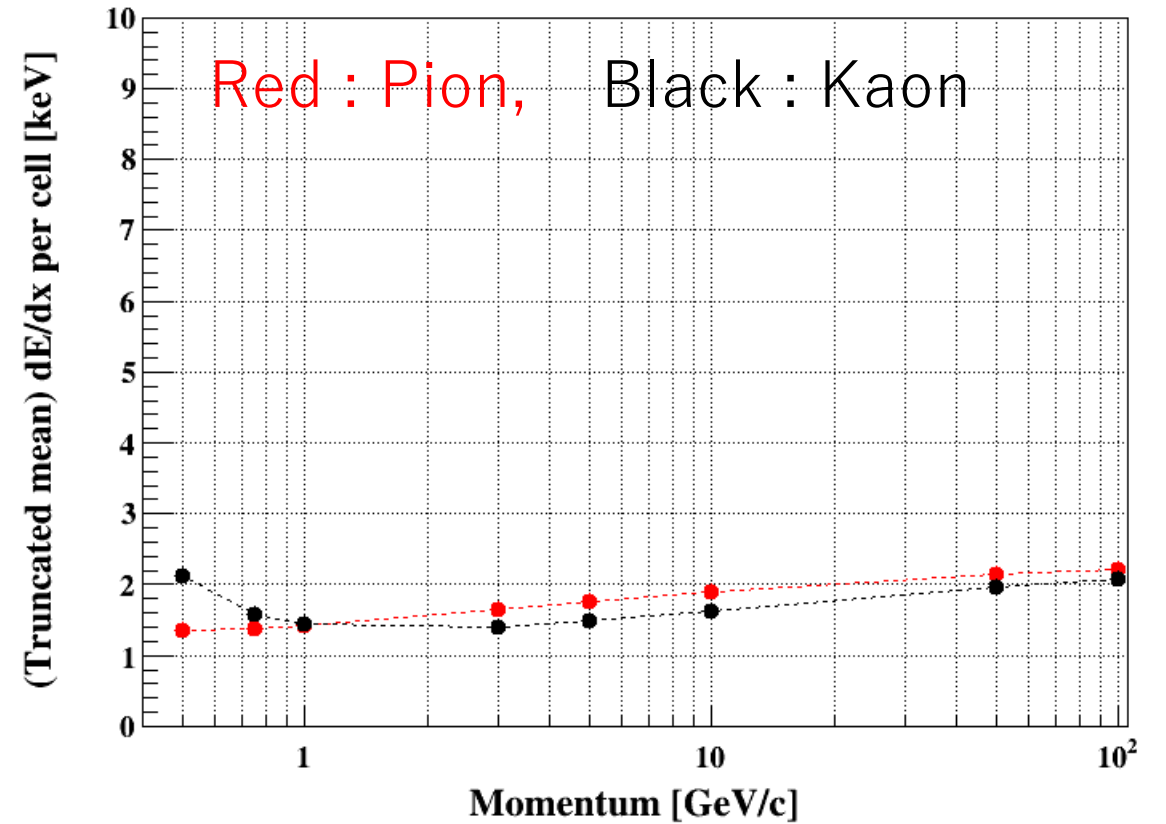


Energy deposit

2*MDC config.



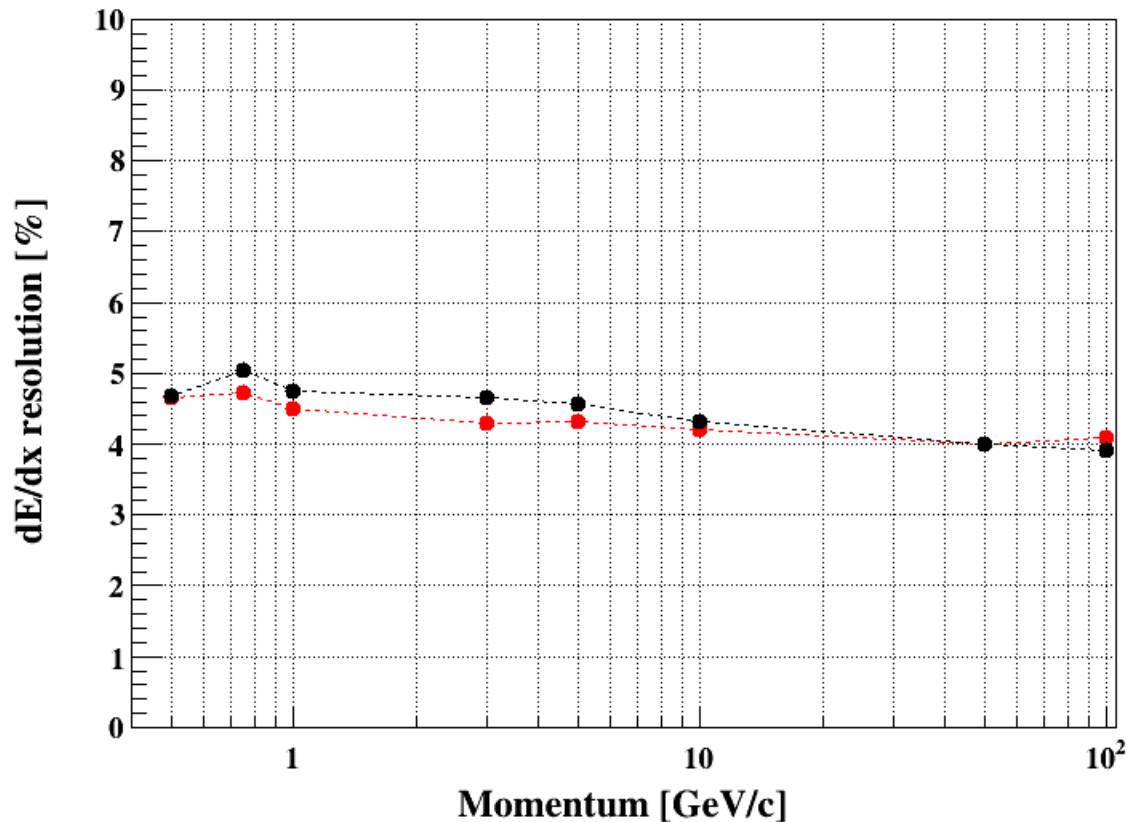
(hist. in last meeting)



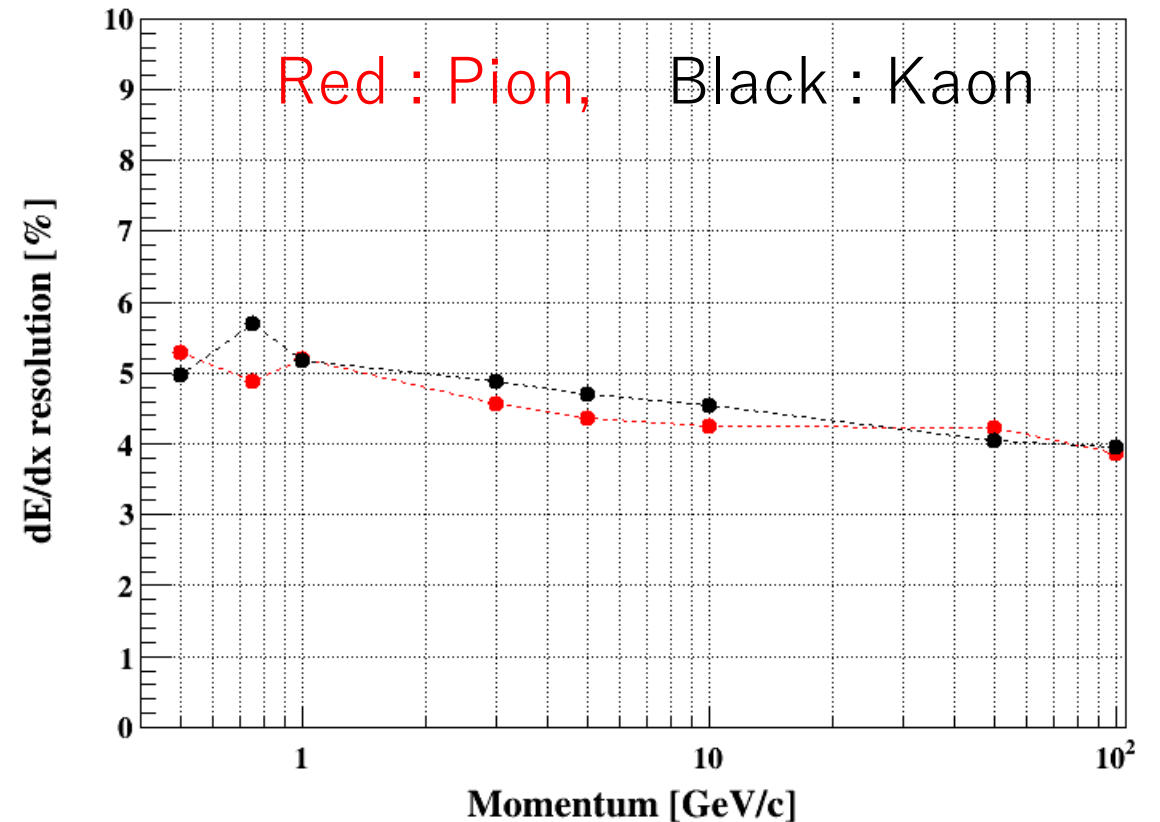
looks almost the same

dE/dx resolution

2*MDC config.



(hist. in last meeting)

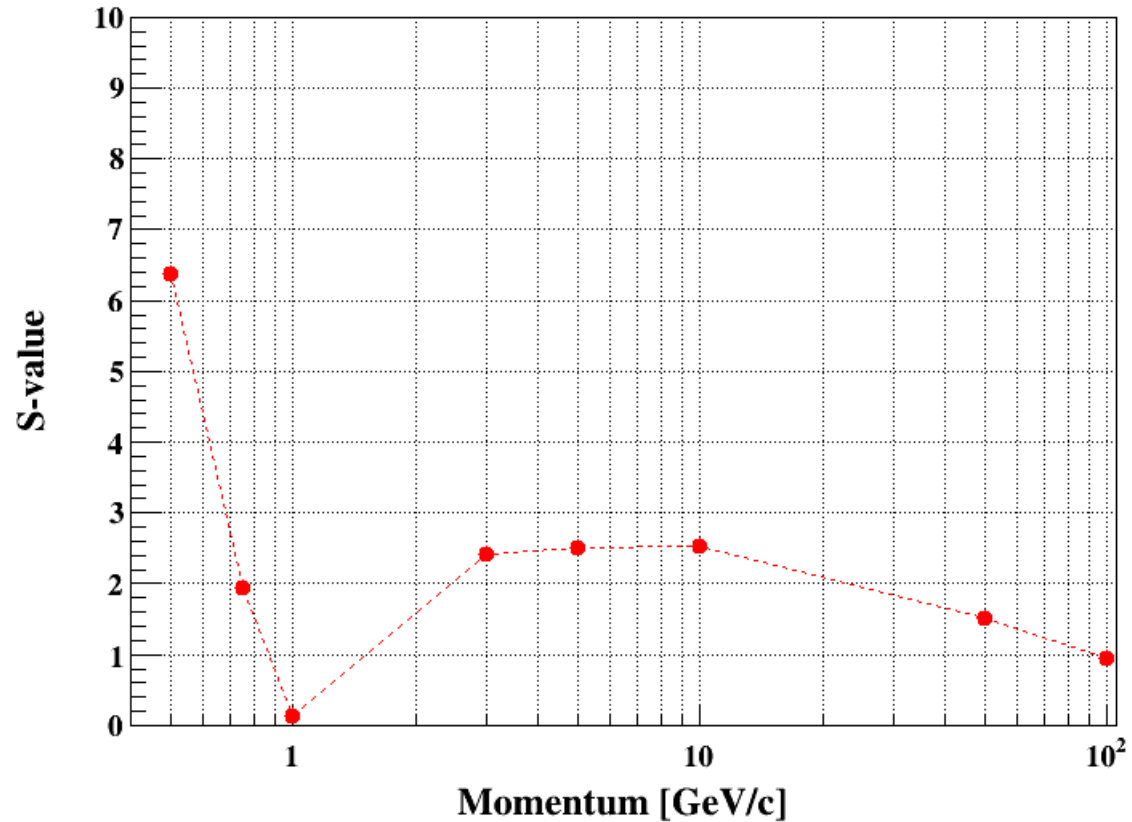


resolution changes slightly (by number of events or bug fix or ...?)

S-value

-- K/ π separation --

2*MDC config.



(hist. in last meeting)

