
Subject: Re: Problem with PndVertexFitter for particles with neutral charge
Posted by [Ralf Kliemt](#) on Fri, 29 May 2015 12:27:02 GMT

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Hi,

The vertex fitters (PndKinVtxFitter/PndKalmanVtxFitter) operate on a minimum of two charged tracks. For anything else you may use PndVtxPoca, which analytically calculates the vertex. From the top of my head:

```
PndVtxPoca pocafinder;
for (int j=0; j<lambda0.GetLength(); ++j)
{
    PndKinVtxFitter vertexfitterLambda0 (lambda0[j]);
    vertexfitterLambda0.Fit();
    RhoCandidate * lambda0Fit = lambda0[j]->GetFit();
    for (int j=0; j<antiLambda0.GetLength(); ++j)
    {
        PndKinVtxFitter vertexfitterAntiLambda0 (antiLambda0[j]);
        vertexfitterAntiLambda0.Fit();
        RhoCandidate * antiLambda0Fit = antiLambda0[j]->GetFit();

        TVector3 pbarpvertex;
        crossCheck.Combine(lambda0Fit, antiLambda0Fit);
        crossCheck.SetType(88888);

        double doca = pocafinderGetPocaVtx(pbarpvertex,crossCheck);
        // now you have a vertex written to pbarpvertex and a measure of the distances between the
        // trajectories (i.e. a quality criterium)
    }
}
```

If you have charged(!) particles combining to crossCheck, you may want to update the four-momentum along the helix to the vertex via the analysis:

```
bool check = theAnalysis->PropagateToPoint(crossCheck, pbarpvertex);
```

Cheers
Ralf
