

$\chi_{c0}(4700)$ 

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

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  $5.6\sigma$ .

### $\chi_{c0}(4700)$ MASS

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
<b><math>4694 \pm 4^{+16}_-3</math></b>	24k	<sup>1</sup> 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	<sup>2</sup> AAIJ	21C LHCb	$B_s^0 \rightarrow J/\psi\phi\pi^+\pi^-$
$4704 \pm 10^{+14}_-24$	4289	<sup>3,4</sup> AAIJ	17C LHCb	$B^+ \rightarrow J/\psi\phi K^+$

<sup>1</sup> From an amplitude analysis of the decay  $B^+ \rightarrow J/\psi\phi K^+$  with a significance of  $17\sigma$ .

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

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

<sup>4</sup> Superseded by AAIJ 21E.

### $\chi_{c0}(4700)$ WIDTH

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
<b><math>87 \pm 8^{+16}_-6</math></b>	24k	<sup>1</sup> 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	<sup>2</sup> AAIJ	21C LHCb	$B_s^0 \rightarrow J/\psi\phi\pi^+\pi^-$
$120 \pm 31^{+42}_-33$	4289	<sup>3,4</sup> AAIJ	17C LHCb	$B^+ \rightarrow J/\psi\phi K^+$

<sup>1</sup> From an amplitude analysis of the decay  $B^+ \rightarrow J/\psi\phi K^+$  with a significance of  $17\sigma$ .

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

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

<sup>4</sup> Superseded by AAIJ 21E.

### $\chi_{c0}(4700)$ DECAY MODES

Mode	Fraction ( $\Gamma_i/\Gamma$ )
$\Gamma_1$ $J/\psi\phi$	seen

## $\chi_{c0}(4700)$ BRANCHING RATIOS

$\Gamma(J/\psi\phi)/\Gamma_{\text{total}}$					$\Gamma_1/\Gamma$
VALUE	EVTS	DOCUMENT ID	TECN	COMMENT	
seen	24k	<sup>1</sup> AAIJ	21E LHCb	$B^+ \rightarrow J/\psi\phi K^+$	
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●					
seen	175	<sup>2</sup> AAIJ	21C LHCb	$B_s^0 \rightarrow J/\psi\phi\pi^+\pi^-$	
seen	4289	<sup>3,4</sup> AAIJ	17C LHCb	$B^+ \rightarrow J/\psi\phi K^+$	

<sup>1</sup> From an amplitude analysis of the decay  $B^+ \rightarrow J/\psi\phi K^+$  with a significance of  $17\sigma$ .

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

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

<sup>4</sup> 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.)