

1-2. Write a simple C++ class for a vertex, which is a 3 dimensional point in space.

Write a class for reconstructed tracks with datafields for vertex and 4-momentum, and member functions for returning the relevant information including the transverse momentum (i.e. p_T , momentum in the x,y -plane) and pseudorapidity $\eta = -\log \tan \frac{\theta}{2}$ (θ is the polar angle i.e. the angle between the momentum 3-vector \vec{p} and the z -axis).

In simulations, one knows the underlying Monte Carlo truth: whether the track is created by e.g. an electron or a pion. Write a new class for Monte Carlo particles by inheriting the track class and adding datafields for particle id and parent particle id.

In all classes use a scope which hides the actual data.

Write a test program to check that your code works.

Please make a tar-ball from your files and return it by email to Sami.Lehti(at)helsinki.fi.

Notice! No lecture nor the exercise session on Monday Feb 11. The exercise 5 will become available on Feb 11 in <http://www.helsinki.fi/~slehti/ComputingMethodsInHEP/ComputingMethodsInHEP.html>