$X(1835)$

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

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 $p\overline{p}$ mass spectrum was also reported by ABE 02K, AUBERT,B 05L, and WANG 05A in $B^+ \rightarrow p\overline{p}K^+$, WANG 05A in $B^0 \rightarrow p\overline{p}K^0_S$, and ABE 02W in $\overline{B}^0 \rightarrow D^0 p\overline{p}$ decays. Not seen by ATHAR 06 in $\Upsilon(1S) \rightarrow \gamma p\overline{p}$.

X(1835) MASS

VALUE (MeV)	EVTS	DOCUMENT ID		TECN	COMMENT
1833.7± 6.1± 2.7	264	ABLIKIM	05R	BES2	$J/\psi \rightarrow \gamma\pi^+\pi^-\eta'$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
1812 $^{+19}_{-26}$ ±18	95	[1] ABLIKIM	06J	BES2	$J/\psi \rightarrow \gamma\omega\phi$
1831 ± 7		[2] ABLIKIM	05R	BES2	$J/\psi \rightarrow \gamma p\overline{p}$

[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	$J/\psi \rightarrow \gamma\pi^+\pi^-\eta'$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
105 ±20 ±28		95	[3] ABLIKIM	06J	BES2	$J/\psi \rightarrow \gamma\omega\phi$
< 153	90		[4] ABLIKIM	05R	BES2	$J/\psi \rightarrow \gamma p\overline{p}$

[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	$p\overline{p}$	seen
Γ_2	$\pi^+\pi^-\eta'$	seen
Γ_3	$\omega\phi$	seen

X(1835) BRANCHING RATIOS

$\Gamma(p\overline{p})/\Gamma(\pi^+\pi^-\eta')$ — Γ_1/Γ_2

VALUE	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.333	ABLIKIM	05R	BES2	$J/\psi \rightarrow \gamma\pi^+\pi^-\eta'$

$\Gamma(\omega\phi)/\Gamma_{total}$				Γ_3/Γ
VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
seen	ABLIKIM	06J	BES2	$J/\psi \rightarrow \gamma\omega\phi$

X(1835) REFERENCES

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

OTHER RELATED PAPERS

ENTEM	07	PR D75 014004	D.R. Entem, F. Fernandez	
HE	07	EPJ C49 731	H.-G. He *et al.*	
HAIDENBAU...	06	PR D74 017501	J. Haidenbauer *et al.*	
HAIDENBAU...	06A	PL B643 29	J. Haidenbauer *et al.*	
HUANG	06A	PRL 96 032003	G.S. Huang *et al.*	(CLEO Collab.)
KOCHELEV	06	PL B633 283	N. Kochelev, D.-P. Min	(SEOUL, JINR)
LI	06	PR D74 034019	B.A. Li	
LI	06A	PR D74 054017	B.A. Li	
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 *et al.*	
ZOU	04	PR D69 034004	B.S. Zou, H.C. Chiang	
DATTA	03B	PL B567 273	A. Datta, P.J. O'Donnell	