

X(4140)

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

OMITTED FROM SUMMARY TABLE

Needs confirmation.

Seen by AALTONEN 09AH in the $B^+ \rightarrow XK^+$, $X \rightarrow J/\psi\phi$.

Not seen by SHEN 10 in $\gamma\gamma \rightarrow J/\psi\phi$ or AAIJ 12AA in $B^+ \rightarrow J/\psi\phi K^+$.

X(4140) MASS

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●				
4143.0 ± 2.9 ± 1.2	14 ± 5	¹ AALTONEN	09AH CDF	$B^+ \rightarrow J/\psi\phi K^+$
¹ Statistical significance of 3.8 σ .				

X(4140) WIDTH

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●				
11.7 ^{+8.3} _{-5.0} ± 3.7	14 ± 5	² AALTONEN	09AH CDF	$B^+ \rightarrow J/\psi\phi K^+$
² Statistical significance of 3.8 σ .				

X(4140) DECAY MODES

Mode	Fraction (Γ_i/Γ)
Γ_1 $J/\psi\phi$	not seen
Γ_2 $\gamma\gamma$	not seen

X(4140) $\Gamma(i)\Gamma(\gamma\gamma)/\Gamma(\text{total})$

$\Gamma(\gamma\gamma) \times \Gamma(J/\psi\phi)/\Gamma_{\text{total}}$					$\Gamma_2\Gamma_1/\Gamma$
VALUE (eV)	CL%	DOCUMENT ID	TECN	COMMENT	
< 41	90	³ SHEN	10	BELL 10.6 $e^+e^- \rightarrow e^+e^- J/\psi\phi$	
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●					
< 6	90	⁴ SHEN	10	BELL 10.6 $e^+e^- \rightarrow e^+e^- J/\psi\phi$	
³ For $J^P = 0^+$.					
⁴ For $J^P = 2^+$.					

X(4140) BRANCHING RATIOS

$\Gamma(J/\psi\phi)/\Gamma_{\text{total}}$	Γ_1/Γ
<u>VALUE</u>	<u>EVTS</u>
<u>DOCUMENT ID</u>	<u>TECN</u>
<u>COMMENT</u>	

not seen	⁵	AAIJ	12AA LHCb	pp → B ⁺ X at 7 TeV
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• • • We do not use the following data for averages, fits, limits, etc. • • •

seen	14 ± 5	⁶	AALTONEN	09AH CDF	B ⁺ → J/ψφK ⁺
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⁵ Reported $B(B^+ \rightarrow X(4140)K^+) \cdot B(X(4140) \rightarrow J/\psi\phi)/B(B^+ \rightarrow J/\psi\phi K^+) < 0.07$ at 90% CL.

⁶ Statistical significance of 3.8 σ.

$\Gamma(\gamma\gamma)/\Gamma_{\text{total}}$	Γ_2/Γ
<u>VALUE</u>	<u>DOCUMENT ID</u>
<u>TECN</u>	<u>COMMENT</u>

not seen	SHEN	10	BELL	10.6 e ⁺ e ⁻ → e ⁺ e ⁻ J/ψφ
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X(4140) REFERENCES

AAIJ	12AA PR D85 091103	R. Aaij <i>et al.</i>	(LHCb Collab.)
SHEN	10 PRL 104 112004	C.P. Shen <i>et al.</i>	(BELLE Collab.)
AALTONEN	09AH PRL 102 242002	T. Aaltonen <i>et al.</i>	(CDF Collab.)