

recob::Track Proposed Update

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Track Objects

- Track objects represent the 3D trajectory of a charged particle in the TPC.
- C++ class `recob::Track`.
- Track data members.
 - Trajectory points (3D).
 - Trajectory directions (3D unit vectors).
 - Error matrices (5×5, at trajectory points or endpoints).
 - dQ/dx at trajectory points.
 - Track momenta (at trajectory points or endpoints).

Track Objects

- Input data (depending on producer module).
 - Hits.
 - Clusters
 - Space points.
- Associations (depending on producer module).
 - Hits.
 - Space points.

Track Objects

- Newly added data members (on branch feature/yale_track).
 - Track type (int/enum).
 - Kalman hit.
 - Kalman space point.
 - Bezier.
 - Track quality (int).
 - Fit chisquare.
 - Number of measurements / degrees of freedom.
 - Assumed time used in time → position mapping.
- Implementation.
 - Above data members filled in Track3DKalmanHit.
 - Plots added in TrackAna & AnalysisTree.

Larsoft Track Reconstruction Modules

- Included in standard reconstruction.
 - Track3DKalmanSPS
 - Track3DKalmanHit
 - BezierTrackerModule
- Not included in standard reconstruction.
 - TrackCheater
 - Little used. In need of maintenance.
 - We should use all of the cheater modules more.
 - TrackStitcher
 - Buggy. In need of maintenance.
 - TrackKalmanCheater.
 - Version of Track3DKalmanHit uses mc truth Hits.