$X(10610)^{\pm}$

$I^G(J^P) = 1^+(1^+)$

OMITTED FROM SUMMARY TABLE

Observed by BONDAR 12 in $\Upsilon(5S)$ decays to $\Upsilon(nS)\pi^+\pi^-$ ($n = 1, 2, 3$) and $h_b(mP)\pi^+\pi^-$ ($m = 1, 2$). $J^P = 1^+$ is favored from angular analyses. Isospin $= 1$ is favored due to observation by KROKOVNY 13 of a corresponding neutral state produced in $\Upsilon(10860) \to \Upsilon(2S)/\Upsilon(3S)\pi^0\pi^0$ decays at a consistent mass.

$X(10610)^{\pm}$ MASS

VALUE (MeV)	DOCUMENT ID		TECN	COMMENT
10607.2±2.0	[1] BONDAR	12	BELL	$e^+e^- \to$ hadrons

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

VALUE (MeV)	DOCUMENT ID		TECN	COMMENT
$10611 \pm 4 \pm 3$	[2] BONDAR	12	BELL	$e^+e^- \to \Upsilon(1S)\pi^+\pi^-$
$10609 \pm 2 \pm 3$	[2] BONDAR	12	BELL	$e^+e^- \to \Upsilon(2S)\pi^+\pi^-$
$10608 \pm 2 \pm 3$	[2] BONDAR	12	BELL	$e^+e^- \to \Upsilon(3S)\pi^+\pi^-$
$10605 \pm 2 {}^{+3}_{-1}$	[2] BONDAR	12	BELL	$e^+e^- \to h_b(1P)\pi^+\pi^-$
$10599 {}^{+6}_{-3} {}^{+5}_{-4}$	[2] BONDAR	12	BELL	$e^+e^- \to h_b(2P)\pi^+\pi^-$

[1] Average of the BONDAR 12 measurements in separate channels.
[2] Superseded by the average measurement of BONDAR 12.

$X(10610)^{\pm}$ WIDTH

VALUE (MeV)	DOCUMENT ID		TECN	COMMENT
18.4± 2.4	[3] BONDAR	12	BELL	$e^+e^- \to$ hadrons

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

VALUE (MeV)	DOCUMENT ID		TECN	COMMENT
$22.3 \pm 7.7 {}^{+3.0}_{-4.0}$	[4] BONDAR	12	BELL	$e^+e^- \to \Upsilon(1S)\pi^+\pi^-$
$24.2 \pm 3.1 {}^{+2.0}_{-3.0}$	[4] BONDAR	12	BELL	$e^+e^- \to \Upsilon(2S)\pi^+\pi^-$
$17.6 \pm 3.0 \pm 3.0$	[4] BONDAR	12	BELL	$e^+e^- \to \Upsilon(3S)\pi^+\pi^-$
$11.4 {}^{+4.5}_{-3.9} {}^{+2.1}_{-1.2}$	[4] BONDAR	12	BELL	$e^+e^- \to h_b(1P)\pi^+\pi^-$
$13 {}^{+10}_{-8} {}^{+9}_{-7}$	[4] BONDAR	12	BELL	$e^+e^- \to h_b(2P)\pi^+\pi^-$

[3] Average of the BONDAR 12 measurements in separate channels.
[4] Superseded by the average measurement of BONDAR 12.

$X(10610)^+$ DECAY MODES

$X(10610)^-$ decay modes are charge conjugates of the modes below.

	Mode	Fraction (Γ_i/Γ)
Γ_1	$\Upsilon(1S)\pi^+$	seen
Γ_2	$\Upsilon(2S)\pi^+$	seen
Γ_3	$\Upsilon(3S)\pi^+$	seen
Γ_4	$h_b(1P)\pi^+$	seen
Γ_5	$h_b(2P)\pi^+$	seen

$X(10610)^\pm$ BRANCHING RATIOS

$\Gamma(\Upsilon(1S)\pi^+)/\Gamma_{total}$ $\hspace{2cm}$ Γ_1/Γ

VALUE	DOCUMENT ID		TECN	COMMENT
seen	BONDAR	12	BELL	$e^+e^- \to \Upsilon(1S)\pi^+\pi^-$

$\Gamma(\Upsilon(2S)\pi^+)/\Gamma_{total}$ $\hspace{2cm}$ Γ_2/Γ

VALUE	DOCUMENT ID		TECN	COMMENT
seen	BONDAR	12	BELL	$e^+e^- \to \Upsilon(2S)\pi^+\pi^-$

$\Gamma(\Upsilon(3S)\pi^+)/\Gamma_{total}$ $\hspace{2cm}$ Γ_3/Γ

VALUE	DOCUMENT ID		TECN	COMMENT
seen	BONDAR	12	BELL	$e^+e^- \to \Upsilon(3S)\pi^+\pi^-$

$\Gamma(h_b(1P)\pi^+)/\Gamma_{total}$ $\hspace{2cm}$ Γ_4/Γ

VALUE	DOCUMENT ID		TECN	COMMENT
seen	BONDAR	12	BELL	$e^+e^- \to h_b(1P)\pi^+\pi^-$

$\Gamma(h_b(2P)\pi^+)/\Gamma_{total}$ $\hspace{2cm}$ Γ_5/Γ

VALUE	DOCUMENT ID		TECN	COMMENT
seen	BONDAR	12	BELL	$e^+e^- \to h_b(2P)\pi^+\pi^-$

$X(10610)^\pm$ REFERENCES

KROKOVNY	13	PR D88 052016	P. Krokovny *et al.*	(BELLE Collab.)
BONDAR	12	PRL 108 122001	A. Bondar *et al.*	(BELLE Collab.)