Subject: RhoError class in pandaroot
Posted by Elisabetta Prencipe (2) on Tue, 03 Jun 2014 09:52:08 GMT
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Dear Ralf, dear rho-developers,

I have a question how to evaluate the error of the momentum, position, theta, phi, distributions using rho candidates and rho lists, and I am wondering if below is the best way how to proceed. For example, if I want to evaluate the pull of quantities like momentum, or theta and phi, I need information about the reco variables (easy), the true value (easy) and the error distributions. I see that in RhoMath/ the information about the covariance error matrix is accessible. So I could write:

```
while (theAnalysis->GetEvent() && i++<nevts)
 {

          theAnalysis->FillList(muminus, "MuonAllMinus");

  for (j=0;j<muminus.GetLength();++j)
  {

                  // reco variables
        hmomtrk->Fill(muminus[j]->P());
         hthttrk->Fill(muminus[j]->P4().Theta());
        hphitrk->Fill(muminus[j]->P4().Phi());

                  // error matrix : variance
        RhoError tempvar = muminus[j]->Cov7(); //variance of 7 parameters: x,y,z,px,py,pz,E
                  double var_px = tempvar(3,3);
                  double var_py = tempvar(4,4);
                  double var_pz = tempvar(5,5);
                  double var_energy = tempvar(6,6);

    }
}
```

This shoud give my access to the variance of px, py, pz, energy. Am I correct?
Sqrt() of what I get from here should deliver the error distribution of px, py, pz, E. Now my question is: is this the way to proceed to get the error distirbutions? and what about Theta() and Phi()? Should I combine, then, the information which I obtain, and get the error distribution for the angular variables? or is there a smarter way/funcion implemented to obtain the error distribution of kinematic variables, in pandaroot?

Thank you for your help,

Elisabetta