

$\psi(3770)$ 

$$J^{PC} = 0^{-}(1^{-}-)$$

### $\psi(3770)$ MASS (MeV)

OUR FIT includes measurements of  $m_{\psi(2S)}$ ,  $m_{\psi(3770)}$ , and  $m_{\psi(3770)} - m_{\psi(2S)}$ .

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
<b>3773.13±0.35 OUR FIT</b> Error includes scale factor of 1.1.				
<b>3778.1 ±1.2 OUR AVERAGE</b>				
3779.2	+1.8 -1.7	+0.6 -0.8	1 ANASHIN	12A KEDR $e^+e^- \rightarrow D\bar{D}$
3775.5	±2.4	±0.5	57 AUBERT	08B BABR $B \rightarrow D\bar{D}K$
3776	±5	±4	68 BRODZICKA	08 BELL $B^+ \rightarrow D^0\bar{D}^0K^+$
3778.8	±1.9	±0.9	AUBERT	07BE BABR $e^+e^- \rightarrow D\bar{D}\gamma$
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●				
3772.0	±1.9		2,3 ABLIKIM	08D BES2 $e^+e^- \rightarrow$ hadrons
3778.4	±3.0	±1.3	34 CHISTOV	04 BELL Sup. by BRODZICKA 08

<sup>1</sup> Taking into account interference between the resonant and non-resonant  $D\bar{D}$  production.

<sup>2</sup> Reanalysis of data presented in BAI 02C. From a global fit over the center-of-mass energy region 3.7–5.0 GeV covering the  $\psi(3770)$ ,  $\psi(4040)$ ,  $\psi(4160)$ , and  $\psi(4415)$  resonances. Phase angle fixed in the fit to  $\delta = 0^\circ$ .

<sup>3</sup> Interference between the resonant and non-resonant  $D\bar{D}$  production not taken into account.

### $m_{\psi(3770)} - m_{\psi(2S)}$

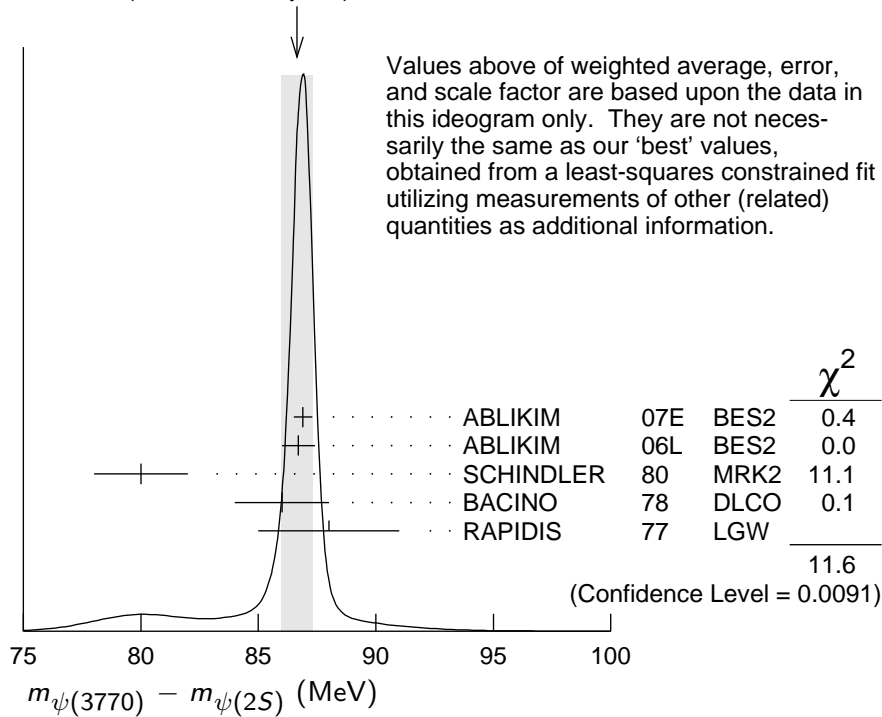
OUR FIT includes measurements of  $m_{\psi(2S)}$ ,  $m_{\psi(3770)}$ , and  $m_{\psi(3770)} - m_{\psi(2S)}$ .

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
<b>87.04±0.35 OUR FIT</b> Error includes scale factor of 1.1.			
<b>86.6 ±0.7 OUR AVERAGE</b> Error includes scale factor of 2.0. See the ideogram below.			
86.9 ±0.4	<sup>4</sup> ABLIKIM	07E BES2	$e^+e^- \rightarrow$ hadrons
86.7 ±0.7	ABLIKIM	06L BES2	$e^+e^- \rightarrow$ hadrons
80 ±2	SCHINDLER	80 MRK2	$e^+e^-$
86 ±2	<sup>5</sup> BACINO	78 DLCO	$e^+e^-$
88 ±3	RAPIDIS	77 LGW	$e^+e^-$

<sup>4</sup> BES-II  $\psi(2S)$  mass subtracted (see ABLIKIM 06L).

<sup>5</sup> SPEAR  $\psi(2S)$  mass subtracted (see SCHINDLER 80).

WEIGHTED AVERAGE  
86.6±0.7 (Error scaled by 2.0)



### $\psi(3770)$ WIDTH

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
<b>27.2± 1.0 OUR FIT</b>				
<b>27.5± 0.9 OUR AVERAGE</b>				
24.9 <sup>+</sup> <sub>-</sub> 4.6 <sup>+</sup> <sub>-1.1</sub>		<sup>6</sup> ANASHIN	12A KEDR	$e^+e^- \rightarrow D\bar{D}$
30.4± 8.5		<sup>7,8</sup> ABLIKIM	08D BES2	$e^+e^- \rightarrow$ hadrons
27 ±10 ±5	68	BRODZICKA	08 BELL	$B^+ \rightarrow D^0\bar{D}^0 K^+$
28.5± 1.2±0.2		<sup>8</sup> ABLIKIM	07E BES2	$e^+e^- \rightarrow$ hadrons
23.5± 3.7±0.9		AUBERT	07BE BABR	$e^+e^- \rightarrow D\bar{D}\gamma$
26.9± 2.4±0.3		<sup>8</sup> ABLIKIM	06L BES2	$e^+e^- \rightarrow$ hadrons
24 ± 5		<sup>8</sup> SCHINDLER	80 MRK2	$e^+e^-$
24 ± 5		<sup>8</sup> BACINO	78 DLCO	$e^+e^-$
28 ± 5		<sup>8</sup> RAPIDIS	77 LGW	$e^+e^-$

<sup>6</sup> Taking into account interference between the resonant and non-resonant  $D\bar{D}$  production.

<sup>7</sup> Reanalysis of data presented in BAI 02C. From a global fit over the center-of-mass energy region 3.7–5.0 GeV covering the  $\psi(3770)$ ,  $\psi(4040)$ ,  $\psi(4160)$ , and  $\psi(4415)$  resonances. Phase angle fixed in the fit to  $\delta = 0^\circ$ .

<sup>8</sup> Interference between the resonant and non-resonant  $D\bar{D}$  production not taken into account.

### $\psi(3770)$ DECAY MODES

In addition to the dominant decay mode to  $D\bar{D}$ ,  $\psi(3770)$  was found to decay into the final states containing the  $J/\psi$  (BAI 05, ADAM 06). ADAMS 06 and HUANG 06A searched for various decay modes with light

hadrons and found a statistically significant signal for the decay to  $\phi\eta$  only (ADAMS 06).

Mode	Fraction ( $\Gamma_i/\Gamma$ )	Scale factor/ Confidence level
$\Gamma_1$ $D\bar{D}$	(93 $^{+8}_{-9}$ ) %	S=2.0
$\Gamma_2$ $D^0\bar{D}^0$	(52 $^{+4}_{-5}$ ) %	S=2.0
$\Gamma_3$ $D^+D^-$	(41 $\pm 4$ ) %	S=2.0
$\Gamma_4$ $J/\psi\pi^+\pi^-$	(1.93 $\pm 0.28$ ) $\times 10^{-3}$	
$\Gamma_5$ $J/\psi\pi^0\pi^0$	(8.0 $\pm 3.0$ ) $\times 10^{-4}$	
$\Gamma_6$ $J/\psi\eta$	(9 $\pm 4$ ) $\times 10^{-4}$	
$\Gamma_7$ $J/\psi\pi^0$	< 2.8 $\times 10^{-4}$	CL=90%
$\Gamma_8$ $e^+e^-$	(9.6 $\pm 0.7$ ) $\times 10^{-6}$	S=1.3

**Decays to light hadrons**

$\Gamma_9$ $b_1(1235)\pi$	< 1.4 $\times 10^{-5}$	CL=90%
$\Gamma_{10}$ $\phi\eta'$	< 7 $\times 10^{-4}$	CL=90%
$\Gamma_{11}$ $\omega\eta'$	< 4 $\times 10^{-4}$	CL=90%
$\Gamma_{12}$ $\rho^0\eta'$	< 6 $\times 10^{-4}$	CL=90%
$\Gamma_{13}$ $\phi\eta$	(3.1 $\pm 0.7$ ) $\times 10^{-4}$	
$\Gamma_{14}$ $\omega\eta$	< 1.4 $\times 10^{-5}$	CL=90%
$\Gamma_{15}$ $\rho^0\eta$	< 5 $\times 10^{-4}$	CL=90%
$\Gamma_{16}$ $\phi\pi^0$	< 3 $\times 10^{-5}$	CL=90%
$\Gamma_{17}$ $\omega\pi^0$	< 6 $\times 10^{-4}$	CL=90%
$\Gamma_{18}$ $\pi^+\pi^-\pi^0$	< 5 $\times 10^{-6}$	CL=90%
$\Gamma_{19}$ $\rho\pi$	< 5 $\times 10^{-6}$	CL=90%
$\Gamma_{20}$ $K^+K^-$		
$\Gamma_{21}$ $K^*(892)^+K^- + c.c.$	< 1.4 $\times 10^{-5}$	CL=90%
$\Gamma_{22}$ $K^*(892)^0\bar{K}^0 + c.c.$	< 1.2 $\times 10^{-3}$	CL=90%
$\Gamma_{23}$ $K_S^0K_L^0$	< 1.2 $\times 10^{-5}$	CL=90%
$\Gamma_{24}$ $2(\pi^+\pi^-)$	< 1.12 $\times 10^{-3}$	CL=90%
$\Gamma_{25}$ $2(\pi^+\pi^-)\pi^0$	< 1.06 $\times 10^{-3}$	CL=90%
$\Gamma_{26}$ $2(\pi^+\pi^-\pi^0)$	< 5.85 %	CL=90%
$\Gamma_{27}$ $\omega\pi^+\pi^-$	< 6.0 $\times 10^{-4}$	CL=90%
$\Gamma_{28}$ $3(\pi^+\pi^-)$	< 9.1 $\times 10^{-3}$	CL=90%
$\Gamma_{29}$ $3(\pi^+\pi^-)\pi^0$	< 1.37 %	CL=90%
$\Gamma_{30}$ $3(\pi^+\pi^-)2\pi^0$	< 11.74 %	CL=90%
$\Gamma_{31}$ $\eta\pi^+\pi^-$	< 1.24 $\times 10^{-3}$	CL=90%
$\Gamma_{32}$ $\pi^+\pi^-2\pi^0$	< 8.9 $\times 10^{-3}$	CL=90%
$\Gamma_{33}$ $\rho^0\pi^+\pi^-$	< 6.9 $\times 10^{-3}$	CL=90%
$\Gamma_{34}$ $\eta3\pi$	< 1.34 $\times 10^{-3}$	CL=90%
$\Gamma_{35}$ $\eta2(\pi^+\pi^-)$	< 2.43 %	CL=90%
$\Gamma_{36}$ $\eta\rho^0\pi^+\pi^-$	< 1.45 %	CL=90%
$\Gamma_{37}$ $\eta'3\pi$	< 2.44 $\times 10^{-3}$	CL=90%
$\Gamma_{38}$ $K^+K^-\pi^+\pi^-$	< 9.0 $\times 10^{-4}$	CL=90%
$\Gamma_{39}$ $\phi\pi^+\pi^-$	< 4.1 $\times 10^{-4}$	CL=90%

$\Gamma_{40}$	$K^+ K^- 2\pi^0$	$< 4.2$	$\times 10^{-3}$	CL=90%
$\Gamma_{41}$	$4(\pi^+ \pi^-)$	$< 1.67$	%	CL=90%
$\Gamma_{42}$	$4(\pi^+ \pi^-)\pi^0$	$< 3.06$	%	CL=90%
$\Gamma_{43}$	$\phi f_0(980)$	$< 4.5$	$\times 10^{-4}$	CL=90%
$\Gamma_{44}$	$K^+ K^- \pi^+ \pi^- \pi^0$	$< 2.36$	$\times 10^{-3}$	CL=90%
$\Gamma_{45}$	$K^+ K^- \rho^0 \pi^0$	$< 8$	$\times 10^{-4}$	CL=90%
$\Gamma_{46}$	$K^+ K^- \rho^+ \pi^-$	$< 1.46$	%	CL=90%
$\Gamma_{47}$	$\omega K^+ K^-$	$< 3.4$	$\times 10^{-4}$	CL=90%
$\Gamma_{48}$	$\phi \pi^+ \pi^- \pi^0$	$< 3.8$	$\times 10^{-3}$	CL=90%
$\Gamma_{49}$	$K^{*0} K^- \pi^+ \pi^0 + \text{c.c.}$	$< 1.62$	%	CL=90%
$\Gamma_{50}$	$K^{*+} K^- \pi^+ \pi^- + \text{c.c.}$	$< 3.23$	%	CL=90%
$\Gamma_{51}$	$K^+ K^- \pi^+ \pi^- 2\pi^0$	$< 2.67$	%	CL=90%
$\Gamma_{52}$	$K^+ K^- 2(\pi^+ \pi^-)$	$< 1.03$	%	CL=90%
$\Gamma_{53}$	$K^+ K^- 2(\pi^+ \pi^-)\pi^0$	$< 3.60$	%	CL=90%
$\Gamma_{54}$	$\eta K^+ K^-$	$< 4.1$	$\times 10^{-4}$	CL=90%
$\Gamma_{55}$	$\eta K^+ K^- \pi^+ \pi^-$	$< 1.24$	%	CL=90%
$\Gamma_{56}$	$\rho^0 K^+ K^-$	$< 5.0$	$\times 10^{-3}$	CL=90%
$\Gamma_{57}$	$2(K^+ K^-)$	$< 6.0$	$\times 10^{-4}$	CL=90%
$\Gamma_{58}$	$\phi K^+ K^-$	$< 7.5$	$\times 10^{-4}$	CL=90%
$\Gamma_{59}$	$2(K^+ K^-)\pi^0$	$< 2.9$	$\times 10^{-4}$	CL=90%
$\Gamma_{60}$	$2(K^+ K^-)\pi^+ \pi^-$	$< 3.2$	$\times 10^{-3}$	CL=90%
$\Gamma_{61}$	$K_S^0 K^- \pi^+$	$< 3.2$	$\times 10^{-3}$	CL=90%
$\Gamma_{62}$	$K_S^0 K^- \pi^+ \pi^0$	$< 1.33$	%	CL=90%
$\Gamma_{63}$	$K_S^0 K^- \rho^+$	$< 6.6$	$\times 10^{-3}$	CL=90%
$\Gamma_{64}$	$K_S^0 K^- 2\pi^+ \pi^-$	$< 8.7$	$\times 10^{-3}$	CL=90%
$\Gamma_{65}$	$K_S^0 K^- \pi^+ \rho^0$	$< 1.6$	%	CL=90%
$\Gamma_{66}$	$K_S^0 K^- \pi^+ \eta$	$< 1.3$	%	CL=90%
$\Gamma_{67}$	$K_S^0 K^- 2\pi^+ \pi^- \pi^0$	$< 4.18$	%	CL=90%
$\Gamma_{68}$	$K_S^0 K^- 2\pi^+ \pi^- \eta$	$< 4.8$	%	CL=90%
$\Gamma_{69}$	$K_S^0 K^- \pi^+ 2(\pi^+ \pi^-)$	$< 1.22$	%	CL=90%
$\Gamma_{70}$	$K_S^0 K^- \pi^+ 2\pi^0$	$< 2.65$	%	CL=90%
$\Gamma_{71}$	$K_S^0 K^- K^+ K^- \pi^+$	$< 4.9$	$\times 10^{-3}$	CL=90%
$\Gamma_{72}$	$K_S^0 K^- K^+ K^- \pi^+ \pi^0$	$< 3.0$	%	CL=90%
$\Gamma_{73}$	$K_S^0 K^- K^+ K^- \pi^+ \eta$	$< 2.2$	%	CL=90%
$\Gamma_{74}$	$K^{*0} K^- \pi^+ + \text{c.c.}$	$< 9.7$	$\times 10^{-3}$	CL=90%
$\Gamma_{75}$	$\rho \bar{p}$			
$\Gamma_{76}$	$\rho \bar{p} \pi^0$	$< 4$	$\times 10^{-5}$	CL=90%
$\Gamma_{77}$	$\rho \bar{p} \pi^+ \pi^-$	$< 5.8$	$\times 10^{-4}$	CL=90%
$\Gamma_{78}$	$\Lambda \bar{\Lambda}$	$< 1.2$	$\times 10^{-4}$	CL=90%
$\Gamma_{79}$	$\rho \bar{p} \pi^+ \pi^- \pi^0$	$< 1.85$	$\times 10^{-3}$	CL=90%
$\Gamma_{80}$	$\omega \rho \bar{p}$	$< 2.9$	$\times 10^{-4}$	CL=90%
$\Gamma_{81}$	$\Lambda \bar{\Lambda} \pi^0$	$< 7$	$\times 10^{-5}$	CL=90%
$\Gamma_{82}$	$\rho \bar{p} 2(\pi^+ \pi^-)$	$< 2.6$	$\times 10^{-3}$	CL=90%

$\Gamma_{83}$	$\eta p \bar{p}$	$< 5.4$	$\times 10^{-4}$	CL=90%
$\Gamma_{84}$	$\eta p \bar{p} \pi^+ \pi^-$	$< 3.3$	$\times 10^{-3}$	CL=90%
$\Gamma_{85}$	$\rho^0 p \bar{p}$	$< 1.7$	$\times 10^{-3}$	CL=90%
$\Gamma_{86}$	$\rho \bar{p} K^+ K^-$	$< 3.2$	$\times 10^{-4}$	CL=90%
$\Gamma_{87}$	$\eta p \bar{p} K^+ K^-$	$< 6.9$	$\times 10^{-3}$	CL=90%
$\Gamma_{88}$	$\pi^0 \rho \bar{p} K^+ K^-$	$< 1.2$	$\times 10^{-3}$	CL=90%
$\Gamma_{89}$	$\phi p \bar{p}$	$< 1.3$	$\times 10^{-4}$	CL=90%
$\Gamma_{90}$	$\Lambda \bar{\Lambda} \pi^+ \pi^-$	$< 2.5$	$\times 10^{-4}$	CL=90%
$\Gamma_{91}$	$\Lambda \bar{p} K^+$	$< 2.8$	$\times 10^{-4}$	CL=90%
$\Gamma_{92}$	$\Lambda \bar{p} K^+ \pi^+ \pi^-$	$< 6.3$	$\times 10^{-4}$	CL=90%
$\Gamma_{93}$	$\Lambda \bar{\Lambda} \eta$	$< 1.9$	$\times 10^{-4}$	CL=90%
$\Gamma_{94}$	$\Sigma^+ \bar{\Sigma}^-$	$< 1.0$	$\times 10^{-4}$	CL=90%
$\Gamma_{95}$	$\Sigma^0 \bar{\Sigma}^0$	$< 4$	$\times 10^{-5}$	CL=90%
$\Gamma_{96}$	$\Xi^+ \bar{\Xi}^-$	$< 1.5$	$\times 10^{-4}$	CL=90%
$\Gamma_{97}$	$\Xi^0 \bar{\Xi}^0$	$< 1.4$	$\times 10^{-4}$	CL=90%

**Radiative decays**

$\Gamma_{98}$	$\gamma \chi_{c2}$	$< 6.4$	$\times 10^{-4}$	CL=90%
$\Gamma_{99}$	$\gamma \chi_{c1}$	$( 2.48 \pm 0.23 ) \times 10^{-3}$		
$\Gamma_{100}$	$\gamma \chi_{c0}$	$( 7.0 \pm 0.6 ) \times 10^{-3}$		
$\Gamma_{101}$	$\gamma \eta_c$	$< 7$	$\times 10^{-4}$	CL=90%
$\Gamma_{102}$	$\gamma \eta_c(2S)$	$< 9$	$\times 10^{-4}$	CL=90%
$\Gamma_{103}$	$\gamma \eta'$	$< 1.8$	$\times 10^{-4}$	CL=90%
$\Gamma_{104}$	$\gamma \eta$	$< 1.5$	$\times 10^{-4}$	CL=90%
$\Gamma_{105}$	$\gamma \pi^0$	$< 2$	$\times 10^{-4}$	CL=90%

**CONSTRAINED FIT INFORMATION**

An overall fit to the total width, a partial width, and 3 branching ratios uses 23 measurements and one constraint to determine 5 parameters. The overall fit has a  $\chi^2 = 20.1$  for 19 degrees of freedom.

The following *off-diagonal* array elements are the correlation coefficients  $\langle \delta p_i \delta p_j \rangle / (\delta p_i \cdot \delta p_j)$ , in percent, from the fit to parameters  $p_i$ , including the branching fractions,  $x_i \equiv \Gamma_i / \Gamma_{\text{total}}$ . The fit constrains the  $x_i$  whose labels appear in this array to sum to one.

$x_3$	99		
$x_8$	0	0	
$\Gamma$	0	0	-44
	$x_2$	$x_3$	$x_8$
<b>Mode</b>	<b>Rate (MeV)</b>		<b>Scale factor</b>
$\Gamma_2$	$D^0 \bar{D}^0$	$14.0 \pm 1.4$	1.8
$\Gamma_3$	$D^+ D^-$	$11.2 \pm 1.1$	1.7
$\Gamma_8$	$e^+ e^-$	$( 2.62 \pm 0.18 ) \times 10^{-4}$	1.4

$\psi(3770)$  PARTIAL WIDTHS $\Gamma(e^+e^-)$  $\Gamma_8$ 

VALUE (keV)	EVTS	DOCUMENT ID	TECN	COMMENT
<b><math>0.262 \pm 0.018</math></b>	<b>OUR FIT</b>	Error includes scale factor of 1.4.		
<b><math>0.256 \pm 0.016</math></b>	<b>OUR AVERAGE</b>	Error includes scale factor of 1.2.		
$0.154^{+0.079}_{-0.058} +0.021_{-0.027}$	9,10	ANASHIN	12A	KEDR $e^+e^- \rightarrow D\bar{D}$
$0.22 \pm 0.05$	11,12	ABLIKIM	08D	BES2 $e^+e^- \rightarrow$ hadrons
$0.277 \pm 0.011 \pm 0.013$	12	ABLIKIM	07E	BES2 $e^+e^- \rightarrow$ hadrons
$0.203 \pm 0.003^{+0.041}_{-0.027}$	1.4M 12,13	BESSION	06	CLEO $e^+e^- \rightarrow$ hadrons
$0.276 \pm 0.050$	12	SCHINDLER	80	MRK2 $e^+e^-$
$0.18 \pm 0.06$	12	BACINO	78	DLCO $e^+e^-$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$0.414^{+0.072}_{-0.080} +0.093_{-0.028}$	10,14	ANASHIN	12A	KEDR $e^+e^- \rightarrow D\bar{D}$
$0.37 \pm 0.09$	15	RAPIDIS	77	LGW $e^+e^-$
<sup>9</sup> Solution I of the two solutions.				
<sup>10</sup> Taking into account interference between the resonant and non-resonant $D\bar{D}$ production.				
<sup>11</sup> Reanalysis of data presented in BAI 02C. From a global fit over the center-of-mass energy region 3.7–5.0 GeV covering the $\psi(3770)$ , $\psi(4040)$ , $\psi(4160)$ , and $\psi(4415)$ resonances. Phase angle fixed in the fit to $\delta = 0^\circ$ .				
<sup>12</sup> Interference between the resonant and non-resonant $D\bar{D}$ production not taken into account.				
<sup>13</sup> BESSION 06 (as corrected in BESSION 10) measure $\sigma(e^+e^- \rightarrow \psi(3770) \rightarrow$ hadrons) = $6.36 \pm 0.08^{+0.41}_{-0.30}$ nb at $\sqrt{s} = 3773 \pm 1$ MeV, and obtain $\Gamma_{ee}$ from the Born-level cross section calculated using $\psi(3770)$ mass and width from our 2004 edition, PDG 04.				
<sup>14</sup> Solution II of the two solutions.				
<sup>15</sup> See also $\Gamma(e^+e^-)/\Gamma_{\text{total}}$ below.				

 $\psi(3770)$  BRANCHING RATIOS

$\Gamma(D\bar{D})/\Gamma_{\text{total}}$	EVTS	DOCUMENT ID	TECN	$\Gamma_1/\Gamma = (\Gamma_2 + \Gamma_3)/\Gamma$	COMMENT
<b><math>0.93^{+0.08}_{-0.09}</math></b>	<b>OUR FIT</b>	Error includes scale factor of 2.0.			
<b><math>0.93^{+0.08}_{-0.09}</math></b>	<b>OUR AVERAGE</b>	Error includes scale factor of 2.1.			
$0.849 \pm 0.056 \pm 0.018$	16	ABLIKIM	08B	BES2 $e^+e^- \rightarrow$ non- $D\bar{D}$	
$1.033 \pm 0.014^{+0.048}_{-0.066}$	1.427M 17	BESSION	06	CLEO $e^+e^- \rightarrow$ hadrons	
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$0.866 \pm 0.050 \pm 0.036$	18,19	ABLIKIM	07K	BES2 $e^+e^- \rightarrow$ non- $D\bar{D}$	
$0.836 \pm 0.073 \pm 0.042$	19	ABLIKIM	06L	BES2 $e^+e^- \rightarrow D\bar{D}$	
$0.855 \pm 0.017 \pm 0.058$	19,20	ABLIKIM	06N	BES2 $e^+e^- \rightarrow D\bar{D}$	
$\Gamma(D^0\bar{D}^0)/\Gamma_{\text{total}}$	DOCUMENT ID	TECN	$\Gamma_2/\Gamma$		
<b><math>0.52^{+0.04}_{-0.05}</math></b>	<b>OUR FIT</b>	Error includes scale factor of 2.0.			
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$0.467 \pm 0.047 \pm 0.023$	ABLIKIM	06L	BES2	$e^+e^- \rightarrow D^0\bar{D}^0$	
$0.499 \pm 0.013 \pm 0.038$	20	ABLIKIM	06N	BES2 $e^+e^- \rightarrow D^0\bar{D}^0$	

$\Gamma(D^+ D^-)/\Gamma_{\text{total}}$   $\Gamma_3/\Gamma$ 

<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
<b>0.41 ± 0.04 OUR FIT</b> Error includes scale factor of 2.0.			
• • • We do not use the following data for averages, fits, limits, etc. • • •			
0.369 ± 0.037 ± 0.028	ABLIKIM	06L BES2	$e^+ e^- \rightarrow D^+ D^-$
0.357 ± 0.011 ± 0.034	<sup>20</sup> ABLIKIM	06N BES2	$e^+ e^- \rightarrow D^+ D^-$

 $\Gamma(D^0 \bar{D}^0)/\Gamma(D^+ D^-)$   $\Gamma_2/\Gamma_3$ 

<u>VALUE</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
<b>1.253 ± 0.016 OUR FIT</b>				
<b>1.253 ± 0.016 OUR AVERAGE</b>				
1.252 ± 0.009 ± 0.013	5.3M	BONVICINI	14 CLEO	$e^+ e^- \rightarrow D \bar{D}$
1.39 ± 0.31 ± 0.12		PAKHLOVA	08 BELL	10.6 $e^+ e^- \rightarrow D \bar{D} \gamma$
1.78 ± 0.33 ± 0.24		AUBERT	07BE BABR	$e^+ e^- \rightarrow D \bar{D} \gamma$
1.27 ± 0.12 ± 0.08		ABLIKIM	06L BES2	$e^+ e^- \rightarrow D \bar{D}$
2.43 ± 1.50 ± 0.43	34	<sup>21</sup> CHISTOV	04 BELL	$B^+ \rightarrow \psi(3770) K^+$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
1.258 ± 0.016 ± 0.014		<sup>22</sup> DOBBS	07 CLEO	$e^+ e^- \rightarrow D \bar{D}$

 $\Gamma(J/\psi \pi^+ \pi^-)/\Gamma_{\text{total}}$   $\Gamma_4/\Gamma$ 

<u>VALUE (units 10<sup>-3</sup>)</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
<b>1.93 ± 0.28 OUR AVERAGE</b>				
1.89 ± 0.20 ± 0.20	231 ± 33	ADAM	06 CLEO	$e^+ e^- \rightarrow \psi(3770)$
3.4 ± 1.4 ± 0.9	17.8 ± 4.8	BAI	05 BES2	$e^+ e^- \rightarrow \psi(3770)$

 $\Gamma(J/\psi \pi^0 \pi^0)/\Gamma_{\text{total}}$   $\Gamma_5/\Gamma$ 

<u>VALUE (units 10<sup>-2</sup>)</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
<b>0.080 ± 0.025 ± 0.016</b>	39 ± 14	ADAM	06 CLEO	$e^+ e^- \rightarrow \psi(3770)$

 $\Gamma(J/\psi \eta)/\Gamma_{\text{total}}$   $\Gamma_6/\Gamma$ 

<u>VALUE (units 10<sup>-5</sup>)</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
<b>87 ± 33 ± 22</b>	22 ± 10	ADAM	06 CLEO	$e^+ e^- \rightarrow \psi(3770)$

 $\Gamma(J/\psi \pi^0)/\Gamma_{\text{total}}$   $\Gamma_7/\Gamma$ 

<u>VALUE (units 10<sup>-5</sup>)</u>	<u>CL%</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
<b>&lt;28</b>	90	<10	ADAM	06 CLEO	$e^+ e^- \rightarrow \psi(3770)$

 $\Gamma(e^+ e^-)/\Gamma_{\text{total}}$   $\Gamma_8/\Gamma$ 

<u>VALUE (units 10<sup>-5</sup>)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
<b>0.96 ± 0.07 OUR FIT</b> Error includes scale factor of 1.3.			
<b>1.3 ± 0.2</b>	RAPIDIS	77 LGW	$e^+ e^-$

<sup>16</sup> Neglecting interference.<sup>17</sup> Obtained by comparing a measurement of the total cross section (corrected in BESSON 10) with that of  $D \bar{D}$  reported by CLEO in DOBBS 07.<sup>18</sup> Using  $\sigma^{obs} = 7.07 \pm 0.58$  nb and neglecting interference.<sup>19</sup> Not independent of ABLIKIM 08B.<sup>20</sup> From a measurement of  $\sigma(e^+ e^- \rightarrow D \bar{D})$  at  $\sqrt{s} = 3773$  MeV, using the  $\psi(3770)$  resonance parameters measured by ABLIKIM 06L.<sup>21</sup> See ADLER 88C for older measurements of this quantity.<sup>22</sup> Superseded by BONVICINI 14.

————— DECAYS TO LIGHT HADRONS —————

**$\Gamma(b_1(1235)\pi)/\Gamma_{\text{total}}$   **$\Gamma_9/\Gamma$****

<u>VALUE (units <math>10^{-5}</math>)</u>	<u>CL%</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
<b>&lt;1.4</b>	90	23 ADAMS	06	CLEO $e^+e^- \rightarrow \psi(3770)$

**$\Gamma(\phi\eta')/\Gamma_{\text{total}}$   **$\Gamma_{10}/\Gamma$****

<u>VALUE (units <math>10^{-4}</math>)</u>	<u>CL%</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
<b>&lt;7</b>	90	23 ADAMS	06	CLEO $e^+e^- \rightarrow \psi(3770)$

**$\Gamma(\omega\eta')/\Gamma_{\text{total}}$   **$\Gamma_{11}/\Gamma$****

<u>VALUE (units <math>10^{-4}</math>)</u>	<u>CL%</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
<b>&lt;4</b>	90	23 ADAMS	06	CLEO $e^+e^- \rightarrow \psi(3770)$

**$\Gamma(\rho^0\eta')/\Gamma_{\text{total}}$   **$\Gamma_{12}/\Gamma$****

<u>VALUE (units <math>10^{-4}</math>)</u>	<u>CL%</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
<b>&lt;6</b>	90	23 ADAMS	06	CLEO $e^+e^- \rightarrow \psi(3770)$

**$\Gamma(\phi\eta)/\Gamma_{\text{total}}$   **$\Gamma_{13}/\Gamma$****

<u>VALUE (units <math>10^{-4}</math>)</u>	<u>CL%</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
<b><math>3.1 \pm 0.6 \pm 0.3</math></b>		23 ADAMS	06	CLEO $3.773 e^+e^- \rightarrow \phi\eta$

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

<19	90	24 ABLIKIM	07B	BES2 $e^+e^- \rightarrow \psi(3770)$
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**$\Gamma(\omega\eta)/\Gamma_{\text{total}}$   **$\Gamma_{14}/\Gamma$****

<u>VALUE (units <math>10^{-5}</math>)</u>	<u>CL%</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
<b>&lt;1.4</b>	90	23 ADAMS	06	CLEO $e^+e^- \rightarrow \psi(3770)$

**$\Gamma(\rho^0\eta)/\Gamma_{\text{total}}$   **$\Gamma_{15}/\Gamma$****

<u>VALUE (units <math>10^{-4}</math>)</u>	<u>CL%</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
<b>&lt;5</b>	90	23 ADAMS	06	CLEO $e^+e^- \rightarrow \psi(3770)$

**$\Gamma(\phi\pi^0)/\Gamma_{\text{total}}$   **$\Gamma_{16}/\Gamma$****

<u>VALUE (units <math>10^{-5}</math>)</u>	<u>CL%</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
<b>&lt; 3</b>	90	23 ADAMS	06	CLEO $e^+e^- \rightarrow \psi(3770)$

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

<50	90	24 ABLIKIM	07B	BES2 $e^+e^- \rightarrow \psi(3770)$
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**$\Gamma(\omega\pi^0)/\Gamma_{\text{total}}$   **$\Gamma_{17}/\Gamma$****

<u>VALUE (units <math>10^{-4}</math>)</u>	<u>CL%</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
<b>&lt;6</b>	90	23 ADAMS	06	CLEO $e^+e^- \rightarrow \psi(3770)$

**$\Gamma(\pi^+\pi^-\pi^0)/\Gamma_{\text{total}}$   **$\Gamma_{18}/\Gamma$****

<u>VALUE (units <math>10^{-6}</math>)</u>	<u>CL%</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
<b>&lt;5</b>	90	23,25 ADAMS	06	CLEO $e^+e^- \rightarrow \psi(3770)$



$\Gamma(\rho\pi)/\Gamma_{\text{total}}$					$\Gamma_{19}/\Gamma$
VALUE (units $10^{-6}$ )	CL%	DOCUMENT ID	TECN	COMMENT	
<5	90	23,25 ADAMS 06	CLEO	$e^+e^- \rightarrow \psi(3770)$	

$\Gamma(K^+K^-)/\Gamma_{\text{total}}$					$\Gamma_{20}/\Gamma$
VALUE		DOCUMENT ID	TECN	COMMENT	
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$\sim 10^{-5}$		26 DRUZHININ 15	RVUE	$e^+e^- \rightarrow \psi(3770)$	

$\Gamma(K^*(892)^+K^- + \text{c.c.})/\Gamma_{\text{total}}$					$\Gamma_{21}/\Gamma$
VALUE (units $10^{-5}$ )	CL%	DOCUMENT ID	TECN	COMMENT	
<1.4	90	23 ADAMS 06	CLEO	$e^+e^- \rightarrow \psi(3770)$	

$\Gamma(K^*(892)^0\bar{K}^0 + \text{c.c.})/\Gamma_{\text{total}}$					$\Gamma_{22}/\Gamma$
VALUE (units $10^{-3}$ )	CL%	DOCUMENT ID	TECN	COMMENT	
<1.2	90	23 ADAMS 06	CLEO	$e^+e^- \rightarrow \psi(3770)$	

$\Gamma(K_S^0 K_L^0)/\Gamma_{\text{total}}$					$\Gamma_{23}/\Gamma$
VALUE (units $10^{-5}$ )	CL%	DOCUMENT ID	TECN	COMMENT	
< 1.2	90	27 CRONIN-HEN..06	CLEO	$e^+e^- \rightarrow \psi(3770)$	
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<21	90	28 ABLIKIM 04F	BES	$e^+e^- \rightarrow \psi(3770)$	

$\Gamma(2(\pi^+\pi^-))/\Gamma_{\text{total}}$					$\Gamma_{24}/\Gamma$
VALUE (units $10^{-4}$ )	CL%	DOCUMENT ID	TECN	COMMENT	
<11.2	90	29 HUANG 06A	CLEO	$e^+e^- \rightarrow \psi(3770)$	
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<48	90	24 ABLIKIM 07B	BES2	$e^+e^- \rightarrow \psi(3770)$	

$\Gamma(2(\pi^+\pi^-\pi^0))/\Gamma_{\text{total}}$					$\Gamma_{25}/\Gamma$
VALUE (units $10^{-4}$ )	CL%	DOCUMENT ID	TECN	COMMENT	
<10.6	90	29 HUANG 06A	CLEO	$e^+e^- \rightarrow \psi(3770)$	
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<62	90	24 ABLIKIM 07B	BES2	$e^+e^- \rightarrow \psi(3770)$	

$\Gamma(2(\pi^+\pi^-\pi^0))/\Gamma_{\text{total}}$					$\Gamma_{26}/\Gamma$
VALUE (units $10^{-3}$ )	CL%	EVTS	DOCUMENT ID	TECN	COMMENT
<58.5	90	305	ABLIKIM 08N	BES2	$e^+e^- \rightarrow \psi(3770)$

$\Gamma(\omega\pi^+\pi^-)/\Gamma_{\text{total}}$					$\Gamma_{27}/\Gamma$
VALUE (units $10^{-4}$ )	CL%	DOCUMENT ID	TECN	COMMENT	
< 6.0	90	29 HUANG 06A	CLEO	$e^+e^- \rightarrow \psi(3770)$	
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<55	90	24 ABLIKIM 07I	BES2	$3.77 e^+e^-$	

$\Gamma(3(\pi^+\pi^-))/\Gamma_{\text{total}}$			$\Gamma_{28}/\Gamma$		
<u>VALUE (units <math>10^{-4}</math>)</u>	<u>CL%</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
<b>&lt;91</b>	90	24 ABLIKIM	07B	BES2	$e^+e^- \rightarrow \psi(3770)$
$\Gamma(3(\pi^+\pi^-)\pi^0)/\Gamma_{\text{total}}$			$\Gamma_{29}/\Gamma$		
<u>VALUE (units <math>10^{-4}</math>)</u>	<u>CL%</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
<b>&lt;137</b>	90	24 ABLIKIM	07B	BES2	$e^+e^- \rightarrow \psi(3770)$
$\Gamma(3(\pi^+\pi^-)2\pi^0)/\Gamma_{\text{total}}$			$\Gamma_{30}/\Gamma$		
<u>VALUE (units <math>10^{-3}</math>)</u>	<u>CL%</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
<b>&lt;117.4</b>	90	59	ABLIKIM	08N	BES2 $e^+e^- \rightarrow \psi(3770)$
$\Gamma(\eta\pi^+\pi^-)/\Gamma_{\text{total}}$			$\Gamma_{31}/\Gamma$		
<u>VALUE (units <math>10^{-3}</math>)</u>	<u>CL%</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
<b>&lt;1.24</b>	90	29 HUANG	06A	CLEO	$e^+e^- \rightarrow \psi(3770)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<b>&lt;2.3</b>	90	24 ABLIKIM	10D	BES2	$e^+e^- \rightarrow \psi(3770)$
$\Gamma(\pi^+\pi^-2\pi^0)/\Gamma_{\text{total}}$			$\Gamma_{32}/\Gamma$		
<u>VALUE (units <math>10^{-3}</math>)</u>	<u>CL%</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
<b>&lt;8.9</b>	90	218	ABLIKIM	08N	BES2 $e^+e^- \rightarrow \psi(3770)$
$\Gamma(\rho^0\pi^+\pi^-)/\Gamma_{\text{total}}$			$\Gamma_{33}/\Gamma$		
<u>VALUE (units <math>10^{-3}</math>)</u>	<u>CL%</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
<b>&lt;6.9</b>	90	24 ABLIKIM	07F	BES2	$e^+e^- \rightarrow \psi(3770)$
$\Gamma(\eta3\pi)/\Gamma_{\text{total}}$			$\Gamma_{34}/\Gamma$		
<u>VALUE (units <math>10^{-4}</math>)</u>	<u>CL%</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
<b>&lt;13.4</b>	90	29 HUANG	06A	CLEO	$e^+e^- \rightarrow \psi(3770)$
$\Gamma(\eta2(\pi^+\pi^-))/\Gamma_{\text{total}}$			$\Gamma_{35}/\Gamma$		
<u>VALUE (units <math>10^{-4}</math>)</u>	<u>CL%</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
<b>&lt;243</b>	90	24 ABLIKIM	07B	BES2	$e^+e^- \rightarrow \psi(3770)$
$\Gamma(\eta\rho^0\pi^+\pi^-)/\Gamma_{\text{total}}$			$\Gamma_{36}/\Gamma$		
<u>VALUE (units <math>10^{-2}</math>)</u>	<u>CL%</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
<b>&lt;1.45</b>	90	24 ABLIKIM	10D	BES2	$e^+e^- \rightarrow \psi(3770)$
$\Gamma(\eta'3\pi)/\Gamma_{\text{total}}$			$\Gamma_{37}/\Gamma$		
<u>VALUE (units <math>10^{-4}</math>)</u>	<u>CL%</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
<b>&lt;24.4</b>	90	29 HUANG	06A	CLEO	$e^+e^- \rightarrow \psi(3770)$
$\Gamma(K^+K^-\pi^+\pi^-)/\Gamma_{\text{total}}$			$\Gamma_{38}/\Gamma$		
<u>VALUE (units <math>10^{-4}</math>)</u>	<u>CL%</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
<b>&lt; 9.0</b>	90	29 HUANG	06A	CLEO	$e^+e^- \rightarrow \psi(3770)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<b>&lt;48</b>	90	24 ABLIKIM	07B	BES2	$e^+e^- \rightarrow \psi(3770)$

$\Gamma(\phi\pi^+\pi^-)/\Gamma_{\text{total}}$					$\Gamma_{39}/\Gamma$
<u>VALUE (units <math>10^{-4}</math>)</u>	<u>CL%</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
<b>&lt; 4.1</b>	90	<sup>29</sup> HUANG	06A	CLEO $e^+e^- \rightarrow \psi(3770)$	
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<16	90	<sup>24</sup> ABLIKIM	07B	BES2 $e^+e^- \rightarrow \psi(3770)$	
$\Gamma(K^+K^-2\pi^0)/\Gamma_{\text{total}}$					$\Gamma_{40}/\Gamma$
<u>VALUE (units <math>10^{-3}</math>)</u>	<u>CL%</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
<b>&lt;4.2</b>	90	14	ABLIKIM	08N	BES2 $e^+e^- \rightarrow \psi(3770)$
$\Gamma(4(\pi^+\pi^-))/\Gamma_{\text{total}}$					$\Gamma_{41}/\Gamma$
<u>VALUE (units <math>10^{-3}</math>)</u>	<u>CL%</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
<b>&lt;16.7</b>	90	<sup>24</sup> ABLIKIM	07F	BES2 $e^+e^- \rightarrow \psi(3770)$	
$\Gamma(4(\pi^+\pi^-\pi^0))/\Gamma_{\text{total}}$					$\Gamma_{42}/\Gamma$
<u>VALUE (units <math>10^{-3}</math>)</u>	<u>CL%</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
<b>&lt;30.6</b>	90	<sup>24</sup> ABLIKIM	07F	BES2 $e^+e^- \rightarrow \psi(3770)$	
$\Gamma(\phi f_0(980))/\Gamma_{\text{total}}$					$\Gamma_{43}/\Gamma$
<u>VALUE (units <math>10^{-4}</math>)</u>	<u>CL%</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
<b>&lt;4.5</b>	90	<sup>29</sup> HUANG	06A	CLEO $e^+e^- \rightarrow \psi(3770)$	
$\Gamma(K^+K^-\pi^+\pi^-\pi^0)/\Gamma_{\text{total}}$					$\Gamma_{44}/\Gamma$
<u>VALUE (units <math>10^{-4}</math>)</u>	<u>CL%</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
<b>&lt; 23.6</b>	90	<sup>29</sup> HUANG	06A	CLEO $e^+e^- \rightarrow \psi(3770)$	
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<111	90	<sup>24</sup> ABLIKIM	07B	BES2 $e^+e^- \rightarrow \psi(3770)$	
$\Gamma(K^+K^-\rho^0\pi^0)/\Gamma_{\text{total}}$					$\Gamma_{45}/\Gamma$
<u>VALUE (units <math>10^{-4}</math>)</u>	<u>CL%</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
<b>&lt;8</b>	90	<sup>24</sup> ABLIKIM	07I	BES2 $3.77 e^+e^-$	
$\Gamma(K^+K^-\rho^+\pi^-)/\Gamma_{\text{total}}$					$\Gamma_{46}/\Gamma$
<u>VALUE (units <math>10^{-4}</math>)</u>	<u>CL%</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
<b>&lt;146</b>	90	<sup>24</sup> ABLIKIM	07I	BES2 $3.77 e^+e^-$	
$\Gamma(\omega K^+K^-)/\Gamma_{\text{total}}$					$\Gamma_{47}/\Gamma$
<u>VALUE (units <math>10^{-4}</math>)</u>	<u>CL%</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
<b>&lt; 3.4</b>	90	<sup>29</sup> HUANG	06A	CLEO $e^+e^- \rightarrow \psi(3770)$	
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<66	90	<sup>24</sup> ABLIKIM	07I	BES2 $3.77 e^+e^-$	
$\Gamma(\phi\pi^+\pi^-\pi^0)/\Gamma_{\text{total}}$					$\Gamma_{48}/\Gamma$
<u>VALUE (units <math>10^{-4}</math>)</u>	<u>CL%</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
<b>&lt;38</b>	90	<sup>24</sup> ABLIKIM	07I	BES2 $3.77 e^+e^-$	

$\Gamma(K^{*0} K^- \pi^+ \pi^0 + \text{c.c.})/\Gamma_{\text{total}}$						$\Gamma_{49}/\Gamma$
VALUE (units $10^{-4}$ )	CL%		DOCUMENT ID	TECN	COMMENT	
<162	90	24	ABLIKIM	07I	BES2	$e^+ e^-$
$\Gamma(K^{*+} K^- \pi^+ \pi^- + \text{c.c.})/\Gamma_{\text{total}}$						$\Gamma_{50}/\Gamma$
VALUE (units $10^{-4}$ )	CL%		DOCUMENT ID	TECN	COMMENT	
<323	90	24	ABLIKIM	07I	BES2	$e^+ e^-$
$\Gamma(K^+ K^- \pi^+ \pi^- 2\pi^0)/\Gamma_{\text{total}}$						$\Gamma_{51}/\Gamma$
VALUE (units $10^{-3}$ )	CL%	EVTS	DOCUMENT ID	TECN	COMMENT	
<26.7	90	24	ABLIKIM	08N	BES2	$e^+ e^- \rightarrow \psi(3770)$
$\Gamma(K^+ K^- 2(\pi^+ \pi^-))/\Gamma_{\text{total}}$						$\Gamma_{52}/\Gamma$
VALUE (units $10^{-3}$ )	CL%		DOCUMENT ID	TECN	COMMENT	
<10.3	90	24	ABLIKIM	07F	BES2	$e^+ e^- \rightarrow \psi(3770)$
$\Gamma(K^+ K^- 2(\pi^+ \pi^-) \pi^0)/\Gamma_{\text{total}}$						$\Gamma_{53}/\Gamma$
VALUE (units $10^{-3}$ )	CL%		DOCUMENT ID	TECN	COMMENT	
<36.0	90	24	ABLIKIM	07F	BES2	$e^+ e^- \rightarrow \psi(3770)$
$\Gamma(\eta K^+ K^-)/\Gamma_{\text{total}}$						$\Gamma_{54}/\Gamma$
VALUE (units $10^{-4}$ )	CL%		DOCUMENT ID	TECN	COMMENT	
< 4.1	90	29	HUANG	06A	CLEO	$e^+ e^- \rightarrow \psi(3770)$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
<31	90	24	ABLIKIM	10D	BES2	$e^+ e^- \rightarrow \psi(3770)$
$\Gamma(\eta K^+ K^- \pi^+ \pi^-)/\Gamma_{\text{total}}$						$\Gamma_{55}/\Gamma$
VALUE (units $10^{-2}$ )	CL%		DOCUMENT ID	TECN	COMMENT	
<1.24	90	24	ABLIKIM	10D	BES2	$e^+ e^- \rightarrow \psi(3770)$
$\Gamma(\rho^0 K^+ K^-)/\Gamma_{\text{total}}$						$\Gamma_{56}/\Gamma$
VALUE (units $10^{-3}$ )	CL%		DOCUMENT ID	TECN	COMMENT	
<5.0	90	24	ABLIKIM	07F	BES2	$e^+ e^- \rightarrow \psi(3770)$
$\Gamma(2(K^+ K^-))/\Gamma_{\text{total}}$						$\Gamma_{57}/\Gamma$
VALUE (units $10^{-4}$ )	CL%		DOCUMENT ID	TECN	COMMENT	
< 6.0	90	29	HUANG	06A	CLEO	$e^+ e^- \rightarrow \psi(3770)$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
<17	90	24	ABLIKIM	07B	BES2	$e^+ e^- \rightarrow \psi(3770)$
$\Gamma(\phi K^+ K^-)/\Gamma_{\text{total}}$						$\Gamma_{58}/\Gamma$
VALUE (units $10^{-4}$ )	CL%		DOCUMENT ID	TECN	COMMENT	
< 7.5	90	29	HUANG	06A	CLEO	$e^+ e^- \rightarrow \psi(3770)$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
<24	90	24	ABLIKIM	07B	BES2	$e^+ e^- \rightarrow \psi(3770)$

$\Gamma(2(K^+ K^-)\pi^0)/\Gamma_{\text{total}}$					$\Gamma_{59}/\Gamma$
VALUE (units $10^{-4}$ )	CL%	DOCUMENT ID	TECN	COMMENT	
< 2.9	90	<sup>29</sup> HUANG	06A	CLEO $e^+ e^- \rightarrow \psi(3770)$	
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<46	90	<sup>24</sup> ABLIKIM	07B	BES2 $e^+ e^- \rightarrow \psi(3770)$	
$\Gamma(2(K^+ K^-)\pi^+\pi^-)/\Gamma_{\text{total}}$					$\Gamma_{60}/\Gamma$
VALUE (units $10^{-3}$ )	CL%	DOCUMENT ID	TECN	COMMENT	
<3.2	90	<sup>24</sup> ABLIKIM	07F	BES2 $e^+ e^- \rightarrow \psi(3770)$	
$\Gamma(K_S^0 K^- \pi^+)/\Gamma_{\text{total}}$					$\Gamma_{61}/\Gamma$
VALUE (units $10^{-3}$ )	CL%	EVTS	DOCUMENT ID	TECN	COMMENT
<3.2	90	18	ABLIKIM	08M	BES2 $e^+ e^- \rightarrow \psi(3770)$
$\Gamma(K_S^0 K^- \pi^+\pi^0)/\Gamma_{\text{total}}$					$\Gamma_{62}/\Gamma$
VALUE (units $10^{-3}$ )	CL%	EVTS	DOCUMENT ID	TECN	COMMENT
<13.3	90	40	ABLIKIM	08M	BES2 $e^+ e^- \rightarrow \psi(3770)$
$\Gamma(K_S^0 K^- \rho^+)/\Gamma_{\text{total}}$					$\Gamma_{63}/\Gamma$
VALUE (units $10^{-3}$ )	CL%	DOCUMENT ID	TECN	COMMENT	
<6.6	90	ABLIKIM	09C	BES2 $e^+ e^- \rightarrow \psi(3770)$	
$\Gamma(K_S^0 K^- 2\pi^+\pi^-)/\Gamma_{\text{total}}$					$\Gamma_{64}/\Gamma$
VALUE (units $10^{-3}$ )	CL%	EVTS	DOCUMENT ID	TECN	COMMENT
<8.7	90	39	ABLIKIM	08M	BES2 $e^+ e^- \rightarrow \psi(3770)$
$\Gamma(K_S^0 K^- \pi^+\rho^0)/\Gamma_{\text{total}}$					$\Gamma_{65}/\Gamma$
VALUE (units $10^{-2}$ )	CL%	DOCUMENT ID	TECN	COMMENT	
<1.6	90	ABLIKIM	09C	BES2 $e^+ e^- \rightarrow \psi(3770)$	
$\Gamma(K_S^0 K^- \pi^+\eta)/\Gamma_{\text{total}}$					$\Gamma_{66}/\Gamma$
VALUE (units $10^{-2}$ )	CL%	DOCUMENT ID	TECN	COMMENT	
<1.3	90	ABLIKIM	09C	BES2 $e^+ e^- \rightarrow \psi(3770)$	
$\Gamma(K_S^0 K^- 2\pi^+\pi^-\pi^0)/\Gamma_{\text{total}}$					$\Gamma_{67}/\Gamma$
VALUE (units $10^{-3}$ )	CL%	EVTS	DOCUMENT ID	TECN	COMMENT
<41.8	90	23	ABLIKIM	08M	BES2 $e^+ e^- \rightarrow \psi(3770)$
$\Gamma(K_S^0 K^- 2\pi^+\pi^-\eta)/\Gamma_{\text{total}}$					$\Gamma_{68}/\Gamma$
VALUE (units $10^{-2}$ )	CL%	DOCUMENT ID	TECN	COMMENT	
<4.8	90	ABLIKIM	09C	BES2 $e^+ e^- \rightarrow \psi(3770)$	
$\Gamma(K_S^0 K^- \pi^+2(\pi^+\pi^-))/\Gamma_{\text{total}}$					$\Gamma_{69}/\Gamma$
VALUE (units $10^{-3}$ )	CL%	EVTS	DOCUMENT ID	TECN	COMMENT
<12.2	90	4	ABLIKIM	08M	BES2 $e^+ e^- \rightarrow \psi(3770)$

$\Gamma(K_S^0 K^- \pi^+ 2\pi^0)/\Gamma_{\text{total}}$   $\Gamma_{70}/\Gamma$

VALUE (units $10^{-3}$ )	CL%	EVTS	DOCUMENT ID	TECN	COMMENT
<26.5	90	17	ABLIKIM	08M	BES2 $e^+ e^- \rightarrow \psi(3770)$

$\Gamma(K_S^0 K^- K^+ K^- \pi^+)/\Gamma_{\text{total}}$   $\Gamma_{71}/\Gamma$

VALUE (units $10^{-3}$ )	CL%	DOCUMENT ID	TECN	COMMENT
<4.9	90	ABLIKIM	09C	BES2 $e^+ e^- \rightarrow \psi(3770)$

$\Gamma(K_S^0 K^- K^+ K^- \pi^+ \pi^0)/\Gamma_{\text{total}}$   $\Gamma_{72}/\Gamma$

VALUE (units $10^{-2}$ )	CL%	DOCUMENT ID	TECN	COMMENT
<3.0	90	ABLIKIM	09C	BES2 $e^+ e^- \rightarrow \psi(3770)$

$\Gamma(K_S^0 K^- K^+ K^- \pi^+ \eta)/\Gamma_{\text{total}}$   $\Gamma_{73}/\Gamma$

VALUE (units $10^{-2}$ )	CL%	DOCUMENT ID	TECN	COMMENT
<2.2	90	ABLIKIM	09C	BES2 $e^+ e^- \rightarrow \psi(3770)$

$\Gamma(K^{*0} K^- \pi^+ + \text{c.c.})/\Gamma_{\text{total}}$   $\Gamma_{74}/\Gamma$

VALUE (units $10^{-3}$ )	CL%	DOCUMENT ID	TECN	COMMENT
<9.7	90	<sup>24</sup> ABLIKIM	07F	BES2 $e^+ e^- \rightarrow \psi(3770)$

$\Gamma(\rho\bar{\rho})/\Gamma_{\text{total}}$   $\Gamma_{75}/\Gamma$

VALUE (units $10^{-6}$ )	EVTS	DOCUMENT ID	TECN	COMMENT
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• • • We do not use the following data for averages, fits, limits, etc. • • •

$7.1^{+8.6}_{-2.9}$	684	<sup>30</sup> ABLIKIM	14L	BES3 $e^+ e^- \rightarrow \psi(3770)$
$310 \pm 30$	684	<sup>31</sup> ABLIKIM	14L	BES3 $e^+ e^- \rightarrow \psi(3770)$

$\Gamma(\rho\bar{\rho}\pi^0)/\Gamma_{\text{total}}$   $\Gamma_{76}/\Gamma$

VALUE (units $10^{-4}$ )	CL%	DOCUMENT ID	TECN	COMMENT
< 0.4	90	<sup>32,33</sup> ABLIKIM	14O	BES3 $e^+ e^- \rightarrow \psi(3770)$

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

$59^{+3}_{-2} \pm 5$		<sup>32,34</sup> ABLIKIM	14O	BES3 $e^+ e^- \rightarrow \psi(3770)$
<12	90	<sup>24</sup> ABLIKIM	07B	BES2 $e^+ e^- \rightarrow \psi(3770)$

$\Gamma(\rho\bar{\rho}\pi^+\pi^-)/\Gamma_{\text{total}}$   $\Gamma_{77}/\Gamma$

VALUE (units $10^{-4}$ )	CL%	DOCUMENT ID	TECN	COMMENT
< 5.8	90	<sup>29</sup> HUANG	06A	CLEO $e^+ e^- \rightarrow \psi(3770)$

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

<16	90	<sup>24</sup> ABLIKIM	07B	BES2 $e^+ e^- \rightarrow \psi(3770)$
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$\Gamma(\Lambda\bar{\Lambda})/\Gamma_{\text{total}}$   $\Gamma_{78}/\Gamma$

VALUE (units $10^{-4}$ )	CL%	DOCUMENT ID	TECN	COMMENT
<1.2	90	<sup>29</sup> HUANG	06A	CLEO $e^+ e^- \rightarrow \psi(3770)$

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

<4	90	<sup>24</sup> ABLIKIM	07F	BES2 $e^+ e^- \rightarrow \psi(3770)$
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$\Gamma(\rho\bar{\rho}\pi^+\pi^-\pi^0)/\Gamma_{\text{total}}$   $\Gamma_{79}/\Gamma$ 

VALUE (units $10^{-4}$ )	CL%	DOCUMENT ID	TECN	COMMENT
<b>&lt;18.5</b>	90	29 HUANG	06A CLEO	$e^+e^- \rightarrow \psi(3770)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
<73	90	24 ABLIKIM	07B BES2	$e^+e^- \rightarrow \psi(3770)$

 $\Gamma(\omega\rho\bar{\rho})/\Gamma_{\text{total}}$   $\Gamma_{80}/\Gamma$ 

VALUE (units $10^{-4}$ )	CL%	DOCUMENT ID	TECN	COMMENT
<b>&lt; 2.9</b>	90	29 HUANG	06A CLEO	$e^+e^- \rightarrow \psi(3770)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
<30	90	35 ABLIKIM	07I BES2	$3.77 e^+e^-$

 $\Gamma(\Lambda\bar{\Lambda}\pi^0)/\Gamma_{\text{total}}$   $\Gamma_{81}/\Gamma$ 

VALUE (units $10^{-4}$ )	CL%	DOCUMENT ID	TECN	COMMENT
<b>&lt; 0.7</b>	90	36 ABLIKIM	13Q BES3	$e^+e^- \rightarrow \psi(3770)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
<12	90	24 ABLIKIM	07I BES2	$3.77 e^+e^-$

 $\Gamma(\rho\bar{\rho}2(\pi^+\pi^-))/\Gamma_{\text{total}}$   $\Gamma_{82}/\Gamma$ 

VALUE (units $10^{-3}$ )	CL%	DOCUMENT ID	TECN	COMMENT
<b>&lt;2.6</b>	90	24 ABLIKIM	07F BES2	$e^+e^- \rightarrow \psi(3770)$

 $\Gamma(\eta\rho\bar{\rho})/\Gamma_{\text{total}}$   $\Gamma_{83}/\Gamma$ 

VALUE (units $10^{-4}$ )	CL%	DOCUMENT ID	TECN	COMMENT
<b>&lt; 5.4</b>	90	29 HUANG	06A CLEO	$e^+e^- \rightarrow \psi(3770)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
<11	90	24 ABLIKIM	10D BES2	$e^+e^- \rightarrow \psi(3770)$

 $\Gamma(\eta\rho\bar{\rho}\pi^+\pi^-)/\Gamma_{\text{total}}$   $\Gamma_{84}/\Gamma$ 

VALUE (units $10^{-3}$ )	CL%	DOCUMENT ID	TECN	COMMENT
<b>&lt;3.3</b>	90	24 ABLIKIM	10D BES2	$e^+e^- \rightarrow \psi(3770)$

 $\Gamma(\rho^0\rho\bar{\rho})/\Gamma_{\text{total}}$   $\Gamma_{85}/\Gamma$ 

VALUE (units $10^{-3}$ )	CL%	DOCUMENT ID	TECN	COMMENT
<b>&lt;1.7</b>	90	24 ABLIKIM	07F BES2	$e^+e^- \rightarrow \psi(3770)$

 $\Gamma(\rho\bar{\rho}K^+K^-)/\Gamma_{\text{total}}$   $\Gamma_{86}/\Gamma$ 

VALUE (units $10^{-4}$ )	CL%	DOCUMENT ID	TECN	COMMENT
<b>&lt; 3.2</b>	90	29 HUANG	06A CLEO	$e^+e^- \rightarrow \psi(3770)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
<11	90	24 ABLIKIM	07B BES2	$e^+e^- \rightarrow \psi(3770)$

 $\Gamma(\eta\rho\bar{\rho}K^+K^-)/\Gamma_{\text{total}}$   $\Gamma_{87}/\Gamma$ 

VALUE (units $10^{-3}$ )	CL%	DOCUMENT ID	TECN	COMMENT
<b>&lt;6.9</b>	90	24 ABLIKIM	10D BES2	$e^+e^- \rightarrow \psi(3770)$

$\Gamma(\pi^0 p \bar{p} K^+ K^-)/\Gamma_{\text{total}}$					$\Gamma_{88}/\Gamma$
VALUE (units $10^{-3}$ )	CL%	DOCUMENT ID	TECN	COMMENT	
<1.2	90	24 ABLIKIM	10D	BES2	$e^+ e^- \rightarrow \psi(3770)$
$\Gamma(\phi p \bar{p})/\Gamma_{\text{total}}$					$\Gamma_{89}/\Gamma$
VALUE (units $10^{-4}$ )	CL%	DOCUMENT ID	TECN	COMMENT	
<1.3	90	29 HUANG	06A	CLEO	$e^+ e^- \rightarrow \psi(3770)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<9	90	24 ABLIKIM	07B	BES2	$e^+ e^- \rightarrow \psi(3770)$
$\Gamma(\Lambda \bar{\Lambda} \pi^+ \pi^-)/\Gamma_{\text{total}}$					$\Gamma_{90}/\Gamma$
VALUE (units $10^{-4}$ )	CL%	DOCUMENT ID	TECN	COMMENT	
< 2.5	90	29 HUANG	06A	CLEO	$e^+ e^- \rightarrow \psi(3770)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
< 4.7	90	36 ABLIKIM	13Q	BES3	$e^+ e^- \rightarrow \psi(3770)$
<39	90	24 ABLIKIM	07F	BES2	$e^+ e^- \rightarrow \psi(3770)$
$\Gamma(\Lambda \bar{p} K^+)/\Gamma_{\text{total}}$					$\Gamma_{91}/\Gamma$
VALUE (units $10^{-4}$ )	CL%	DOCUMENT ID	TECN	COMMENT	
<2.8	90	29 HUANG	06A	CLEO	$e^+ e^- \rightarrow \psi(3770)$
$\Gamma(\Lambda \bar{p} K^+ \pi^+ \pi^-)/\Gamma_{\text{total}}$					$\Gamma_{92}/\Gamma$
VALUE (units $10^{-4}$ )	CL%	DOCUMENT ID	TECN	COMMENT	
<6.3	90	29 HUANG	06A	CLEO	$e^+ e^- \rightarrow \psi(3770)$
$\Gamma(\Lambda \bar{\Lambda} \eta)/\Gamma_{\text{total}}$					$\Gamma_{93}/\Gamma$
VALUE (units $10^{-4}$ )	CL%	DOCUMENT ID	TECN	COMMENT	
<1.9	90	36 ABLIKIM	13Q	BES3	$e^+ e^- \rightarrow \psi(3770)$
$\Gamma(\Sigma^+ \bar{\Sigma}^-)/\Gamma_{\text{total}}$					$\Gamma_{94}/\Gamma$
VALUE (units $10^{-4}$ )	CL%	DOCUMENT ID	TECN	COMMENT	
<1.0	90	36 ABLIKIM	13Q	BES3	$e^+ e^- \rightarrow \psi(3770)$
$\Gamma(\Sigma^0 \bar{\Sigma}^0)/\Gamma_{\text{total}}$					$\Gamma_{95}/\Gamma$
VALUE (units $10^{-4}$ )	CL%	DOCUMENT ID	TECN	COMMENT	
<0.4	90	36 ABLIKIM	13Q	BES3	$e^+ e^- \rightarrow \psi(3770)$
$\Gamma(\Xi^+ \bar{\Xi}^-)/\Gamma_{\text{total}}$					$\Gamma_{96}/\Gamma$
VALUE (units $10^{-4}$ )	CL%	DOCUMENT ID	TECN	COMMENT	
<1.5	90	36 ABLIKIM	13Q	BES3	$e^+ e^- \rightarrow \psi(3770)$
$\Gamma(\Xi^0 \bar{\Xi}^0)/\Gamma_{\text{total}}$					$\Gamma_{97}/\Gamma$
VALUE (units $10^{-4}$ )	CL%	DOCUMENT ID	TECN	COMMENT	
<1.4	90	36 ABLIKIM	13Q	BES3	$e^+ e^- \rightarrow \psi(3770)$



- 23 Comparing cross sections at  $\sqrt{s} = 3.773$  GeV and  $\sqrt{s} = 3.671$  GeV, neglecting interference, and using  $\sigma(\psi(3770) \rightarrow D\bar{D}) = 6.39 \pm 0.20$  nb.
- 24 Assuming that interference effects between resonance and continuum can be neglected and using  $\sigma^{obs}(e^+e^- \rightarrow \psi(3770)) = 7.15 \pm 0.38$  nb.
- 25 Data suggest possible destructive interference with continuum.
- 26 DRUZHININ 15 uses BABAR and CLEO data taking into account interference of the processes  $e^+e^- \rightarrow K^+K^-$  and  $e^+e^- \rightarrow K_S^0 K_L^0$ .
- 27 Using  $\sigma(e^+e^- \rightarrow \psi(3770) \rightarrow \text{hadrons}) = (6.38 \pm 0.08^{+0.41}_{-0.30})$  nb from BESSON 06 and  $B(K_S^0 \rightarrow \pi^+\pi^-) = 0.6895 \pm 0.0014$ .
- 28 Using  $B(K_S^0 \rightarrow \pi^+\pi^-) = 0.6860 \pm 0.0027$ .
- 29 Using  $\sigma_{tot}(e^+e^- \rightarrow \psi(3770)) = 7.9 \pm 0.6$  nb at the resonance.
- 30 Solution I of two equivalent solutions in a fit with a resonance interfering with continuum.
- 31 Solution II of two equivalent solutions in a fit with a resonance interfering with continuum.
- 32 Calculated by the authors using  $\sigma(e^+e^- \rightarrow \psi(3770) \rightarrow \text{hadrons}) = 6.36 \pm 0.08^{+0.41}_{-0.30}$  nb from BESSON 10.
- 33 Solution I of two equivalent solutions in a fit with a resonance interfering with continuum.
- 34 Solution II of two equivalent solutions in a fit with a resonance interfering with continuum.
- 35 Using  $\sigma^{obs} = 7.15 \pm 0.27 \pm 0.27$  nb and neglecting interference.
- 36 Assuming that interference effects between resonance and continuum can be neglected.

### RADIATIVE DECAYS

$\Gamma(\gamma\chi_{c2})/\Gamma_{total}$					$\Gamma_{98}/\Gamma$
VALUE (units $10^{-3}$ )	CL%	DOCUMENT ID	TECN	COMMENT	
<b>&lt;0.64</b>	90	37 ABLIKIM	15J	BES3	$e^+e^- \rightarrow \psi(3770) \rightarrow \gamma\gamma J/\psi$
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●					
<2.0	90	38 BRIERE	06	CLEO	$e^+e^- \rightarrow \psi(3770) \rightarrow \gamma + \text{hadrons}$
<0.9	90	39 COAN	06A	CLEO	$e^+e^- \rightarrow \psi(3770) \rightarrow \gamma\gamma J/\psi$

$\Gamma(\gamma\chi_{c1})/\Gamma_{total}$					$\Gamma_{99}/\Gamma$
VALUE (units $10^{-3}$ )	EVTS	DOCUMENT ID	TECN	COMMENT	
<b>2.48 ± 0.23 OUR AVERAGE</b>					
1.9 ± 0.4 ± 0.6	202	40 ABLIKIM	16B	BES3	$e^+e^- \rightarrow \psi(3770) \rightarrow \gamma + \text{hadrons}$
2.48 ± 0.15 ± 0.23	0.6k	ABLIKIM	15J	BES3	$e^+e^- \rightarrow \psi(3770) \rightarrow \gamma\gamma J/\psi$
2.4 ± 0.8 ± 0.2		41 ABLIKIM	14H	BES3	$e^+e^- \rightarrow \psi(3770) \rightarrow K_S^0 K^\pm \pi^\mp$
2.9 ± 0.5 ± 0.4		42 BRIERE	06	CLEO	$e^+e^- \rightarrow \psi(3770) \rightarrow \gamma + \text{hadrons}, \gamma\gamma J/\psi$
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●					
3.9 ± 1.4 ± 0.6	54	43 BRIERE	06	CLEO	$e^+e^- \rightarrow \psi(3770) \rightarrow \gamma + \text{hadrons}$
2.8 ± 0.5 ± 0.4	53	39 COAN	06A	CLEO	$e^+e^- \rightarrow \psi(3770) \rightarrow \gamma\gamma J/\psi$

$\Gamma(\gamma\chi_{c1})/\Gamma(J/\psi\pi^+\pi^-)$			$\Gamma_{99}/\Gamma_4$		
<u>VALUE</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
<b>1.49±0.31±0.26</b>	53 ± 10	44 COAN	06A CLEO	$e^+e^- \rightarrow \psi(3770) \rightarrow \gamma\gamma J/\psi$	

$\Gamma(\gamma\chi_{c0})/\Gamma_{\text{total}}$			$\Gamma_{100}/\Gamma$		
<u>VALUE (units 10<sup>-3</sup>)</u>	<u>CL%</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
<b>7.0±0.6 OUR AVERAGE</b>					
6.9±0.3±0.7		2.2K	45 ABLIKIM	16B BES3	$e^+e^- \rightarrow \psi(3770) \rightarrow \gamma + \text{hadrons}$
7.3±0.7±0.6		274	BRIERE	06 CLEO	$e^+e^- \rightarrow \psi(3770) \rightarrow \gamma + \text{hadrons}$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
< 44	90		39 COAN	06A CLEO	$e^+e^- \rightarrow \psi(3770) \rightarrow \gamma\gamma J/\psi$

$\Gamma(\gamma\chi_{c0})/\Gamma(\gamma\chi_{c2})$			$\Gamma_{100}/\Gamma_{98}$		
<u>VALUE</u>	<u>CL%</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
• • • We do not use the following data for averages, fits, limits, etc. • • •					
>8	90		46 BRIERE	06 CLEO	$e^+e^- \rightarrow \psi(3770)$

$\Gamma(\gamma\chi_{c0})/\Gamma(\gamma\chi_{c1})$			$\Gamma_{100}/\Gamma_{99}$		
<u>VALUE</u>	<u>CL%</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
• • • We do not use the following data for averages, fits, limits, etc. • • •					
2.5±0.6			46 BRIERE	06 CLEO	$e^+e^- \rightarrow \psi(3770)$

$\Gamma(\gamma\eta_c)/\Gamma_{\text{total}}$			$\Gamma_{101}/\Gamma$		
<u>VALUE</u>	<u>CL%</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
<7 × 10 <sup>-4</sup>	90		47 ABLIKIM	14H BES3	

$\Gamma(\gamma\eta_c(2S))/\Gamma_{\text{total}}$			$\Gamma_{102}/\Gamma$		
<u>VALUE</u>	<u>CL%</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
<9 × 10 <sup>-4</sup>	90		48 ABLIKIM	14H BES3	

$\Gamma(\gamma\eta')/\Gamma_{\text{total}}$			$\Gamma_{103}/\Gamma$		
<u>VALUE (units 10<sup>-4</sup>)</u>	<u>CL%</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
<1.8	90		49 PEDLAR	09 CLE3	$\psi(2S) \rightarrow \gamma X$

$\Gamma(\gamma\eta)/\Gamma_{\text{total}}$			$\Gamma_{104}/\Gamma$		
<u>VALUE (units 10<sup>-4</sup>)</u>	<u>CL%</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
<1.5	90		49 PEDLAR	09 CLE3	$\psi(2S) \rightarrow \gamma X$

$\Gamma(\gamma\pi^0)/\Gamma_{\text{total}}$			$\Gamma_{105}/\Gamma$		
<u>VALUE (units 10<sup>-4</sup>)</u>	<u>CL%</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
<2	90		PEDLAR	09 CLE3	$\psi(2S) \rightarrow \gamma X$

- 37 This limit is equivalent to  $(0.25 \pm 0.21 \pm 0.18) \times 10^{-3}$  branching fraction value.
- 38 Uses  $B(\psi(2S) \rightarrow \gamma\chi_{c2}) = 9.22 \pm 0.11 \pm 0.46\%$  from ATHAR 04,  $\psi(2S)$  mass and width from PDG 04, and  $\Gamma_{ee}(\psi(2S)) = 2.54 \pm 0.03 \pm 0.11$  keV from ADAM 06.
- 39 Using  $\Gamma_{ee}(\psi(2S)) = (2.54 \pm 0.03 \pm 0.11)$  keV from ADAM 06 and taking  $\sigma(e^+e^- \rightarrow D\bar{D})$  from HE 05 for  $\sigma(e^+e^- \rightarrow \psi(3770))$ .
- 40 ABLIKIM 16B reports  $(1.94 \pm 0.42 \pm 0.64) \times 10^{-3}$  from a measurement of  $[\Gamma(\psi(3770) \rightarrow \gamma\chi_{c1})/\Gamma_{\text{total}}] / [B(\psi(2S) \rightarrow \gamma\chi_{c1}(1P))]$  assuming  $B(\psi(2S) \rightarrow \gamma\chi_{c1}(1P)) = (9.55 \pm 0.31) \times 10^{-2}$ .
- 41 ABLIKIM 14H reports  $[\Gamma(\psi(3770) \rightarrow \gamma\chi_{c1})/\Gamma_{\text{total}}] \times [B(\chi_{c1}(1P) \rightarrow K_S^0 K^\pm \pi^\mp)] = (8.51 \pm 2.39 \pm 1.42) \times 10^{-6}$  which we divide by our best value  $B(\chi_{c1}(1P) \rightarrow K_S^0 K^\pm \pi^\mp) = 0.00356 \pm 0.00030$ . Our first error is their experiment's error and our second error is the systematic error from using our best value. We have calculated the best value of  $B(\chi_{c1}(1P) \rightarrow K_S^0 K^\pm \pi^\mp)$  as 1/2 of  $B(\chi_{c1}(1P) \rightarrow \bar{K}^0 K^+ \pi^- + \text{c.c.}) = (7.1 \pm 0.6) \times 10^{-3}$ .
- 42 Averages the two measurements from COAN 06A and BRIERE 06.
- 43 Uses  $B(\psi(2S) \rightarrow \gamma\chi_{c1}) = 9.07 \pm 0.11 \pm 0.54\%$  from ATHAR 04,  $\psi(2S)$  mass and width from PDG 04, and  $\Gamma_{ee}(\psi(2S)) = 2.54 \pm 0.03 \pm 0.11$  keV from ADAM 06.
- 44 Using  $B(\psi(3770) \rightarrow J/\psi\pi^+\pi^-) = (1.89 \pm 0.20 \pm 0.20) \times 10^{-3}$  from ADAM 06.
- 45 ABLIKIM 16B reports  $(6.88 \pm 0.28 \pm 0.67) \times 10^{-3}$  from a measurement of  $[\Gamma(\psi(3770) \rightarrow \gamma\chi_{c0})/\Gamma_{\text{total}}] / [B(\psi(2S) \rightarrow \gamma\chi_{c0}(1P))]$  assuming  $B(\psi(2S) \rightarrow \gamma\chi_{c0}(1P)) = (9.99 \pm 0.27) \times 10^{-2}$ .
- 46 Not independent of other results in BRIERE 06.
- 47 ABLIKIM 14H reports  $[\Gamma(\psi(3770) \rightarrow \gamma\eta_c)/\Gamma_{\text{total}}] \times [B(\eta_c(1S) \rightarrow K_S^0 K^\pm \pi^\mp)] < 16 \times 10^{-6}$  which we divide by our best value  $B(\eta_c(1S) \rightarrow K_S^0 K^\pm \pi^\mp) = 2.43 \times 10^{-2}$ . We have calculated the best value of  $B(\eta_c(1S) \rightarrow K_S^0 K^\pm \pi^\mp)$  as 1/3 of  $B(\eta_c(1S) \rightarrow K\bar{K}\pi) = 7.3 \times 10^{-2}$ .
- 48 ABLIKIM 14H reports  $[\Gamma(\psi(3770) \rightarrow \gamma\eta_c(2S))/\Gamma_{\text{total}}] \times [B(\eta_c(2S) \rightarrow K_S^0 K^\pm \pi^\mp)] < 5.6 \times 10^{-6}$  which we divide by our best value  $B(\eta_c(2S) \rightarrow K_S^0 K^\pm \pi^\mp) = 6 \times 10^{-3}$ . We have calculated the best value of  $B(\eta_c(2S) \rightarrow K_S^0 K^\pm \pi^\mp)$  as 1/3 of  $B(\eta_c(2S) \rightarrow K\bar{K}\pi) = 1.9 \times 10^{-2}$ .
- 49 Assuming maximal destructive interference between  $\psi(3770)$  and continuum sources.

## $\psi(3770)$ REFERENCES

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DRUZHININ	15	PR D92 054024	V.P. Druzhinin	(NOVO)
ABLIKIM	14H	PR D89 112005	M. Ablikim <i>et al.</i>	(BES III Collab.)
ABLIKIM	14L	PL B735 101	M. Ablikim <i>et al.</i>	(BES III Collab.)
ABLIKIM	14O	PR D90 032007	M. Ablikim <i>et al.</i>	(BES III Collab.)
BONVICINI	14	PR D89 072002	G. Bonvicini <i>et al.</i>	(CLEO Collab.)
ABLIKIM	13Q	PR D87 112011	Ablikim M. <i>et al.</i>	(BES III Collab.)
ANASHIN	12A	PL B711 292	V.V. Anashin <i>et al.</i>	(KEDR Collab.)
ABLIKIM	10D	EPJ C66 11	M. Ablikim <i>et al.</i>	(BES II Collab.)
BESSON	10	PRL 104 159901 (errata.)	D. Besson <i>et al.</i>	(CLEO Collab.)
ABLIKIM	09C	EPJ C64 243	M. Ablikim <i>et al.</i>	(BES Collab.)
PEDLAR	09	PR D79 111101	T.K. Pedlar <i>et al.</i>	(CLEO Collab.)
ABLIKIM	08B	PL B659 74	M. Ablikim <i>et al.</i>	(BES Collab.)
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PAKHOVA	08	PR D77 011103	G. Pakhlova <i>et al.</i>	(BELLE Collab.)

ABLIKIM	07B	PL B650 111	M. Ablikim <i>et al.</i>	(BES Collab.)
ABLIKIM	07E	PL B652 238	M. Ablikim <i>et al.</i>	(BES Collab.)
ABLIKIM	07F	PL B656 30	M. Ablikim <i>et al.</i>	(BES Collab.)
ABLIKIM	07I	EPJ C52 805	M. Ablikim <i>et al.</i>	(BES Collab.)
ABLIKIM	07K	PR D76 122002	M. Ablikim <i>et al.</i>	(BES Collab.)
AUBERT	07BE	PR D76 111105	B. Aubert <i>et al.</i>	(BABAR Collab.)
DOBBS	07	PR D76 112001	S. Dobbs <i>et al.</i>	(CLEO Collab.)
ABLIKIM	06L	PRL 97 121801	M. Ablikim <i>et al.</i>	(BES Collab.)
ABLIKIM	06N	PL B641 145	M. Ablikim <i>et al.</i>	(BES Collab.)
ADAM	06	PRL 96 082004	N.E. Adam <i>et al.</i>	(CLEO Collab.)
ADAMS	06	PR D73 012002	G.S. Adams <i>et al.</i>	(CLEO Collab.)
BESSON	06	PRL 96 092002	D. Besson <i>et al.</i>	(CLEO Collab.)
Also		PRL 104 159901 (errat.)	D. Besson <i>et al.</i>	(CLEO Collab.)
BRIERE	06	PR D74 031106	R.A. Briere <i>et al.</i>	(CLEO Collab.)
COAN	06A	PRL 96 182002	T.E. Coan <i>et al.</i>	(CLEO Collab.)
CRONIN-HEN...	06	PR D74 012005	D. Cronin-Hennessy <i>et al.</i>	(CLEO Collab.)
HUANG	06A	PRL 96 032003	G.S. Huang <i>et al.</i>	(CLEO Collab.)
BAI	05	PL B605 63	J.Z. Bai <i>et al.</i>	(BES Collab.)
HE	05	PRL 95 121801	Q. He <i>et al.</i>	(CLEO Collab.)
Also		PRL 96 199903 (errat.)	Q. He <i>et al.</i>	(CLEO Collab.)
ABLIKIM	04F	PR D70 077101	M. Ablikim <i>et al.</i>	(BES Collab.)
ATHAR	04	PR D70 112002	S.B. Athar <i>et al.</i>	(CLEO Collab.)
CHISTOV	04	PRL 93 051803	R. Chistov <i>et al.</i>	(BELLE Collab.)
PDG	04	PL B592 1	S. Eidelman <i>et al.</i>	(PDG Collab.)
BAI	02C	PRL 88 101802	J.Z. Bai <i>et al.</i>	(BES Collab.)
ADLER	88C	PRL 60 89	J. Adler <i>et al.</i>	(Mark III Collab.)
SCHINDLER	80	PR D21 2716	R.H. Schindler <i>et al.</i>	(Mark II Collab.)
BACINO	78	PRL 40 671	W.J. Bacino <i>et al.</i>	(SLAC, UCLA, UCI)
RAPIDIS	77	PRL 39 526	P.A. Rapidis <i>et al.</i>	(LGW Collab.)