K-Koto Meeting

2020/05/13

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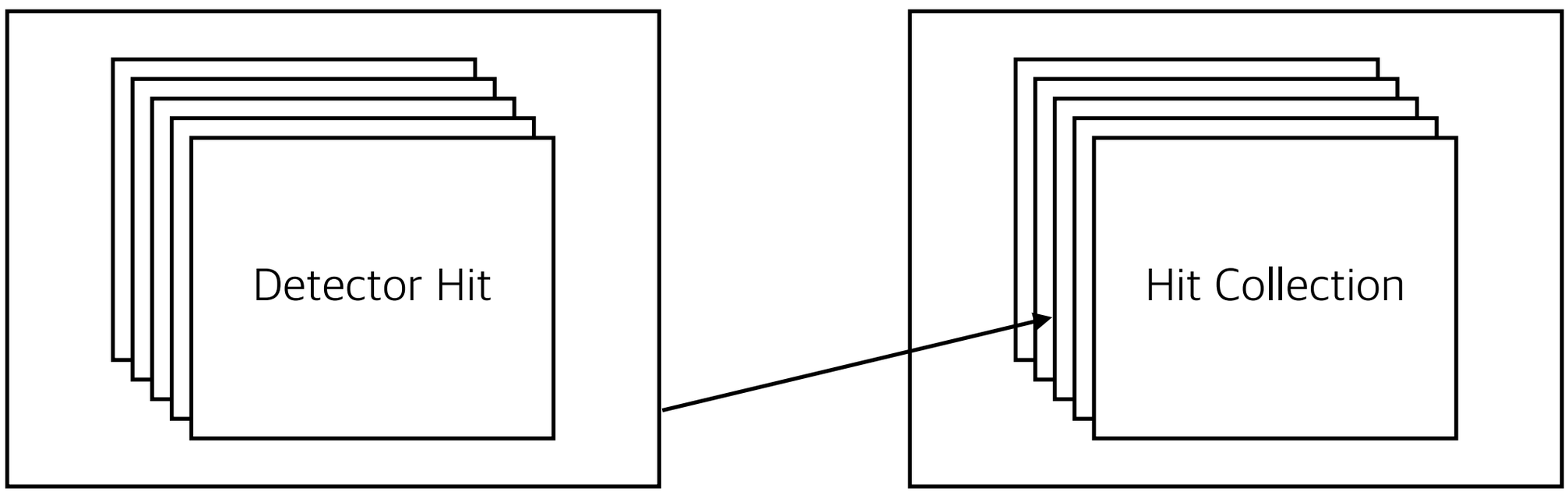
Data Store Update



Hit Collection　　**H**it **C**ollection of This **E**vent

Save data in “EventAction” by calling **HCE**

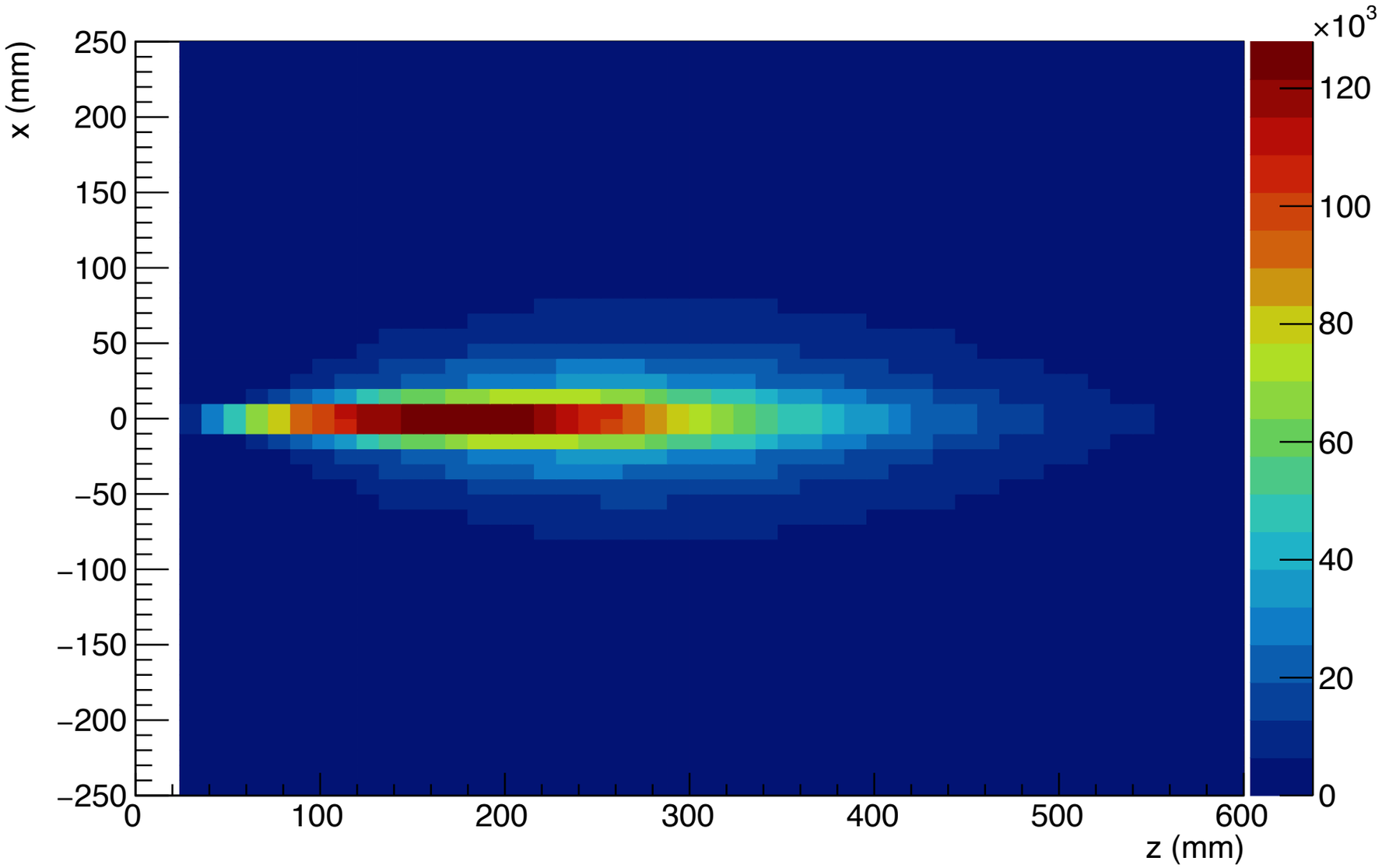
Using TTree, One Entry has one event info.
Detector hits are stored as arrays

Data Store Update

```
*******************************************************************************
*Tree    :tree      : test                                                    *
*Entries :   100000 : Total =       906608124 bytes  File  Size =  906278233 *
*        :          : Tree compression factor =   1.00                       *
*******************************************************************************
*Br    0 :eventID   : eventID/I                                               *
*Entries :   100000 : Total  Size=     402193 bytes  File Size  =     401480 *
*Baskets :       20 : Basket Size=      32000 bytes  Compression=   1.00     *
*.............................................................................*
*Br    1 :runID     : runID/I                                                 *
*Entries :   100000 : Total  Size=     402145 bytes  File Size  =     401440 *
*Baskets :       20 : Basket Size=      32000 bytes  Compression=   1.00     *
*.............................................................................*
*Br    2 :randomSeed : randomSeed/L                                           *
*Entries :   100000 : Total  Size=     804213 bytes  File Size  =     803080 *
*Baskets :       40 : Basket Size=      32000 bytes  Compression=   1.00     *
*.............................................................................*
*Br    3 :nEMHit    : nEMHit/I                                                *
*Entries :   100000 : Total  Size=     402169 bytes  File Size  =     401460 *
*Baskets :       20 : Basket Size=      32000 bytes  Compression=   1.00     *
*.............................................................................*
*Br    4 :EMHit.one[nEMHit] : EMHit.one[nEMHit]/I                             *
*Entries :   100000 : Total  Size=   64757521 bytes  File Size  =   64715904 *
*Baskets :     2060 : Basket Size=      32000 bytes  Compression=   1.00     *
*.............................................................................*
*Br    5 :EMHit.CellID[nEMHit] : EMHit.CellID[nEMHit]/I                       *
*Entries :   100000 : Total  Size=   64763713 bytes  File Size  =   64722084 *
*Baskets :     2060 : Basket Size=      32000 bytes  Compression=   1.00     *
*.............................................................................*
*Br    6 :EMHit.LayerID[nEMHit] : EMHit.LayerID[nEMHit]/I                     *
*Entries :   100000 : Total  Size=   64765777 bytes  File Size  =   64724144 *
*Baskets :     2060 : Basket Size=      32000 bytes  Compression=   1.00     *
*.............................................................................*
*Br    7 :EMHit.SegmentID[nEMHit] : EMHit.SegmentID[nEMHit]/I                 *
*Entries :   100000 : Total  Size=   64769905 bytes  File Size  =   64728264 *
*Baskets :     2060 : Basket Size=      32000 bytes  Compression=   1.00     *
*.............................................................................*
*Br    8 :EMHit.x[nEMHit] : EMHit.x[nEMHit]/D                                 *
*Entries :   100000 : Total  Size=  129108152 bytes  File Size  =  129025008 *
*Baskets :     4136 : Basket Size=      32000 bytes  Compression=   1.00     *
*.............................................................................*
*Br    9 :EMHit.y[nEMHit] : EMHit.y[nEMHit]/D                                 *
*Entries :   100000 : Total  Size=  129108152 bytes  File Size  =  129025008 *
*Baskets :     4136 : Basket Size=      32000 bytes  Compression=   1.00     *
*.............................................................................*
*Br   10 :EMHit.z[nEMHit] : EMHit.z[nEMHit]/D                                 *
*Entries :   100000 : Total  Size=  129108152 bytes  File Size  =  129025008 *
*Baskets :     4136 : Basket Size=      32000 bytes  Compression=   1.00     *
*.............................................................................*
*Br   11 :EMHit.t[nEMHit] : EMHit.t[nEMHit]/D                                 *
*Entries :   100000 : Total  Size=  129108152 bytes  File Size  =  129025008 *
*Baskets :     4136 : Basket Size=      32000 bytes  Compression=   1.00     *
*.............................................................................*
*Br   12 :EMHit.e[nEMHit] : EMHit.e[nEMHit]/D                                 *
*Entries :   100000 : Total  Size=  129108152 bytes  File Size  =  129025008 *
*Baskets :     4136 : Basket Size=      32000 bytes  Compression=   1.00     *
*.............................................................................*
```

```
eventID        = 0
runID          = 0
randomSeed     = 1
nEMHit         = 175
EMHit.one      = 1,
                 1, 1, 1, 1, 1, 1, 1, 1, 1, 1,
                 1, 1, 1, 1, 1, 1, 1, 1, 1
EMHit.CellID   = 10,
                 37, 62, 87, 112, 137, 139, 159, 160, 161, 162,
                 187, 211, 212, 214, 237, 261, 262, 263, 287
EMHit.LayerID  = 0,
                 1, 2, 3, 4, 5, 5, 6, 6, 6, 6,
                 7, 8, 8, 8, 9, 10, 10, 10, 11
EMHit.SegmentID = 10,
                 12, 12, 12, 12, 12, 14, 9, 10, 11, 12,
                 12, 11, 12, 14, 12, 11, 12, 13, 12
EMHit.x        = -34.73,
                 0.0105235, 0.0746211, -1.92073, 0.153848, -2.09987,
                 39.7249, 10.9152, 11.3945, 9.31324, 3.50306,
                 -1.00864, 3.41958, -0.167973, 41.0871, -0.500441,
                 4.14079, 0.893284, -3.17651, -0.338723
EMHit.y        = -34.1949,
                 -0.0223501, 1.60881, -0.123664, -0.463026, -6.25706,
                 -55.0204, -50.6051, -40.4395, -19.9647, -2.81204,
                 -0.74771, -14.3609, -2.34588, 46.7324, -0.769048,
                 -11.5392, 2.0922, 11.526, 11.897
EMHit.z        = 32.172,
                 39.0023, 44.935, 50.5253, 56.9524, 62.1948,
                 65.4692, 66.7953, 70.0643, 68.2044, 67.8054,
                 74.9574, 78.7973, 81.1963, 80.9657, 86.9091,
                 92.5399, 93.3117, 94.1061, 98.7559
EMHit.t        = 0.00173405,
                 0.0102284, 0.022084, 0.0386543, 0.0324798, 0.0507005,
                 0.000725398, 0.225268, 0.187727, 0.104785, 0.0839177,
                 0.0645565, 0.00148437, 0.0638535, 0.000157019, 0.0526526,
                 0.0133585, 0.0790777, 0.0518202, 0.0993203
EMHit.e        = 0.447716,
                 1.68435, 5.72951, 2.2817, 4.76722, 8.40782,
                 0.0740241, 0.210955, 3.36714, 3.46665, 3.83069,
                 4.11412, 0.270866, 5.5204, 0.0722834, 6.96743,
                 1.81648, 5.76198, 0.743831, 12.397
```

Shower Shape Fit



Longitudinal shower shape : $f(t) = t^{\alpha}e^{-t},\ (t = z/X_0)$

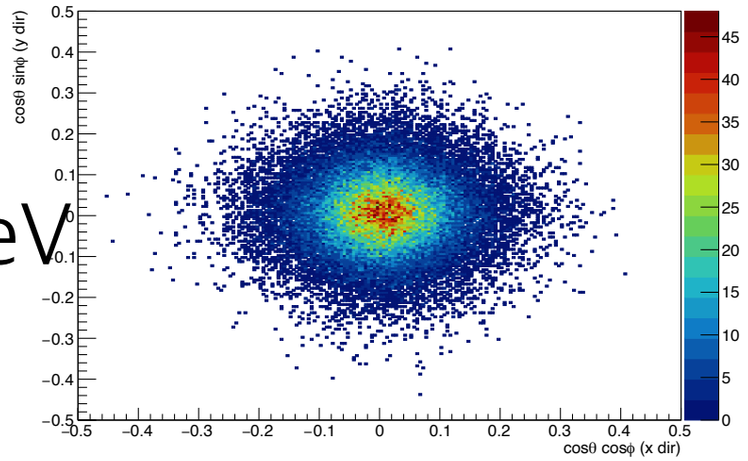
Transverse shower shape : $f(x) = Gaus(x, m, \sigma)$

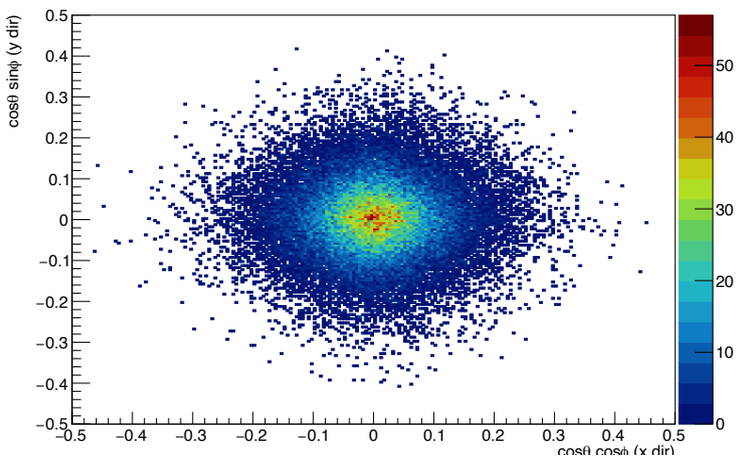
$F(x,t) = f_x(x)f_t(t)$

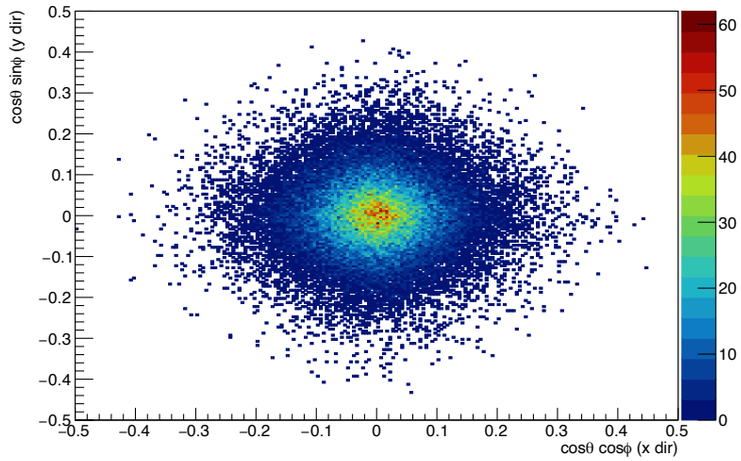
back up

Distance cut, E cut(segment)

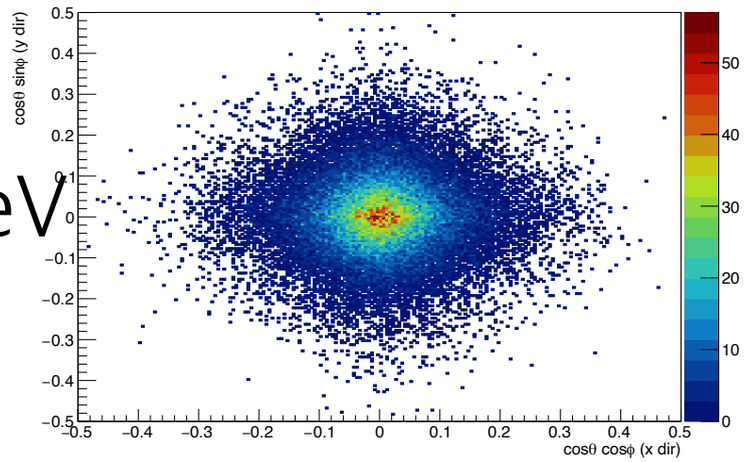
0MeV

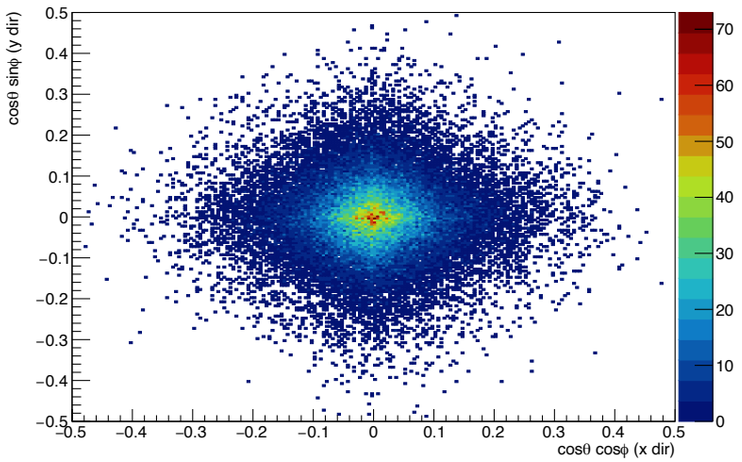


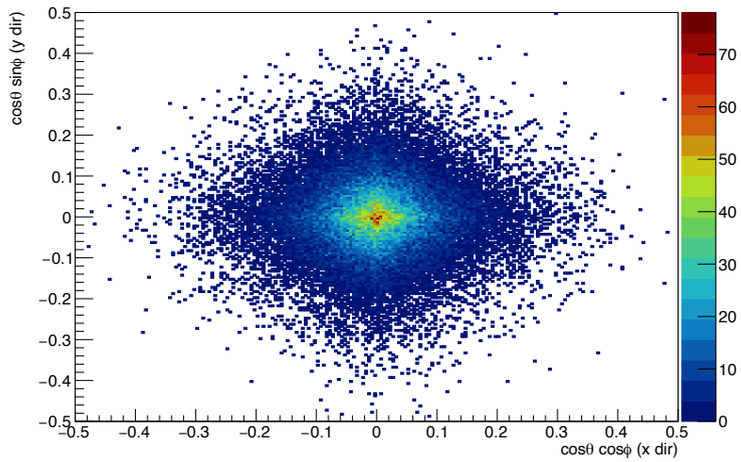




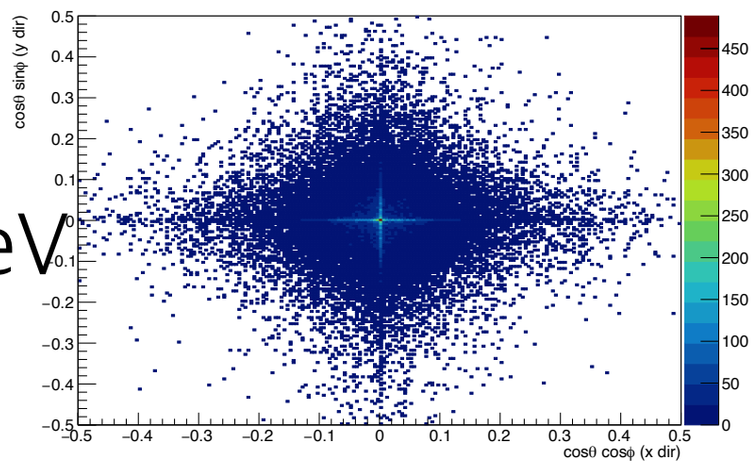
2MeV

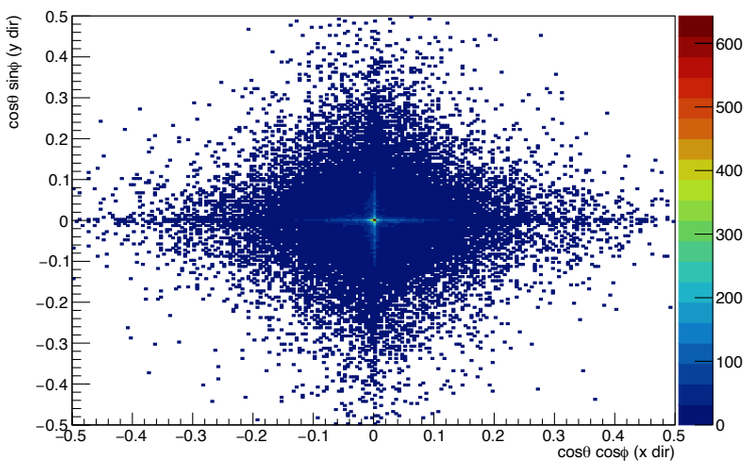


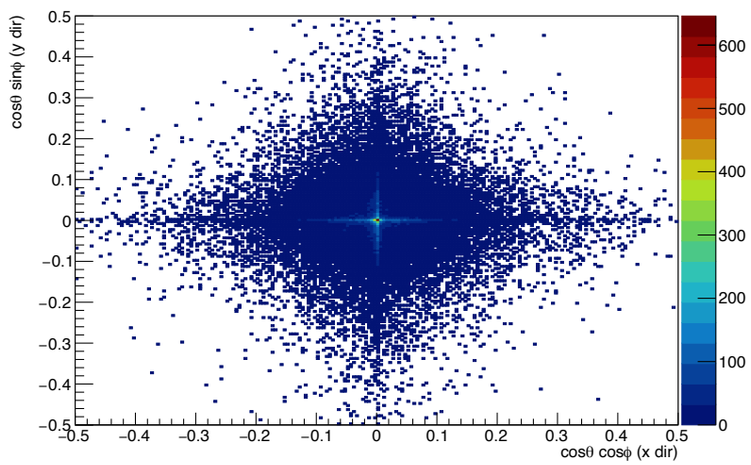




4MeV







20mm 100mm 200mm