

$$T_{c\bar{c}s1}(4220)^+$$

$$I(J^P) = \frac{1}{2}(1^+)$$

OMITTED FROM SUMMARY TABLE

was $Z_{cs}(4220)^+$

Properties incompatible with a $q\bar{q}$ structure (exotic state). See the review on "Heavy Non- $q\bar{q}$ Mesons."

Seen by AAIJ 21E in $B^+ \rightarrow T_{c\bar{c}s1}(4220)^+ \phi$ with $T_{c\bar{c}s1}(4220)^+ \rightarrow J/\psi K^+$ using an amplitude analysis of $B^+ \rightarrow J/\psi \phi K^+$ with a significance (accounting for systematic uncertainties) of 5.9σ . The $J^P = 1^+$ assignment is favored over 1^- with a significance of 2σ and other assignments are disfavored by 4.9σ .

$T_{c\bar{c}s1}(4220)^+$ MASS

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
$4216 \pm 24^{+43}_{-30}$	24k	¹ AAIJ	21E LHCB	$B^+ \rightarrow J/\psi \phi K^+$

¹ From an amplitude analysis of the decay $B^+ \rightarrow J/\psi \phi K^+$ with a significance of 5.9σ .

$T_{c\bar{c}s1}(4220)^+$ WIDTH

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
$233 \pm 52^{+97}_{-73}$	24k	¹ AAIJ	21E LHCB	$B^+ \rightarrow J/\psi \phi K^+$

¹ From an amplitude analysis of the decay $B^+ \rightarrow J/\psi \phi K^+$ with a significance of 5.9σ .

$T_{c\bar{c}s1}(4220)^+$ DECAY MODES

Mode	Fraction (Γ_i/Γ)
$\Gamma_1 \quad J/\psi K^+$	seen

$\Gamma(J/\psi K^+)/\Gamma_{\text{total}}$	Γ_1/Γ			
VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
seen	24k	¹ AAIJ	21E LHCB	$B^+ \rightarrow J/\psi \phi K^+$

¹ From an amplitude analysis of the decay $B^+ \rightarrow J/\psi \phi K^+$ with a significance of 5.9σ .

$T_{c\bar{c}s1}(4220)^+$ REFERENCES

AAIJ	21E	PRL 127 082001	R. Aaij <i>et al.</i>	(LHCb Collab.) JP
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