

$\chi_{c0}(4500)$

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

OMITTED FROM SUMMARY TABLE
was $X(4500)$

This state shows properties different from a conventional $q\bar{q}$ state.
A candidate for an exotic structure. See the review on non- $q\bar{q}$ states.

Seen by AAIJ 17C in $B^+ \rightarrow \chi_{c0} K^+$, $\chi_{c0} \rightarrow J/\psi\phi$ using an amplitude analysis of $B^+ \rightarrow J/\psi\phi K^+$ with a significance (accounting for systematic uncertainties) of 6.1σ .

 $\chi_{c0}(4500)$ MASS

| VALUE (MeV) | EVTS | DOCUMENT ID | TECN | COMMENT |
|---|------|---------------------|------|---------------------------------------|
| $4474 \pm 3 \pm 3$ | 24k | ¹ AAIJ | 21E | LHCB $B^+ \rightarrow J/\psi\phi K^+$ |
| • • • We do not use the following data for averages, fits, limits, etc. • • • | | | | |
| $4506 \pm 11^{+12}_{-15}$ | 4289 | ^{2,3} AAIJ | 17C | 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 20σ .

² From an amplitude analysis of the decay $B^+ \rightarrow J/\psi\phi K^+$ with a significance of 6.1σ .

³ Superseded by AAIJ 21E.

 $\chi_{c0}(4500)$ WIDTH

| VALUE (MeV) | EVTS | DOCUMENT ID | TECN | COMMENT |
|---|------|---------------------|------|---------------------------------------|
| $77 \pm 6^{+10}_{-8}$ | 24k | ¹ AAIJ | 21E | LHCB $B^+ \rightarrow J/\psi\phi K^+$ |
| • • • We do not use the following data for averages, fits, limits, etc. • • • | | | | |
| $92 \pm 21^{+21}_{-20}$ | 4289 | ^{2,3} AAIJ | 17C | 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 20σ .

² From an amplitude analysis of the decay $B^+ \rightarrow J/\psi\phi K^+$ with a significance of 6.1σ .

³ Superseded by AAIJ 21E.

 $\chi_{c0}(4500)$ DECAY MODES

| Mode | Fraction (Γ_i/Γ) |
|-------------------------|--------------------------------|
| Γ_1 $J/\psi\phi$ | seen |

 $\chi_{c0}(4500)$ BRANCHING RATIOS

| $\Gamma(J/\psi\phi)/\Gamma_{\text{total}}$ | Γ_1/Γ | | | |
|---|-------------------|---------------------|------|---------------------------------------|
| VALUE | EVTS | DOCUMENT ID | TECN | COMMENT |
| seen | 24k | ¹ AAIJ | 21E | LHCB $B^+ \rightarrow J/\psi\phi K^+$ |
| • • • We do not use the following data for averages, fits, limits, etc. • • • | | | | |
| seen | 4289 | ^{2,3} AAIJ | 17C | 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 20σ .

² From an amplitude analysis of the decay $B^+ \rightarrow J/\psi \phi K^+$ with a significance of 6.1σ .

³ Superseded by AAIJ 21E.

$\chi_{c0}(4500)$ REFERENCES

| | | | | |
|------|-----|----------------|-----------------------|-------------------|
| AAIJ | 21E | PRL 127 082001 | R. Aaij <i>et al.</i> | (LHCb Collab.) |
| AAIJ | 17C | PRL 118 022003 | R. Aaij <i>et al.</i> | (LHCb Collab.) JP |
| Also | | PR D95 012002 | R. Aaij <i>et al.</i> | (LHCb Collab.) |
