

Hi,

you are discussing here typical software design issues. In my point of view it would be helpful to firstly work out a -more or less- proper design, followed by dummy implementations before one then starts with concrete implementations of algorithms etc.

In this discussion 3 different things are mixed-up:

1. tracking of charged particles,
2. PID and
3. the interface to the analysis (PndMicroWriter)

Here are just few remarks to these 3 points:

1. Tracking: Ralph is completely right that only one common track object should be used. The important thing is to think about how such an object should look like, what features should it have, if there is the necessity of abstraction, etc..

2. PID: PID has in principle nothing to do with tracking of charged particles. It should also be possible to do PID for neutral particles: e.g. gammas, neutrons, merged  $\pi^0$ 's, electromagnetic split-offs etc. I think, it is therefore better to decouple it from the tracking and to provide only PID specific software parts. Of course, the relevant objects should have an association to the corresponding tracks or EMC clusters.

3. The interface to the analysis should not be based on the tracks. The reconstruction should finally provide lists of particle candidates (neutrals, charged, etc.) which are then the input for the analysis. For sure, these candidates should also provide references to the corresponding tracks or clusters including covariance matrices etc. so that also these informations are easily accessible in the analysis part. Therefore one should think about how such a candidate (RhoCandidate ?) should look like.

Best regards,  
Bertram.

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