Now continue with the BB efficiency.

To select the event that correspond to the elastic peak, we can make a cut on the recoil invariant mass W.

W**2 = Mp**2+ 2*Mp*omega + omega**2 -|q|**2

For elastic, 2*Mp*omega + omega**2 -|q|**2 = 0. So W ==Mp.

With this, we make a cut on the recoil invariant mass W.

elastic run # 2009,2033,2037
Data CUT:
DBB.evtypebits&(1<<3) && DBB.edtpl==0 && abs(exL.th)<0.060 && abs(exL.ph)<0.030 && L.tr.n ==1 && L.s2.trpad[0]>-1 && abs(L.s2.y_t[L.s2.trpad[0]])<0.5

1. T3 no edtm
2. theta and phi acceptance
3. single track
4. has track to S2

(later) && abs(sqrt(PriKine_p.W2)-0.93827)< 0.00449

5. W = proton mass (938.27)+/- 4.49 MeV/c2

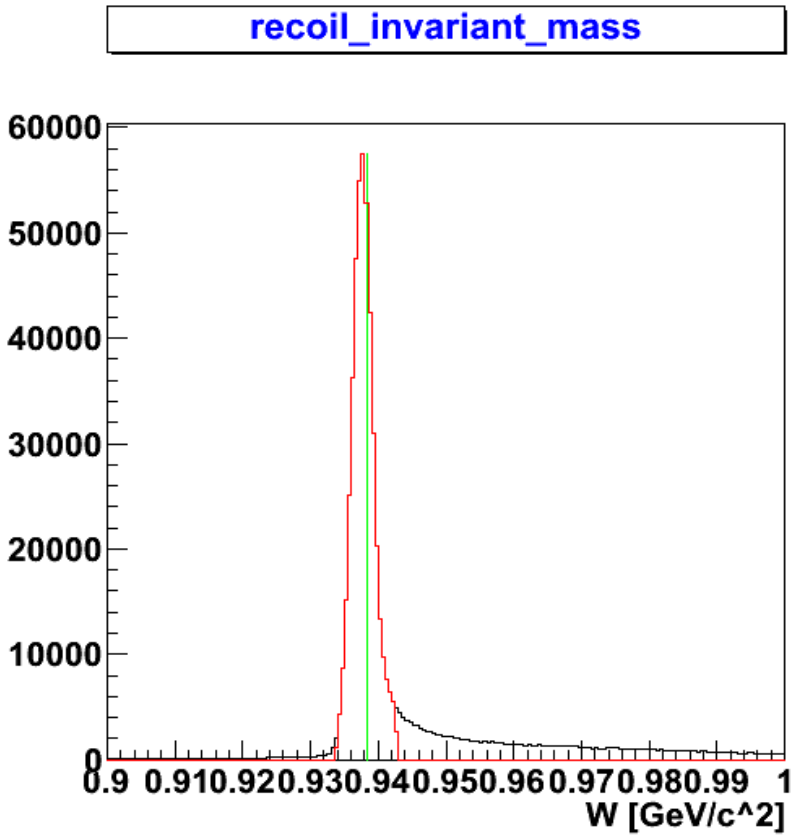

*Figure 1: recoil invariant mass W (GeV/c**2)*

The effect of making the recoil invariant mass W clearly pick out the elastic strip.

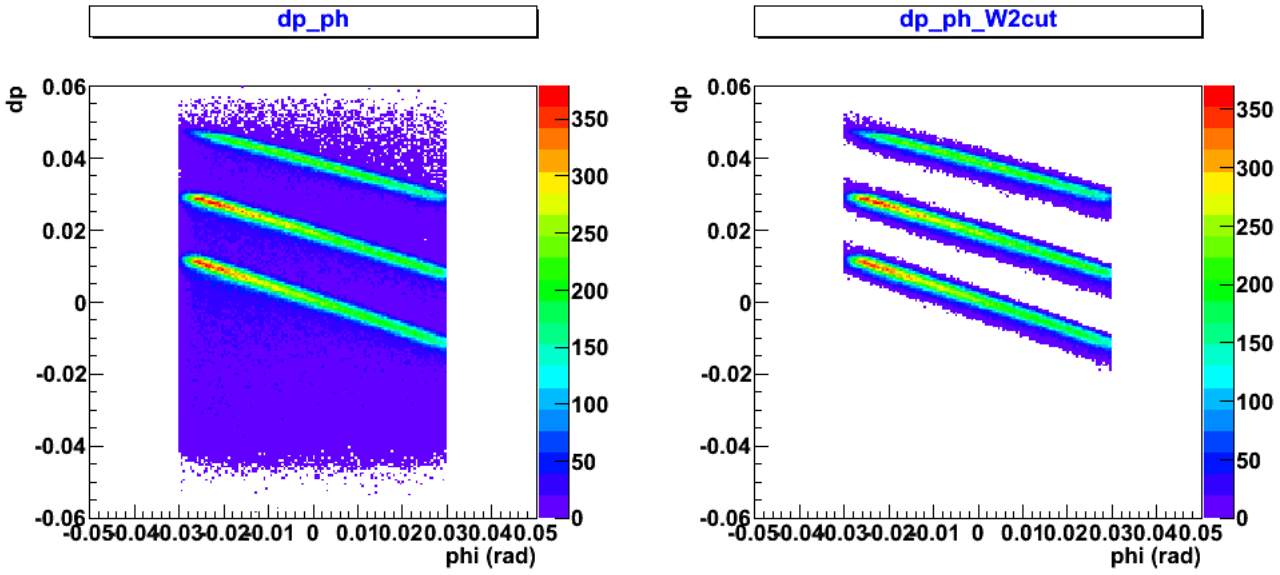

Figure 2: (Left) dp vs phi (no W cut), (Right) dp vs phi with W cut

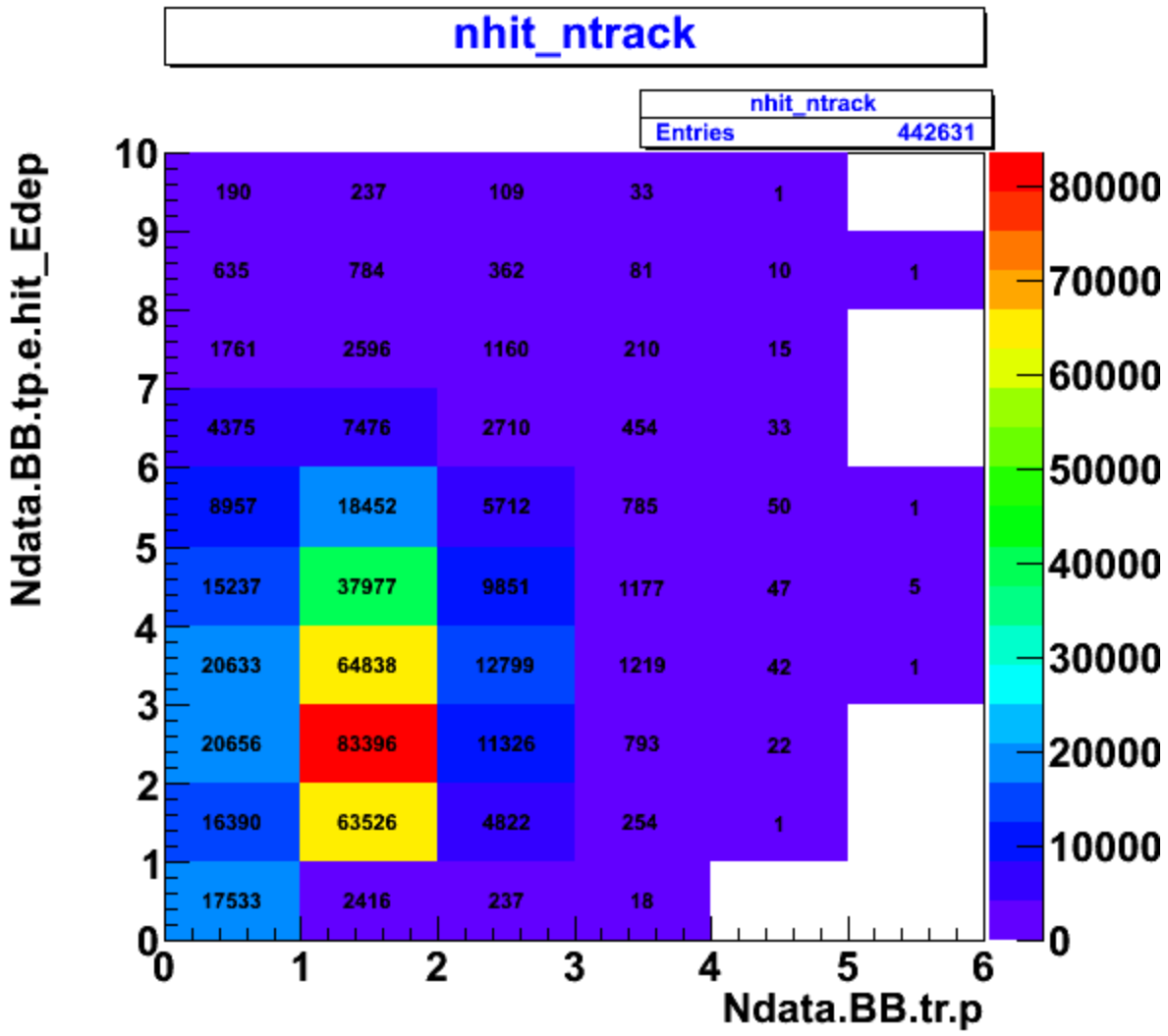

Figure 3.1: Event distribution for hit and for track.

Events with Nhit=1	Events with Ntrack = 0		Events with Ntrack >0	
84993	16390	(19%)	68603	

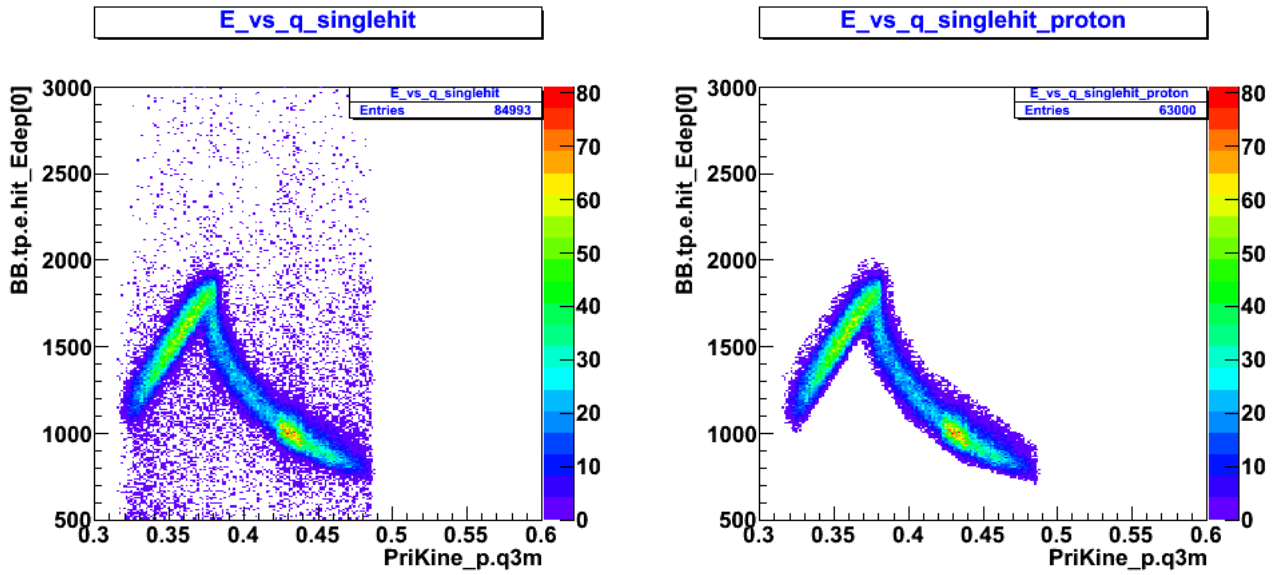

Figure 3.2 PID by E vs q

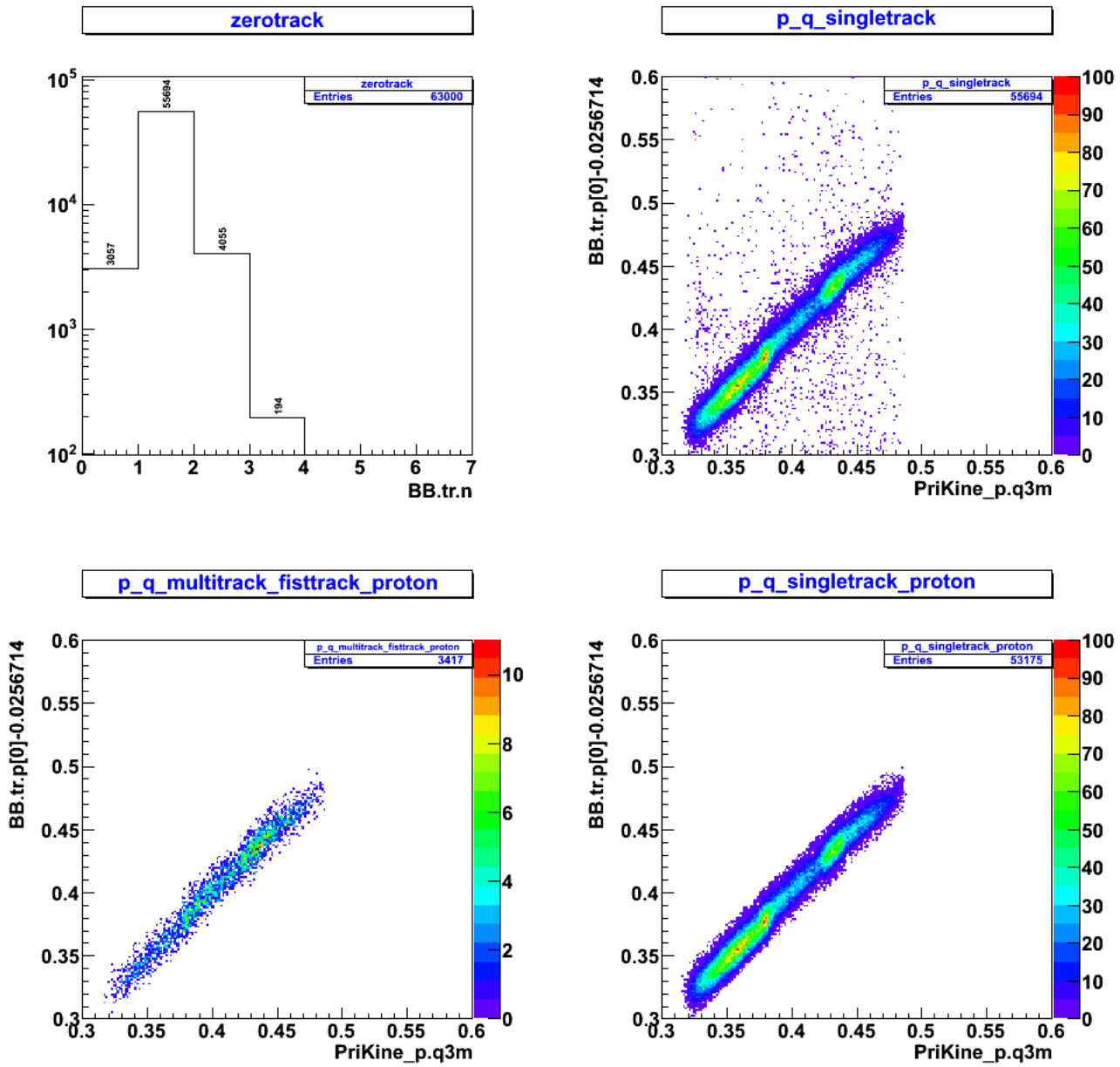

Figure 3.3 Identify proton in MWDC for single hit in E plane

Events with Nhit=1 and pid as proton from E vs q (figure 3.2)	Events with Ntrack = 0 (figure 3.3 top right)	Events with Ntrack =1	Event with Ntrack = 1 and PID as proton from p vs q	Event with Ntrack >1 with first track PID as proton from p vs q
63000	3057 (4.85%)	59943 (95.15%)	53175 (84.40%)	3417 (5.4%)

If we only consider data with one hit in E plane, the Efficiency of the MWDC is 89.83%