$X(10650)^\pm$

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

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.

$X(10650)^\pm$ MASS

VALUE (MeV)	DOCUMENT ID		TECN	COMMENT
10652.2±1.5	[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
$10657 \pm 6 \pm 3$	[2] BONDAR	12	BELL	$e^+e^- \to \Upsilon(1S)\pi^+\pi^-$
$10651 \pm 2 \pm 3$	[2] BONDAR	12	BELL	$e^+e^- \to \Upsilon(2S)\pi^+\pi^-$
$10652 \pm 1 \pm 2$	[2] BONDAR	12	BELL	$e^+e^- \to \Upsilon(3S)\pi^+\pi^-$
$10654 \pm 3 \,{}^{+1}_{-2}$	[2] BONDAR	12	BELL	$e^+e^- \to h_b(1P)\pi^+\pi^-$
$10651 \,{}^{+2}_{-3} \,{}^{+3}_{-2}$	[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[2] Superseded by the average measurement of BONDAR 12.

$X(10650)^\pm$ WIDTH

VALUE (MeV)	DOCUMENT ID		TECN	COMMENT
11.5±2.2	[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
$16.3 \pm 9.8 \,{}^{+6.0}_{-2.0}$	[4] BONDAR	12	BELL	$e^+e^- \to \Upsilon(1S)\pi^+\pi^-$
$13.3 \pm 3.3 \,{}^{+4.0}_{-3.0}$	[4] BONDAR	12	BELL	$e^+e^- \to \Upsilon(2S)\pi^+\pi^-$
$8.4 \pm 2.0 \pm 2.0$	[4] BONDAR	12	BELL	$e^+e^- \to \Upsilon(3S)\pi^+\pi^-$
$20.9 \,{}^{+5.4}_{-4.7} \,{}^{+2.1}_{-5.7}$	[4] BONDAR	12	BELL	$e^+e^- \to h_b(1P)\pi^+\pi^-$
$19 \pm 7 \,{}^{+11}_{-7}$	[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[4] Superseded by the average measurement of BONDAR 12.

$X(10650)^+$ DECAY MODES

$X(10650)^-$ 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

$X(10650)^\pm$ BRANCHING RATIOS

$\Gamma\left(\Upsilon(1S)\pi^+\right)/\Gamma_{\text{total}}$ Γ_1/Γ

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

$\Gamma\left(\Upsilon(2S)\pi^+\right)/\Gamma_{\text{total}}$ Γ_2/Γ

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

$\Gamma\left(\Upsilon(3S)\pi^+\right)/\Gamma_{\text{total}}$ Γ_3/Γ

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

$\Gamma\left(h_b(1P)\pi^+\right)/\Gamma_{\text{total}}$ Γ_4/Γ

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

$\Gamma\left(h_b(2P)\pi^+\right)/\Gamma_{\text{total}}$ Γ_5/Γ

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

$X(10650)^\pm$ REFERENCES

BONDAR 12 PRL 108 122001 A. Bondar *et al.* (BELLE Collab.)