I have not understood how you determine the vertex of the reaction. In theory you should know this position in order to do a transformation of the coordinates. But this depends on the particle (in the same event you can have particles coming from different vertices).
The point is that one should take out the dependence of the track origin in the finder code. I think also the fitting should be changed, because the point 0,0,0 is also used there, for the initial momentum value of the circular fitting routine.