

$\chi_{c1}(4274)$

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

was $X(4274)$

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 $B^+ \rightarrow \chi_{c1} K^+$, $\chi_{c1} \rightarrow J/\psi\phi$ using an amplitude analysis of $B^+ \rightarrow J/\psi\phi K^+$ with a significance (accounting for systematic uncertainties) of 6.0σ .

$\chi_{c1}(4274)$ MASS

| VALUE (MeV) | EVTS | DOCUMENT ID | TECN | COMMENT |
|---|------|-------------------------------------|----------|----------------------------------|
| 4286 ± 8 -9 OUR AVERAGE | | Error includes scale factor of 1.7. | | |
| 4294 ± 4 ± 3 -6 | 24k | ¹ AAIJ | 21E LHCB | $B^+ \rightarrow J/\psi\phi K^+$ |
| 4274.4 ± 8.4 -6.7 ± 1.9 | 22 | ² AALTONEN | 17 CDF | $B^+ \rightarrow J/\psi\phi K^+$ |
| • • • We do not use the following data for averages, fits, limits, etc. • • • | | | | |
| 4273.3 ± 8.3 ± 17.2 -3.6 | 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 18σ .

² From a fit to the invariant mass spectrum with a significance of 3.1σ .

³ From an amplitude analysis of the decay $B^+ \rightarrow J/\psi\phi K^+$ with a significance of 6.0σ .

⁴ Superseded by AAIJ 21E.

$\chi_{c1}(4274)$ WIDTH

| VALUE (MeV) | EVTS | DOCUMENT ID | TECN | COMMENT |
|---|------|-----------------------|----------|----------------------------------|
| 51 ± 7 OUR AVERAGE | | | | |
| 53 ± 5 ± 5 | 24k | ¹ AAIJ | 21E LHCB | $B^+ \rightarrow J/\psi\phi K^+$ |
| 32.3 ± 21.9 -15.3 ± 7.6 | 22 | ² AALTONEN | 17 CDF | $B^+ \rightarrow J/\psi\phi K^+$ |
| • • • We do not use the following data for averages, fits, limits, etc. • • • | | | | |
| 56 ± 11 ± 8 -11 | 4289 | ^{3,4} AAIJ | 17C LHCB | $B^+ \rightarrow J/\psi\phi K^+$ |

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² From a fit to the invariant mass spectrum with a significance of 3.1σ .

³ From an amplitude analysis of the decay $B^+ \rightarrow J/\psi\phi K^+$ with a significance of 6.0σ .

⁴ Superseded by AAIJ 21E.

$\chi_{c1}(4274)$ DECAY MODES

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

$\chi_{c1}(4274)$ BRANCHING RATIOS

| $\Gamma(J/\psi\phi)/\Gamma_{\text{total}}$ | | | | | Γ_1/Γ |
|---|-------------|---------------------|-------------|----------------------------------|-------------------|
| <i>VALUE</i> | <i>EVTS</i> | <i>DOCUMENT ID</i> | <i>TECN</i> | <i>COMMENT</i> | |
| 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 18σ .

² From an amplitude analysis of the decay $B^+ \rightarrow J/\psi\phi K^+$ with a significance of 6.0σ .

³ Superseded by AAIJ 21E.

$\chi_{c1}(4274)$ 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.) |
| AALTONEN | 17 | MPL A32 1750139 | T. Altonen <i>et al.</i> | (CDF Collab.) |