HANUL Meeting
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$\Lambda_c^+ \to K_s\, p\, \pi^0$ nevent estimation

Hadronic modes with a p: $S = -1$ final states

Γ_1	pK_S^0		(1.58± 0.08) %	S=1.2
Γ_2	$pK^-\pi^+$		(6.35± 0.33) %	S=1.4
Γ_3	$p\overline{K}^*(892)^0$	[a]	(1.98± 0.28) %	
Γ_4	$\Delta(1232)^{++}K^-$		(1.09± 0.25) %	
Γ_5	$\Lambda(1520)\pi^+$	[a]	(2.2 ± 0.5) %	
Γ_6	$pK^-\pi^+$ nonresonant		(3.5 ± 0.4) %	
Γ_7	$pK_S^0\pi^0$		(1.99± 0.13) %	S=1.1
Γ_8	$p\overline{K}^0\eta$		(1.6 ± 0.4) %	

$\Gamma(pK_S^0\pi^0)/\Gamma(pK^-\pi^+)$ **Γ_7/Γ_2**

Measurements given as a $\overline{K}^0$ ratio have been divided by 2 to convert to a K_S^0 ratio.

VALUE	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
0.313±0.018 OUR FIT					
0.33 ±0.03 ±0.04	774	ALAM	98	CLE2	$e^+e^- \approx \Upsilon(4S)$

- considering Belle full data
  - $pK^-\pi^+$: 1.45 M
  - $pK_s\pi^0$: ~0.45 M

$\Lambda_c^+ \rightarrow K_s\ p\ \pi^0$ nevent estimation

- p K^- π^+ 3 charged
- p K_s $\pi^0 \rightarrow$ p $(\pi^+\pi^-)$ $(\gamma\gamma)$ 3 charged + 2 gamma
  - $K_s \rightarrow \pi^+\pi^-$

Γ_1	$\pi^0\pi^0$	(30.69 ± 0.05) %
Γ_2	$\pi^+\pi^-$	(69.20 ± 0.05) %

charged particle efficiency ~60%
gamma efficiency ~30%

π^0 recon efficiency

$0.45M \times 0.7 \times 0.09 =$ **~28k events**

estimated total event

$K_s \rightarrow \pi^+\pi^-$ branching fraction

$\Lambda_c^+ \rightarrow K_s\ p\ \pi^0$ Analysis?

- $K_s \rightarrow \pi^+\pi^-$ (mdst_Vee2)
- $\pi^0 \rightarrow \gamma\gamma$ (mdst_pi0)

- Optimization?
  - vertex dr,dz
  - γ (child of π^0) energy
  - momentum
  - proton pid
  - …

back up