$X(4050)^{\pm}$

$I^G(J^{PC}) = 1^-(?^{?+})$
I, G, C need confirmation.

OMITTED FROM SUMMARY TABLE

Properties incompatible with a $q\overline{q}$ structure (exotic state). See the review on non-$q\overline{q}$ states.

Observed by MIZUK 08 in the $\pi^+\chi_{c1}(1P)$ invariant mass distribution in $\overline{B}^0 \to K^-\pi^+\chi_{c1}(1P)$ decays. Not seen by LEES 12B in this same mode after accounting for $K\pi$ resonant mass and angular structure.

$X(4050)^{\pm}$ MASS

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*COMMENT*
$4051 \pm 14^{+20}_{-41}$	[1] MIZUK	08	BELL	$\overline{B}^0 \to K^-\pi^+\chi_{c1}(1P)$

[1] From a Dalitz plot analysis with two Breit-Wigner amplitudes.

$X(4050)^{\pm}$ WIDTH

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*COMMENT*
82^{+21+47}_{-17-22}	[1] MIZUK	08	BELL	$\overline{B}^0 \to K^-\pi^+\chi_{c1}(1P)$

[1] From a Dalitz plot analysis with two Breit-Wigner amplitudes.

$X(4050)^{\pm}$ DECAY MODES

	Mode	Fraction (Γ_i/Γ)
Γ_1	$\pi^+\chi_{c1}(1P)$	seen
Γ_2	$\pi^{\pm}\psi(3770)$	not seen

$X(4050)^{\pm}$ BRANCHING RATIOS

$\Gamma(\pi^+\chi_{c1}(1P))/\Gamma_{\text{total}}$ Γ_1/Γ

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
seen	[1] MIZUK	08	BELL	$\overline{B}^0 \to K^-\pi^+\chi_{c1}(1P)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
not seen	[2] LEES	12B	BABR	$B \to K\pi\chi_{c1}(1P)$

[1] With a product branching fraction measurement of $B(\overline{B}^0 \to K^- X(4050)^+) \times B(X(4050)^+ \to \pi^+\chi_{c1}(1P)) = (3.0^{+1.5+3.7}_{-0.8-1.6}) \times 10^{-5}$.

[2] With a product branching fraction limit of $B(\overline{B}^0 \to X(4050)^+ K^-) \times B(X(4050)^+ \to \chi_{c1}\pi^+) < 1.8 \times 10^{-5}$ at 90% CL.

$\Gamma(\pi^{\pm}\psi(3770))/\Gamma_{\text{total}}$ Γ_2/Γ

VALUE	DOCUMENT ID		TECN	COMMENT
not seen	[1] ABLIKIM	19AR	BES3	$e^+e^- \to \pi^+\pi^- D\overline{D}$

[1] From a measurement of $\sigma(e^+e^- \to \pi^+\pi^- D\overline{D})$ between $\sqrt{s} = 4.08$ and 4.6 GeV.

$X(4050)^{\pm}$ REFERENCES

ABLIKIM	19AR	PR D100 032005	M. Ablikim *et al.*	(BESIII Collab.)
LEES	12B	PR D85 052003	J.P. Lees *et al.*	(BABAR Collab.)
MIZUK	08	PR D78 072004	R. Mizuk *et al.*	(BELLE Collab.)