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

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

## OMITTED FROM SUMMARY TABLE

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

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

## $Z_{cs}(4220)^+$ MASS

| VALUE (MeV) | EVTS | DOCUMENT ID | | TECN | COMMENT |
|---|---|---|---|---|---|
| $4216 \pm 24 ^{+43}_{-30}$ | 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 5.9 $\sigma$.

## $Z_{cs}(4220)^+$ WIDTH

| VALUE (MeV) | EVTS | DOCUMENT ID | | TECN | COMMENT |
|---|---|---|---|---|---|
| $233 \pm 52 ^{+97}_{-73}$ | 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 5.9 $\sigma$.

## $Z_{cs}(4220)^+$ DECAY MODES

| | Mode | Fraction ($\Gamma_i/\Gamma$) |
|---|---|---|
| $\Gamma_1$ | $J/\psi K^+$ | seen |

### $\Gamma(J/\psi K^+)/\Gamma_{total}$ $\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad$ $\Gamma_1/\Gamma$

| 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 5.9 $\sigma$.

## $Z_{cs}(4220)^+$ REFERENCES

| AAIJ | 21E | PRL 127 082001 | R. Aaij *et al.* | (LHCb Collab.) JP |
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