

The background of the slide is a complex visualization of particle tracks. It features a dense network of thin, light-colored lines representing individual particle paths. Several of these paths are highlighted with thicker, multi-colored lines (red, green, blue, yellow) to show specific tracks of interest. The tracks appear to originate from a central point and spread outwards, with some showing significant curvature. The overall appearance is that of a high-energy physics detector's data output, possibly a silicon strip detector or calorimeter.

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Calorimeter Assisted Tracking Status Report

SiD Detector Workshop at SLAC, October 26-28, 2006

Calorimeter Assisted Tracking

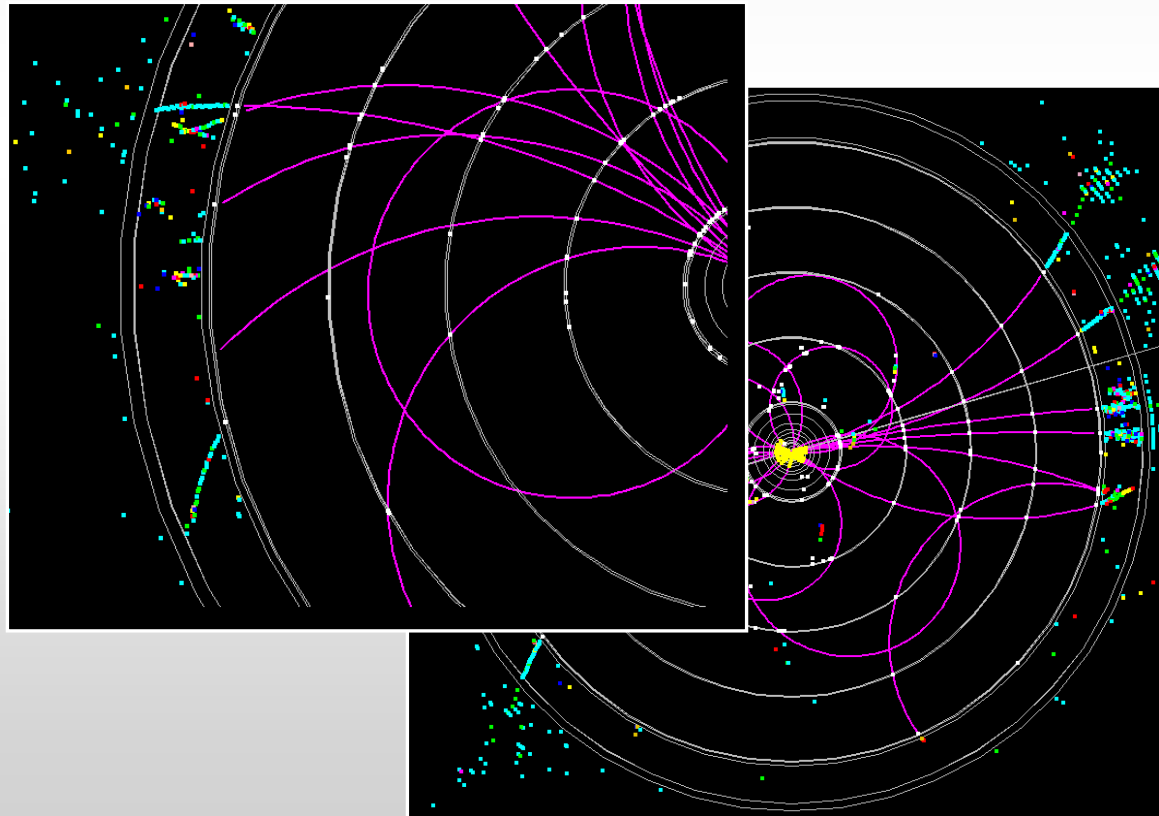
aka Garfield tracking package

Goal: reconstruct tracks that cannot be picked up in VXD, starting from the other end - MIP stubs in EM calorimeter.

Originally motivated by the need to reconstruct long lived particles (like K_S^0 , Λ , or some exotics) that do not leave enough hits in the vertex detector

Other uses:

- Calorimeter backscatters
- Kinked tracks
- Track-cluster association
- VXD-less tracking



Current status

In *CVS* (`org.lcsim.contrib.garfield`) :

- fully functional
- includes performance testing/tuning package
- not very good efficiency in 500 GeV events

Updated version

- improved efficiency
- plan to put in *CVS* in 2-3 weeks
- **still a temporary solution**

More advanced tracking infrastructure
is needed for further development

Plans

More advanced tracking infrastructure is needed for further development

- decided against elaborating our custom classes for tracks, 2-dim hits, etc.
- would like to switch to framework-supported solutions
- digitization / segmentation

Need to integrate with VXD-seeded tracking

- this package has never been intended as a standalone tracking code
- many common steps with other track finders/fitters

Plan to provide plug & play tools for tracking and PFA :

- track seed generator
- fake track removal