

**X(4055)<sup>±</sup>**

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

*I, G, C* need confirmation.

## OMITTED FROM SUMMARY TABLE

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

Needs confirmation. Seen by WANG 15A in the  $\psi(2S)\pi^+$  invariant mass distribution in  $\psi(4360) \rightarrow \psi(2S)\pi^+\pi^-$  decay.

**X(4055)<sup>±</sup> MASS**

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
<b>4054 ±3 ±1</b>	<sup>1</sup> WANG	15A BELL	10.58 $e^+e^- \rightarrow \gamma\pi^+\pi^-\psi(2S)$
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●			
4039.3 ± 6.0	<sup>2</sup> ABLIKIM	18K BES3	$e^+e^- \rightarrow \pi^0\pi^0\psi(2S)$
4032.1 ± 2.4	<sup>3</sup> ABLIKIM	17V BES3	$e^+e^- \rightarrow \pi^+\pi^-\psi(2S)$

<sup>1</sup> Statistical significance of 3.5  $\sigma$ .

<sup>2</sup> Statistical error only, with significance of 5.9  $\sigma$  (from a fit with a 19% CL). Identified as the same structure observed in ABLIKIM 17V in  $e^+e^- \rightarrow \pi^+\pi^-\psi(2S)$  decays.

<sup>3</sup> Statistical error only, with significance of 9.2  $\sigma$ . From an unbinned maximum likelihood fit of the  $\pi^+\pi^-\psi(2S)$  Dalitz plot from data collected at  $\sqrt{s} = 4.416$  GeV for a  $J^C = 1^+$  state. The fit does not match the detailed structure of the data, having a C.L. of only 8%.

**X(4055)<sup>±</sup> WIDTH**

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
<b>45 ±11 ±6</b>	<sup>1</sup> WANG	15A BELL	10.58 $e^+e^- \rightarrow \gamma\pi^+\pi^-\psi(2S)$
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●			
31.9 ± 14.8	<sup>2</sup> ABLIKIM	18K BES3	$e^+e^- \rightarrow \pi^0\pi^0\psi(2S)$
26.1 ± 5.3	<sup>3</sup> ABLIKIM	17V BES3	$e^+e^- \rightarrow \pi^+\pi^-\psi(2S)$

<sup>1</sup> Statistical significance of 3.5  $\sigma$ .

<sup>2</sup> Statistical error only, with significance of 5.9  $\sigma$  (from a fit with a 19% CL). Identified as the same structure observed in ABLIKIM 17V in  $e^+e^- \rightarrow \pi^+\pi^-\psi(2S)$  decays.

<sup>3</sup> Statistical error only, with significance of 9.2  $\sigma$ . From an unbinned maximum likelihood fit of the  $\pi^+\pi^-\psi(2S)$  Dalitz plot from data collected at  $\sqrt{s} = 4.416$  GeV for a  $J^C = 1^+$  state. The fit does not match the detailed structure of the data, having a C.L. of only 8%.

**X(4055)<sup>±</sup> DECAY MODES**

Mode	Fraction ( $\Gamma_i/\Gamma$ )
$\Gamma_1 \quad \pi^+\psi(2S)$	seen
$\Gamma_2 \quad \pi^\pm\psi(3770)$	not seen

**$X(4055)^\pm$  BRANCHING RATIOS** **$\Gamma(\pi^+\psi(2S))/\Gamma_{\text{total}}$**   **$\Gamma_1/\Gamma$** 

<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
<b>seen</b>	<sup>1</sup> WANG	15A BELL	10.58 $e^+e^- \rightarrow \gamma\pi^+\pi^-\psi(2S)$

<sup>1</sup> Statistical significance of 3.5  $\sigma$ . **$\Gamma(\pi^\pm\psi(3770))/\Gamma_{\text{total}}$**   **$\Gamma_2/\Gamma$** 

<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
<b>not seen</b>	<sup>1</sup> ABLIKIM	19AR BES3	$e^+e^- \rightarrow \pi^+\pi^-D\bar{D}$

<sup>1</sup> From a measurement of  $\sigma(e^+e^- \rightarrow \pi^+\pi^-D\bar{D})$  between  $\sqrt{s} = 4.08$  and 4.6 GeV. **$X(4055)^\pm$  REFERENCES**

ABLIKIM	19AR PR D100 032005	M. Ablikim <i>et al.</i>	(BESIII Collab.)
ABLIKIM	18K PR D97 052001	M. Ablikim <i>et al.</i>	(BESIII Collab.)
ABLIKIM	17V PR D96 032004	M. Ablikim <i>et al.</i>	(BESIII Collab.)
Also	PR D99 019903 (errat.)	M. Ablikim <i>et al.</i>	(BESIII Collab.)
WANG	15A PR D91 112007	X.L. Wang <i>et al.</i>	(BELLE Collab.)