$\chi_{c1}(4685)$

$I^G(J^{PC}) = 0^+(1^{++})$

OMITTED FROM SUMMARY TABLE

This state shows properties different from a conventional $q\overline{q}$ state. A candidate for an exotic structure. See the review on "Heavy Non-$q\overline{q}$ Mesons."

Seen by AAIJ 21E in $B^+ \to \chi_{c1}(4685)K^+$ with $\chi_{c1}(4685) \to J/\psi\phi$ using an amplitude analysis of $B^+ \to J/\psi\phi K^+$ with a significance (accounting for systematic uncertainties) of 15 σ. The $J^P = 1^+$ assignment is favored with high significance.

$\chi_{c1}(4685)$ MASS

VALUE (MeV)	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
4677^{+13}_{-15} OUR AVERAGE					
$4653 \pm 14 \pm 27$		AAIJ	25Q	LHCB	$B^+ \to \psi(2S)K^+\pi^+\pi^-$
$4684 \pm 7^{+13}_{-16}$	24k	[1] AAIJ	21E	LHCB	$B^+ \to J/\psi\phi K^+$

[1] From an amplitude analysis of the decay $B^+ \to J/\psi\phi K^+$ with a significance of 15 σ.

$\chi_{c1}(4685)$ WIDTH

VALUE (MeV)	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
180 ± 50 OUR AVERAGE Error includes scale factor of 1.9.					
$227 \pm 26 \pm 22$		AAIJ	25Q	LHCB	$B^+ \to \psi(2S)K^+\pi^+\pi^-$
$126 \pm 15^{+37}_{-41}$	24k	[1] AAIJ	21E	LHCB	$B^+ \to J/\psi\phi K^+$

[1] From an amplitude analysis of the decay $B^+ \to J/\psi\phi K^+$ with a significance of 15 σ.

$\chi_{c1}(4685)$ DECAY MODES

	Mode	Fraction (Γ_i/Γ)
Γ_1	$J/\psi\phi$	seen
Γ_2	$\psi(2S)\pi^+\pi^-$	seen

$\chi_{c1}(4685)$ BRANCHING RATIOS

$\Gamma(J/\psi\phi)/\Gamma_{\text{total}}$ Γ_1/Γ

VALUE	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
seen	24k	[1] AAIJ	21E	LHCB	$B^+ \to J/\psi\phi K^+$

[1] From an amplitude analysis of the decay $B^+ \to J/\psi\phi K^+$ with a significance of 15 σ.

$\Gamma(\psi(2S)\pi^+\pi^-)/\Gamma_{\text{total}}$ Γ_2/Γ

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
seen	AAIJ	25Q	LHCB	$B^+ \to \psi(2S)K^+\pi^+\pi^-$

$\chi_{c1}(4685)$ REFERENCES

AAIJ	25Q	JHEP 2501 054	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	21E	PRL 127 082001	R. Aaij *et al.*	(LHCb Collab.) JP