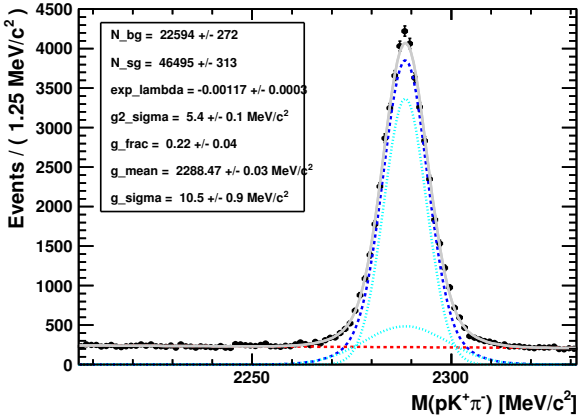
Tight DIRA prompt analysis

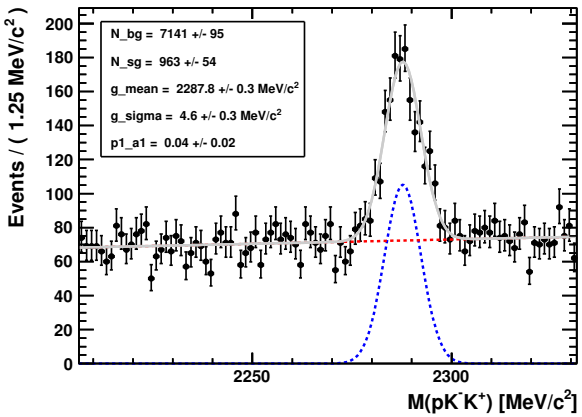
- Re-ran prompt analysis with a tight prompt DIRA cut.
- DIRA increased from 0.9999 to 0.99999.
  - Or being less obtuse, the maximum angle between the reconstructed Λ_c momentum and displacement vector of reconstructed Λ_c vertex from reconstructed PV - tightened from 0.14 mrad to 0.0044 mrad.

Raw yields

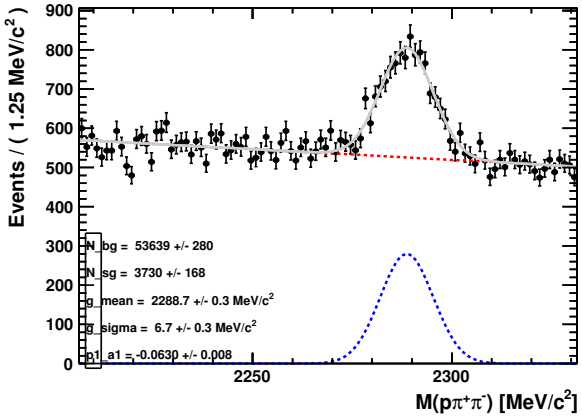
Fits shown - some odd structures in $\Lambda_c^+ \to pK^-\pi^+$?



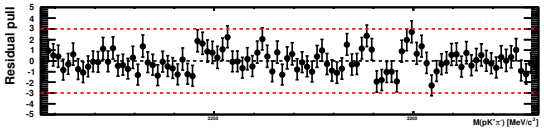
$\Lambda_c^+ \to pK^-\pi^+$

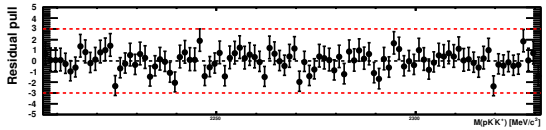


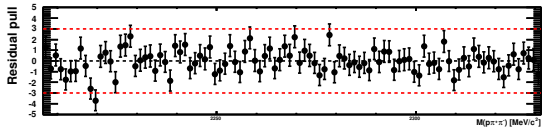
$\Lambda_c^+ \to pK^-K^+$



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







- Raw signal ratios, change from main analysis:
  - $\mathcal{B}(\Lambda_c^+ \to pK^-K^+)/\mathcal{B}(\Lambda_c^+ \to pK^-\pi^+)$: (1.89 ± 0.08) % to (1.86 ± 0.10) %
  - $\mathcal{B}(\Lambda_c^+ \to p\pi^-\pi^+)/\mathcal{B}(\Lambda_c^+ \to pK^-\pi^+)$: (7.47 ± 0.28) % to (7.22 ± 0.32) %
- Changes are very small, within errors. But mildly support theory that there's more secondary in $\Lambda_c^+ \to p\pi^-\pi^+$.

PID Efficiencies

- Errors on efficiencies are low, percent level. Neglect them in these figures.
- Changes:

Measurement	Standard Prompt [%]	Tight DIRA prompt
$\Lambda_c^+ \to pK^-\pi^+$	42.7	42.1
$\Lambda_c^+ \to pK^-K^+$	38.62	37.0
$\Lambda_c^+ \to p\pi^-\pi^+$	45.4	48.4

- $\Lambda_c^+ \to p\pi^-\pi^+$ efficiencies go up significantly - worrying.

Stripping Efficiencies

- Compare some direct re-weighted efficiencies with 8x8 bins in invariant mass vars.

Measurement	Standard Prompt [%]	Tight DIRA prompt
$\Lambda_c^+ \to pK^-\pi^+$	2.91e-3	1.64e-3
$\Lambda_c^+ \to pK^-K^+$	2.69e-3	1.52e-3
$\Lambda_c^+ \to p\pi^-\pi^+$	3.44e-3	1.85e-3