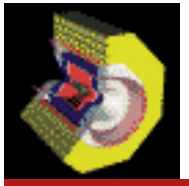

Cornell University
Laboratory for
Elementary-Particle Physics

$D_S^{*+} \to D_S^+ e^+ e^-$

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Contents

21 January 2010

Reprocessing Datasets

Dataset 39 - reprocessed and d-tagged.

Dataset 40 - skimmed, reprocessed. There was some trouble with 4% of the events having random ZD timing shifts. Constants moved from PASS2_C5 -> PASS2_C6

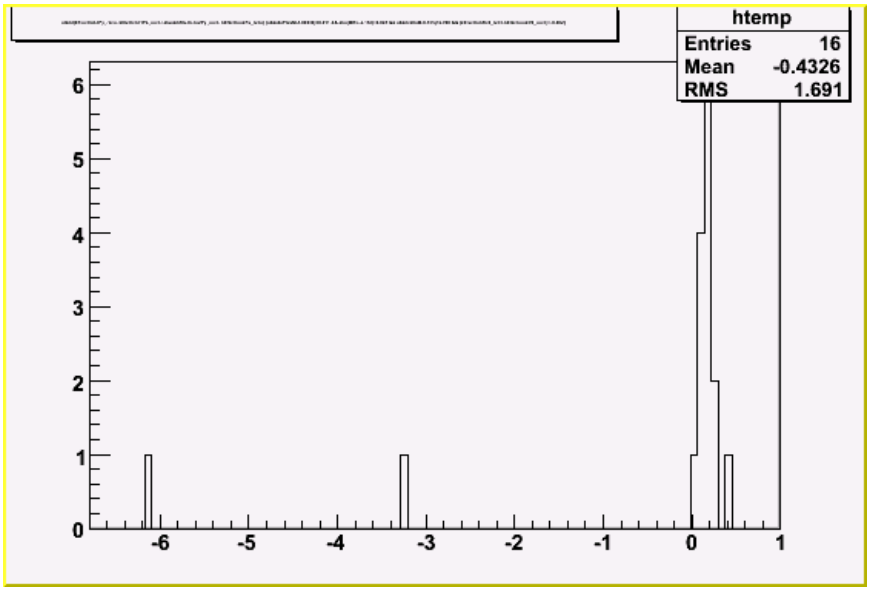
Dataset 41 - staged in, being skimmed

Cut Optimizations

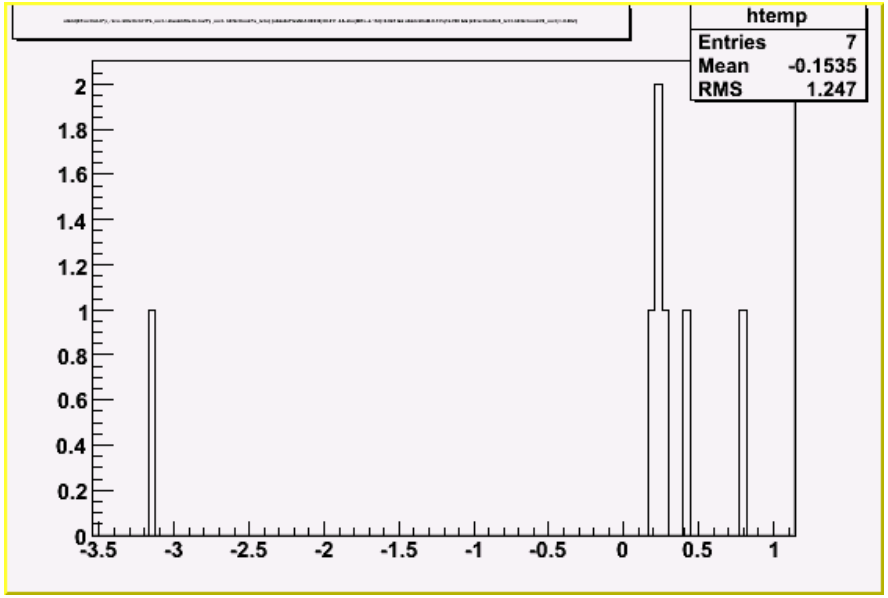
Electron-fitted signal vs (generic + continuum) MC didn't work out much better than pion-fitted signal. Why?

Because the (generic + continuum) MC is only pion-fitted.

The diff_d0 and dPhi peaks in the signal MC move closer to zero as we go from the pion-fitted to the electron-fitted sample. The Dalitz decay events in the background samples don't shift the same way and we end up accepting much more of the background. Also, the conversion events are expected to shift to higher values of dPhi in the electron-fit and more separate from the signal.



dPhi in pion-fitted KKpi conversion events



dPhi in electron-fitted KKpi conversion events

Cut Optimizations

Solution:

Veto all events with Ds* -> Ds gamma in the background MC sample and use separately produced and electron fitted Ds* -> Ds gamma events in their place.

Veto in place. Datasets have been re-ntuplized with a bit signifying veto.

Ds* -> Ds gamma events being produced. Should be ready by tomorrow morning.