

Performance Studies

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2015 Performance Studies

<https://confluence.slac.stanford.edu/display/hpsg/2015+Performance+Studies>

Task List:

Hit Level:

- time evolution of noise - (Omar @Paris)
- noise occupancies - (Omar @Paris)
- peak occupancy vs. layer - (Omar @Paris)
- cluster size vs. layer - (Omar @Paris)
- cluster amplitude vs. layer - (Omar @Paris)
- S/N vs. layer - (Omar @Paris)
- time resolution vs. layer - (Omar @Paris)
- [hit efficiency vs. layer](#) - Omar
- hit efficiency vs. momentum - (Omar @Paris)
- bias scan (cluster amplitude vs. L1 hit location)

Track Level:

- track chi-squared (data vs. MC) - (Pelle @Paris)
- track parameters (data vs. MC) - (Pelle @Paris)
- track-cluster matching - (Pelle @Paris)
- tracking efficiency - (Matt G.)
- track fake rate (vs. momentum)
- track time resolution - (Pelle @Paris)
- momentum scale/resolution ([top](#), [bottom](#)) - Omar
- empty target tracking - (Pelle @Paris)
- alignment checks - (Pelle)

Vertex Level:

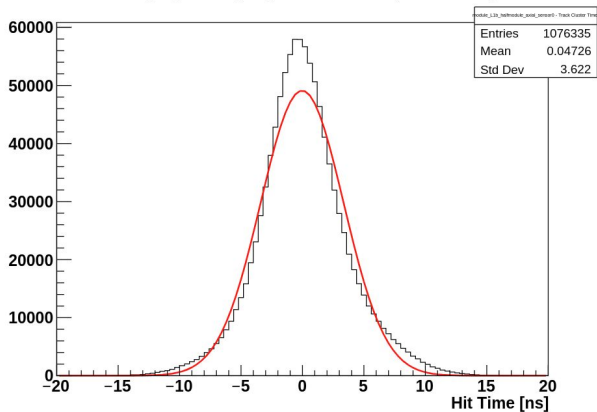
- vertex distributions (data vs. MC) - (Sho)
- mass resolution - (Many)
- [Moller mass resolution](#) - Omar

Cuts: 6-hit tracks, $\text{trackChi2} < 10$, $0.85 * e_{\text{beam}} < \text{trackP} < 1.15 * e_{\text{beam}}$, and $\text{trackOmega} > 0$

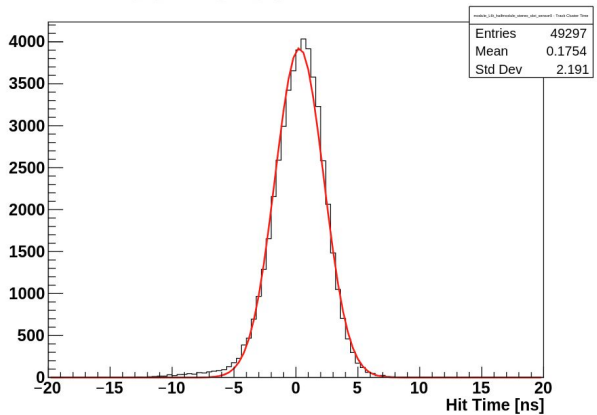
`/nfs/slac/g/hps3/data/enrun2015/pass8/recon/hps_005772.XXX_recon_4.0.1.
slcio`

Hit Time

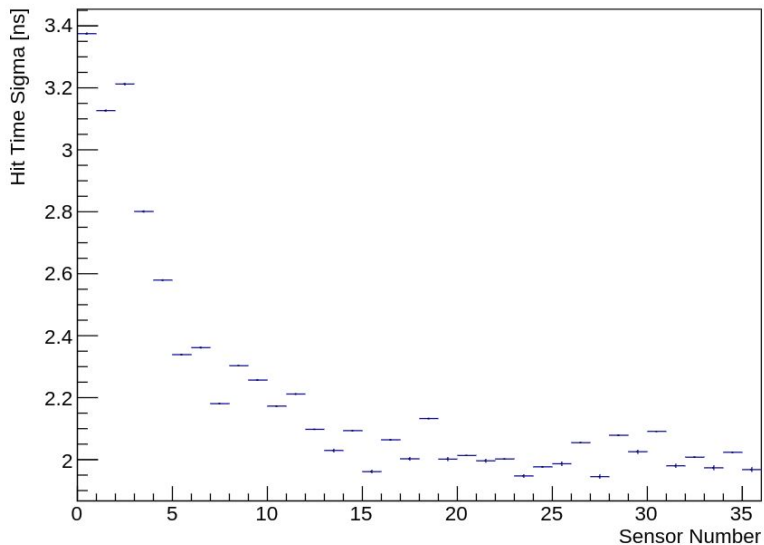
module_L1b_halfmodule_axial_sensor0 Fitted Hit Time (hits on clean track)



module_L6t_halfmodule_stereo_slot_sensor0 Fitted Hit Time (hits on clean track)

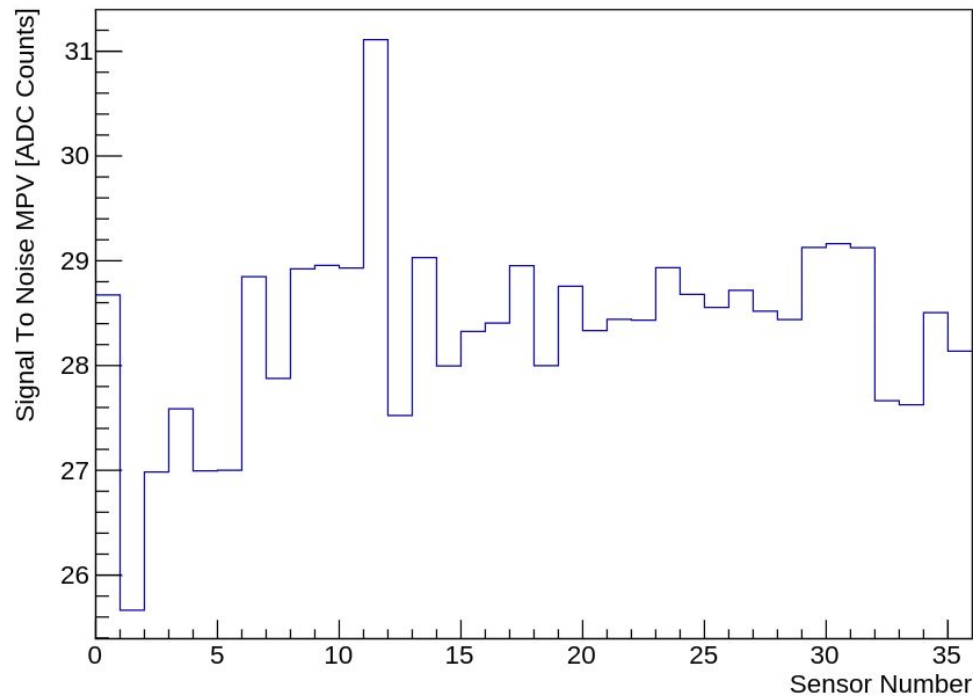
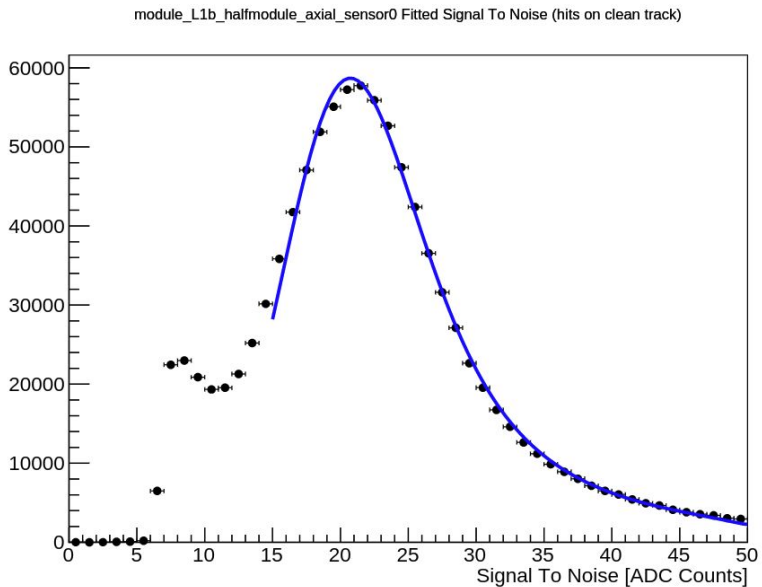


Fitted Hit Time Sigma (hits on clean track)



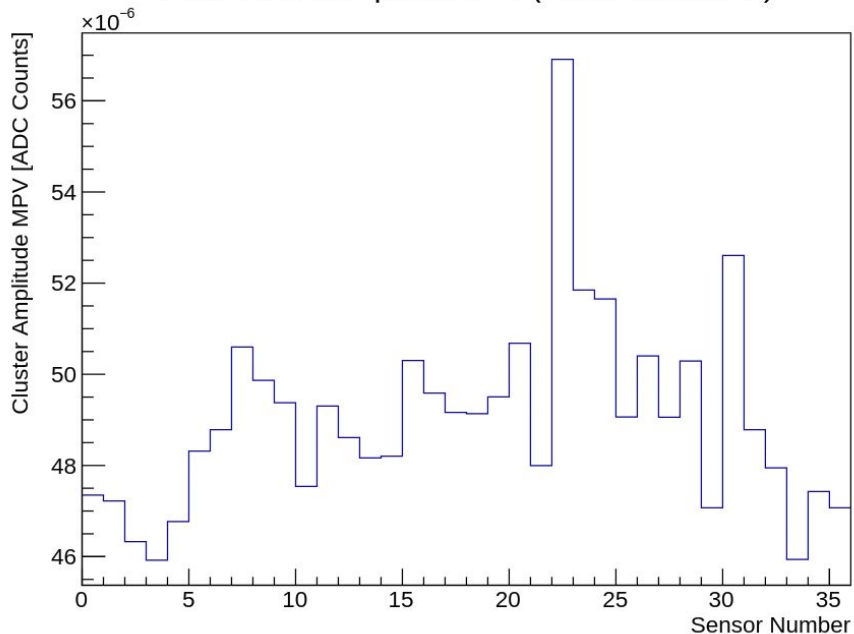
Signal to Noise

Fitted Signal To Noise MPV (hits on clean track)



Cluster Amplitude

Fitted Cluster Amplitude MPV (hits on clean track)



module_L1b_halfmodule_axial_sensor0 Fitted Cluster Amplitude (hits on clean track)

