$X(4360)$

$I^G(J^{PC}) = ?^?(1^{--})$

Seen in radiative return from e^+e^- collisions at $\sqrt{s} = 9.54$–10.58 GeV by AUBERT 07S, WANG 07D, and LEES 14F. See also the review under the $X(3872)$ particle listings. (See the index for the page number.)

$X(4360)$ MASS

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*COMMENT*
4354±10 OUR AVERAGE				
4340±16±9	[1] LEES	14F	BABR	10.58 $e^+e^- \to \gamma\pi^+\pi^-\psi(2S)$
4361± 9±9	[1] WANG	07D	BELL	10.58 $e^+e^- \to \gamma\pi^+\pi^-\psi(2S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$4355^{+9}_{-10}\pm9$	[2] LIU	08H	RVUE	10.58 $e^+e^- \to \gamma\pi^+\pi^-\psi(2S)$
4324±24	[3] AUBERT	07S	BABR	10.58 $e^+e^- \to \gamma\pi^+\pi^-\psi(2S)$

[1] From a two-resonance fit.
[2] From a combined fit of AUBERT 07S and WANG 07D data with two resonances.
[3] From a single-resonance fit. Systematic errors not estimated.

$X(4360)$ WIDTH

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*COMMENT*
78±16 OUR AVERAGE				
94±32±13	[1] LEES	14F	BABR	10.58 $e^+e^- \to \gamma\pi^+\pi^-\psi(2S)$
74±15±10	[1] WANG	07D	BELL	10.58 $e^+e^- \to \gamma\pi^+\pi^-\psi(2S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$103^{+17}_{-15}\pm11$	[2] LIU	08H	RVUE	10.58 $e^+e^- \to \gamma\pi^+\pi^-\psi(2S)$
172±33	[3] AUBERT	07S	BABR	10.58 $e^+e^- \to \gamma\pi^+\pi^-\psi(2S)$

[1] From a two-resonance fit.
[2] From a combined fit of AUBERT 07S and WANG 07D data with two resonances.
[3] From a single-resonance fit. Systematic errors not estimated.

$X(4360)$ DECAY MODES

	Mode	Fraction (Γ_i/Γ)
Γ_1	e^+e^-	
Γ_2	$\psi(2S)\pi^+\pi^-$	seen
Γ_3	$J/\psi\eta$	
Γ_4	$D^0D^{*-}\pi^+$	

X(4360) Γ(i)Γ(e^+e^-)/Γ(total)

$\Gamma(\psi(2S)\pi^+\pi^-) \times \Gamma(e^+e^-)/\Gamma_{total}$ $\Gamma_2\Gamma_1/\Gamma$

VALUE (eV)	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$6.0\pm1.0\pm0.5$	[1] LEES	14F	BABR	10.58 $e^+e^- \to \gamma\pi^+\pi^-\psi(2S)$
$7.2\pm1.0\pm0.6$	[2] LEES	14F	BABR	10.58 $e^+e^- \to \gamma\pi^+\pi^-\psi(2S)$
$11.1^{+1.3}_{-1.2}$	[3] LIU	08H	RVUE	10.58 $e^+e^- \to \gamma\pi^+\pi^-\psi(2S)$
12.3 ± 1.2	[4] LIU	08H	RVUE	10.58 $e^+e^- \to \gamma\pi^+\pi^-\psi(2S)$
$10.4\pm1.7\pm1.5$	[1] WANG	07D	BELL	10.58 $e^+e^- \to \gamma\pi^+\pi^-\psi(2S)$
$11.8\pm1.8\pm1.4$	[2] WANG	07D	BELL	10.58 $e^+e^- \to \gamma\pi^+\pi^-\psi(2S)$

[1] Solution I of two equivalent solutions in a fit using two interfering resonances.
[2] Solution II of two equivalent solutions in a fit using two interfering resonances.
[3] Solution I in a combined fit of AUBERT 07S and WANG 07D data with two resonances.
[4] Solution II in a combined fit of AUBERT 07S and WANG 07D data with two resonances.

$\Gamma(J/\psi\eta) \times \Gamma(e^+e^-)/\Gamma_{total}$ $\Gamma_3\Gamma_1/\Gamma$

VALUE (eV)	CL%	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<6.8	90	WANG	13B	BELL	$e^+e^- \to J/\psi\eta\gamma$

X(4360) BRANCHING RATIOS

$\Gamma(D^0D^{*-}\pi^+)/\Gamma(\psi(2S)\pi^+\pi^-)$ Γ_4/Γ_2

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<8	90	PAKHLOVA	09	BELL	$e^+e^- \to X(4360) \to D^0D^{*-}\pi^+$

$\Gamma(D^0D^{*-}\pi^+)/\Gamma_{total} \times \Gamma(e^+e^-)/\Gamma_{total}$ $\Gamma_4/\Gamma \times \Gamma_1/\Gamma$

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<0.72 \times 10^{-6}$	90	[1] PAKHLOVA	09	BELL	$e^+e^- \to X(4360) \to D^0D^{*-}\pi^+$

[1] Using $4355^{+9}_{-10} \pm 9$ MeV for the mass of $X(4360)$.

X(4360) REFERENCES

LEES	14F	PR D89 111103	J.P. Lees *et al.*	(BABAR Collab.)
WANG	13B	PR D87 051101	X.L. Wang *et al.*	(BELLE Collab.)
PAKHLOVA	09	PR D80 091101	G. Pakhlova *et al.*	(BELLE Collab.)
LIU	08H	PR D78 014032	Z.Q. Liu, X.S. Qin, C.Z. Yuan	
AUBERT	07S	PRL 98 212001	B. Aubert *et al.*	(BABAR Collab.)
WANG	07D	PRL 99 142002	X.L. Wang *et al.*	(BELLE Collab.)