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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 [ $\phi_0 = \arctan(y_c/x_c)$  with  $(x_c, y_c)$  = 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();
```

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## File Attachments

1) [paramxy.ps](#), downloaded 758 times

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