

# Prompt $\Lambda_c^+ \rightarrow p^+ h^+ h^-$ BF Update: Offline yields



Stephen Ogilvy

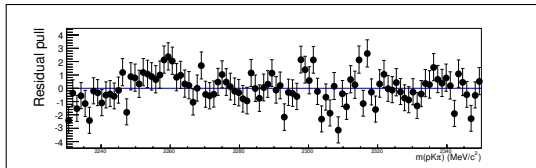
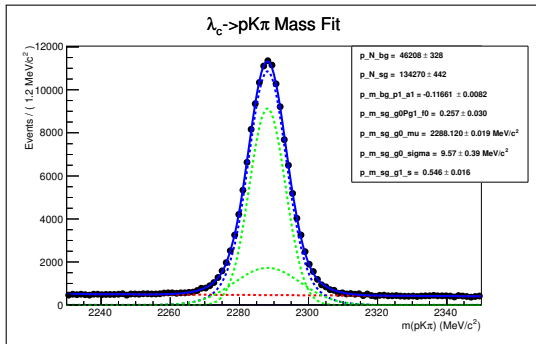


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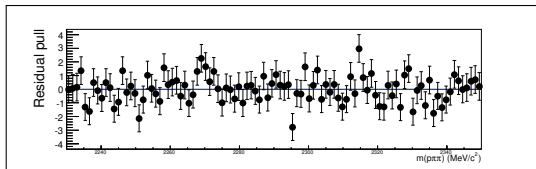
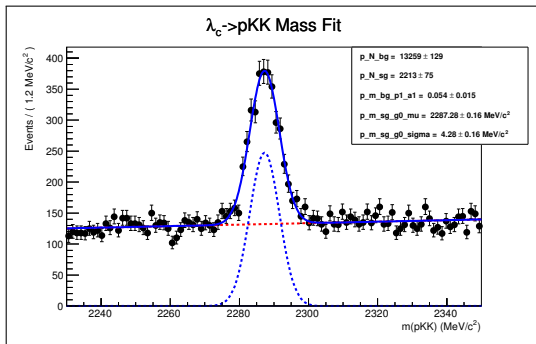
Paul Soler, Patrick Spradlin

- Selection incorporating BDT has been finalised.
- Have offline mass distributions for CF and SCS using DCS training (i.e. training on CF data using 0.003 global signal weight multiplier).
- Cuts in order of ( $\epsilon_{sig} \times (1 - \epsilon_{bkg})$ ):
  - (proton\_PIDp-proton\_PIDK) > 12
  - BDT\_response > -0.025
  - proton\_PIDp > 20
  - K\_PIDK > 7
  - (K\_PIDK-K\_PIDp) > -10
  - K\_PIDe < 4
  - $\pi$ \_PIDK < 0
  - $\pi$ \_PIDe < 4

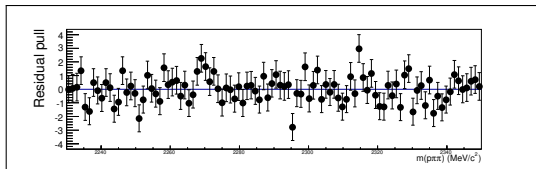
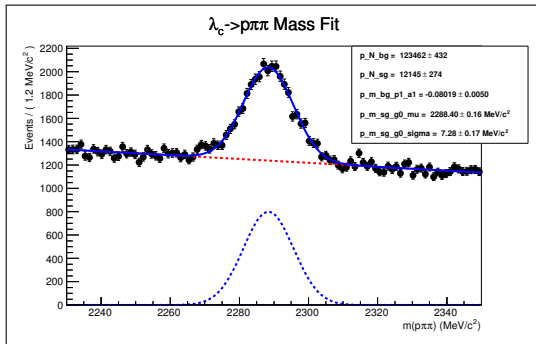
$$\Lambda_c^+ \rightarrow p^+ K^- \pi^+$$



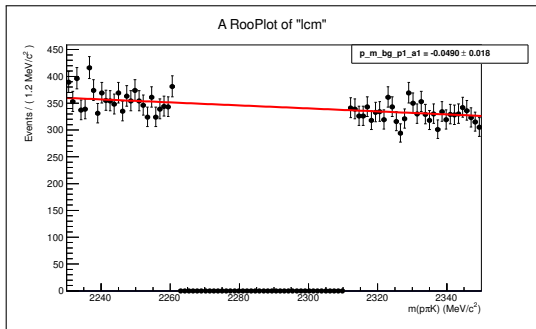
$$\Lambda_c^+ \rightarrow p^+ K^- K^+$$



$$\Lambda_c^+ \rightarrow p^+ \pi^- \pi^+$$

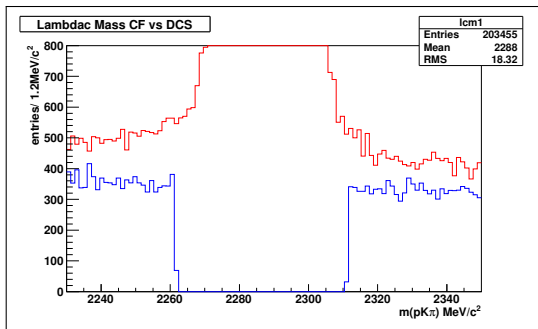


# $\Lambda_c^+ \rightarrow p^+ \pi^- K^+$ (DCS Sidebands)



# CF vs DCS Sidebands

As seen with  $D^0$  RS/WS analysis, higher combinatoric bkg for the CF mode (red) than the DCS (blue) mode.



- Yields before PID and selection efficiency corrections, measured errors all statistical:

Mode	Yield	Measured fraction of CF	PDG fraction of CF
$\rho K \pi$	$134270 \pm 442$	-	-
$\rho \pi \pi$	$12145 \pm 274$	$(9.045 \pm 0.206) \times 10^{-2}$	$(7.0 \pm 4.3) \times 10^{-2}$
$\rho K K$	$2213 \pm 75$	$(1.648 \pm 0.056) \times 10^{-2}$	$(1.5 \pm 0.8) \times 10^{-2}$

- At this stage good agreement, but errors on PDG values are large.