NODE=M029

$X(3940)$

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

OMITTED FROM SUMMARY TABLE

Reported by ABE 07, observed in $e^+e^- \to J/\psi X$.

NODE=M029

$X(3940)$ MASS

NODE=M029M

NODE=M029M

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
3942± 9 OUR AVERAGE				
3945^{+28+37}_{-17-28}	1.6k	[1] AAIJ 24AB	LHCB	$B^+ \to D^{*\pm} D^{\mp} K^+$
$3942^{+7}_{-6} \pm 6$	52	PAKHLOV 08	BELL	$e^+e^- \to J/\psi X$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$3943 \pm 6 \pm 6$	25	[2] ABE 07	BELL	$e^+e^- \to J/\psi X$
3936 ± 14	266	[3] ABE 07	BELL	$e^+e^- \to J/\psi(c\overline{c})$

OCCUR=2

[1] From a simultaneous amplitude analysis of $B^+ \to D^{*+} D^- K^+$, $B^+ \to D^{*-} D^+ K^+$ and their c.c.

NODE=M029M;LINKAGE=A

[2] From a fit to $D^{*+} D^-$ and $D^{*0} \overline{D}^0$ events.

NODE=M029M;LINKAGE=EB

[3] From the inclusive fit. Not independent of the exclusive measurement by ABE 07.

NODE=M029M;LINKAGE=EM

$X(3940)$ WIDTH

NODE=M029W

NODE=M029W

VALUE (MeV)	CL%	EVTS	DOCUMENT ID	TECN	COMMENT
$\mathbf{43^{+28}_{-18}}$ **OUR AVERAGE** Error includes scale factor of 1.1.					
$130^{+92+101}_{-49-70}$		1.6k	[1] AAIJ 24AB	LHCB	$B^+ \to D^{*\pm} D^{\mp} K^+$
$37^{+26}_{-15} \pm 8$		52	PAKHLOV 08	BELL	$e^+e^- \to J/\psi X$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
< 52	90	25	ABE 07	BELL	$e^+e^- \to J/\psi X$

[1] From a simultaneous amplitude analysis of $B^+ \to D^{*+} D^- K^+$, $B^+ \to D^{*-} D^+ K^+$ and their c.c.

NODE=M029W;LINKAGE=A

$X(3940)$ DECAY MODES

NODE=M029215;NODE=M029

	Mode	Fraction (Γ_i/Γ)	
Γ_1	$D\overline{D}^* +$ c.c.	seen	DESIG=1;OUR EVAL;→ UNCHECKED ←
Γ_2	$D\overline{D}$	not seen	DESIG=2;OUR EVAL;→ UNCHECKED ←
Γ_3	$J/\psi\omega$	not seen	DESIG=3;OUR EVAL;→ UNCHECKED ←

$X(3940)$ BRANCHING RATIOS

NODE=M029225

$\Gamma(D\overline{D}^* + \text{c.c.})/\Gamma_{\text{total}}$ — Γ_1/Γ

NODE=M029R01
NODE=M029R01

VALUE	CL%	EVTS	DOCUMENT ID	TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
>0.45	90	25	[1,2] ABE 07	BELL	$e^+e^- \to J/\psi X$

[1] For $X(3940)$ decaying to final states with more than two tracks.

NODE=M029R01;LINKAGE=AB

[2] PAKHLOV 08 finds that the inclusive peak near 3940 MeV/c^2 may consist of several states.

NODE=M029R01;LINKAGE=AE

$\Gamma(D\overline{D})/\Gamma_{\text{total}}$ — Γ_2/Γ

NODE=M029R02
NODE=M029R02

VALUE	CL%	DOCUMENT ID	TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
<0.41	90	[1,2] ABE 07	BELL	$e^+e^- \to J/\psi X$

[1] For $X(3940)$ decaying to final states with more than two tracks.

NODE=M029R02;LINKAGE=AB

[2] PAKHLOV 08 finds that the inclusive peak near 3940 MeV/c^2 may consist of several states.

NODE=M029R02;LINKAGE=AE

$\Gamma(J/\psi\omega)/\Gamma_{total}$ Γ_3/Γ

NODE=M029R03
NODE=M029R03

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.26	90	[1,2] ABE	07	BELL	$e^+e^- \to J/\psi X$

[1] For $X(3940)$ decaying to final states with more than two tracks.
NODE=M029R03;LINKAGE=AB

[2] PAKHLOV 08 finds that the inclusive peak near 3940 MeV/c^2 may consist of several states.
NODE=M029R03;LINKAGE=AE

$X(3940)$ REFERENCES

NODE=M029

AAIJ	24AB	PRL 133 131902	R. Aaij *et al.*	(LHCb Collab.)
PAKHLOV	08	PRL 100 202001	P. Pakhlov *et al.*	(BELLE Collab.)
ABE	07	PRL 98 082001	K. Abe *et al.*	(BELLE Collab.)

REFID=63014
REFID=52302
REFID=51627