
Subject: Re: Mc Truth Match

Posted by [MartinJGaluska](#) on Tue, 20 Aug 2013 11:47:02 GMT

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I tried to investigate the "theory" that the wrong charge showing up in lists filled with

```
theAnalysis->FillList(mcpiplus,"PionLoosePlus","PidAlgoIdealCharged");
```

might be due to high momentum tracks, but it does not seem to be the case. I printed the momenta of misidentified charged pions.

With a filter on `GetFitStatus()>0` this is the result that I get:

```
p_total p_perp theta ( p_x p_y p_z )
0.157126 0.0535453 19.9243 ( 0.048933 0.0217408 0.147721 )
0.505125 0.0941352 10.7404 ( 0.0493841 -0.0801414 0.496276 )
2.11389 0.891485 24.9437 ( 0.783278 -0.425702 1.91671 )
0.396296 0.1589 23.6384 ( -0.144325 -0.0664785 0.363045 )
4.13429 1.62192 23.0983 ( -0.296381 -1.59461 3.80285 )
0.193541 0.107057 33.5834 ( -0.0956728 0.0480417 0.161236 )
0.163668 0.0834998 30.6758 ( -0.0831942 0.00713736 0.140765 )
9.32307 4.19835 26.7641 ( -3.74612 1.89545 8.32427 )
0.196377 0.0823667 24.7987 ( 0.0801052 0.0191682 0.178268 )
0.35568 0.171477 28.8232 ( -0.0621465 -0.159819 0.311616 )
2.18964 0.724932 19.334 ( -0.275077 -0.670715 2.06615 )
2.20361 1.28911 35.803 ( -1.14287 0.596375 1.7872 )
0.237624 0.202498 58.4492 ( 0.115297 -0.166469 0.124338 )
0.876789 0.855665 102.602 ( 0.416404 -0.74751 -0.191299 )
0.962982 0.289888 17.5196 ( 0.283118 -0.0622874 0.918313 )
0.275722 0.142764 31.1836 ( 0.12816 0.0629009 0.235883 )
0.331126 0.188794 34.7612 ( -0.170917 -0.080191 0.272032 )
0.411353 0.143972 20.4871 ( -0.0926718 0.110181 0.385335 )
0.192919 0.132213 43.2614 ( 0.101495 0.0847284 0.14049 )
0.694575 0.332611 28.6117 ( 0.295166 -0.153321 0.609757 )
```

The printout is of the form:

Total momentum, perpendicular momentum, angle to z-axis in degree, (x-component, y-component, z-component)

While there are high momentum tracks present, also very low momentum charged pions seem to be misidentified.

If I leave out the filter on `GetFitStatus()>0` I get the following:

```
0.0560073 0.0234772 24.7829 ( 0.000440402 0.023473 0.0508492 )
0.157126 0.0535453 19.9243 ( 0.048933 0.0217408 0.147721 )
0.505125 0.0941352 10.7404 ( 0.0493841 -0.0801414 0.496276 )
2.11389 0.891485 24.9437 ( 0.783278 -0.425702 1.91671 )
0.396296 0.1589 23.6384 ( -0.144325 -0.0664785 0.363045 )
```

4.13429 1.62192 23.0983 (-0.296381 -1.59461 3.80285)
2.10445 2.10366 91.5735 (-1.15011 1.76143 -0.0577857)
0.193541 0.107057 33.5834 (-0.0956728 0.0480417 0.161236)
0.0939326 0.0431508 27.3471 (-0.00740239 -0.0425111 0.0834347)
0.240746 0.107517 26.5259 (0.0884348 -0.0611497 0.215403)
0.163668 0.0834998 30.6758 (-0.0831942 0.00713736 0.140765)
9.32307 4.19835 26.7641 (-3.74612 1.89545 8.32427)
0.517521 0.159474 17.9478 (-0.0576879 0.148675 0.492337)
0.196377 0.0823667 24.7987 (0.0801052 0.0191682 0.178268)
1.23126 0.1737 8.11007 (0.150681 0.0864106 1.21894)
0.35568 0.171477 28.8232 (-0.0621465 -0.159819 0.311616)
2.18964 0.724932 19.334 (-0.275077 -0.670715 2.06615)
2.20361 1.28911 35.803 (-1.14287 0.596375 1.7872)
0.0849093 0.028615 19.6946 (0.0200407 -0.0204252 0.0799423)
0.237624 0.202498 58.4492 (0.115297 -0.166469 0.124338)
0.876789 0.855665 102.602 (0.416404 -0.74751 -0.191299)
0.0606288 0.0187204 17.9852 (0.00509841 0.0180127 0.0576663)
0.962982 0.289888 17.5196 (0.283118 -0.0622874 0.918313)
0.275722 0.142764 31.1836 (0.12816 0.0629009 0.235883)
0.837384 0.837374 89.71 (-0.561434 -0.621278 0.0042382)
2.21517 0.731518 19.2828 (0.514025 -0.520478 2.0909)
0.0869416 0.0438064 30.2557 (-0.0430866 -0.00790857 0.0750989)
0.336012 0.0657709 11.2879 (0.057233 -0.0324069 0.329512)
0.331126 0.188794 34.7612 (-0.170917 -0.080191 0.272032)
0.0412819 0.0318619 50.517 (-0.0237311 0.0212607 0.0262491)
0.411353 0.143972 20.4871 (-0.0926718 0.110181 0.385335)
0.123346 0.113654 67.1346 (0.0525635 0.100768 0.0479286)
0.0436396 0.0243122 33.8565 (-0.020283 0.0134046 0.0362399)
0.192919 0.132213 43.2614 (0.101495 0.0847284 0.14049)
0.694575 0.332611 28.6117 (0.295166 -0.153321 0.609757)
