

X(1835)

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

OMITTED FROM SUMMARY TABLE

Needs confirmation. Seen by BAI 03F and ABLIKIM 05R in radiative decays of the J/ψ . Evidence for a threshold enhancement in the $p\bar{p}$ mass spectrum was also reported by ABE 02K, AUBERT, B 05L, and WANG 05A in $B^+ \rightarrow p\bar{p}K^+$, WANG 05A in $B^0 \rightarrow p\bar{p}K_S^0$, ABE 02W in $\bar{B}^0 \rightarrow p\bar{p}D^0$, and WEI 08 in $B^+ \rightarrow p\bar{p}\pi^+$ decays. Not seen by ATHAR 06 in $\Upsilon(1S) \rightarrow p\bar{p}\gamma$.

X(1835) MASS

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
1833.7 ± 6.1 ± 2.7	264	ABLIKIM	05R BES2	$J/\psi \rightarrow \gamma\pi^+\pi^-\eta'$
1812 $^{+19}_{-26}$ ±18	95	¹ ABLIKIM	06J BES2	$J/\psi \rightarrow \gamma\omega\phi$
1831 ± 7		² ABLIKIM	05R BES2	$J/\psi \rightarrow \gamma p\bar{p}$

• • • We do not use the following data for averages, fits, limits, etc. • • •

¹ Favors $J^{PC} = 0^{++}$ quantum numbers assignment.

² From the fit including final state interaction effects in isospin 0 S -wave according to SIBIRTSEV 05A. Systematic errors not estimated.

X(1835) WIDTH

VALUE (MeV)	CL%	EVTS	DOCUMENT ID	TECN	COMMENT
67.7 ± 20.3 ± 7.7		264	ABLIKIM	05R BES2	$J/\psi \rightarrow \gamma\pi^+\pi^-\eta'$
105 ± 20 ± 28		95	³ ABLIKIM	06J BES2	$J/\psi \rightarrow \gamma\omega\phi$
< 153	90		⁴ ABLIKIM	05R BES2	$J/\psi \rightarrow \gamma p\bar{p}$

• • • We do not use the following data for averages, fits, limits, etc. • • •

³ Favors $J^{PC} = 0^{++}$ quantum numbers assignment.

⁴ From the fit including final state interaction effects in isospin 0 S -wave according to SIBIRTSEV 05A. Systematic errors not estimated.

X(1835) DECAY MODES

Mode	Fraction (Γ_i/Γ)
Γ_1 $p\bar{p}$	seen
Γ_2 $\pi^+\pi^-\eta'$	seen
Γ_3 $\omega\phi$	seen

X(1835) BRANCHING RATIOS

$\Gamma(p\bar{p})/\Gamma(\pi^+\pi^-\eta')$	Γ_1/Γ_2		
VALUE	DOCUMENT ID	TECN	COMMENT
0.333	ABLIKIM	05R BES2	$J/\psi \rightarrow \gamma\pi^+\pi^-\eta'$

• • • We do not use the following data for averages, fits, limits, etc. • • •

$\Gamma(\omega\phi)/\Gamma_{\text{total}}$ Γ_3/Γ

VALUE	DOCUMENT ID	TECN	COMMENT
seen	ABLIKIM	06J BES2	$J/\psi \rightarrow \gamma\omega\phi$

X(1835) REFERENCES

WEI	08	PL B659 80	J.-T. Wei <i>et al.</i>	(BELLE Collab.)
ABLIKIM	06J	PRL 96 162002	M. Ablikim <i>et al.</i>	(BES Collab.)
ATHAR	06	PR D73 032001	S.B. Athar <i>et al.</i>	(CLEO Collab.)
ABLIKIM	05R	PRL 95 262001	M. Ablikim <i>et al.</i>	(BES Collab.)
AUBERT,B	05L	PR D72 051101R	B. Aubert <i>et al.</i>	(BABAR Collab.)
SIBIRTSEV	05A	PR D71 054010	A. Sibirtsev, J. Haidenbauer	
WANG	05A	PL B617 141	M.-Z. Wang <i>et al.</i>	(BELLE Collab.)
BAI	03F	PRL 91 022001	J.Z. Bai <i>et al.</i>	(BES Collab.)
ABE	02K	PRL 88 181803	K. Abe <i>et al.</i>	(BELLE Collab.)
ABE	02W	PRL 89 151802	K. Abe <i>et al.</i>	(BELLE Collab.)

OTHER RELATED PAPERS

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AUBERT	08BN	PR D78 112003	B. Aubert <i>et al.</i>	(BABAR Collab.)
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LAPORTA	07	IJMP A22 5401	V. Laporta	
WANG	07A	JPG 34 505	Z.-J. Wang, S.-L. Wan	
HAIDENBAU...	06	PR D74 017501	J. Haidenbauer <i>et al.</i>	
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HUANG	06A	PRL 96 032003	G.S. Huang <i>et al.</i>	(CLEO Collab.)
KOCHELEV	06	PL B633 283	N. Kochelev, D.-P. Min	(SEOUL, JINR)
LI	06	PR D74 034019	B.A. Li	
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ZHAO	06	PR D74 114025	Q. Zhao, B.S. Zhou	
KOCHELEV	05	PR D72 097502	N. Kochelev, D.-P. Min	(SEOUL, JINR)
LOISEAU	05	PR C72 011001	B. Loiseau, S. Wycech	(CURCP, WINR)
BUGG	04A	EPJ C36 161	D.V. Bugg	
BUGG	04B	PL B598 8	D.V. Bugg	
GAO	04	CTP 42 844	G.-S. Gao, S.-L. Zhu	
KERBIKOV	04	PR C69 055205	B. Kerbikov <i>et al.</i>	
ZOU	04	PR D69 034004	B.S. Zou, H.C. Chiang	
DATTA	03B	PL B567 273	A. Datta, P.J. O'Donnell	