$X(3872)$

$I^G(J^{PC}) = 0^+(1^{++})$

First observed by CHOI 03 in $B \to K\pi^+\pi^- J/\psi(1S)$ decays as a narrow peak in the invariant mass distribution of the $\pi^+\pi^- J/\psi(1S)$ final state. Isovector hypothesis excluded by AUBERT 05B and CHOI 11.

AAIJ 13Q perform a full five-dimensional amplitude analysis of the angular correlations between the decay products in $B^+ \to X(3872)K^+$ decays, where $X(3872) \to J/\psi\pi^+\pi^-$ and $J/\psi \to \mu^+\mu^-$, which unambiguously gives the $J^{PC} = 1^{++}$ assignment.

See our note on "Developments in Heavy Quarkonium Spectroscopy".

$X(3872)$ MASS FROM $J/\psi X$ MODE

VALUE (MeV)	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
3871.69± 0.17 OUR AVERAGE					
3871.9 ± 0.7 ±0.2	20 ± 5	ABLIKIM	14	BES3	$e^+e^- \to J/\psi\pi^+\pi^-\gamma$
3871.95± 0.48±0.12	0.6k	AAIJ	12H	LHCB	$pp \to J/\psi\pi^+\pi^- X$
3871.85± 0.27±0.19	∼ 170	[1] CHOI	11	BELL	$B \to K\pi^+\pi^- J/\psi$
$3873\ ^{+\ 1.8}_{-\ 1.6}$ ±1.3	27 ± 8	[2] DEL-AMO-SA.	10B	BABR	$B \to \omega J/\psi K$
3871.61± 0.16±0.19	6k	[2,3] AALTONEN	09AU	CDF2	$p\overline{p} \to J/\psi\pi^+\pi^- X$
3871.4 ± 0.6 ±0.1	93.4	AUBERT	08Y	BABR	$B^+ \to K^+ J/\psi\pi^+\pi^-$
3868.7 ± 1.5 ±0.4	9.4	AUBERT	08Y	BABR	$B^0 \to K^0_S J/\psi\pi^+\pi^-$
3871.8 ± 3.1 ±3.0	522	[2,4] ABAZOV	04F	D0	$p\overline{p} \to J/\psi\pi^+\pi^- X$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
3868.6 ± 1.2 ±0.2	8	[5] AUBERT	06	BABR	$B^0 \to K^0_S J/\psi\pi^+\pi^-$
3871.3 ± 0.6 ±0.1	61	[5] AUBERT	06	BABR	$B^- \to K^- J/\psi\pi^+\pi^-$
3873.4 ± 1.4	25	[6] AUBERT	05R	BABR	$B^+ \to K^+ J/\psi\pi^+\pi^-$
3871.3 ± 0.7 ±0.4	730	[2,7] ACOSTA	04	CDF2	$p\overline{p} \to J/\psi\pi^+\pi^- X$
3872.0 ± 0.6 ±0.5	36	[8] CHOI	03	BELL	$B \to K\pi^+\pi^- J/\psi$
3836 ±13	58	[2,9] ANTONIAZZI	94	E705	300 $\pi^\pm$Li → $J/\psi\pi^+\pi^- X$

[1] The mass difference for the $X(3872)$ produced in B^+ and B^0 decays is $(-0.71 \pm 0.96 \pm 0.19)$ MeV.
[2] Width consistent with detector resolution.
[3] A possible equal mixture of two states with a mass difference greater than 3.6 MeV/c^2 is excluded at 95% CL.
[4] Calculated from the corresponding $m_{X(3872)} - m_{J/\psi}$ using $m_{J/\psi}$=3096.916 MeV.
[5] Calculated from the corresponding $m_{X(3872)} - m_{\psi(2S)}$ using $m_{\psi(2S)} = 3686.093$ MeV. Superseded by AUBERT 08Y.
[6] Calculated from the corresponding $m_{X(3872)} - m_{\psi(2S)}$ using $m_{\psi(2S)} = 3685.96$MeV. Superseded by AUBERT 06.
[7] Superseded by AALTONEN 09AU.
[8] Superseded by CHOI 11.
[9] A lower mass value can be due to an incorrect momentum scale for soft pions.

$X(3872)$ MASS FROM $\overline{D}^{*0}D^0$ MODE

VALUE (MeV)	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$3872.9^{+0.6}_{-0.4}{}^{+0.4}_{-0.5}$	50	[10,11] AUSHEV	10	BELL	$B \to \overline{D}^{*0} D^0 K$
$3875.1^{+0.7}_{-0.5} \pm 0.5$	33 ± 6	[11] AUBERT	08B	BABR	$B \to \overline{D}^{*0} D^0 K$
$3875.2 \pm 0.7^{+0.9}_{-1.8}$	24 ± 6	[11,12] GOKHROO	06	BELL	$B \to D^0 \overline{D}^0 \pi^0 K$

[10] Calculated from the measured $m_{X(3872)} - m_{D^{*0}} - m_{\overline{D}^0} = 1.1^{+0.6}_{-0.4}{}^{+0.1}_{-0.3}$ MeV.

[11] Experiments report $D^{*0}\overline{D}^0$ invariant mass above $D^{*0}\overline{D}^0$ threshold because D^{*0} decay products are kinematically constrained to the D^{*0} mass, even though the D^{*0} may decay off-shell.

[12] Superseded by AUSHEV 10.

$m_{X(3872)} - m_{J/\psi}$

VALUE (MeV)	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
774.9±3.1±3.0	522	ABAZOV	04F	D0	$p\overline{p} \to J/\psi \pi^+ \pi^- X$

$m_{X(3872)} - m_{\psi(2S)}$

VALUE (MeV)	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
• • • We do not use the following data for averages, fits, limits, etc. • • •					
187.4 ± 1.4	25	[13] AUBERT	05R	BABR	$B^+ \to K^+ J/\psi \pi^+ \pi^-$

[13] Superseded by AUBERT 06.

$X(3872)$ WIDTH

VALUE (MeV)	*CL%*	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
<1.2	90		CHOI	11	BELL	$B \to K \pi^+ \pi^- J/\psi$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
<2.4	90		ABLIKIM	14	BES3	$e^+ e^- \to J/\psi \pi^+ \pi^- \gamma$
<3.3	90		AUBERT	08Y	BABR	$B^+ \to K^+ J/\psi \pi^+ \pi^-$
<4.1	90	69	AUBERT	06	BABR	$B \to K \pi^+ \pi^- J/\psi$
<2.3	90	36	[14] CHOI	03	BELL	$B \to K \pi^+ \pi^- J/\psi$

[14] Superseded by CHOI 11.

$X(3872)$ WIDTH FROM $\overline{D}^{*0}D^0$ MODE

VALUE (MeV)	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$3.9^{+2.8}_{-1.4}{}^{+0.2}_{-1.1}$	50	[15] AUSHEV	10	BELL	$B \to \overline{D}^{*0} D^0 K$
$3.0^{+1.9}_{-1.4} \pm 0.9$	33 ± 6	AUBERT	08B	BABR	$B \to \overline{D}^{*0} D^0 K$

[15] With a measured value of $B(B \to X(3872) K) \times B(X(3872) \to D^{*0}\overline{D}^0) = (0.80 \pm 0.20 \pm 0.10) \times 10^{-4}$, assumed to be equal for both charged and neutral modes.

X(3872) DECAY MODES

	Mode	Fraction (Γ_i/Γ)
Γ_1	e^+e^-	
Γ_2	$\pi^+\pi^- J/\psi(1S)$	$>$ 2.6 %
Γ_3	$\rho^0 J/\psi(1S)$	
Γ_4	$\omega J/\psi(1S)$	$>$ 1.9 %
Γ_5	$D^0\overline{D}^0\pi^0$	$>$32 %
Γ_6	$\overline{D}^{*0}D^0$	$>$24 %
Γ_7	$\gamma\gamma$	
Γ_8	$D^0\overline{D}^0$	
Γ_9	D^+D^-	
Γ_{10}	$\gamma\chi_{c1}$	
Γ_{11}	$\gamma\chi_{c2}$	
Γ_{12}	$\eta J/\psi$	
Γ_{13}	$\gamma J/\psi$	$>$ 6 $\times 10^{-3}$
Γ_{14}	$\gamma\psi(2S)$	[a] $>$ 3.0 %
Γ_{15}	$\pi^+\pi^-\eta_c(1S)$	not seen
Γ_{16}	$p\overline{p}$	not seen

[a] BHARDWAJ 11 does not observe this decay and presents a stronger 90% CL limit than this value. See measurements listings for details.

X(3872) PARTIAL WIDTHS

$\Gamma(e^+e^-)$ Γ_1

VALUE (keV)	CL%	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.28	90	[16] YUAN	04	RVUE	$e^+e^- \to \pi^+\pi^- J/\psi$

[16] Using BAI 98E data on $e^+e^- \to \pi^+\pi^-\ell^+\ell^-$. Assuming that $\Gamma(\pi^+\pi^- J/\psi)$ of $X(3872)$ is the same as that of $\psi(2S)$ (85.4 keV).

X(3872) Γ(i)Γ(e^+e^-)/Γ(total)

$\Gamma(\pi^+\pi^- J/\psi(1S)) \times \Gamma(e^+e^-)/\Gamma_{total}$ $\Gamma_2\Gamma_1/\Gamma$

VALUE (eV)	CL%		DOCUMENT ID		TECN	COMMENT
< 6.2	90	[17,18]	AUBERT	05D	BABR	10.6 $e^+e^- \to K^+K^-\pi^+\pi^-\gamma$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
< 8.3	90	[18]	DOBBS	05	CLE3	$e^+e^- \to \pi^+\pi^- J/\psi$
<10	90	[19]	YUAN	04	RVUE	$e^+e^- \to \pi^+\pi^- J/\psi$

[17] Using $B(X(3872) \to J/\psi\pi^+\pi^-) \cdot B(J/\psi \to \mu^+\mu^-) \cdot \Gamma(X(3872) \to e^+e^-) < 0.37$ eV from AUBERT 05D and $B(J/\psi \to \mu^+\mu^-) = 0.0588 \pm 0.0010$ from the PDG 04.

[18] Assuming $X(3872)$ has $J^{PC} = 1^{--}$.

[19] Using BAI 98E data on $e^+e^- \to \pi^+\pi^-\ell^+\ell^-$. From theoretical calculation of the production cross section and using $B(J/\psi \to \mu^+\mu^-) = (5.88 \pm 0.10)\%$.

X(3872) Γ(i)Γ(γγ)/Γ(total)

Γ(π⁺π⁻ J/ψ(1S)) × Γ(γγ)/Γ_total — Γ2Γ7/Γ

VALUE (eV)	CL%	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<12.9	90	[20] DOBBS	05	CLE3	$e^+e^- \to \pi^+\pi^- J/\psi\gamma$

[20] Assuming $X(3872)$ has positive C parity and spin 0.

Γ(ω J/ψ(1S)) × Γ(γγ)/Γ_total — Γ4Γ7/Γ

VALUE (eV)	CL%	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<1.7	90	[21] LEES	12AD	BABR	$e^+e^- \to e^+e^-\omega J/\psi$

[21] Assuming $X(3872)$ has spin 2.

Γ(π⁺π⁻ η_c(1S)) × Γ(γγ)/Γ_total — Γ15Γ7/Γ

VALUE (eV)	CL%	DOCUMENT ID		TECN	COMMENT
<11.1	90	LEES	12AE	BABR	$e^+e^- \to e^+e^-\pi^+\pi^-\eta_c$

X(3872) BRANCHING RATIOS

Γ(π⁺π⁻ J/ψ(1S))/Γ_total — Γ2/Γ

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
>0.026	93 ± 17	[22] AUBERT	08Y	BABR	$B \to X(3872)K$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
>0.04	30	[23] AUBERT	05R	BABR	$B^+ \to K^+ J/\psi\pi^+\pi^-$
>0.04	36 ± 7	[24] CHOI	03	BABR	$B^+ \to K^+ J/\psi\pi^+\pi^-$

[22] AUBERT 08Y reports $[\Gamma(X(3872) \to \pi^+\pi^- J/\psi(1S))/\Gamma_{total}] \times [B(B^+ \to X(3872)K^+)] = (8.4 \pm 1.5 \pm 0.7) \times 10^{-6}$ which we divide by our best value $B(B^+ \to X(3872)K^+) < 3.2 \times 10^{-4}$.

[23] Superseded by AUBERT 08Y. AUBERT 05R reports $[\Gamma(X(3872) \to \pi^+\pi^- J/\psi(1S))/\Gamma_{total}] \times [B(B^+ \to X(3872)K^+)] = (1.28 \pm 0.41) \times 10^{-5}$ which we divide by our best value $B(B^+ \to X(3872)K^+) < 3.2 \times 10^{-4}$.

[24] CHOI 03 reports $[\Gamma(X(3872) \to \pi^+\pi^- J/\psi(1S))/\Gamma_{total}] \times [B(B^+ \to X(3872)K^+)] / [B(B^+ \to \psi(2S)K^+)] / [B(\psi(2S) \to J/\psi(1S)\pi^+\pi^-)] = 0.063 \pm 0.012 \pm 0.007$ which we multiply or divide by our best values $B(B^+ \to X(3872)K^+) < 3.2 \times 10^{-4}$, $B(B^+ \to \psi(2S)K^+) = (6.27 \pm 0.24) \times 10^{-4}$, $B(\psi(2S) \to J/\psi(1S)\pi^+\pi^-) = (34.45 \pm 0.30) \times 10^{-2}$.

Γ(ω J/ψ(1S))/Γ_total — Γ4/Γ

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
>0.019	21 ± 7	[25] DEL-AMO-SA..10B		BABR	$B^+ \to \omega J/\psi K^+$

[25] DEL-AMO-SANCHEZ 10B reports $[\Gamma(X(3872) \to \omega J/\psi(1S))/\Gamma_{total}] \times [B(B^+ \to X(3872)K^+)] = (6 \pm 2 \pm 1) \times 10^{-6}$ which we divide by our best value $B(B^+ \to X(3872)K^+) < 3.2 \times 10^{-4}$. DEL-AMO-SANCHEZ 10B also reports $B(B^0 \to X(3872)K^0) \times B(X(3872) \to J/\psi\omega) = (6 \pm 3 \pm 1) \times 10^{-6}$.

$\Gamma(\omega J/\psi(1S))/\Gamma(\pi^+\pi^- J/\psi(1S))$ Γ_4/Γ_2

VALUE	DOCUMENT ID		TECN	COMMENT
0.8±0.3	[26] DEL-AMO-SA..10B		BABR	$B \to \omega J/\psi K$

[26] Statistical and systematic errors added in quadrature. Uses the values of B($B \to X(3872) K$) × B($X(3872) \to J/\psi\pi^+\pi^-$) reported in AUBERT 08Y, taking into account the common systematics.

$\Gamma(D^0\overline{D}{}^0\pi^0)/\Gamma_{\text{total}}$ Γ_5/Γ

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
>0.32	17 ± 5	[27] GOKHROO	06	BELL	$B^+ \to D^0\overline{D}{}^0\pi^0 K^+$

[27] GOKHROO 06 reports $[\Gamma(X(3872) \to D^0\overline{D}{}^0\pi^0)/\Gamma_{\text{total}}] \times [\text{B}(B^+ \to X(3872) K^+)] = (1.02 \pm 0.31^{+0.21}_{-0.29}) \times 10^{-4}$ which we divide by our best value B($B^+ \to X(3872) K^+$) $< 3.2 \times 10^{-4}$.

$\Gamma(\overline{D}{}^{*0} D^0)/\Gamma_{\text{total}}$ Γ_6/Γ

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
>0.24	41^{+9}_{-8}	[28] AUSHEV	10	BELL	$B^+ \to D^{*0}\overline{D}{}^0 K^+$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
>0.5	27 ± 6	[29] AUBERT	08B	BABR	$B^+ \to \overline{D}{}^{*0} D^0 K^+$

[28] AUSHEV 10 reports $[\Gamma(X(3872) \to \overline{D}{}^{*0} D^0)/\Gamma_{\text{total}}] \times [\text{B}(B^+ \to X(3872) K^+)] = (0.77 \pm 0.16 \pm 0.10) \times 10^{-4}$ which we divide by our best value B($B^+ \to X(3872) K^+$) $< 3.2 \times 10^{-4}$.

[29] AUBERT 08B reports $[\Gamma(X(3872) \to \overline{D}{}^{*0} D^0)/\Gamma_{\text{total}}] \times [\text{B}(B^+ \to X(3872) K^+)] = (1.67 \pm 0.36 \pm 0.47) \times 10^{-4}$ which we divide by our best value B($B^+ \to X(3872) K^+$) $< 3.2 \times 10^{-4}$.

$\Gamma(D^0\overline{D}{}^0\pi^0)/\Gamma(\pi^+\pi^- J/\psi(1S))$ Γ_5/Γ_2

VALUE	DOCUMENT ID		TECN	COMMENT
seen	[30] GOKHROO	06	BELL	$B \to D^0\overline{D}{}^0\pi^0 K$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
seen	AUSHEV	10	BELL	$B \to D^0\overline{D}{}^0\pi^0 K$

[30] May not necessarily be the same state as that observed in the $J/\psi\pi^+\pi^-$ mode. Supersedes CHISTOV 04.

$\Gamma(D^0\overline{D}{}^0)/\Gamma(\pi^+\pi^- J/\psi(1S))$ Γ_8/Γ_2

VALUE	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
not seen	CHISTOV	04	BELL	$B \to K D^0\overline{D}{}^0$

$\Gamma(D^+D^-)/\Gamma(\pi^+\pi^- J/\psi(1S))$ Γ_9/Γ_2

VALUE	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
not seen	CHISTOV	04	BELL	$B \to K D^+ D^-$

$\Gamma(\gamma\chi_{c1})/\Gamma(\pi^+\pi^- J/\psi(1S))$ Γ_{10}/Γ_2

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
not seen		[31] BHARDWAJ	13	BELL	$B^+ \to \chi_{c1}\gamma K^+$
<0.89	90	CHOI	03	BELL	$B \to K\pi^+\pi^- J/\psi$

[31] Reported $B(B^\pm \to X(3872)K^\pm) \times B(X(3872) \to \gamma\chi_{c1}) < 1.9\times10^{-6}$ at 90% CL.

$\Gamma(\gamma\chi_{c2})/\Gamma(\pi^+\pi^- J/\psi(1S))$ Γ_{11}/Γ_2

VALUE	DOCUMENT ID		TECN	COMMENT
not seen	[32] BHARDWAJ	13	BELL	$B^\pm \to \chi_{c2}\gamma K^+$

[32] Reported $B(B^\pm \to X(3872)K^\pm) \times B(X(3872) \to \gamma\chi_{c2}) < 6.7\times10^{-6}$ at 90% CL.

$\Gamma(\eta J/\psi)/\Gamma(\pi^+\pi^- J/\psi(1S))$ Γ_{12}/Γ_2

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.6	90	AUBERT	04Y	BABR	$B \to K\eta J/\psi$

$\Gamma(\gamma J/\psi)/\Gamma_{\text{total}}$ Γ_{13}/Γ

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
>6 $\times 10^{-3}$		[33] BHARDWAJ	11	BELL	$B^\pm \to \gamma J/\psi K^\pm$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
>9 $\times 10^{-3}$	20	[34] AUBERT	09B	BABR	$B^+ \to \gamma J/\psi K^+$
>0.010	19	[35] AUBERT,BE	06M	BABR	$B^+ \to \gamma J/\psi K^+$

[33] BHARDWAJ 11 reports $[\Gamma(X(3872) \to \gamma J/\psi)/\Gamma_{\text{total}}] \times [B(B^+ \to X(3872)K^+)] = (1.78^{+0.48}_{-0.44} \pm 0.12)\times10^{-6}$ which we divide by our best value $B(B^+ \to X(3872)K^+) < 3.2\times10^{-4}$.

[34] AUBERT 09B reports $[\Gamma(X(3872) \to \gamma J/\psi)/\Gamma_{\text{total}}] \times [B(B^+ \to X(3872)K^+)] = (2.8 \pm 0.8 \pm 0.1)\times10^{-6}$ which we divide by our best value $B(B^+ \to X(3872)K^+) < 3.2\times10^{-4}$.

[35] Superseded by AUBERT 09B. AUBERT,BE 06M reports $[\Gamma(X(3872) \to \gamma J/\psi)/\Gamma_{\text{total}}] \times [B(B^+ \to X(3872)K^+)] = (3.3 \pm 1.0 \pm 0.3)\times10^{-6}$ which we divide by our best value $B(B^+ \to X(3872)K^+) < 3.2\times10^{-4}$.

$\Gamma(\gamma\psi(2S))/\Gamma_{\text{total}}$ Γ_{14}/Γ

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
not seen		[36] BHARDWAJ	11	BELL	$B^+ \to \gamma\psi(2S)K^+$
>0.030	25 ± 7	[37] AUBERT	09B	BABR	$B^+ \to \gamma\psi(2S)K^+$

[36] BHARDWAJ 11 reports $B(B^+ \to K^+X(3872)) \times B(X \to \gamma\psi(2S)) < 3.45\times10^{-6}$ at 90% CL.

[37] AUBERT 09B reports $[\Gamma(X(3872) \to \gamma\psi(2S))/\Gamma_{\text{total}}] \times [B(B^+ \to X(3872)K^+)] = (9.5 \pm 2.7 \pm 0.6)\times10^{-6}$ which we divide by our best value $B(B^+ \to X(3872)K^+) < 3.2\times10^{-4}$.

$\Gamma(\gamma\psi(2S))/\Gamma(\gamma J/\psi)$ Γ_{14}/Γ_{13}

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<2.1	90	BHARDWAJ	11	BELL	$B^+ \to K^+\psi(2S)\gamma$
3.4±1.4		AUBERT	09B	BABR	$B^+ \to \gamma c\overline{c}K'$

$\Gamma(p\overline{p})/\Gamma(\pi^+\pi^- J/\psi(1S))$ Γ_{16}/Γ_2

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<2.0 \times 10^{-3}$	95	[38] AAIJ	13S	LHCB	$B^+ \to p\overline{p}K^+$

[38] AAIJ 13S reports $[\Gamma(X(3872) \to p\overline{p})/\Gamma(X(3872) \to \pi^+\pi^- J/\psi(1S))] \times [\mathrm{B}(B^+ \to X(3872)K^+,\ X \to J/\psi\pi^+\pi^-)] < 1.7 \times 10^{-8}$ which we divide by our best value $\mathrm{B}(B^+ \to X(3872)K^+,\ X \to J/\psi\pi^+\pi^-) = 8.6 \times 10^{-6}$.

X(3872) REFERENCES

ABLIKIM	14	PRL 112 092001	M. Ablikim *et al.*	(BES III Collab.)
AAIJ	13Q	PRL 110 222001	R. Aaij *et al.*	(LHCb Collab.) JP
AAIJ	13S	EPJ C73 2462	R. Aaij *et al.*	(LHCb Collab.)
BHARDWAJ	13	PRL 111 032001	V. Bhardwaj *et al.*	(BELLE Collab.)
AAIJ	12H	EPJ C72 1972	R. Aaij *et al.*	(LHCb Collab.)
LEES	12AD	PR D86 072002	J.P. Lees *et al.*	(BABAR Collab.)
LEES	12AE	PR D86 092005	J.P. Lees *et al.*	(BABAR Collab.)
BHARDWAJ	11	PRL 107 091803	V. Bhardwaj *et al.*	(BELLE Collab.)
CHOI	11	PR D84 052004	S.-K. Choi *et al.*	(BELLE Collab.)
AUSHEV	10	PR D81 031103	T. Aushev *et al.*	(BELLE Collab.)
DEL-AMO-SA...	10B	PR D82 011101	P. del Amo Sanchez *et al.*	(BABAR Collab.)
AALTONEN	09AU	PRL 103 152001	T. Aaltonen *et al.*	(CDF Collab.)
AUBERT	09B	PRL 102 132001	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	08B	PR D77 011102	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	08Y	PR D77 111101	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	06	PR D73 011101	B. Aubert *et al.*	(BABAR Collab.)
AUBERT,BE	06M	PR D74 071101	B. Aubert *et al.*	(BABAR Collab.)
GOKHROO	06	PRL 97 162002	G. Gokhroo *et al.*	(BELLE Collab.)
AUBERT	05B	PR D71 031501	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	05D	PR D71 052001	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	05R	PR D71 071103	B. Aubert *et al.*	(BABAR Collab.)
DOBBS	05	PRL 94 032004	S. Dobbs *et al.*	(CLEO Collab.)
ABAZOV	04F	PRL 93 162002	V.M. Abazov *et al.*	(D0 Collab.)
ACOSTA	04	PRL 93 072001	D. Acosta *et al.*	(CDF Collab.)
AUBERT	04Y	PRL 93 041801	B. Aubert *et al.*	(BaBar Collab.)
CHISTOV	04	PRL 93 051803	R. Chistov *et al.*	(BELLE Collab.)
PDG	04	PL B592 1	S. Eidelman *et al.*	(PDG Collab.)
YUAN	04	PL B579 74	C.Z. Yuan *et al.*	
CHOI	03	PRL 91 262001	S.-K. Choi *et al.*	(BELLE Collab.)
BAI	98E	PR D57 3854	J.Z. Bai *et al.*	(BES Collab.)
ANTONIAZZI	94	PR D50 4258	L. Antoniazzi *et al.*	(E705 Collab.)