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 698 times