

X(4160)

$$I^G(J^{PC}) = ??(???)$$

OMITTED FROM SUMMARY TABLE

Seen by PAKHLOV 08 in $e^+e^- \rightarrow J/\psi X$, $X \rightarrow D^*\bar{D}^*$

A state with consistent mass and width is seen by AAIJ 21E in $B^+ \rightarrow X(4160)K^+$ with $X(4160) \rightarrow J/\psi\phi$ using an amplitude analysis of $B^+ \rightarrow J/\psi\phi K^+$ with a significance (accounting for systematic uncertainties) of 4.8σ . The $J^{PC} = 2^{-+}$ assignment is favored over other assignments with a significance of more than 4σ .

X(4160) MASS

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
4153⁺²³₋₂₁ OUR AVERAGE				
4146 ± 18 ± 33	24k	¹ AAIJ	21E LHCb	$B^+ \rightarrow J/\psi\phi K^+$
4156 ⁺²⁵ ₋₂₀ ± 15	24	PAKHLOV	08 BELL	$e^+e^- \rightarrow J/\psi X$

¹ From an amplitude analysis of the decay $B^+ \rightarrow J/\psi\phi K^+$ with a significance of 4.8σ .

X(4160) WIDTH

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
136⁺₋₃₅ 60 OUR AVERAGE				
135 ± 28 ⁺⁵⁹ ₋₃₀	24k	¹ AAIJ	21E LHCb	$B^+ \rightarrow J/\psi\phi K^+$
139 ⁺¹¹¹ ₋₆₁ ± 21	24	PAKHLOV	08 BELL	$e^+e^- \rightarrow J/\psi X$

¹ From an amplitude analysis of the decay $B^+ \rightarrow J/\psi\phi K^+$ with a significance of 4.8σ .

X(4160) DECAY MODES

Mode	Fraction (Γ_i/Γ)
Γ_1 $D\bar{D}$	not seen
Γ_2 $D^*\bar{D} + \text{c.c.}$	not seen
Γ_3 $D^*\bar{D}^*$	seen
Γ_4 $J/\psi\phi$	seen

X(4160) BRANCHING RATIOS

$\Gamma(D\bar{D})/\Gamma(D^*\bar{D}^*)$					Γ_1/Γ_3
VALUE	CL%	DOCUMENT ID	TECN	COMMENT	
<0.09	90	PAKHLOV	08 BELL	$e^+e^- \rightarrow J/\psi X$	

$\Gamma(D^*\bar{D} + \text{c.c.})/\Gamma(D^*\bar{D}^*)$					Γ_2/Γ_3
<u>VALUE</u>	<u>CL%</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
<0.22	90	PAKHLOV 08	BELL	$e^+e^- \rightarrow J/\psi X$	

$\Gamma(J/\psi\phi)/\Gamma_{\text{total}}$					Γ_4/Γ
<u>VALUE</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
seen	24k	¹ AAIJ	21E LHCB	$B^+ \rightarrow J/\psi\phi K^+$	

¹From an amplitude analysis of the decay $B^+ \rightarrow J/\psi\phi K^+$ with a significance of 4.8 σ .

X(4160) REFERENCES

AAIJ	21E	PRL 127 082001	R. Aaij <i>et al.</i>	(LHCb Collab.)
PAKHLOV	08	PRL 100 202001	P. Pakhlov <i>et al.</i>	(BELLE Collab.)