$X(4660)$

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

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

$X(4660)$ MASS

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*COMMENT*
$4664 \pm 11 \pm 5$	WANG	07D	BELL	10.58 $e^+e^- \to \psi(2S)\pi^+\pi^-\gamma$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$4661^{+\ 9}_{-\ 8} \pm 6$	[1] LIU	08H	RVUE	10.58 $e^+e^- \to \psi(2S)\pi^+\pi^-\gamma$

[1] From a combined fit of AUBERT 07S and WANG 07D data with two resonances.

$X(4660)$ WIDTH

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*COMMENT*
$48 \pm 15 \pm 3$	WANG	07D	BELL	10.58 $e^+e^- \to \psi(2S)\pi^+\pi^-\gamma$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$42^{+17}_{-12} \pm 6$	[2] LIU	08H	RVUE	10.58 $e^+e^- \to \psi(2S)\pi^+\pi^-\gamma$

[2] From a combined fit of AUBERT 07S and WANG 07D data with two resonances.

$X(4660)$ 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	$D^0D^{*-}\pi^+$	

$X(4660)$ $\Gamma(i)\Gamma(e^+e^-)/\Gamma(total)$

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

VALUE (eV)	*DOCUMENT ID*		*TECN*	*COMMENT*
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$2.2^{+0.7}_{-0.6}$	[3] LIU	08H	RVUE	10.58 $e^+e^- \to \psi(2S)\pi^+\pi^-\gamma$
5.9 ± 1.6	[4] LIU	08H	RVUE	10.58 $e^+e^- \to \psi(2S)\pi^+\pi^-\gamma$
$3.0 \pm 0.9 \pm 0.3$	[5] WANG	07D	BELL	10.58 $e^+e^- \to \psi(2S)\pi^+\pi^-\gamma$
$7.6 \pm 1.8 \pm 0.8$	[6] WANG	07D	BELL	10.58 $e^+e^- \to \psi(2S)\pi^+\pi^-\gamma$

[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.
[5] Solution I of two equivalent solutions in a fit using two interfering resonances.
[6] Solution II of two equivalent solutions in a fit using two interfering 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. • • •					
<0.94	90	WANG	13B	BELL	$e^+e^- \to J/\psi\eta\gamma$

$X(4660)$ BRANCHING RATIOS

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

VALUE	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
<10	90	PAKHLOVA	09	BELL	$e^+e^- \to X(4660) \to D^0D^{*-}\pi^+$

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

VALUE	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$<0.37 \times 10^{-6}$	90	[7] PAKHLOVA	09	BELL	$e^+e^- \to X(4660) \to D^0D^{*-}\pi^+$

[7] Using $4664 \pm 11 \pm 5$ MeV for the mass of $X(4660)$.

$X(4660)$ REFERENCES

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.)