

Status of the Tracking Efficiency of the Trigger Simulator

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- Testing STT trigger simulator
- Debugging
- Current results
- Status

Testing STT Trigger Simulator

- `tsim_l2stt`, `l2stt_util` and `l2stt_fitting` packages available in CVS
- Present studies have used 8-layer PAC algorithm for fitting
- A clean 50 GeV single muon MC sample used for studies
- First pass indicated low tracking efficiency ($\approx 20\%$) and large χ^2 's
- Use Totalview to step through code and compare to MC using D0ev

Debugging

- JDH pointed out that multiple dependency between l2stt_util and tsim_l2stt needs resolving **IN PROGRESS?** (STR)
- JDH found problem in L2STTCluster method to get ϕ - change atan to atan2 **FIXED?** (STR)
- WJT noticed that cluster and track serial number not reset at beginning of each event **FIXED?** (STR)
- BL and WJT identified a problem in the clustering where the hardware address associated with a cluster was overwritten by that of the next cluster **FIXED** (STR)
- STR found that the last hit gets dropped from the last cluster **IN PROGRESS** (STR)
- WJT noticed that single-hit cluster still has overwrite problem **IN PROGRESS** (STR)
- WJT found that the number of clusters received by TFC is 46% of those found by L2STTCluster **IN PROGRESS** (STR,SC)
- WJT saw that the ϕ position of clusters appears to be consistently offset from MC position **IN PROGRESS** (STR,SC)

Current Results

- 1000 event 50 GeV muon file
- 154 events have SMT hits but no CTT track module (CTT acceptance)
- 72 events have no CTT track module and no SMT hits (CTT acceptance)
- 129 events have CTT track module but no SMT hits (SMT acceptance?)
- 28 events have 2 roads
- 1 event has 3 roads
- 1 event has 4 roads
- 807 roads in 774 events
- 500 roads have fewer than 3 axial clusters passed to TFC (?)
- 2.2 axial clusters/road - expect at least 3 for 95% of CFT tracks
- 307 roads have tracks passing the TFC requirements
- Study by JDH predicts 600 tracks in detector fiducial region

Status of STT Trigger Simulator

- Overall efficiency is 38% when we expect 75%
- Only 46% of found clusters get associated with a road
- χ^2 's of track fits are unreasonably large
- Debugging ongoing
- `tsim_l2stt`, `l2stt_util` and `l2stt_fitting` packages available in CVS
- To release or not to release?