Ξ_{cc}^{++}

$I(J^P) = ?(?^?)$ Status: ***

Ξ_{cc}^{++} MASS

VALUE (MeV)	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
3621.2 ±0.7 OUR AVERAGE					
3620.6 ±1.5 ±0.4 ±0.3	91	[1] AAIJ	18BA	LHCB	pp at 13 TeV
3621.40±0.72±0.27±0.14	313	[2] AAIJ	17BC	LHCB	pp at 13 TeV

[1] The third error in AAIJ 18BA value is from the uncertainty of the Ξ_c^+ mass.

[2] The third error in AAIJ 17BC value is from the uncertainty of the Λ_c^+ mass. The width of the signal is 6.6 ± 0.8 MeV, consistent with the experimental resolution.

Ξ_{cc}^{++} MEAN LIFE

VALUE (10^{-15} s)	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
$\mathbf{256^{+24}_{-22}\pm14}$	304	AAIJ	18G	LHCB	pp at 13 TeV

Ξ_{cc}^{++} DECAY MODES

	Mode	Fraction (Γ_i/Γ)
Γ_1	$\Lambda_c^+ K^- \pi^+ \pi^+$	seen
Γ_2	$\Xi_c^+ \pi^+$, $\Xi_c^+ \to p K^- \pi^+$	seen
Γ_3	$D^+ p K^- \pi^+$	

$\Gamma(\Lambda_c^+ K^- \pi^+ \pi^+)/\Gamma_{\text{total}}$ Γ_1/Γ

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
seen	AAIJ	17BC	LHCB	12 std significance

$\Gamma(\Xi_c^+ \pi^+, \Xi_c^+ \to p K^- \pi^+)/\Gamma_{\text{total}}$ Γ_2/Γ

VALUE	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
seen	91	AAIJ	18BA	LHCB	5.9 std significance

$\Gamma(\Xi_c^+ \pi^+, \Xi_c^+ \to p K^- \pi^+)/\Gamma(\Lambda_c^+ K^- \pi^+ \pi^+)$ Γ_2/Γ_1

VALUE (units 10^{-3})	*DOCUMENT ID*		*TECN*	*COMMENT*
2.2±0.6±0.1	[3] AAIJ	18BA	LHCB	Ratio 91 over 289 events

[3] AAIJ 18BA reports $[\Gamma(\Xi_{cc}^{++} \to \Xi_c^+ \pi^+, \Xi_c^+ \to p K^- \pi^+)/\Gamma(\Xi_{cc}^{++} \to \Lambda_c^+ K^- \pi^+ \pi^+)]$ / $[B(\Lambda_c^+ \to p K^- \pi^+)] = (3.5 \pm 0.9 \pm 0.3) \times 10^{-2}$ which we multiply by our best value $B(\Lambda_c^+ \to p K^- \pi^+) = (6.28 \pm 0.32) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(D^+ p K^- \pi^+)/\Gamma(\Lambda_c^+ K^- \pi^+ \pi^+)$ Γ_3/Γ_1

VALUE	CL%	DOCUMENT ID	TECN	COMMENT
$<1.7 \times 10^{-2}$	90	AAIJ	19AO LHCB	pp at 13 TeV

Ξ_{cc}^{++} REFERENCES

AAIJ	19AO	JHEP 1910 124	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	18BA	PRL 121 162002	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	18G	PRL 121 052002	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	17BC	PRL 119 112001	R. Aaij *et al.*	(LHCb Collab.)