

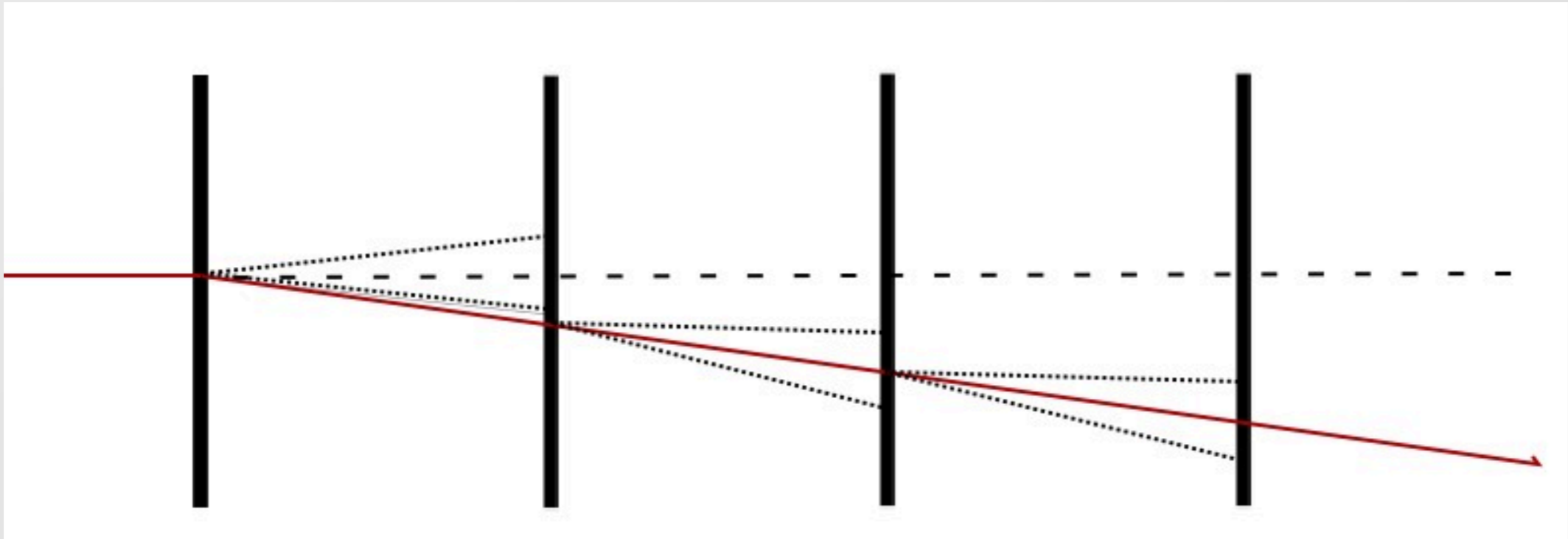


Status of Tracking

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Kalman filter tracks with TRF

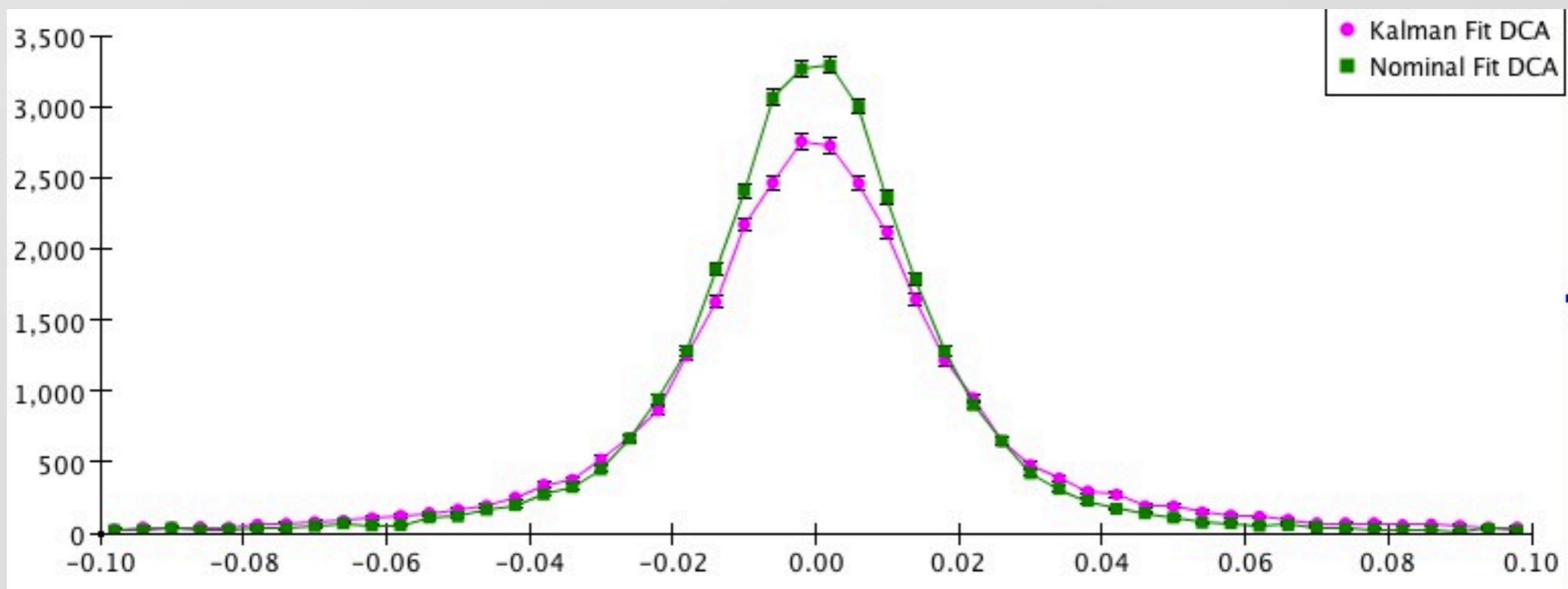
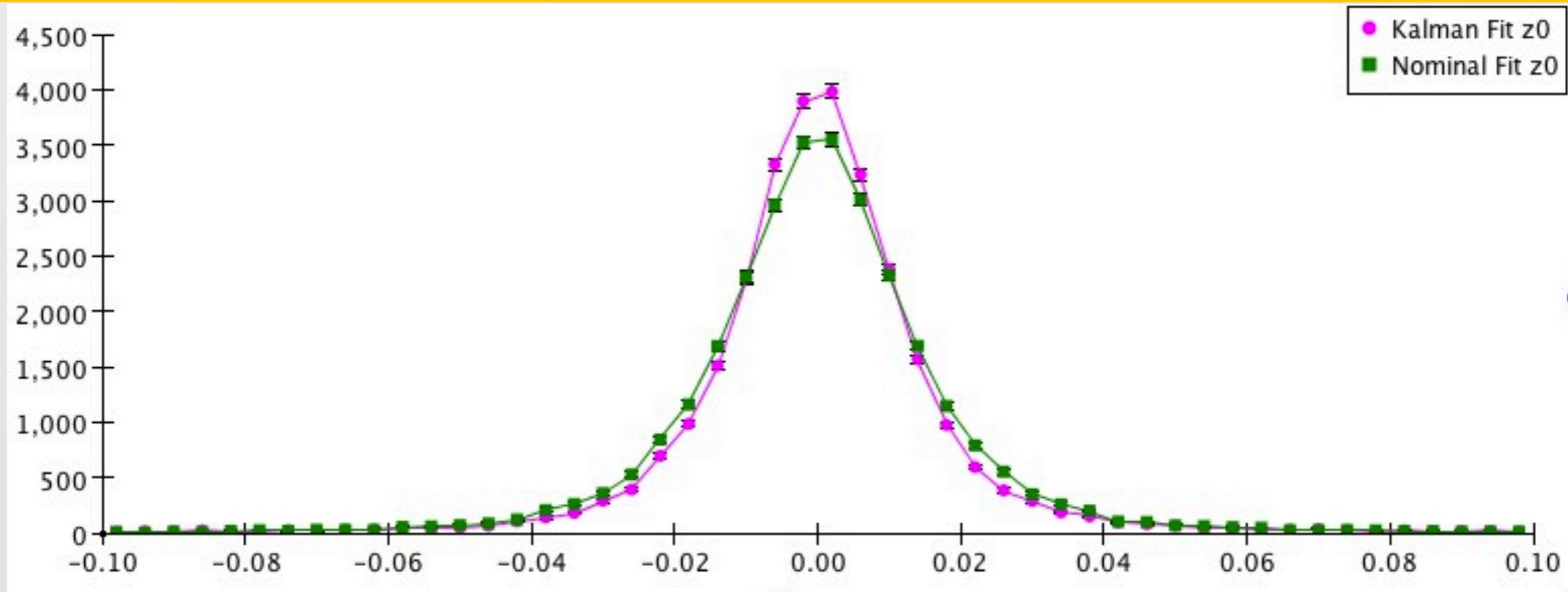
- TRF is a generic track finding/fitting package used for D0 and available in JAVA, in our CVS (used to be in lcsim proper)
- We are interested because it includes Kalman filter packages...I don't want to write one from scratch
- run regular tracking to find tracks → hits and trajectory used as inputs to the kalman routine
- one drawback: TRF doesn't "know" about our geometry...have to tell it where the material is



TRF Implementation

- `org.lcsim.hps.recon.tracking.kalman.FullFitKalman::fitBackward`
 - we want the track parameters near the target/vertex
- propagate the beam parameters and covariance matrix backward from one hit to the next (previous?)
 - many different surfaces are defined...we use mostly “SurfXYPlane” or “SurfDCA”; propagators to/from these surfaces
- where there is material, inflate the covariance matrix
 - currently, put 2% r.l. between layers in module
 - tracks hit \sim perpendicular, so this assumption should have only small effect

Early tests....



Time evolution in tracker

- ...Omar missed his flight

Linking tracks to ECAL

- ...ditto

B-Field non-uniformity studies

- This effort is just starting...new Stanford grad student has agreed to tackle this.
- put realistic B-field into the simulation and see:
 - if we reconstruct with constant B-field, do we notice a degradation?
 - if so, how can we parameterize (or otherwise deal with it)
- I don't expect this to be a huge problem

