

$\chi_{c0}(4700)$

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

OMITTED FROM SUMMARY TABLE
was $X(4700)$ 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 5.6σ . **$\chi_{c0}(4700)$ MASS**

| VALUE (MeV) | EVTS | DOCUMENT ID | TECN | COMMENT |
|---|------|---------------------|----------|--|
| $4694 \pm 4^{+16}_-3$ | 24k | ¹ AAIJ | 21E LHCb | $B^+ \rightarrow J/\psi\phi K^+$ |
| ● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ● | | | | |
| $4741 \pm 6 \pm 6$ | 175 | ² AAIJ | 21C LHCb | $B_s^0 \rightarrow J/\psi\phi\pi^+\pi^-$ |
| $4704 \pm 10^{+14}_{-24}$ | 4289 | ^{3,4} 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 17σ .² From a 1D fit to the $J/\psi\phi$ mass distribution with a significance of 5.3σ . The identification of this structure as the $\chi_{c0}(4700)$ needs confirmation.³ From an amplitude analysis of the decay $B^+ \rightarrow J/\psi\phi K^+$ with a significance of 5.6σ .⁴ Superseded by AAIJ 21E. **$\chi_{c0}(4700)$ WIDTH**

| VALUE (MeV) | EVTS | DOCUMENT ID | TECN | COMMENT |
|---|------|---------------------|----------|--|
| $87 \pm 8^{+16}_-6$ | 24k | ¹ AAIJ | 21E LHCb | $B^+ \rightarrow J/\psi\phi K^+$ |
| ● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ● | | | | |
| $53 \pm 15 \pm 11$ | 175 | ² AAIJ | 21C LHCb | $B_s^0 \rightarrow J/\psi\phi\pi^+\pi^-$ |
| $120 \pm 31^{+42}_{-33}$ | 4289 | ^{3,4} 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 17σ .² From a 1D fit to the $J/\psi\phi$ mass distribution with a significance of 5.3σ . The identification of this structure as the $\chi_{c0}(4700)$ needs confirmation.³ From an amplitude analysis of the decay $B^+ \rightarrow J/\psi\phi K^+$ with a significance of 5.6σ .⁴ Superseded by AAIJ 21E. **$\chi_{c0}(4700)$ DECAY MODES**

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

$\chi_{c0}(4700)$ 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 | 175 | ² AAIJ | 21C LHCb | $B_s^0 \rightarrow J/\psi\phi\pi^+\pi^-$ | |
| seen | 4289 | ^{3,4} 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 17σ .

² From a 1D fit to the $J/\psi\phi$ mass distribution with a significance of 5.3σ . The identification of this structure as the $\chi_{c0}(4700)$ needs confirmation.

³ From an amplitude analysis of the decay $B^+ \rightarrow J/\psi\phi K^+$ with a significance of 5.6σ .

⁴ Superseded by AAIJ 21E.

$\chi_{c0}(4700)$ REFERENCES

| | | | | |
|------|-----|----------------|-----------------------|-------------------|
| AAIJ | 21C | JHEP 2102 024 | R. Aaij <i>et al.</i> | (LHCb Collab.) |
| 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.) |