Subject: STT helix fit output parameters.
Posted by Lia Lavezzi on Tue, 22 Apr 2008 10:22:20 GMT
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Hi,
as said during the EVO meeting I write down here the output parameters of the STT reconstruction.

The helix fit parameters are the following ones: d0, phi0, R, z0, tan(lambda)
where:
- d0 is the distance of closest approach of the track to the origin (see also the attached figure);
- phi0 is the azimuthal angle of the point of closest approach [phi0 = arctan(yc/xc) with (xc, yc) = center of curvature coordinates];
- R is the curvature radius of the track in the xy plane;
- z0 is the z coordinate of the point of closest approach calculated in xy plane;
- tan(lambda) is the tangent of the dip angle, the slope of the straight line in z - track length * cos(lambda) plane.

The parameters can be accessed by the following functions:
```
Double_t d0     = pTrack->GetParamLast()->GetX();
Double_t phi0   = pTrack->GetParamLast()->GetY();
Double_t R      = pTrack->GetParamLast()->GetTx();
Double_t z0     = pTrack->GetParamLast()->GetZ();
Double_t tanl   = pTrack->GetParamLast()->GetTy();
```

and the transverse and longitudinal momenta can be calculated:
```
Double_t ptran = 0.003 * 2 * R
Double_t plong = ptran * tanl
```
...and, from them, finally ptot = sqrt(plong*plong + ptran*ptran)

Best regards,
Lia.

Edited on Jan 14, 2010:

The parameter access functions have changed:
```
Double_t d0     = pTrack->GetDist();
Double_t phi0   = pTrack->GetPhi();
Double_t R      = pTrack->GetRad();
Double_t z0     = pTrack->GetZ();
Double_t tanl   = pTrack->GetTanL();
```

File Attachments
1) paramxy.ps, downloaded 621 times