$B^{\pm}$

$I(J^P) = \frac{1}{2}(0^-)$

Quantum numbers not measured. Values shown are quark-model predictions.

See also the $B^{\pm}/B^0$ ADMIXTURE and $B^{\pm}/B^0/B^0_s/b$-baryon ADMIXTURE sections.

$B^{\pm}$ MASS

The fit uses m_{B^+}, $(m_{B^0} - m_{B^+})$, $m_{B^0_s}$, and $(m_{B^0_s} - (m_{B^+} + m_{B^0})/2)$ to determine m_{B^+}, m_{B^0}, $m_{B^0_s}$, and the mass differences.

VALUE (MeV)	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
5278.9±1.8 OUR FIT					
5278.9±1.5 OUR AVERAGE					
5279.1±1.7 ±1.4	147	[1] ABE	96B	CDF	$p\overline{p}$ at 1.8 TeV
5278.8±0.54±2.0	362	[2] ALAM	94	CLE2	$e^+e^- \rightarrow \Upsilon(4S)$
5278.3±0.4 ±2.0		[2] BORTOLETTO	92	CLEO	$e^+e^- \rightarrow \Upsilon(4S)$
5280.5±1.0 ±2.0		[2,3] ALBRECHT	90J	ARG	$e^+e^- \rightarrow \Upsilon(4S)$
5278.6±0.8 ±2.0		[2] BEBEK	87	CLEO	$e^+e^- \rightarrow \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
5275.8±1.3 ±3.0	32	ALBRECHT	87C	ARG	$e^+e^- \rightarrow \Upsilon(4S)$
5278.2±1.8 ±3.0	12	[4] ALBRECHT	87D	ARG	$e^+e^- \rightarrow \Upsilon(4S)$

[1] Excluded from fit because it is not independent of ABE 96B B^0_s mass and B^0_s-B mass difference.

[2] These experiments all report a common systematic error 2.0 MeV. We have artificially increased the systematic error to allow the experiments to be treated as independent measurements in our average. See "Treatment of Errors" section of the Introductory Text. These experiments actually measure the difference between half of E_{cm} and the B mass.

[3] ALBRECHT 90J assumes 10580 for $\Upsilon(4S)$ mass. Supersedes ALBRECHT 87C and ALBRECHT 87D.

[4] Found using fully reconstructed decays with $J/\psi(1S)$. ALBRECHT 87D assume $m_{\Upsilon(4S)}$ = 10577 MeV.

$B^{\pm}$ MEAN LIFE

See $B^{\pm}/B^0/B^0_s/b$-baryon ADMIXTURE section for data on B-hadron mean life averaged over species of bottom particles.

"OUR EVALUATION" is an average of the data listed below performed by the LEP B Lifetimes Working Group as described in our review "Production and Decay of b-flavored Hadrons" in the $B^{\pm}$ Section of the Listings. The averaging procedure takes into account correlations between the measurements and asymmetric lifetime errors.

VALUE (10^{-12} s)	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
1.65 ±0.03 OUR EVALUATION					
1.643±0.037±0.025		[5] ABBIENDI	99J	OPAL	$e^+e^- \rightarrow Z$
1.68 ±0.07 ±0.02		[6] ABE	98B	CDF	$p\overline{p}$ at 1.8 TeV
$1.637 \pm 0.058 ^{+0.045}_{-0.043}$		[7] ABE	98Q	CDF	$p\overline{p}$ at 1.8 TeV

1.66 ±0.06 ±0.03		[5] ACCIARRI	98S	L3	$e^+e^- \rightarrow Z$
1.66 ±0.06 ±0.05		[5] ABE	97J	SLD	$e^+e^- \rightarrow Z$
1.58 ±0.09 ±0.04		[7] BUSKULIC	96J	ALEP	$e^+e^- \rightarrow Z$
1.58 $^{+0.21}_{-0.18}$ $^{+0.04}_{-0.03}$	94	[6] BUSKULIC	96J	ALEP	$e^+e^- \rightarrow Z$
1.61 ±0.16 ±0.12		[7,8] ABREU	95Q	DLPH	$e^+e^- \rightarrow Z$
1.72 ±0.08 ±0.06		[9] ADAM	95	DLPH	$e^+e^- \rightarrow Z$
1.52 ±0.14 ±0.09		[7] AKERS	95T	OPAL	$e^+e^- \rightarrow Z$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
1.56 ±0.13 ±0.06		[7] ABE	96C	CDF	Repl. by ABE 98Q
1.58 ±0.09 ±0.03		[10] BUSKULIC	96J	ALEP	$e^+e^- \rightarrow Z$
1.70 ±0.09		[11] ADAM	95	DLPH	$e^+e^- \rightarrow Z$
1.61 ±0.16 ±0.05	148	[6] ABE	94D	CDF	Repl. by ABE 98B
1.30 $^{+0.33}_{-0.29}$ ±0.16	92	[7] ABREU	93D	DLPH	Sup. by ABREU 95Q
1.56 ±0.19 ±0.13	134	[9] ABREU	93G	DLPH	Sup. by ADAM 95
1.51 $^{+0.30}_{-0.28}$ $^{+0.12}_{-0.14}$	59	[7] ACTON	93C	OPAL	Sup. by AKERS 95T
1.47 $^{+0.22}_{-0.19}$ $^{+0.15}_{-0.14}$	77	[7] BUSKULIC	93D	ALEP	Sup. by BUSKULIC 96J

[5] Data analyzed using charge of secondary vertex.
[6] Measured mean life using fully reconstructed decays.
[7] Data analyzed using $D/D^* \ell$X event vertices.
[8] ABREU 95Q assumes B($B^0 \rightarrow D^{**-} \ell^+ \nu_\ell$) = 3.2 ± 1.7%.
[9] Data analyzed using vertex-charge technique to tag B charge.
[10] Combined result of $D/D^* \ell$X analysis and fully reconstructed B analysis.
[11] Combined ABREU 95Q and ADAM 95 result.

B^+ DECAY MODES

B^- modes are charge conjugates of the modes below. Modes which do not identify the charge state of the B are listed in the $B^{\pm}/B^0$ ADMIXTURE section.

The branching fractions listed below assume 50% $B^0 \overline{B}^0$ and 50% $B^+ B^-$ production at the $\Upsilon(4S)$. We have attempted to bring older measurements up to date by rescaling their assumed $\Upsilon(4S)$ production ratio to 50:50 and their assumed D, D_s, D^*, and ψ branching ratios to current values whenever this would affect our averages and best limits significantly.

Indentation is used to indicate a subchannel of a previous reaction. All resonant subchannels have been corrected for resonance branching fractions to the final state so the sum of the subchannel branching fractions can exceed that of the final state.

	Mode		Fraction (Γ_i/Γ)	Scale factor/ Confidence level
	Semileptonic and leptonic modes			
Γ_{1}	$\ell^+ \nu_\ell$ anything	[a]	(10.3 ± 0.9) %	
Γ_{2}	$\overline{D}^0 \ell^+ \nu_\ell$	[a]	(1.86 ± 0.33) %	
Γ_{3}	$\overline{D}^*(2007)^0 \ell^+ \nu_\ell$	[a]	(5.3 ± 0.8) %	
Γ_{4}	$\overline{D}_1(2420)^0 \ell^+ \nu_\ell$		$(5.6 \pm 1.6) \times 10^{-3}$	
Γ_{5}	$\overline{D}^*_2(2460)^0 \ell^+ \nu_\ell$		$< 8 \times 10^{-3}$	CL=90%
Γ_{6}	$\pi^0 e^+ \nu_e$		$< 2.2 \times 10^{-3}$	CL=90%
Γ_{7}	$\omega \ell^+ \nu_\ell$	[a]	$< 2.1 \times 10^{-4}$	CL=90%
Γ_{8}	$\omega \mu^+ \nu_\mu$			
Γ_{9}	$\rho^0 \ell^+ \nu_\ell$	[a]	$< 2.1 \times 10^{-4}$	CL=90%
Γ_{10}	$e^+ \nu_e$		$< 1.5 \times 10^{-5}$	CL=90%
Γ_{11}	$\mu^+ \nu_\mu$		$< 2.1 \times 10^{-5}$	CL=90%
Γ_{12}	$\tau^+ \nu_\tau$		$< 5.7 \times 10^{-4}$	CL=90%
Γ_{13}	$e^+ \nu_e \gamma$		$< 2.0 \times 10^{-4}$	CL=90%
Γ_{14}	$\mu^+ \nu_\mu \gamma$		$< 5.2 \times 10^{-5}$	CL=90%
	D, D^*, or D_s modes			
Γ_{15}	$\overline{D}^0 \pi^+$		$(5.3 \pm 0.5) \times 10^{-3}$	
Γ_{16}	$\overline{D}^0 \rho^+$		(1.34 ± 0.18) %	
Γ_{17}	$\overline{D}^0 K^+$		$(2.9 \pm 0.8) \times 10^{-4}$	
Γ_{18}	$\overline{D}^0 \pi^+ \pi^+ \pi^-$		(1.1 ± 0.4) %	
Γ_{19}	$\overline{D}^0 \pi^+ \pi^+ \pi^-$ nonresonant		$(5 \pm 4) \times 10^{-3}$	
Γ_{20}	$\overline{D}^0 \pi^+ \rho^0$		$(4.2 \pm 3.0) \times 10^{-3}$	
Γ_{21}	$\overline{D}^0 a_1(1260)^+$		$(5 \pm 4) \times 10^{-3}$	
Γ_{22}	$D^*(2010)^- \pi^+ \pi^+$		$(2.1 \pm 0.6) \times 10^{-3}$	
Γ_{23}	$D^- \pi^+ \pi^+$		$< 1.4 \times 10^{-3}$	CL=90%
Γ_{24}	$\overline{D}^*(2007)^0 \pi^+$		$(4.6 \pm 0.4) \times 10^{-3}$	
Γ_{25}	$D^*(2010)^+ \pi^0$		$< 1.7 \times 10^{-4}$	CL=90%
Γ_{26}	$\overline{D}^*(2007)^0 \rho^+$		(1.55 ± 0.31) %	

, 27	$\overline{D}^*(2007)^0 \pi^+ \pi^+ \pi^-$	$(9.4 \pm 2.6) \times 10^{-3}$	
, 28	$\overline{D}^*(2007)^0 a_1(1260)^+$	(1.9 ± 0.5) %	
, 29	$D^*(2010)^- \pi^+ \pi^+ \pi^0$	(1.5 ± 0.7) %	
, 30	$D^*(2010)^- \pi^+ \pi^+ \pi^+ \pi^-$	< 1 %	CL=90%
, 31	$\overline{D}_1^*(2420)^0 \pi^+$	$(1.5 \pm 0.6) \times 10^{-3}$	S=1.3
, 32	$\overline{D}_1^*(2420)^0 \rho^+$	$< 1.4 \times 10^{-3}$	CL=90%
, 33	$\overline{D}_2^*(2460)^0 \pi^+$	$< 1.3 \times 10^{-3}$	CL=90%
, 34	$\overline{D}_2^*(2460)^0 \rho^+$	$< 4.7 \times 10^{-3}$	CL=90%
, 35	$\overline{D}^0 D_s^+$	(1.3 ± 0.4) %	
, 36	$\overline{D}^0 D_s^{*+}$	$(9 \pm 4) \times 10^{-3}$	
, 37	$\overline{D}^*(2007)^0 D_s^+$	(1.2 ± 0.5) %	
, 38	$\overline{D}^*(2007)^0 D_s^{*+}$	(2.7 ± 1.0) %	
, 39	$\overline{D}^*(2007)^0 D^*(2010)^+$	< 1.1 %	CL=90%
, 40	$\overline{D}^0 D^*(2010)^+ +$ $\overline{D}^*(2007)^0 D^+$	< 1.3 %	CL=90%
, 41	$\overline{D}^0 D^+$	$< 6.7 \times 10^{-3}$	CL=90%
, 42	$D_s^+ \pi^0$	$< 2.0 \times 10^{-4}$	CL=90%
, 43	$D_s^{*+} \pi^0$	$< 3.3 \times 10^{-4}$	CL=90%
, 44	$D_s^+ \eta$	$< 5 \times 10^{-4}$	CL=90%
, 45	$D_s^{*+} \eta$	$< 8 \times 10^{-4}$	CL=90%
, 46	$D_s^+ \rho^0$	$< 4 \times 10^{-4}$	CL=90%
, 47	$D_s^{*+} \rho^0$	$< 5 \times 10^{-4}$	CL=90%
, 48	$D_s^+ \omega$	$< 5 \times 10^{-4}$	CL=90%
, 49	$D_s^{*+} \omega$	$< 7 \times 10^{-4}$	CL=90%
, 50	$D_s^+ a_1(1260)^0$	$< 2.2 \times 10^{-3}$	CL=90%
, 51	$D_s^{*+} a_1(1260)^0$	$< 1.6 \times 10^{-3}$	CL=90%
, 52	$D_s^+ \phi$	$< 3.2 \times 10^{-4}$	CL=90%
, 53	$D_s^{*+} \phi$	$< 4 \times 10^{-4}$	CL=90%
, 54	$D_s^+ \overline{K}^0$	$< 1.1 \times 10^{-3}$	CL=90%
, 55	$D_s^{*+} \overline{K}^0$	$< 1.1 \times 10^{-3}$	CL=90%
, 56	$D_s^+ \overline{K}^*(892)^0$	$< 5 \times 10^{-4}$	CL=90%
, 57	$D_s^{*+} \overline{K}^*(892)^0$	$< 4 \times 10^{-4}$	CL=90%
, 58	$D_s^- \pi^+ K^+$	$< 8 \times 10^{-4}$	CL=90%
, 59	$D_s^{*-} \pi^+ K^+$	$< 1.2 \times 10^{-3}$	CL=90%
, 60	$D_s^- \pi^+ K^*(892)^+$	$< 6 \times 10^{-3}$	CL=90%
, 61	$D_s^{*-} \pi^+ K^*(892)^+$	$< 8 \times 10^{-3}$	CL=90%

Charmonium modes

, 62	$J/\psi(1S) K^+$	$(10.0 \pm 1.0) \times 10^{-4}$	
, 63	$J/\psi(1S) K^+ \pi^+ \pi^-$	$(1.4 \pm 0.6) \times 10^{-3}$	
, 64	$J/\psi(1S) K^*(892)^+$	$(1.48 \pm 0.27) \times 10^{-3}$	
, 65	$J/\psi(1S) \pi^+$	$(5.1 \pm 1.5) \times 10^{-5}$	
, 66	$J/\psi(1S) \rho^+$	$< 7.7 \times 10^{-4}$	CL=90%
, 67	$J/\psi(1S) a_1(1260)^+$	$< 1.2 \times 10^{-3}$	CL=90%
, 68	$\psi(2S) K^+$	$(5.8 \pm 1.0) \times 10^{-4}$	
, 69	$\psi(2S) K^*(892)^+$	$< 3.0 \times 10^{-3}$	CL=90%
, 70	$\psi(2S) K^+ \pi^+ \pi^-$	$(1.9 \pm 1.2) \times 10^{-3}$	
, 71	$\chi_{c1}(1P) K^+$	$(1.0 \pm 0.4) \times 10^{-3}$	
, 72	$\chi_{c1}(1P) K^*(892)^+$	$< 2.1 \times 10^{-3}$	CL=90%

K or K^* modes

, 73	$K^0 \pi^+$	$(2.3 \pm 1.1) \times 10^{-5}$	
, 74	$K^+ \pi^0$	$< 1.6 \times 10^{-5}$	CL=90%
, 75	$\eta' K^+$	$(6.5 \pm 1.7) \times 10^{-5}$	
, 76	$\eta' K^*(892)^+$	$< 1.3 \times 10^{-4}$	CL=90%
, 77	ηK^+	$< 1.4 \times 10^{-5}$	CL=90%
, 78	$\eta K^*(892)^+$	$< 3.0 \times 10^{-5}$	CL=90%
, 79	ωK^+	$(1.5 {}^{+0.7}_{-0.6}) \times 10^{-5}$	
, 80	$\omega K^*(892)^+$	$< 8.7 \times 10^{-5}$	CL=90%
, 81	$K^*(892)^0 \pi^+$	$< 4.1 \times 10^{-5}$	CL=90%
, 82	$K^*(892)^+ \pi^0$	$< 9.9 \times 10^{-5}$	CL=90%
, 83	$K^+ \pi^- \pi^+$ nonresonant	$< 2.8 \times 10^{-5}$	CL=90%
, 84	$K^- \pi^+ \pi^+$ nonresonant	$< 5.6 \times 10^{-5}$	CL=90%
, 85	$K_1(1400)^0 \pi^+$	$< 2.6 \times 10^{-3}$	CL=90%
, 86	$K_2^*(1430)^0 \pi^+$	$< 6.8 \times 10^{-4}$	CL=90%
, 87	$K^+ \rho^0$	$< 1.9 \times 10^{-5}$	CL=90%
, 88	$K^0 \rho^+$	$< 4.8 \times 10^{-5}$	CL=90%
, 89	$K^*(892)^+ \pi^+ \pi^-$	$< 1.1 \times 10^{-3}$	CL=90%
, 90	$K^*(892)^+ \rho^0$	$< 9.0 \times 10^{-4}$	CL=90%
, 91	$K_1(1400)^+ \rho^0$	$< 7.8 \times 10^{-4}$	CL=90%
, 92	$K_2^*(1430)^+ \rho^0$	$< 1.5 \times 10^{-3}$	CL=90%
, 93	$K^+ \overline{K}^0$	$< 2.1 \times 10^{-5}$	CL=90%
, 94	$K^+ K^- \pi^+$ nonresonant	$< 7.5 \times 10^{-5}$	CL=90%
, 95	$K^+ K^- K^+$	$< 2.0 \times 10^{-4}$	CL=90%
, 96	$K^+ \phi$	$< 5 \times 10^{-6}$	CL=90%
, 97	$K^+ K^- K^+$ nonresonant	$< 3.8 \times 10^{-5}$	CL=90%
, 98	$K^*(892)^+ K^+ K^-$	$< 1.6 \times 10^{-3}$	CL=90%
, 99	$K^*(892)^+ \phi$	$< 4.1 \times 10^{-5}$	CL=90%

Γ_{100}	$K_1(1400)^+\phi$	<	1.1	$\times 10^{-3}$	CL=90%
Γ_{101}	$K_2^*(1430)^+\phi$	<	3.4	$\times 10^{-3}$	CL=90%
Γ_{102}	$K^+ f_0(980)$	<	8	$\times 10^{-5}$	CL=90%
Γ_{103}	$K^*(892)^+\gamma$		(5.7 ±3.3)	$\times 10^{-5}$	
Γ_{104}	$K_1(1270)^+\gamma$	<	7.3	$\times 10^{-3}$	CL=90%
Γ_{105}	$K_1(1400)^+\gamma$	<	2.2	$\times 10^{-3}$	CL=90%
Γ_{106}	$K_2^*(1430)^+\gamma$	<	1.4	$\times 10^{-3}$	CL=90%
Γ_{107}	$K^*(1680)^+\gamma$	<	1.9	$\times 10^{-3}$	CL=90%
Γ_{108}	$K_3^*(1780)^+\gamma$	<	5.5	$\times 10^{-3}$	CL=90%
Γ_{109}	$K_4^*(2045)^+\gamma$	<	9.9	$\times 10^{-3}$	CL=90%

Light unflavored meson modes

Γ_{110}	$\pi^+\pi^0$	<	2.0	$\times 10^{-5}$	CL=90%
Γ_{111}	$\pi^+\pi^+\pi^-$	<	1.3	$\times 10^{-4}$	CL=90%
Γ_{112}	$\rho^0\pi^+$	<	4.3	$\times 10^{-5}$	CL=90%
Γ_{113}	$\pi^+ f_0(980)$	<	1.4	$\times 10^{-4}$	CL=90%
Γ_{114}	$\pi^+ f_2(1270)$	<	2.4	$\times 10^{-4}$	CL=90%
Γ_{115}	$\pi^+\pi^-\pi^+$ nonresonant	<	4.1	$\times 10^{-5}$	CL=90%
Γ_{116}	$\pi^+\pi^0\pi^0$	<	8.9	$\times 10^{-4}$	CL=90%
Γ_{117}	$\rho^+\pi^0$	<	7.7	$\times 10^{-5}$	CL=90%
Γ_{118}	$\pi^+\pi^-\pi^+\pi^0$	<	4.0	$\times 10^{-3}$	CL=90%
Γ_{119}	$\rho^+\rho^0$	<	1.0	$\times 10^{-3}$	CL=90%
Γ_{120}	$a_1(1260)^+\pi^0$	<	1.7	$\times 10^{-3}$	CL=90%
Γ_{121}	$a_1(1260)^0\pi^+$	<	9.0	$\times 10^{-4}$	CL=90%
Γ_{122}	$\omega\pi^+$	<	2.3	$\times 10^{-5}$	CL=90%
Γ_{123}	$\omega\rho^+$	<	6.1	$\times 10^{-5}$	CL=90%
Γ_{124}	$\eta\pi^+$	<	1.5	$\times 10^{-5}$	CL=90%
Γ_{125}	$\eta'\pi^+$	<	3.1	$\times 10^{-5}$	CL=90%
Γ_{126}	$\eta'\rho^+$	<	4.7	$\times 10^{-5}$	CL=90%
Γ_{127}	$\eta\rho^+$	<	3.2	$\times 10^{-5}$	CL=90%
Γ_{128}	$\phi\pi^+$	<	5	$\times 10^{-6}$	CL=90%
Γ_{129}	$\phi\rho^+$	<	1.6	$\times 10^{-5}$	
Γ_{130}	$\pi^+\pi^+\pi^+\pi^-\pi^-$	<	8.6	$\times 10^{-4}$	CL=90%
Γ_{131}	$\rho^0 a_1(1260)^+$	<	6.2	$\times 10^{-4}$	CL=90%
Γ_{132}	$\rho^0 a_2(1320)^+$	<	7.2	$\times 10^{-4}$	CL=90%
Γ_{133}	$\pi^+\pi^+\pi^+\pi^-\pi^-\pi^0$	<	6.3	$\times 10^{-3}$	CL=90%
Γ_{134}	$a_1(1260)^+ a_1(1260)^0$	<	1.3	%	CL=90%

Charged particle ($h^{\pm}$) modes

$h^{\pm} = K^{\pm}$ or $\pi^{\pm}$

Γ_{135}	$h^+\pi^0$		(1.6 $^{+0.7}_{-0.6}$)	$\times 10^{-5}$	
Γ_{136}	ωh^+		2.50	$\times 10^{-5}$	

Baryon modes

, 137	$p\overline{p}\pi^+$	< 1.6	$\times 10^{-4}$	CL=90%
, 138	$p\overline{p}\pi^+$ nonresonant	< 5.3	$\times 10^{-5}$	CL=90%
, 139	$p\overline{p}\pi^+\pi^+\pi^-$	< 5.2	$\times 10^{-4}$	CL=90%
, 140	$p\overline{p}K^+$ nonresonant	< 8.9	$\times 10^{-5}$	CL=90%
, 141	$p\overline{\Lambda}$	< 6	$\times 10^{-5}$	CL=90%
, 142	$p\overline{\Lambda}\pi^+\pi^-$	< 2.0	$\times 10^{-4}$	CL=90%
, 143	$\overline{\Delta}^0 p$	< 3.8	$\times 10^{-4}$	CL=90%
, 144	$\Delta^{++}\overline{p}$	< 1.5	$\times 10^{-4}$	CL=90%
, 145	$\Lambda_c^- p\pi^+$	(6.2 ±2.7)	$\times 10^{-4}$	
, 146	$\Lambda_c^- p\pi^+\pi^0$	< 3.12	$\times 10^{-3}$	CL=90%
, 147	$\Lambda_c^- p\pi^+\pi^+\pi^-$	< 1.46	$\times 10^{-3}$	CL=90%
, 148	$\Lambda_c^- p\pi^+\pi^+\pi^-\pi^0$	< 1.34	%	CL=90%

Lepton Family number (*LF*) or Lepton number (*L*) violating modes, or $\Delta B = 1$ weak neutral current (*B1*) modes

, 149	$\pi^+ e^+ e^-$	*B1*	< 3.9	$\times 10^{-3}$	CL=90%
, 150	$\pi^+ \mu^+ \mu^-$	*B1*	< 9.1	$\times 10^{-3}$	CL=90%
, 151	$K^+ e^+ e^-$	*B1*	< 6	$\times 10^{-5}$	CL=90%
, 152	$K^+ \mu^+ \mu^-$	*B1*	< 1.0	$\times 10^{-5}$	CL=90%
, 153	$K^*(892)^+ e^+ e^-$	*B1*	< 6.9	$\times 10^{-4}$	CL=90%
, 154	$K^*(892)^+ \mu^+ \mu^-$	*B1*	< 1.2	$\times 10^{-3}$	CL=90%
, 155	$\pi^+ e^+ \mu^-$	*LF*	< 6.4	$\times 10^{-3}$	CL=90%
, 156	$\pi^+ e^- \mu^+$	*LF*	< 6.4	$\times 10^{-3}$	CL=90%
, 157	$K^+ e^+ \mu^-$	*LF*	< 6.4	$\times 10^{-3}$	CL=90%
, 158	$K^+ e^- \mu^+$	*LF*	< 6.4	$\times 10^{-3}$	CL=90%
, 159	$\pi^- e^+ e^+$	*L*	< 3.9	$\times 10^{-3}$	CL=90%
, 160	$\pi^- \mu^+ \mu^+$	*L*	< 9.1	$\times 10^{-3}$	CL=90%
, 161	$\pi^- e^+ \mu^+$	*LF*	< 6.4	$\times 10^{-3}$	CL=90%
, 162	$K^- e^+ e^+$	*L*	< 3.9	$\times 10^{-3}$	CL=90%
, 163	$K^- \mu^+ \mu^+$	*L*	< 9.1	$\times 10^{-3}$	CL=90%
, 164	$K^- e^+ \mu^+$	*LF*	< 6.4	$\times 10^{-3}$	CL=90%

[*a*] An ℓ indicates an e or a μ mode, not a sum over these modes.

B^+ BRANCHING RATIOS

, $(\ell^+\nu_\ell \text{anything})$/, total — , 1/,

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
0.1025±0.0057±0.0065	[12] ARTUSO	97	CLE2	$e^+e^- \rightarrow \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.101 ±0.018 ±0.015	ATHANAS	94	CLE2	Sup. by ARTUSO 97

[12] ARTUSO 97 uses partial reconstruction of $B \rightarrow D^*\ell\nu_\ell$ and inclusive semileptonic branching ratio from BARISH 96B (0.1049 ± 0.0017 ± 0.0043).

$\Gamma(\overline{D}^0 \ell^+ \nu_\ell)/\Gamma_{\text{total}}$ Γ_2/Γ

$\ell = e$ or μ, not sum over e and μ modes.

VALUE	DOCUMENT ID		TECN	COMMENT
0.0186±0.0033 OUR AVERAGE				
0.0194±0.0015±0.0034	[13] ATHANAS	97	CLE2	$e^+ e^- \rightarrow \Upsilon(4S)$
0.016 ±0.006 ±0.003	[14] FULTON	91	CLEO	$e^+ e^- \rightarrow \Upsilon(4S)$

[13] ATHANAS 97 uses missing energy and missing momentum to reconstruct neutrino.
[14] FULTON 91 assumes equal production of $B^0 \overline{B}^0$ and $B^+ B^-$ at the $\Upsilon(4S)$.

$\Gamma(\overline{D}^*(2007)^0 \ell^+ \nu_\ell)/\Gamma_{\text{total}}$ Γ_3/Γ

$\ell = e$ or μ, not sum over e and μ modes.

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.053 ±0.008 OUR AVERAGE					
0.0513±0.0054±0.0064	302	[15] BARISH	95	CLE2	$e^+ e^- \rightarrow \Upsilon(4S)$
0.066 ±0.016 ±0.015		[16] ALBRECHT	92C	ARG	$e^+ e^- \rightarrow \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
seen	398	[17] SANGHERA	93	CLE2	$e^+ e^- \rightarrow \Upsilon(4S)$
0.041 ±0.008 $^{+0.008}_{-0.009}$		[18] FULTON	91	CLEO	$e^+ e^- \rightarrow \Upsilon(4S)$
0.070 ±0.018 ±0.014		[19] ANTREASYAN	90B	CBAL	$e^+ e^- \rightarrow \Upsilon(4S)$

[15] BARISH 95 use B($D^0 \rightarrow K^- \pi^+$) = (3.91 ± 0.08 ± 0.17)% and B($D^{*0} \rightarrow D^0 \pi^0$) = (63.6 ± 2.3 ± 3.3)%.
[16] ALBRECHT 92C reports 0.058±0.014±0.013. We rescale using the method described in STONE 94 but with the updated PDG 94 B($D^0 \rightarrow K^- \pi^+$). Assumes equal production of $B^0 \overline{B}^0$ and $B^+ B^-$ at the $\Upsilon(4S)$.
[17] Combining $\overline{D}^{*0} \ell^+ \nu_\ell$ and $\overline{D}^{*-} \ell^+ \nu_\ell$ SANGHERA 93 test $V-A$ structure and fit the decay angular distributions to obtain $A_{FB} = 3/4*(\Gamma^- - \Gamma^+)/\Gamma = 0.14 \pm 0.06 \pm 0.03$. Assuming a value of V_{cb}, they measure V, A_1, and A_2, the three form factors for the $D^* \ell \nu_\ell$ decay, where results are slightly dependent on model assumptions.
[18] Assumes equal production of $B^0 \overline{B}^0$ and $B^+ B^-$ at the $\Upsilon(4S)$. Uncorrected for D and D^* branching ratio assumptions.
[19] ANTREASYAN 90B is average over B and $\overline{D}^*(2010)$ charge states.

$\Gamma(\overline{D}_1(2420)^0 \ell^+ \nu_\ell)/\Gamma_{\text{total}}$ Γ_4/Γ

VALUE	DOCUMENT ID		TECN	COMMENT
0.0056±0.0013±0.0009	[20] ANASTASSOV	98	CLE2	$e^+ e^- \rightarrow \Upsilon(4S)$

[20] ANASTASSOV 98 result is derived from the measurement of B($B^+ \rightarrow \overline{D}_1^0 \ell^+ \nu_\ell$)×B($\overline{D}_1^0 \rightarrow D^{*+} \pi^-$) = (0.373 ± 0.085 ± 0.052 ± 0.024)% by assuming B($\overline{D}_1^0 \rightarrow D^{*+} \pi^-$) = 67%, where the third error includes theoretical uncertainties.

$\Gamma(\overline{D}_2^*(2460)^0 \ell^+ \nu_\ell)/\Gamma_{\text{total}}$ Γ_5/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<8 × 10^{-3}	90	[21] ANASTASSOV	98	CLE2	$e^+ e^- \rightarrow \Upsilon(4S)$

[21] ANASTASSOV 98 result is derived from the meausrement of B($B^+ \rightarrow \overline{D}_2^{*0} \ell^+ \nu_\ell$)×B($\overline{D}_2^{*0} \rightarrow D^{*+} \pi^-$) < 0.16% at 90% CL by assuming B($\overline{D}_2^{*0} \rightarrow D^{*+} \pi^-$) = 20%.

Γ($\pi^0 e^+ \nu_e$)/Γtotal — Γ6/Γ

VALUE	CL%	DOCUMENT ID	TECN	COMMENT
<0.0022	90	ANTREASYAN 90B	CBAL	$e^+e^- \to \Upsilon(4S)$

Γ($\omega \ell^+ \nu_\ell$)/Γtotal — Γ7/Γ

$\ell = e$ or μ, not sum over e and μ modes.

VALUE	CL%	DOCUMENT ID	TECN	COMMENT
$<2.1 \times 10^{-4}$	90	[22] BEAN 93B	CLE2	$e^+e^- \to \Upsilon(4S)$

[22] BEAN 93B limit set using ISGW Model. Using isospin and the quark model to combine Γ($\rho^0 \ell^+ \nu_\ell$) and Γ($\rho^- \ell^+ \nu_\ell$) with this result, they obtain a limit $<(1.6\text{–}2.7) \times 10^{-4}$ at 90% CL for $B^+ \to \omega \ell^+ \nu_\ell$. The range corresponds to the ISGW, WSB, and KS models. An upper limit on $|V_{ub}/V_{cb}| < 0.8\text{–}0.13$ at 90% CL is derived as well.

Γ($\omega \mu^+ \nu_\mu$)/Γtotal — Γ8/Γ

VALUE	DOCUMENT ID	TECN
• • • We do not use the following data for averages, fits, limits, etc. • • •		
seen	[23] ALBRECHT 91C	ARG

[23] In ALBRECHT 91C, one event is fully reconstructed providing evidence for the $b \to u$ transition.

Γ($\rho^0 \ell^+ \nu_\ell$)/Γtotal — Γ9/Γ

$\ell = e$ or μ, not sum over e and μ modes.

VALUE	CL%	DOCUMENT ID	TECN	COMMENT
$<2.1 \times 10^{-4}$	90	[24] BEAN 93B	CLE2	$e^+e^- \to \Upsilon(4S)$

[24] BEAN 93B limit set using ISGW Model. Using isospin and the quark model to combine Γ($\omega^0 \ell^+ \nu_\ell$) and Γ($\rho^- \ell^+ \nu_\ell$) with this result, they obtain a limit $<(1.6\text{–}2.7) \times 10^{-4}$ at 90% CL for $B^+ \to \rho^0 \ell^+ \nu_\ell$. The range corresponds to the ISGW, WSB, and KS models. An upper limit on $|V_{ub}/V_{cb}| < 0.8\text{–}0.13$ at 90% CL is derived as well.

Γ($e^+ \nu_e$)/Γtotal — Γ10/Γ

VALUE	CL%	DOCUMENT ID	TECN	COMMENT
$<1.5 \times 10^{-5}$	90	ARTUSO 95	CLE2	$e^+e^- \to \Upsilon(4S)$

Γ($\mu^+ \nu_\mu$)/Γtotal — Γ11/Γ

VALUE	CL%	DOCUMENT ID	TECN	COMMENT
$<2.1 \times 10^{-5}$	90	ARTUSO 95	CLE2	$e^+e^- \to \Upsilon(4S)$

Γ($\tau^+ \nu_\tau$)/Γtotal — Γ12/Γ

VALUE	CL%	DOCUMENT ID	TECN	COMMENT
$<5.7 \times 10^{-4}$	90	[25] ACCIARRI 97F	L3	$e^+e^- \to Z$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$<1.04 \times 10^{-2}$	90	[26] ALBRECHT 95D	ARG	$e^+e^- \to \Upsilon(4S)$
$<2.2 \times 10^{-3}$	90	ARTUSO 95	CLE2	$e^+e^- \to \Upsilon(4S)$
$<1.8 \times 10^{-3}$	90	[27] BUSKULIC 95	ALEP	$e^+e^- \to Z$

[25] ACCIARRI 97F uses missing-energy technique and $f(b \to B^-) = (38.2 \pm 2.5)\%$.

[26] ALBRECHT 95D use full reconstruction of one B decay as tag.

[27] BUSKULIC 95 uses same missing-energy technique as in $\overline{b} \to \tau^+ \nu_\tau X$, but analysis is restricted to endpoint region of missing-energy distribution.

, $(e^+ \nu_e \gamma)$/, total — , 13/,

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<2.0 \times 10^{-4}$	90	[28] BROWDER	97	CLE2	$e^+ e^- \rightarrow \Upsilon(4S)$

[28] BROWDER 97 uses the hermiticity of the CLEO II detector to reconstruct the neutrino energy and momentum.

, $(\mu^+ \nu_\mu \gamma)$/, total — , 14/,

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<5.2 \times 10^{-5}$	90	[29] BROWDER	97	CLE2	$e^+ e^- \rightarrow \Upsilon(4S)$

[29] BROWDER 97 uses the hermiticity of the CLEO II detector to reconstruct the neutrino energy and momentum.

, $(\overline{D}^0 \pi^+)$/, total — , 15/,

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.0053±0.0005 OUR AVERAGE					
0.0055±0.0004±0.0005	304	[30] ALAM	94	CLE2	$e^+ e^- \rightarrow \Upsilon(4S)$
0.0050±0.0007±0.0006	54	[31] BORTOLETTO	92	CLEO	$e^+ e^- \rightarrow \Upsilon(4S)$
$0.0054^{+0.0018}_{-0.0015}{}^{+0.0012}_{-0.0009}$	14	[32] BEBEK	87	CLEO	$e^+ e^- \rightarrow \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.0020±0.0008±0.0006	12	[31] ALBRECHT	90J	ARG	$e^+ e^- \rightarrow \Upsilon(4S)$
0.0019±0.0010±0.0006	7	[33] ALBRECHT	88K	ARG	$e^+ e^- \rightarrow \Upsilon(4S)$

[30] ALAM 94 assume equal production of B^+ and B^0 at the $\Upsilon(4S)$ and use the CLEO II absolute B($D^0 \rightarrow K^- \pi^+$) and the PDG 1992 B($D^0 \rightarrow K^- \pi^+ \pi^0$)/B($D^0 \rightarrow K^- \pi^+$) and B($D^0 \rightarrow K^- \pi^+ \pi^+ \pi^-$)/B($D^0 \rightarrow K^- \pi^+$).

[31] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$ and uses the Mark III branching fractions for the D.

[32] BEBEK 87 value has been updated in BERKELMAN 91 to use same assumptions as noted for BORTOLETTO 92.

[33] ALBRECHT 88K assumes $B^0 \overline{B}^0$:$B^+ B^-$ ratio is 45:55. Superseded by ALBRECHT 90J.

, $(\overline{D}^0 \rho^+)$/, total — , 16/,

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.0134±0.0018 OUR AVERAGE					
0.0135±0.0012±0.0015	212	[34] ALAM	94	CLE2	$e^+ e^- \rightarrow \Upsilon(4S)$
0.013 ±0.004 ±0.004	19	[35] ALBRECHT	90J	ARG	$e^+ e^- \rightarrow \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.021 ±0.008 ±0.009	10	[36] ALBRECHT	88K	ARG	$e^+ e^- \rightarrow \Upsilon(4S)$

[34] ALAM 94 assume equal production of B^+ and B^0 at the $\Upsilon(4S)$ and use the CLEO II absolute B($D^0 \rightarrow K^- \pi^+$) and the PDG 1992 B($D^0 \rightarrow K^- \pi^+ \pi^0$)/B($D^0 \rightarrow K^- \pi^+$) and B($D^0 \rightarrow K^- \pi^+ \pi^+ \pi^-$)/B($D^0 \rightarrow K^- \pi^+$).

[35] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$ and uses the Mark III branching fractions for the D.

[36] ALBRECHT 88K assumes $B^0 \overline{B}^0$:$B^+ B^-$ ratio is 45:55.

$\Gamma(\overline{D}^0 K^+)/\Gamma_{total}$ — Γ_{17}/Γ

VALUE (units 10^{-4})	*DOCUMENT ID*		*TECN*	*COMMENT*
2.92±0.80±0.28	[37] ATHANAS	98	CLE2	$e^+e^- \rightarrow \Upsilon(4S)$

[37] ATHANAS 98 reports $[B(B^+ \rightarrow \overline{D}^0 K^+)]/[B(B^+ \rightarrow \overline{D}^0 \pi^+)] = 0.055 \pm 0.014 \pm 0.005$. We multiply by our best value $B(B^+ \rightarrow \overline{D}^0 \pi^+) = (5.3 \pm 0.5) \times 10^{-3}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(\overline{D}^0 \pi^+ \pi^+ \pi^-)/\Gamma_{total}$ — Γ_{18}/Γ

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
0.0115±0.0029±0.0021	[38] BORTOLETTO	92	CLEO	$e^+e^- \rightarrow \Upsilon(4S)$

[38] BORTOLETTO 92 assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$ and uses Mark III branching fractions for the D.

$\Gamma(\overline{D}^0 \pi^+ \pi^+ \pi^-$ nonresonant$)/\Gamma_{total}$ — Γ_{19}/Γ

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
0.0051±0.0034±0.0023	[39] BORTOLETTO	92	CLEO	$e^+e^- \rightarrow \Upsilon(4S)$

[39] BORTOLETTO 92 assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$ and uses Mark III branching fractions for the D.

$\Gamma(\overline{D}^0 \pi^+ \rho^0)/\Gamma_{total}$ — Γ_{20}/Γ

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
0.0042±0.0023±0.0020	[40] BORTOLETTO	92	CLEO	$e^+e^- \rightarrow \Upsilon(4S)$

[40] BORTOLETTO 92 assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$ and uses Mark III branching fractions for the D.

$\Gamma(\overline{D}^0 a_1(1260)^+)/\Gamma_{total}$ — Γ_{21}/Γ

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
0.0045±0.0019±0.0031	[41] BORTOLETTO	92	CLEO	$e^+e^- \rightarrow \Upsilon(4S)$

[41] BORTOLETTO 92 assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$ and uses Mark III branching fractions for the D.

$\Gamma(D^*(2010)^- \pi^+ \pi^+)/\Gamma_{total}$ — Γ_{22}/Γ

VALUE	*CL%*	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
0.0021±0.0006 OUR AVERAGE						
0.0019±0.0007±0.0003		14	[42] ALAM	94	CLE2	$e^+e^- \rightarrow \Upsilon(4S)$
0.0026±0.0014±0.0007		11	[43] ALBRECHT	90J	ARG	$e^+e^- \rightarrow \Upsilon(4S)$
$0.0024^{+0.0017}_{-0.0016}{}^{+0.0010}_{-0.0006}$		3	[44] BEBEK	87	CLEO	$e^+e^- \rightarrow \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
<0.004	90		[45] BORTOLETTO	92	CLEO	$e^+e^- \rightarrow \Upsilon(4S)$
0.005 ±0.002 ±0.003		7	[46] ALBRECHT	87C	ARG	$e^+e^- \rightarrow \Upsilon(4S)$

[42] ALAM 94 assume equal production of B^+ and B^0 at the $\Upsilon(4S)$ and use the CLEO II $B(D^*(2010)^+ \rightarrow D^0 \pi^+)$ and absolute $B(D^0 \rightarrow K^- \pi^+)$ and the PDG 1992 $B(D^0 \rightarrow K^- \pi^+ \pi^0)/B(D^0 \rightarrow K^- \pi^+)$ and $B(D^0 \rightarrow K^- \pi^+ \pi^+ \pi^-)/B(D^0 \rightarrow K^- \pi^+)$.

[43] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$ and uses the Mark III branching fractions for the D.

[44] BEBEK 87 value has been updated in BERKELMAN 91 to use same assumptions as noted for BORTOLETTO 92.

[45] BORTOLETTO 92 assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$ and uses Mark III branching fractions for the D and $D^*(2010)$. The authors also find the product branching fraction into $D^{**}\pi$ followed by $D^{**} \to D^*(2010)\pi$ to be $0.0014^{+0.0008}_{-0.0006} \pm 0.0003$ where D^{**} represents all orbitally excited D mesons.

[46] ALBRECHT 87C use PDG 86 branching ratios for D and $D^*(2010)$ and assume $B(\Upsilon(4S) \to B^+B^-) = 55\%$ and $B(\Upsilon(4S) \to B^0\overline{B}^0) = 45\%$. Superseded by ALBRECHT 90J.

$\Gamma(D^-\pi^+\pi^+)/\Gamma_{total}$ Γ_{23}/Γ

VALUE	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
<0.0014	90		[47] ALAM	94	CLE2	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
<0.007	90		[48] BORTOLETTO	92	CLEO	$e^+e^- \to \Upsilon(4S)$
$0.0025^{+0.0041}_{-0.0023}{}^{+0.0024}_{-0.0008}$		1	[49] BEBEK	87	CLEO	$e^+e^- \to \Upsilon(4S)$

[47] ALAM 94 assume equal production of B^+ and B^0 at the $\Upsilon(4S)$ and use the Mark III $B(D^+ \to K^-\pi^+\pi^+)$.

[48] BORTOLETTO 92 assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$ and uses Mark III branching fractions for the D. The product branching fraction into $D_0^*(2340)\pi$ followed by $D_0^*(2340) \to D\pi$ is < 0.005 at 90%CL and into $D_2^*(2460)$ followed by $D_2^*(2460) \to D\pi$ is < 0.004 at 90%CL.

[49] BEBEK 87 assume the $\Upsilon(4S)$ decays 43% to $B^0\overline{B}^0$. $B(D^- \to K^+\pi^-\pi^-) = (9.1 \pm 1.3 \pm 0.4)\%$ is assumed.

$\Gamma(\overline{D}^*(2007)^0\pi^+)/\Gamma_{total}$ Γ_{24}/Γ

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.0046 ±0.0004 OUR AVERAGE					
0.00434±0.00047±0.00018		[50] BRANDENB...	98	CLE2	$e^+e^- \to \Upsilon(4S)$
0.0052 ±0.0007 ±0.0007	71	[51] ALAM	94	CLE2	$e^+e^- \to \Upsilon(4S)$
0.0072 ±0.0018 ±0.0016		[52] BORTOLETTO	92	CLEO	$e^+e^- \to \Upsilon(4S)$
0.0040 ±0.0014 ±0.0012	9	[52] ALBRECHT	90J	ARG	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.0027 ±0.0044		[53] BEBEK	87	CLEO	$e^+e^- \to \Upsilon(4S)$

[50] BRANDENBURG 98 assume equal production of B^+ and B^0 at $\Upsilon(4S)$ and use the D^* reconstruction technique. The first error is their experiment's error and the second error is the systematic error from the PDG 96 value of $B(D^* \to D\pi)$.

[51] ALAM 94 assume equal production of B^+ and B^0 at the $\Upsilon(4S)$ and use the CLEO II $B(D^*(2007)^0 \to D^0\pi^0)$ and absolute $B(D^0 \to K^-\pi^+)$ and the PDG 1992 $B(D^0 \to K^-\pi^+\pi^0)/B(D^0 \to K^-\pi^+)$ and $B(D^0 \to K^-\pi^+\pi^+\pi^-)/B(D^0 \to K^-\pi^+)$.

[52] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$ and uses Mark III branching fractions for the D and $D^*(2010)$.

[53] This is a derived branching ratio, using the inclusive pion spectrum and other two-body B decays. BEBEK 87 assume the $\Upsilon(4S)$ decays 43% to $B^0\overline{B}^0$.

, $(D^*(2010)^+ \pi^0)$/, total — , 25/,

VALUE	CL%	DOCUMENT ID	TECN	COMMENT
<0.00017	90	[54] BRANDENB... 98	CLE2	$e^+ e^- \rightarrow \Upsilon(4S)$

[54] BRANDENBURG 98 assume equal production of B^+ and B^0 at $\Upsilon(4S)$ and use the D^* partial reconstruction technique. The first error is their experiment's error and the second error is the systematic error from the PDG 96 value of B($D^* \rightarrow D\pi$).

, $(\overline{D}^*(2007)^0 \rho^+)$/, total — , 26/,

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
0.0155±0.0031 OUR AVERAGE				
0.0168±0.0021±0.0028	86	[55] ALAM 94	CLE2	$e^+ e^- \rightarrow \Upsilon(4S)$
0.010 ±0.006 ±0.004	7	[56] ALBRECHT 90J	ARG	$e^+ e^- \rightarrow \Upsilon(4S)$

[55] ALAM 94 assume equal production of B^+ and B^0 at the $\Upsilon(4S)$ and use the CLEO II B($D^*(2007)^0 \rightarrow D^0 \pi^0$) and absolute B($D^0 \rightarrow K^- \pi^+$) and the PDG 1992 B($D^0 \rightarrow K^- \pi^+ \pi^0$)/B($D^0 \rightarrow K^- \pi^+$) and B($D^0 \rightarrow K^- \pi^+ \pi^+ \pi^-$)/B($D^0 \rightarrow K^- \pi^+$). The nonresonant $\pi^+ \pi^0$ contribution under the ρ^+ is negligible.

[56] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$ and uses Mark III branching fractions for the D and $D^*(2010)$.

, $(\overline{D}^*(2007)^0 \pi^+ \pi^+ \pi^-)$/, total — , 27/,

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
0.0094±0.0020±0.0017	48	[57,58] ALAM 94	CLE2	$e^+ e^- \rightarrow \Upsilon(4S)$

[57] ALAM 94 assume equal production of B^+ and B^0 at the $\Upsilon(4S)$ and use the CLEO II B($D^*(2007)^0 \rightarrow D^0 \pi^0$) and absolute B($D^0 \rightarrow K^- \pi^+$) and the PDG 1992 B($D^0 \rightarrow K^- \pi^+ \pi^0$)/B($D^0 \rightarrow K^- \pi^+$) and B($D^0 \rightarrow K^- \pi^+ \pi^+ \pi^-$)/B($D^0 \rightarrow K^- \pi^+$).

[58] The three pion mass is required to be between 1.0 and 1.6 GeV consistent with an a_1 meson. (If this channel is dominated by a_1^+, the branching ratio for $\overline{D}^{*0} a_1^+$ is twice that for $\overline{D}^{*0} \pi^+ \pi^+ \pi^-$.)

, $(\overline{D}^*(2007)^0 a_1(1260)^+)$/, total — , 28/,

VALUE	DOCUMENT ID	TECN	COMMENT
0.0188±0.0040±0.0034	[59,60] ALAM 94	CLE2	$e^+ e^- \rightarrow \Upsilon(4S)$

[59] ALAM 94 value is twice their , $(\overline{D}^*(2007)^0 \pi^+ \pi^+ \pi^-)$/, total value based on their observation that the three pions are dominantly in the $a_1(1260)$ mass range 1.0 to 1.6 GeV.

[60] ALAM 94 assume equal production of B^+ and B^0 at the $\Upsilon(4S)$ and use the CLEO II B($D^*(2007)^0 \rightarrow D^0 \pi^0$) and absolute B($D^0 \rightarrow K^- \pi^+$) and the PDG 1992 B($D^0 \rightarrow K^- \pi^+ \pi^0$)/B($D^0 \rightarrow K^- \pi^+$) and B($D^0 \rightarrow K^- \pi^+ \pi^+ \pi^-$)/B($D^0 \rightarrow K^- \pi^+$).

, $(D^*(2010)^- \pi^+ \pi^+ \pi^0)$/, total — , 29/,

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
0.0152±0.0071±0.0001	26	[61] ALBRECHT 90J	ARG	$e^+ e^- \rightarrow \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.043 ±0.013 ±0.026	24	[62] ALBRECHT 87C	ARG	$e^+ e^- \rightarrow \Upsilon(4S)$

[61] ALBRECHT 90J reports $0.018 \pm 0.007 \pm 0.005$ for B($D^*(2010)^+ \rightarrow D^0 \pi^+$) = 0.57 ± 0.06. We rescale to our best value B($D^*(2010)^+ \rightarrow D^0 \pi^+$) = $(67.7 \pm 0.5) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error

from using our best value. Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$ and uses Mark III branching fractions for the D.

[62] ALBRECHT 87C use PDG 86 branching ratios for D and $D^*(2010)$ and assume $B(\Upsilon(4S) \to B^+ B^-) = 55\%$ and $B(\Upsilon(4S) \to B^0 \overline{B}^0) = 45\%$. Superseded by ALBRECHT 90J.

$\Gamma(D^*(2010)^- \pi^+ \pi^+ \pi^+ \pi^-)/\Gamma_{\text{total}}$ — Γ_{30}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.01	90	[63] ALBRECHT	90J	ARG	$e^+ e^- \to \Upsilon(4S)$

[63] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$ and uses Mark III branching fractions for the D and $D^*(2010)$.

$\Gamma(\overline{D}_1^*(2420)^0 \pi^+)/\Gamma_{\text{total}}$ — Γ_{31}/Γ

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.0015±0.0006 OUR AVERAGE		Error includes scale factor of 1.3.			
0.0011±0.0005±0.0002	8	[64] ALAM	94	CLE2	$e^+ e^- \to \Upsilon(4S)$
0.0025±0.0007±0.0006		[65] ALBRECHT	94D	ARG	$e^+ e^- \to \Upsilon(4S)$

[64] ALAM 94 assume equal production of B^+ and B^0 at the $\Upsilon(4S)$ and use the CLEO II $B(D^*(2010)^+ \to D^0 \pi^+)$ and absolute $B(D^0 \to K^- \pi^+)$ and the PDG 1992 $B(D^0 \to K^- \pi^+ \pi^0)/B(D^0 \to K^- \pi^+)$ and assuming $B(D_1(2420)^0 \to D^*(2010)^+ \pi^-) = 67\%$.

[65] ALBRECHT 94D assume equal production of B^+ and B^0 at the $\Upsilon(4S)$ and use the CLEO II $B(D^*(2010)^+ \to D^0 \pi^+)$ assuming $B(D_1(2420)^0 \to D^*(2010)^+ \pi^-) = 67\%$.

$\Gamma(\overline{D}_1^*(2420)^0 \rho^+)/\Gamma_{\text{total}}$ — Γ_{32}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.0014	90	[66] ALAM	94	CLE2	$e^+ e^- \to \Upsilon(4S)$

[66] ALAM 94 assume equal production of B^+ and B^0 at the $\Upsilon(4S)$ and use the CLEO II $B(D^*(2010)^+ \to D^0 \pi^+)$ assuming $B(D_1(2420)^0 \to D^*(2010)^+ \pi^-) = 67\%$.

$\Gamma(\overline{D}_2^*(2460)^0 \pi^+)/\Gamma_{\text{total}}$ — Γ_{33}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.0013	90	[67] ALAM	94	CLE2	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.0028	90	[68] ALAM	94	CLE2	$e^+ e^- \to \Upsilon(4S)$
<0.0023	90	[69] ALBRECHT	94D	ARG	$e^+ e^- \to \Upsilon(4S)$

[67] ALAM 94 assume equal production of B^+ and B^0 at the $\Upsilon(4S)$ and use the Mark III $B(D^+ \to K^- \pi^+ \pi^+)$ and $B(D_2^*(2460)^0 \to D^+ \pi^-) = 30\%$.

[68] ALAM 94 assume equal production of B^+ and B^0 at the $\Upsilon(4S)$ and use the Mark III $B(D^+ \to K^- \pi^+ \pi^+)$, the CLEO II $B(D^*(2010)^+ \to D^0 \pi^+)$ and $B(D_2^*(2460)^0 \to D^*(2010)^+ \pi^-) = 20\%$.

[69] ALBRECHT 94D assume equal production of B^+ and B^0 at the $\Upsilon(4S)$ and use the CLEO II $B(D^*(2010)^+ \to D^0 \pi^+)$ and $B(D_2^*(2460)^0 \to D^*(2010)^+ \pi^-) = 30\%$.

$\Gamma(\overline{D}_2^*(2460)^0 \rho^+)/\Gamma_{total}$ Γ_{34}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.0047	90	[70] ALAM	94	CLE2	$e^+e^- \rightarrow \Upsilon(4S)$
<0.005	90	[71] ALAM	94	CLE2	$e^+e^- \rightarrow \Upsilon(4S)$

[70] ALAM 94 assume equal production of B^+ and B^0 at the $\Upsilon(4S)$ and use the Mark III $B(D^+ \rightarrow K^-\pi^+\pi^+)$ and $B(D_2^*(2460)^0 \rightarrow D^+\pi^-) = 30\%$.

[71] ALAM 94 assume equal production of B^+ and B^0 at the $\Upsilon(4S)$ and use the Mark III $B(D^+ \rightarrow K^-\pi^+\pi^+)$, the CLEO II $B(D^*(2010)^+ \rightarrow D^0\pi^+)$ and $B(D_2^*(2460)^0 \rightarrow D^*(2010)^+\pi^-) = 20\%$.

$\Gamma(\overline{D}^0 D_s^+)/\Gamma_{total}$ Γ_{35}/Γ

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.013 ±0.004 OUR AVERAGE					
$0.0122 \pm 0.0032 {}^{+0.0029}_{-0.0030}$		[72] GIBAUT	96	CLE2	$e^+e^- \rightarrow \Upsilon(4S)$
0.018 ±0.009 ±0.004		[73] ALBRECHT	92G	ARG	$e^+e^- \rightarrow \Upsilon(4S)$
0.016 ±0.007 ±0.004	5	[74] BORTOLETTO	90	CLEO	$e^+e^- \rightarrow \Upsilon(4S)$

[72] GIBAUT 96 reports $0.0126 \pm 0.0022 \pm 0.0025$ for $B(D_s^+ \rightarrow \phi\pi^+) = 0.035$. We rescale to our best value $B(D_s^+ \rightarrow \phi\pi^+) = (3.6 \pm 0.9) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[73] ALBRECHT 92G reports $0.024 \pm 0.012 \pm 0.004$ for $B(D_s^+ \rightarrow \phi\pi^+) = 0.027$. We rescale to our best value $B(D_s^+ \rightarrow \phi\pi^+) = (3.6 \pm 0.9) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value. Assumes PDG 1990 D^0 branching ratios, e.g., $B(D^0 \rightarrow K^-\pi^+) = 3.71 \pm 0.25\%$.

[74] BORTOLETTO 90 reports 0.029 ± 0.013 for $B(D_s^+ \rightarrow \phi\pi^+) = 0.02$. We rescale to our best value $B(D_s^+ \rightarrow \phi\pi^+) = (3.6 \pm 0.9) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(\overline{D}^0 D_s^{*+})/\Gamma_{total}$ Γ_{36}/Γ

VALUE	DOCUMENT ID		TECN	COMMENT
0.009 ±0.004 OUR AVERAGE				
$0.0084 \pm 0.0031 {}^{+0.0020}_{-0.0021}$	[75] GIBAUT	96	CLE2	$e^+e^- \rightarrow \Upsilon(4S)$
0.012 ±0.009 ±0.003	[76] ALBRECHT	92G	ARG	$e^+e^- \rightarrow \Upsilon(4S)$

[75] GIBAUT 96 reports $0.0087 \pm 0.0027 \pm 0.0017$ for $B(D_s^+ \rightarrow \phi\pi^+) = 0.035$. We rescale to our best value $B(D_s^+ \rightarrow \phi\pi^+) = (3.6 \pm 0.9) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[76] ALBRECHT 92G reports $0.016 \pm 0.012 \pm 0.003$ for $B(D_s^+ \rightarrow \phi\pi^+) = 0.027$. We rescale to our best value $B(D_s^+ \rightarrow \phi\pi^+) = (3.6 \pm 0.9) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value. Assumes PDG 1990 D^0 branching ratios, e.g., $B(D^0 \rightarrow K^-\pi^+) = 3.71 \pm 0.25\%$.

, $(\overline{D}^*(2007)^0 D_s^+)$/, total — , 37/,

VALUE	DOCUMENT ID		TECN	COMMENT
0.012±0.005 OUR AVERAGE				
$0.014 \pm 0.005 \pm 0.003$	[77] GIBAUT	96	CLE2	$e^+ e^- \rightarrow \Upsilon(4S)$
$0.010 \pm 0.007 \pm 0.002$	[78] ALBRECHT	92G	ARG	$e^+ e^- \rightarrow \Upsilon(4S)$

[77] GIBAUT 96 reports $0.0140 \pm 0.0043 \pm 0.0035$ for $B(D_s^+ \rightarrow \phi\pi^+) = 0.035$. We rescale to our best value $B(D_s^+ \rightarrow \phi\pi^+) = (3.6 \pm 0.9) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[78] ALBRECHT 92G reports $0.013 \pm 0.009 \pm 0.002$ for $B(D_s^+ \rightarrow \phi\pi^+) = 0.027$. We rescale to our best value $B(D_s^+ \rightarrow \phi\pi^+) = (3.6 \pm 0.9) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value. Assumes PDG 1990 D^0 and $D^*(2007)^0$ branching ratios, e.g., $B(D^0 \rightarrow K^-\pi^+) = 3.71 \pm 0.25\%$ and $B(D^*(2007)^0 \rightarrow D^0\pi^0) = 55 \pm 6\%$.

, $(\overline{D}^*(2007)^0 D_s^{*+})$/, total — , 38/,

VALUE	DOCUMENT ID		TECN	COMMENT
0.027±0.010 OUR AVERAGE				
$0.030 \pm 0.011 \pm 0.007$	[79] GIBAUT	96	CLE2	$e^+ e^- \rightarrow \Upsilon(4S)$
$0.023 \pm 0.013 \pm 0.006$	[80] ALBRECHT	92G	ARG	$e^+ e^- \rightarrow \Upsilon(4S)$

[79] GIBAUT 96 reports $0.0310 \pm 0.0088 \pm 0.0065$ for $B(D_s^+ \rightarrow \phi\pi^+) = 0.035$. We rescale to our best value $B(D_s^+ \rightarrow \phi\pi^+) = (3.6 \pm 0.9) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[80] ALBRECHT 92G reports $0.031 \pm 0.016 \pm 0.005$ for $B(D_s^+ \rightarrow \phi\pi^+) = 0.027$. We rescale to our best value $B(D_s^+ \rightarrow \phi\pi^+) = (3.6 \pm 0.9) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value. Assumes PDG 1990 D^0 and $D^*(2007)^0$ branching ratios, e.g., $B(D^0 \rightarrow K^-\pi^+) = 3.71 \pm 0.25\%$ and $B(D^*(2007)^0 \rightarrow D^0\pi^0) = 55 \pm 6\%$.

, $(\overline{D}^*(2007)^0 D^*(2010)^+)$/, total — , 39/,

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.011	90	BARATE	98Q	ALEP	$e^+ e^- \rightarrow Z$

$\big[$, $(\overline{D}^0 D^*(2010)^+)$ + , $(\overline{D}^*(2007)^0 D^+)\big]$/, total — , 40/,

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.013	90	BARATE	98Q	ALEP	$e^+ e^- \rightarrow Z$

, $(\overline{D}^0 D^+)$/, total — , 41/,

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.0067	90	BARATE	98Q	ALEP	$e^+ e^- \rightarrow Z$

, $(D_s^+ \pi^0)$/, total — , 42/,

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.00020	90	[81] ALEXANDER	93B	CLE2	$e^+ e^- \rightarrow \Upsilon(4S)$

[81] ALEXANDER 93B reports $< 2.0 \times 10^{-4}$ for $B(D_s^+ \rightarrow \phi\pi^+) = 0.037$. We rescale to our best value $B(D_s^+ \rightarrow \phi\pi^+) = 0.036$.

$\left[\Gamma(D_s^+\pi^0) + \Gamma(D_s^{*+}\pi^0)\right]/\Gamma_{\text{total}}$ $(\Gamma_{42}+\Gamma_{43})/\Gamma$

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.0007	90	[82] ALBRECHT	93E	ARG	$e^+e^- \rightarrow \Upsilon(4S)$

[82] ALBRECHT 93E reports $< 0.9 \times 10^{-3}$ for $B(D_s^+ \rightarrow \phi\pi^+) = 0.027$. We rescale to our best value $B(D_s^+ \rightarrow \phi\pi^+) = 0.036$.

$\Gamma(D_s^{*+}\pi^0)/\Gamma_{\text{total}}$ Γ_{43}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.00033	90	[83] ALEXANDER	93B	CLE2	$e^+e^- \rightarrow \Upsilon(4S)$

[83] ALEXANDER 93B reports $< 3.2 \times 10^{-4}$ for $B(D_s^+ \rightarrow \phi\pi^+) = 0.037$. We rescale to our best value $B(D_s^+ \rightarrow \phi\pi^+) = 0.036$.

$\Gamma(D_s^+\eta)/\Gamma_{\text{total}}$ Γ_{44}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.0005	90	[84] ALEXANDER	93B	CLE2	$e^+e^- \rightarrow \Upsilon(4S)$

[84] ALEXANDER 93B reports $< 4.6 \times 10^{-4}$ for $B(D_s^+ \rightarrow \phi\pi^+) = 0.037$. We rescale to our best value $B(D_s^+ \rightarrow \phi\pi^+) = 0.036$.

$\Gamma(D_s^{*+}\eta)/\Gamma_{\text{total}}$ Γ_{45}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.0008	90	[85] ALEXANDER	93B	CLE2	$e^+e^- \rightarrow \Upsilon(4S)$

[85] ALEXANDER 93B reports $< 7.5 \times 10^{-4}$ for $B(D_s^+ \rightarrow \phi\pi^+) = 0.037$. We rescale to our best value $B(D_s^+ \rightarrow \phi\pi^+) = 0.036$.

$\Gamma(D_s^+\rho^0)/\Gamma_{\text{total}}$ Γ_{46}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.0004	90	[86] ALEXANDER	93B	CLE2	$e^+e^- \rightarrow \Upsilon(4S)$

[86] ALEXANDER 93B reports $< 3.7 \times 10^{-4}$ for $B(D_s^+ \rightarrow \phi\pi^+) = 0.037$. We rescale to our best value $B(D_s^+ \rightarrow \phi\pi^+) = 0.036$.

$\left[\Gamma(D_s^+\rho^0) + \Gamma(D_s^+\overline{K}^*(892)^0)\right]/\Gamma_{\text{total}}$ $(\Gamma_{46}+\Gamma_{56})/\Gamma$

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.0025	90	[87] ALBRECHT	93E	ARG	$e^+e^- \rightarrow \Upsilon(4S)$

[87] ALBRECHT 93E reports $< 3.4 \times 10^{-3}$ for $B(D_s^+ \rightarrow \phi\pi^+) = 0.027$. We rescale to our best value $B(D_s^+ \rightarrow \phi\pi^+) = 0.036$.

$\Gamma(D_s^{*+}\rho^0)/\Gamma_{\text{total}}$ Γ_{47}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.0005	90	[88] ALEXANDER	93B	CLE2	$e^+e^- \rightarrow \Upsilon(4S)$

[88] ALEXANDER 93B reports $< 4.8 \times 10^{-4}$ for $B(D_s^+ \rightarrow \phi\pi^+) = 0.037$. We rescale to our best value $B(D_s^+ \rightarrow \phi\pi^+) = 0.036$.

$[\Gamma(D_s^{*+}\rho^0)+\Gamma(D_s^{*+}\overline{K}^*(892)^0)]/\Gamma_{total}$ — $(\Gamma_{47}+\Gamma_{57})/\Gamma$

VALUE	CL%	DOCUMENT ID	TECN	COMMENT
<0.0015	90	[89] ALBRECHT 93E	ARG	$e^+e^- \rightarrow \Upsilon(4S)$

[89] ALBRECHT 93E reports $< 2.0\times10^{-3}$ for B($D_s^+ \rightarrow \phi\pi^+$) = 0.027. We rescale to our best value B($D_s^+ \rightarrow \phi\pi^+$) = 0.036.

$\Gamma(D_s^+\omega)/\Gamma_{total}$ — Γ_{48}/Γ

VALUE	CL%	DOCUMENT ID	TECN	COMMENT
<0.0005	90	[90] ALEXANDER 93B	CLE2	$e^+e^- \rightarrow \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
<0.0025	90	[91] ALBRECHT 93E	ARG	$e^+e^- \rightarrow \Upsilon(4S)$

[90] ALEXANDER 93B reports $< 4.8\times10^{-4}$ for B($D_s^+ \rightarrow \phi\pi^+$) = 0.037. We rescale to our best value B($D_s^+ \rightarrow \phi\pi^+$) = 0.036.

[91] ALBRECHT 93E reports $< 3.4\times10^{-3}$ for B($D_s^+ \rightarrow \phi\pi^+$) = 0.027. We rescale to our best value B($D_s^+ \rightarrow \phi\pi^+$) = 0.036.

$\Gamma(D_s^{*+}\omega)/\Gamma_{total}$ — Γ_{49}/Γ

VALUE	CL%	DOCUMENT ID	TECN	COMMENT
<0.0007	90	[92] ALEXANDER 93B	CLE2	$e^+e^- \rightarrow \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
<0.0014	90	[93] ALBRECHT 93E	ARG	$e^+e^- \rightarrow \Upsilon(4S)$

[92] ALEXANDER 93B reports $< 6.8\times10^{-4}$ for B($D_s^+ \rightarrow \phi\pi^+$) = 0.037. We rescale to our best value B($D_s^+ \rightarrow \phi\pi^+$) = 0.036.

[93] ALBRECHT 93E reports $< 1.9\times10^{-3}$ for B($D_s^+ \rightarrow \phi\pi^+$) = 0.027. We rescale to our best value B($D_s^+ \rightarrow \phi\pi^+$) = 0.036.

$\Gamma(D_s^+ a_1(1260)^0)/\Gamma_{total}$ — Γ_{50}/Γ

VALUE	CL%	DOCUMENT ID	TECN	COMMENT
<0.0022	90	[94] ALBRECHT 93E	ARG	$e^+e^- \rightarrow \Upsilon(4S)$

[94] ALBRECHT 93E reports $< 3.0\times10^{-3}$ for B($D_s^+ \rightarrow \phi\pi^+$) = 0.027. We rescale to our best value B($D_s^+ \rightarrow \phi\pi^+$) = 0.036.

$\Gamma(D_s^{*+} a_1(1260)^0)/\Gamma_{total}$ — Γ_{51}/Γ

VALUE	CL%	DOCUMENT ID	TECN	COMMENT
<0.0016	90	[95] ALBRECHT 93E	ARG	$e^+e^- \rightarrow \Upsilon(4S)$

[95] ALBRECHT 93E reports $< 2.2\times10^{-3}$ for B($D_s^+ \rightarrow \phi\pi^+$) = 0.027. We rescale to our best value B($D_s^+ \rightarrow \phi\pi^+$) = 0.036.

$\Gamma(D_s^+ \phi)/\Gamma_{\text{total}}$ — Γ_{52}/Γ

VALUE	CL%	DOCUMENT ID	TECN	COMMENT
<0.00032	90	[96] ALEXANDER 93B	CLE2	$e^+ e^- \rightarrow \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
<0.0013	90	[97] ALBRECHT 93E	ARG	$e^+ e^- \rightarrow \Upsilon(4S)$

[96] ALEXANDER 93B reports $< 3.1 \times 10^{-4}$ for $B(D_s^+ \rightarrow \phi\pi^+) = 0.037$. We rescale to our best value $B(D_s^+ \rightarrow \phi\pi^+) = 0.036$.

[97] ALBRECHT 93E reports $< 1.7 \times 10^{-3}$ for $B(D_s^+ \rightarrow \phi\pi^+) = 0.027$. We rescale to our best value $B(D_s^+ \rightarrow \phi\pi^+) = 0.036$.

$\Gamma(D_s^{*+} \phi)/\Gamma_{\text{total}}$ — Γ_{53}/Γ

VALUE	CL%	DOCUMENT ID	TECN	COMMENT
<0.0004	90	[98] ALEXANDER 93B	CLE2	$e^+ e^- \rightarrow \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
<0.0016	90	[99] ALBRECHT 93E	ARG	$e^+ e^- \rightarrow \Upsilon(4S)$

[98] ALEXANDER 93B reports $< 4.2 \times 10^{-4}$ for $B(D_s^+ \rightarrow \phi\pi^+) = 0.037$. We rescale to our best value $B(D_s^+ \rightarrow \phi\pi^+) = 0.036$.

[99] ALBRECHT 93E reports $< 2.1 \times 10^{-3}$ for $B(D_s^+ \rightarrow \phi\pi^+) = 0.027$. We rescale to our best value $B(D_s^+ \rightarrow \phi\pi^+) = 0.036$.

$\Gamma(D_s^+ \overline{K}^0)/\Gamma_{\text{total}}$ — Γ_{54}/Γ

VALUE	CL%	DOCUMENT ID	TECN	COMMENT
<0.0011	90	[100] ALEXANDER 93B	CLE2	$e^+ e^- \rightarrow \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
<0.0019	90	[101] ALBRECHT 93E	ARG	$e^+ e^- \rightarrow \Upsilon(4S)$

[100] ALEXANDER 93B reports $< 10.3 \times 10^{-4}$ for $B(D_s^+ \rightarrow \phi\pi^+) = 0.037$. We rescale to our best value $B(D_s^+ \rightarrow \phi\pi^+) = 0.036$.

[101] ALBRECHT 93E reports $< 2.5 \times 10^{-3}$ for $B(D_s^+ \rightarrow \phi\pi^+) = 0.027$. We rescale to our best value $B(D_s^+ \rightarrow \phi\pi^+) = 0.036$.

$\Gamma(D_s^{*+} \overline{K}^0)/\Gamma_{\text{total}}$ — Γ_{55}/Γ

VALUE	CL%	DOCUMENT ID	TECN	COMMENT
<0.0011	90	[102] ALEXANDER 93B	CLE2	$e^+ e^- \rightarrow \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
<0.0023	90	[103] ALBRECHT 93E	ARG	$e^+ e^- \rightarrow \Upsilon(4S)$

[102] ALEXANDER 93B reports $< 10.9 \times 10^{-4}$ for $B(D_s^+ \rightarrow \phi\pi^+) = 0.037$. We rescale to our best value $B(D_s^+ \rightarrow \phi\pi^+) = 0.036$.

[103] ALBRECHT 93E reports $< 3.1 \times 10^{-3}$ for $B(D_s^+ \rightarrow \phi\pi^+) = 0.027$. We rescale to our best value $B(D_s^+ \rightarrow \phi\pi^+) = 0.036$.

$\Gamma(D_s^+ \overline{K}^*(892)^0)/\Gamma_{total}$ — Γ_{56}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.0005	90	[104] ALEXANDER	93B	CLE2	$e^+e^- \rightarrow \Upsilon(4S)$

[104] ALEXANDER 93B reports $< 4.4 \times 10^{-4}$ for $B(D_s^+ \rightarrow \phi\pi^+) = 0.037$. We rescale to our best value $B(D_s^+ \rightarrow \phi\pi^+) = 0.036$.

$\Gamma(D_s^{*+} \overline{K}^*(892)^0)/\Gamma_{total}$ — Γ_{57}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.0004	90	[105] ALEXANDER	93B	CLE2	$e^+e^- \rightarrow \Upsilon(4S)$

[105] ALEXANDER 93B reports $< 4.3 \times 10^{-4}$ for $B(D_s^+ \rightarrow \phi\pi^+) = 0.037$. We rescale to our best value $B(D_s^+ \rightarrow \phi\pi^+) = 0.036$.

$\Gamma(D_s^- \pi^+ K^+)/\Gamma_{total}$ — Γ_{58}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.0008	90	[106] ALBRECHT	93E	ARG	$e^+e^- \rightarrow \Upsilon(4S)$

[106] ALBRECHT 93E reports $< 1.1 \times 10^{-3}$ for $B(D_s^+ \rightarrow \phi\pi^+) = 0.027$. We rescale to our best value $B(D_s^+ \rightarrow \phi\pi^+) = 0.036$.

$\Gamma(D_s^{*-} \pi^+ K^+)/\Gamma_{total}$ — Γ_{59}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.0012	90	[107] ALBRECHT	93E	ARG	$e^+e^- \rightarrow \Upsilon(4S)$

[107] ALBRECHT 93E reports $< 1.6 \times 10^{-3}$ for $B(D_s^+ \rightarrow \phi\pi^+) = 0.027$. We rescale to our best value $B(D_s^+ \rightarrow \phi\pi^+) = 0.036$.

$\Gamma(D_s^- \pi^+ K^*(892)^+)/\Gamma_{total}$ — Γ_{60}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.006	90	[108] ALBRECHT	93E	ARG	$e^+e^- \rightarrow \Upsilon(4S)$

[108] ALBRECHT 93E reports $< 8.6 \times 10^{-3}$ for $B(D_s^+ \rightarrow \phi\pi^+) = 0.027$. We rescale to our best value $B(D_s^+ \rightarrow \phi\pi^+) = 0.036$.

$\Gamma(D_s^{*-} \pi^+ K^*(892)^+)/\Gamma_{total}$ — Γ_{61}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.008	90	[109] ALBRECHT	93E	ARG	$e^+e^- \rightarrow \Upsilon(4S)$

[109] ALBRECHT 93E reports $< 1.1 \times 10^{-2}$ for $B(D_s^+ \rightarrow \phi\pi^+) = 0.027$. We rescale to our best value $B(D_s^+ \rightarrow \phi\pi^+) = 0.036$.

$\Gamma(J/\psi(1S) K^+)/\Gamma_{total}$ — Γ_{62}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
10.0± 1.0 OUR AVERAGE					
10.2± 0.8±0.7		[110] JESSOP	97	CLE2	$e^+e^- \rightarrow \Upsilon(4S)$
9.3± 3.1±0.2		[111] BORTOLETTO	92	CLEO	$e^+e^- \rightarrow \Upsilon(4S)$
8.1± 3.5±0.1	6	[112] ALBRECHT	90J	ARG	$e^+e^- \rightarrow \Upsilon(4S)$

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

11.0± 1.5±0.9	59	[113] ALAM	94	CLE2	Repl. by JESSOP 97
22 ±10 ±2		BUSKULIC	92G	ALEP	$e^+e^- \to Z$
7 ± 4	3	[114] ALBRECHT	87D	ARG	$e^+e^- \to \Upsilon(4S)$
10 ± 7 ±2	3	[115] BEBEK	87	CLEO	$e^+e^- \to \Upsilon(4S)$
9 ± 5	3	[116] ALAM	86	CLEO	$e^+e^- \to \Upsilon(4S)$

[110] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[111] BORTOLETTO 92 reports $8 \pm 2 \pm 2$ for $B(J/\psi(1S) \to e^+e^-) = 0.069 \pm 0.009$. We rescale to our best value $B(J/\psi(1S) \to e^+e^-) = (5.93 \pm 0.10) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value. Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[112] ALBRECHT 90J reports $7 \pm 3 \pm 1$ for $B(J/\psi(1S) \to e^+e^-) = 0.069 \pm 0.009$. We rescale to our best value $B(J/\psi(1S) \to e^+e^-) = (5.93 \pm 0.10) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value. Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[113] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[114] ALBRECHT 87D assume $B^+B^-/B^0\overline{B}^0$ ratio is 55/45. Superseded by ALBRECHT 90J.

[115] BEBEK 87 value has been updated in BERKELMAN 91 to use same assumptions as noted for BORTOLETTO 92.

[116] ALAM 86 assumes $B^{\pm}/B^0$ ratio is 60/40.

$\Gamma(J/\psi(1S)K^+\pi^+\pi^-)/\Gamma_{total}$ — Γ_{63}/Γ

VALUE	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
0.0014 ±0.0006 OUR AVERAGE						
0.00140±0.00082±0.00002			[117] BORTOLETTO	92	CLEO	$e^+e^- \to \Upsilon(4S)$
0.00140±0.00091±0.00002		6	[118] ALBRECHT	87D	ARG	$e^+e^- \to \Upsilon(4S)$

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

<0.0019	90		[119] ALBRECHT	90J	ARG	$e^+e^- \to \Upsilon(4S)$

[117] BORTOLETTO 92 reports $0.0012 \pm 0.0006 \pm 0.0004$ for $B(J/\psi(1S) \to e^+e^-) = 0.069 \pm 0.009$. We rescale to our best value $B(J/\psi(1S) \to e^+e^-) = (5.93 \pm 0.10) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value. Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[118] ALBRECHT 87D reports 0.0012 ± 0.0008 for $B(J/\psi(1S) \to e^+e^-) = 0.069 \pm 0.009$. We rescale to our best value $B(J/\psi(1S) \to e^+e^-) = (5.93 \pm 0.10) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value. They actually report 0.0011 ± 0.0007 assuming $B^+B^-/B^0\overline{B}^0$ ratio is 55/45. We rescale to 50/50. Analysis explicitly removes $B^+ \to \psi(2S)K^+$.

[119] ALBRECHT 90J reports < 0.0016 for $B(J/\psi(1S) \to e^+e^-) = 0.069$. We rescale to our best value $B(J/\psi(1S) \to e^+e^-) = 0.0593$. Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(J/\psi(1S)K^*(892)^+)/\Gamma_{total}$ — Γ_{64}/Γ

For polarization information see the Listings at the end of the "B^0 Branching Ratios" section.

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.00148±0.00027 OUR AVERAGE					
0.00141±0.00023±0.00024		[120] JESSOP	97	CLE2	$e^+e^- \to \Upsilon(4S)$
0.00158±0.00047±0.00027		[121] ABE	96H	CDF	$p\overline{p}$ at 1.8 TeV
0.00151±0.00109±0.00002		[122] BORTOLETTO	92	CLEO	$e^+e^- \to \Upsilon(4S)$
0.00186±0.00130±0.00003	2	[123] ALBRECHT	90J	ARG	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.00178±0.00051±0.00023	13	[124] ALAM	94	CLE2	Sup. by JESSOP 97

[120] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.
[121] ABE 96H assumes that $B(B^+ \to J/\psi K^+) = (1.02 \pm 0.14) \times 10^{-3}$.
[122] BORTOLETTO 92 reports $0.0013 \pm 0.0009 \pm 0.0003$ for $B(J/\psi(1S) \to e^+e^-) = 0.069 \pm 0.009$. We rescale to our best value $B(J/\psi(1S) \to e^+e^-) = (5.93 \pm 0.10) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value. Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.
[123] ALBRECHT 90J reports $0.0016 \pm 0.0011 \pm 0.0003$ for $B(J/\psi(1S) \to e^+e^-) = 0.069 \pm 0.009$. We rescale to our best value $B(J/\psi(1S) \to e^+e^-) = (5.93 \pm 0.10) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value. Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.
[124] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(J/\psi(1S)K^*(892)^+)/\Gamma(J/\psi(1S)K^+)$ — Γ_{64}/Γ_{62}

VALUE	DOCUMENT ID		TECN	COMMENT
1.52±0.24 OUR AVERAGE				
1.45±0.20±0.17	[125] JESSOP	97	CLE2	$e^+e^- \to \Upsilon(4S)$
1.92±0.60±0.17	ABE	96Q	CDF	$p\overline{p}$

[125] JESSOP 97 assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$. The measurement is actually measured as an average over kaon charged and neutral states.

$\Gamma(J/\psi(1S)\pi^+)/\Gamma(J/\psi(1S)K^+)$ — Γ_{65}/Γ_{62}

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.051±0.014 OUR AVERAGE					
$0.05\ ^{+0.019}_{-0.017} \pm 0.001$		ABE	96R	CDF	$p\overline{p}$ 1.8 TeV
0.052±0.024		BISHAI	96	CLE2	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.043±0.023	5	[126] ALEXANDER	95	CLE2	Sup. by BISHAI 96

[126] Assumes equal production of B^+B^- and $B^0\overline{B}^0$ on $\Upsilon(4S)$.

$\Gamma(J/\psi(1S)\rho^+)/\Gamma_{total}$ — Γ_{66}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<7.7 \times 10^{-4}$	90	BISHAI	96	CLE2	$e^+e^- \to \Upsilon(4S)$

$\Gamma(J/\psi(1S)a_1(1260)^+)/\Gamma_{total}$ — Γ_{67}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<1.2 \times 10^{-3}$	90	BISHAI	96	CLE2	$e^+e^- \to \Upsilon(4S)$

, $(\psi(2S)K^+)$/, total , 68/,

VALUE (units 10^{-4})	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
5.8± 1.0 OUR AVERAGE						
5.5± 1.0±0.6			[127] ABE	98O	CDF	$p\overline{p}$ 1.8 TeV
6.1± 2.3±0.9		7	[128] ALAM	94	CLE2	$e^+e^- \to \Upsilon(4S)$
18 ± 8 ±4		5	[128] ALBRECHT	90J	ARG	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
< 5	90		[128] BORTOLETTO	92	CLEO	$e^+e^- \to \Upsilon(4S)$
22 ±17		3	[129] ALBRECHT	87D	ARG	$e^+e^- \to \Upsilon(4S)$

[127] ABE 98O reports $[B(B^+ \to \psi(2S)K^+)]/[B(B^+ \to J/\psi(1S)K^+)] = 0.558 \pm 0.082 \pm 0.056$. We multiply by our best value $B(B^+ \to J/\psi(1S)K^+) = (9.9 \pm 1.0) \times 10^{-4}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[128] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[129] ALBRECHT 87D assume $B^+B^-/B^0\overline{B}^0$ ratio is 55/45. Superseded by ALBRECHT 90J.

, $(\psi(2S)K^*(892)^+)$/, total , 69/,

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.0030	90	[130] ALAM	94	CLE2	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.0035	90	[130] BORTOLETTO	92	CLEO	$e^+e^- \to \Upsilon(4S)$
<0.0049	90	[130] ALBRECHT	90J	ARG	$e^+e^- \to \Upsilon(4S)$

[130] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

, $(\psi(2S)K^+\pi^+\pi^-)$/, total , 70/,

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.0019±0.0011±0.0004	3	[131] ALBRECHT	90J	ARG	$e^+e^- \to \Upsilon(4S)$

[131] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

, $(\chi_{c1}(1P)K^+)$/, total , 71/,

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.0010 ±0.0004 OUR AVERAGE					
0.00097±0.00040±0.00009	6	[132] ALAM	94	CLE2	$e^+e^- \to \Upsilon(4S)$
0.0019 ±0.0013 ±0.0006		[133] ALBRECHT	92E	ARG	$e^+e^- \to \Upsilon(4S)$

[132] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[133] ALBRECHT 92E assumes no $\chi_{c2}(1P)$ production and $B(\Upsilon(4S) \to B^+B^-) = 50\%$.

, $(\chi_{c1}(1P)K^*(892)^+)$/, total , 72/,

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.0021	90	[134] ALAM	94	CLE2	$e^+e^- \to \Upsilon(4S)$

[134] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(K^0\pi^+)/\Gamma_{\rm total}$ — Γ_{73}/Γ

VALUE (units 10^{-5})	CL%	DOCUMENT ID		TECN	COMMENT
$\mathbf{2.3^{+1.1}_{-1.0}\pm0.36}$		GODANG	98	CLE2	$e^+e^-\to\Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<\ 4.8$	90	ASNER	96	CLE2	Repl. by GODANG 98
<19	90	ALBRECHT	91B	ARG	$e^+e^-\to\Upsilon(4S)$
<10	90	[135] AVERY	89B	CLEO	$e^+e^-\to\Upsilon(4S)$
<68	90	AVERY	87	CLEO	$e^+e^-\to\Upsilon(4S)$

[135] AVERY 89B reports $< 9\times10^{-5}$ assuming the $\Upsilon(4S)$ decays 43% to $B^0\overline{B}^0$. We rescale to 50%.

$\Gamma(K^+\pi^0)/\Gamma_{\rm total}$ — Γ_{74}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$\mathbf{<1.6\times10^{-5}}$	90	GODANG	98	CLE2	$e^+e^-\to\Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<1.4\times10^{-5}$	90	ASNER	96	CLE2	Repl. by GODANG 98

$\Gamma(\eta' K^+)/\Gamma_{\rm total}$ — Γ_{75}/Γ

VALUE	DOCUMENT ID		TECN	COMMENT
$\mathbf{(6.5^{+1.5}_{-1.4}\pm0.9)\times10^{-5}}$	BEHRENS	98	CLE2	$e^+e^-\to\Upsilon(4S)$

$\Gamma(\eta' K^*(892)^+)/\Gamma_{\rm total}$ — Γ_{76}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$\mathbf{<1.3\times10^{-4}}$	90	BEHRENS	98	CLE2	$e^+e^-\to\Upsilon(4S)$

$\Gamma(\eta K^+)/\Gamma_{\rm total}$ — Γ_{77}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$\mathbf{<1.4\times10^{-5}}$	90	BEHRENS	98	CLE2	$e^+e^-\to\Upsilon(4S)$

$\Gamma(\eta K^*(892)^+)/\Gamma_{\rm total}$ — Γ_{78}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$\mathbf{<3.0\times10^{-5}}$	90	BEHRENS	98	CLE2	$e^+e^-\to\Upsilon(4S)$

$\Gamma(\omega K^+)/\Gamma_{\rm total}$ — Γ_{79}/Γ

VALUE	DOCUMENT ID		TECN
$\mathbf{(1.5^{+0.7}_{-0.6}\pm0.2)\times10^{-5}}$	[136] BERGFELD	98	CLE2

[136] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\omega K^*(892)^+)/\Gamma_{\rm total}$ — Γ_{80}/Γ

VALUE	CL%	DOCUMENT ID		TECN
$\mathbf{<8.7\times10^{-5}}$	90	[137] BERGFELD	98	CLE2

[137] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(K^*(892)^0\pi^+)/\Gamma_{\text{total}}$ — Γ_{81}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<4.1 × 10^{-5}	90	ASNER	96	CLE2	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<3.9 × 10^{-4}	90	[138] ADAM	96D	DLPH	$e^+e^- \to Z$
<4.8 × 10^{-4}	90	[139] ABREU	95N	DLPH	Sup. by ADAM 96D
<1.7 × 10^{-4}	90	ALBRECHT	91B	ARG	$e^+e^- \to \Upsilon(4S)$
<1.5 × 10^{-4}	90	[140] AVERY	89B	CLEO	$e^+e^- \to \Upsilon(4S)$
<2.6 × 10^{-4}	90	AVERY	87	CLEO	$e^+e^- \to \Upsilon(4S)$

[138] ADAM 96D assumes $f_{B^0} = f_{B^-} = 0.39$ and $f_{B_s} = 0.12$.

[139] Assumes a B^0, B^- production fraction of 0.39 and a B_s production fraction of 0.12.

[140] AVERY 89B reports $< 1.3 \times 10^{-4}$ assuming the $\Upsilon(4S)$ decays 43% to $B^0\overline{B}^0$. We rescale to 50%.

$\Gamma(K^*(892)^+\pi^0)/\Gamma_{\text{total}}$ — Γ_{82}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<9.9 × 10^{-5}	90	ASNER	96	CLE2	$e^+e^- \to \Upsilon(4S)$

$\Gamma(K^+\pi^-\pi^+ \text{ nonresonant})/\Gamma_{\text{total}}$ — Γ_{83}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<2.8 × 10^{-5}	90	BERGFELD	96B	CLE2	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<3.3 × 10^{-4}	90	[141] ADAM	96D	DLPH	$e^+e^- \to Z$
<4.0 × 10^{-4}	90	[142] ABREU	95N	DLPH	Sup. by ADAM 96D
<3.3 × 10^{-4}	90	ALBRECHT	91E	ARG	$e^+e^- \to \Upsilon(4S)$
<1.9 × 10^{-4}	90	[143] AVERY	89B	CLEO	$e^+e^- \to \Upsilon(4S)$

[141] ADAM 96D assumes $f_{B^0} = f_{B^-} = 0.39$ and $f_{B_s} = 0.12$.

[142] Assumes a B^0, B^- production fraction of 0.39 and a B_s production fraction of 0.12.

[143] AVERY 89B reports $< 1.7 \times 10^{-4}$ assuming the $\Upsilon(4S)$ decays 43% to $B^0\overline{B}^0$. We rescale to 50%.

$\Gamma(K^-\pi^+\pi^+ \text{ nonresonant})/\Gamma_{\text{total}}$ — Γ_{84}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<5.6 × 10^{-5}	90	BERGFELD	96B	CLE2	$e^+e^- \to \Upsilon(4S)$

$\Gamma(K_1(1400)^0\pi^+)/\Gamma_{\text{total}}$ — Γ_{85}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<2.6 × 10^{-3}	90	ALBRECHT	91B	ARG	$e^+e^- \to \Upsilon(4S)$

$\Gamma(K_2^*(1430)^0\pi^+)/\Gamma_{\text{total}}$ — Γ_{86}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<6.8 × 10^{-4}	90	ALBRECHT	91B	ARG	$e^+e^- \to \Upsilon(4S)$

, $(K^+\rho^0)$/, total — , 87/,

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<1.9 × 10^{-5}	90	ASNER	96	CLE2	$e^+e^- \rightarrow \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<1.2 × 10^{-4}	90	[144] ADAM	96D	DLPH	$e^+e^- \rightarrow Z$
<1.9 × 10^{-4}	90	[145] ABREU	95N	DLPH	Sup. by ADAM 96D
<1.8 × 10^{-4}	90	ALBRECHT	91B	ARG	$e^+e^- \rightarrow \Upsilon(4S)$
<8 × 10^{-5}	90	[146] AVERY	89B	CLEO	$e^+e^- \rightarrow \Upsilon(4S)$
<2.6 × 10^{-4}	90	AVERY	87	CLEO	$e^+e^- \rightarrow \Upsilon(4S)$

[144] ADAM 96D assumes $f_{B^0} = f_{B^-} = 0.39$ and $f_{B_s} = 0.12$.

[145] Assumes a B^0, B^- production fraction of 0.39 and a B_s production fraction of 0.12.

[146] AVERY 89B reports $< 7 \times 10^{-5}$ assuming the $\Upsilon(4S)$ decays 43% to $B^0\overline{B}^0$. We rescale to 50%.

, $(K^0\rho^+)$/, total — , 88/,

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<4.8 × 10^{-5}	90	ASNER	96	CLE2	$e^+e^- \rightarrow \Upsilon(4S)$

, $(K^*(892)^+\pi^+\pi^-)$/, total — , 89/,

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<1.1 × 10^{-3}	90	ALBRECHT	91E	ARG	$e^+e^- \rightarrow \Upsilon(4S)$

, $(K^*(892)^+\rho^0)$/, total — , 90/,

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<9.0 × 10^{-4}	90	ALBRECHT	91B	ARG	$e^+e^- \rightarrow \Upsilon(4S)$

, $(K_1(1400)^+\rho^0)$/, total — , 91/,

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<7.8 × 10^{-4}	90	ALBRECHT	91B	ARG	$e^+e^- \rightarrow \Upsilon(4S)$

, $(K_2^*(1430)^+\rho^0)$/, total — , 92/,

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<1.5 × 10^{-3}	90	ALBRECHT	91B	ARG	$e^+e^- \rightarrow \Upsilon(4S)$

, $(K^+\overline{K}^0)$/, total — , 93/,

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<2.1 × 10^{-5}	90	GODANG	98	CLE2	$e^+e^- \rightarrow \Upsilon(4S)$

, $(K^+K^-\pi^+$ nonresonant$)$/, total — , 94/,

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<7.5 × 10^{-5}	90	BERGFELD	96B	CLE2	$e^+e^- \rightarrow \Upsilon(4S)$

, $(K^+ K^- K^+)$/, total , 95/,

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<2.0 \times 10^{-4}$	90	[147] ADAM	96D	DLPH	$e^+ e^- \to Z$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<3.1 \times 10^{-4}$	90	[148] ABREU	95N	DLPH	Sup. by ADAM 96D
$<3.5 \times 10^{-4}$	90	ALBRECHT	91E	ARG	$e^+ e^- \to \Upsilon(4S)$

[147] ADAM 96D assumes $f_{B^0} = f_{B^-} = 0.39$ and $f_{B_s} = 0.12$.

[148] Assumes a B^0, B^- production fraction of 0.39 and a B_s production fraction of 0.12.

, $(K^+ \phi)$/, total , 96/,

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<0.5 \times 10^{-5}$	90	[149] BERGFELD	98	CLE2	
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<2.8 \times 10^{-4}$	90	[150] ADAM	96D	DLPH	$e^+ e^- \to Z$
$<1.2 \times 10^{-5}$	90	ASNER	96	CLE2	$e^+ e^- \to \Upsilon(4S)$
$<4.4 \times 10^{-4}$	90	[151] ABREU	95N	DLPH	Sup. by ADAM 96D
$<1.8 \times 10^{-4}$	90	ALBRECHT	91B	ARG	$e^+ e^- \to \Upsilon(4S)$
$<9 \times 10^{-5}$	90	[152] AVERY	89B	CLEO	$e^+ e^- \to \Upsilon(4S)$
$<2.1 \times 10^{-4}$	90	AVERY	87	CLEO	$e^+ e^- \to \Upsilon(4S)$

[149] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[150] ADAM 96D assumes $f_{B^0} = f_{B^-} = 0.39$ and $f_{B_s} = 0.12$.

[151] Assumes a B^0, B^- production fraction of 0.39 and a B_s production fraction of 0.12.

[152] AVERY 89B reports $< 8 \times 10^{-5}$ assuming the $\Upsilon(4S)$ decays 43% to $B^0 \overline{B}^0$. We rescale to 50%.

, $(K^+ K^- K^+$ nonresonant$)$/, total , 97/,

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<3.8 \times 10^{-5}$	90	BERGFELD	96B	CLE2	$e^+ e^- \to \Upsilon(4S)$

, $(K^*(892)^+ K^+ K^-)$/, total , 98/,

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<1.6 \times 10^{-3}$	90	ALBRECHT	91E	ARG	$e^+ e^- \to \Upsilon(4S)$

, $(K^*(892)^+ \phi)$/, total , 99/,

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<4.1 \times 10^{-5}$	90	[153] BERGFELD	98	CLE2	
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<7.0 \times 10^{-5}$	90	ASNER	96	CLE2	$e^+ e^- \to \Upsilon(4S)$
$<1.3 \times 10^{-3}$	90	ALBRECHT	91B	ARG	$e^+ e^- \to \Upsilon(4S)$

[153] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

, $(K_1(1400)^+ \phi)$/, total , 100/,

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<1.1 \times 10^{-3}$	90	ALBRECHT	91B	ARG	$e^+ e^- \to \Upsilon(4S)$

$\Gamma(K_2^*(1430)^+\phi)/\Gamma_{\text{total}}$ $\qquad\Gamma_{101}/\Gamma$

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<3.4 × 10^{-3}	90	ALBRECHT	91B	ARG	$e^+e^- \to \Upsilon(4S)$

$\Gamma(K^+f_0(980))/\Gamma_{\text{total}}$ $\qquad\Gamma_{102}/\Gamma$

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<8 × 10^{-5}	90	[154] AVERY	89B	CLEO	$e^+e^- \to \Upsilon(4S)$

[154] AVERY 89B reports $< 7 \times 10^{-5}$ assuming the $\Upsilon(4S)$ decays 43% to $B^0\overline{B}^0$. We rescale to 50%.

$\Gamma(K^*(892)^+\gamma)/\Gamma_{\text{total}}$ $\qquad\Gamma_{103}/\Gamma$

VALUE	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
(5.7±3.1±1.1) × 10^{-5}		5	[155] AMMAR	93	CLE2	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
$<5.5 \times 10^{-4}$	90		[156] ALBRECHT	89G	ARG	$e^+e^- \to \Upsilon(4S)$
$<5.5 \times 10^{-4}$	90		[157] AVERY	89B	CLEO	$e^+e^- \to \Upsilon(4S)$
$<1.8 \times 10^{-3}$	90		AVERY	87	CLEO	$e^+e^- \to \Upsilon(4S)$

[155] AMMAR 93 observed 4.1 ± 2.3 events above background.
[156] Assumes the $\Upsilon(4S)$ decays 45% to $B^0\overline{B}^0$.
[157] Assumes the $\Upsilon(4S)$ decays 43% to $B^0\overline{B}^0$.

$\Gamma(K_1(1270)^+\gamma)/\Gamma_{\text{total}}$ $\qquad\Gamma_{104}/\Gamma$

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.0073	90	[158] ALBRECHT	89G	ARG	$e^+e^- \to \Upsilon(4S)$

[158] ALBRECHT 89G reports < 0.0066 assuming the $\Upsilon(4S)$ decays 45% to $B^0\overline{B}^0$. We rescale to 50%.

$\Gamma(K_1(1400)^+\gamma)/\Gamma_{\text{total}}$ $\qquad\Gamma_{105}/\Gamma$

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.0022	90	[159] ALBRECHT	89G	ARG	$e^+e^- \to \Upsilon(4S)$

[159] ALBRECHT 89G reports < 0.0020 assuming the $\Upsilon(4S)$ decays 45% to $B^0\overline{B}^0$. We rescale to 50%.

$\Gamma(K_2^*(1430)^+\gamma)/\Gamma_{\text{total}}$ $\qquad\Gamma_{106}/\Gamma$

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.0014	90	[160] ALBRECHT	89G	ARG	$e^+e^- \to \Upsilon(4S)$

[160] ALBRECHT 89G reports < 0.0013 assuming the $\Upsilon(4S)$ decays 45% to $B^0\overline{B}^0$. We rescale to 50%.

$\Gamma(K^*(1680)^+\gamma)/\Gamma_{\text{total}}$ $\qquad\Gamma_{107}/\Gamma$

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.0019	90	[161] ALBRECHT	89G	ARG	$e^+e^- \to \Upsilon(4S)$

[161] ALBRECHT 89G reports < 0.0017 assuming the $\Upsilon(4S)$ decays 45% to $B^0\overline{B}^0$. We rescale to 50%.

, $(K_3^*(1780)^+\gamma)$/, total — , 108/,

VALUE	CL%	DOCUMENT ID	TECN	COMMENT
<0.0055	90	[162] ALBRECHT 89G	ARG	$e^+e^- \rightarrow \Upsilon(4S)$

[162] ALBRECHT 89G reports < 0.005 assuming the $\Upsilon(4S)$ decays 45% to $B^0\overline{B}^0$. We rescale to 50%.

, $(K_4^*(2045)^+\gamma)$/, total — , 109/,

VALUE	CL%	DOCUMENT ID	TECN	COMMENT
<0.0099	90	[163] ALBRECHT 89G	ARG	$e^+e^- \rightarrow \Upsilon(4S)$

[163] ALBRECHT 89G reports < 0.0090 assuming the $\Upsilon(4S)$ decays 45% to $B^0\overline{B}^0$. We rescale to 50%.

, $(\pi^+\pi^0)$/, total — , 110/,

VALUE	CL%	DOCUMENT ID	TECN	COMMENT
$<2.0 \times 10^{-5}$	90	GODANG 98	CLE2	$e^+e^- \rightarrow \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$<1.7 \times 10^{-5}$	90	ASNER 96	CLE2	Repl. by GODANG 98
$<2.4 \times 10^{-4}$	90	[164] ALBRECHT 90B	ARG	$e^+e^- \rightarrow \Upsilon(4S)$
$<2.3 \times 10^{-3}$	90	[165] BEBEK 87	CLEO	$e^+e^- \rightarrow \Upsilon(4S)$

[164] ALBRECHT 90B limit assumes equal production of $B^0\overline{B}^0$ and B^+B^- at $\Upsilon(4S)$.
[165] BEBEK 87 assume the $\Upsilon(4S)$ decays 43% to $B^0\overline{B}^0$.

, $(\pi^+\pi^+\pi^-)$/, total — , 111/,

VALUE	CL%	DOCUMENT ID	TECN	COMMENT
$<1.3 \times 10^{-4}$	90	[166] ADAM 96D	DLPH	$e^+e^- \rightarrow Z$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$<2.2 \times 10^{-4}$	90	[167] ABREU 95N	DLPH	Sup. by ADAM 96D
$<4.5 \times 10^{-4}$	90	[168] ALBRECHT 90B	ARG	$e^+e^- \rightarrow \Upsilon(4S)$
$<1.9 \times 10^{-4}$	90	[169] BORTOLETTO 89	CLEO	$e^+e^- \rightarrow \Upsilon(4S)$

[166] ADAM 96D assumes $f_{B^0} = f_{B^-} = 0.39$ and $f_{B_s} = 0.12$.
[167] Assumes a B^0, B^- production fraction of 0.39 and a B_s production fraction of 0.12.
[168] ALBRECHT 90B limit assumes equal production of $B^0\overline{B}^0$ and B^+B^- at $\Upsilon(4S)$.
[169] BORTOLETTO 89 reports $< 1.7 \times 10^{-4}$ assuming the $\Upsilon(4S)$ decays 43% to $B^0\overline{B}^0$. We rescale to 50%.

, $(\rho^0\pi^+)$/, total — , 112/,

VALUE	CL%	EVTS	DOCUMENT ID	TECN	COMMENT
$<4.3 \times 10^{-5}$	90		ASNER 96	CLE2	$e^+e^- \rightarrow \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<1.6 \times 10^{-4}$	90		[170] ADAM 96D	DLPH	$e^+e^- \rightarrow Z$
$<2.6 \times 10^{-4}$	90		[171] ABREU 95N	DLPH	Sup. by ADAM 96D
$<1.5 \times 10^{-4}$	90		[172] ALBRECHT 90B	ARG	$e^+e^- \rightarrow \Upsilon(4S)$
$<1.7 \times 10^{-4}$	90		[173] BORTOLETTO 89	CLEO	$e^+e^- \rightarrow \Upsilon(4S)$
$<2.3 \times 10^{-4}$	90		[173] BEBEK 87	CLEO	$e^+e^- \rightarrow \Upsilon(4S)$
$<6 \times 10^{-4}$	90	0	GILES 84	CLEO	Repl. by BEBEK 87

[170] ADAM 96D assumes $f_{B^0} = f_{B^-} = 0.39$ and $f_{B_s} = 0.12$.
[171] Assumes a B^0, B^- production fraction of 0.39 and a B_s production fraction of 0.12.
[172] ALBRECHT 90B limit assumes equal production of $B^0\overline{B}^0$ and B^+B^- at $\Upsilon(4S)$.
[173] Papers assume the $\Upsilon(4S)$ decays 43% to $B^0\overline{B}^0$. We rescale to 50%.

$[, (K^*(892)^0 \pi^+) + , (\rho^0 \pi^+)]/,_{\text{total}}$ — $(,_{81} + ,_{112})/,$

VALUE	*DOCUMENT ID*	*TECN*	*COMMENT*
$(17\ ^{+12}_{-8} \pm 2) \times 10^{-5}$	[174] ADAM 96D	DLPH	$e^+ e^- \rightarrow Z$

[174] ADAM 96D assumes $f_{B^0} = f_{B^-} = 0.39$ and $f_{B_s} = 0.12$.

$, (\pi^+ f_0(980))/,_{\text{total}}$ — $,_{113}/,$

VALUE	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
$<1.4 \times 10^{-4}$	90	[175] BORTOLETTO 89	CLEO	$e^+ e^- \rightarrow \Upsilon(4S)$

[175] BORTOLETTO 89 reports $< 1.2 \times 10^{-4}$ assuming the $\Upsilon(4S)$ decays 43% to $B^0 \overline{B}{}^0$. We rescale to 50%.

$, (\pi^+ f_2(1270))/,_{\text{total}}$ — $,_{114}/,$

VALUE	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
$<2.4 \times 10^{-4}$	90	[176] BORTOLETTO 89	CLEO	$e^+ e^- \rightarrow \Upsilon(4S)$

[176] BORTOLETTO 89 reports $< 2.1 \times 10^{-4}$ assuming the $\Upsilon(4S)$ decays 43% to $B^0 \overline{B}{}^0$. We rescale to 50%.

$, (\pi^+ \pi^- \pi^+ \text{ nonresonant})/,_{\text{total}}$ — $,_{115}/,$

VALUE	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
$<4.1 \times 10^{-5}$	90	BERGFELD 96B	CLE2	$e^+ e^- \rightarrow \Upsilon(4S)$

$, (\pi^+ \pi^0 \pi^0)/,_{\text{total}}$ — $,_{116}/,$

VALUE	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
$<8.9 \times 10^{-4}$	90	[177] ALBRECHT 90B	ARG	$e^+ e^- \rightarrow \Upsilon(4S)$

[177] ALBRECHT 90B limit assumes equal production of $B^0 \overline{B}{}^0$ and $B^+ B^-$ at $\Upsilon(4S)$.

$, (\rho^+ \pi^0)/,_{\text{total}}$ — $,_{117}/,$

VALUE	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
$<7.7 \times 10^{-5}$	90	ASNER 96	CLE2	$e^+ e^- \rightarrow \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$<5.5 \times 10^{-4}$	90	[178] ALBRECHT 90B	ARG	$e^+ e^- \rightarrow \Upsilon(4S)$

[178] ALBRECHT 90B limit assumes equal production of $B^0 \overline{B}{}^0$ and $B^+ B^-$ at $\Upsilon(4S)$.

$, (\pi^+ \pi^- \pi^+ \pi^0)/,_{\text{total}}$ — $,_{118}/,$

VALUE	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
$<4.0 \times 10^{-3}$	90	[179] ALBRECHT 90B	ARG	$e^+ e^- \rightarrow \Upsilon(4S)$

[179] ALBRECHT 90B limit assumes equal production of $B^0 \overline{B}{}^0$ and $B^+ B^-$ at $\Upsilon(4S)$.

$, (\rho^+ \rho^0)/,_{\text{total}}$ — $,_{119}/,$

VALUE	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
$<1.0 \times 10^{-3}$	90	[180] ALBRECHT 90B	ARG	$e^+ e^- \rightarrow \Upsilon(4S)$

[180] ALBRECHT 90B limit assumes equal production of $B^0 \overline{B}{}^0$ and $B^+ B^-$ at $\Upsilon(4S)$.

$, (a_1(1260)^+ \pi^0)/,_{\text{total}}$ — $,_{120}/,$

VALUE	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
$<1.7 \times 10^{-3}$	90	[181] ALBRECHT 90B	ARG	$e^+ e^- \rightarrow \Upsilon(4S)$

[181] ALBRECHT 90B limit assumes equal production of $B^0 \overline{B}{}^0$ and $B^+ B^-$ at $\Upsilon(4S)$.

$\Gamma(a_1(1260)^0\pi^+)/\Gamma_{\text{total}}$ — Γ_{121}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<9.0\times10^{-4}$	90	[182] ALBRECHT	90B	ARG	$e^+e^-\to\Upsilon(4S)$

[182] ALBRECHT 90B limit assumes equal production of $B^0\overline{B}^0$ and B^+B^- at $\Upsilon(4S)$.

$\Gamma(\omega\pi^+)/\Gamma_{\text{total}}$ — Γ_{122}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<2.3\times10^{-5}$	90	[183] BERGFELD	98	CLE2	
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<4.0\times10^{-4}$	90	[184] ALBRECHT	90B	ARG	$e^+e^-\to\Upsilon(4S)$

[183] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.
[184] ALBRECHT 90B limit assumes equal production of $B^0\overline{B}^0$ and B^+B^- at $\Upsilon(4S)$.

$\Gamma(\omega\rho^+)/\Gamma_{\text{total}}$ — Γ_{123}/Γ

VALUE	CL%	DOCUMENT ID		TECN
$<6.1\times10^{-5}$	90	[185] BERGFELD	98	CLE2

[185] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\eta\pi^+)/\Gamma_{\text{total}}$ — Γ_{124}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<1.5\times10^{-5}$	90	BEHRENS	98	CLE2	$e^+e^-\to\Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<7.0\times10^{-4}$	90	[186] ALBRECHT	90B	ARG	$e^+e^-\to\Upsilon(4S)$

[186] ALBRECHT 90B limit assumes equal production of $B^0\overline{B}^0$ and B^+B^- at $\Upsilon(4S)$.

$\Gamma(\eta'\pi^+)/\Gamma_{\text{total}}$ — Γ_{125}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<3.1\times10^{-5}$	90	BEHRENS	98	CLE2	$e^+e^-\to\Upsilon(4S)$

$\Gamma(\eta'\rho^+)/\Gamma_{\text{total}}$ — Γ_{126}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<4.7\times10^{-5}$	90	BEHRENS	98	CLE2	$e^+e^-\to\Upsilon(4S)$

$\Gamma(\eta\rho^+)/\Gamma_{\text{total}}$ — Γ_{127}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<3.2\times10^{-5}$	90	BEHRENS	98	CLE2	$e^+e^-\to\Upsilon(4S)$

$\Gamma(\phi\pi^+)/\Gamma_{\text{total}}$ — Γ_{128}/Γ

VALUE	CL%	DOCUMENT ID		TECN
$<0.5\times10^{-5}$	90	[187] BERGFELD	98	CLE2

[187] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\phi\rho^+)/\Gamma_{\text{total}}$ — Γ_{129}/Γ

VALUE	DOCUMENT ID		TECN
$<1.6\times10^{-5}$	[188] BERGFELD	98	CLE2

[188] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\pi^+\pi^+\pi^+\pi^-\pi^-)/\Gamma_{total}$ Γ_{130}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<8.6 \times 10^{-4}$	90	[189] ALBRECHT	90B	ARG	$e^+e^- \to \Upsilon(4S)$

[189] ALBRECHT 90B limit assumes equal production of $B^0\overline{B}^0$ and B^+B^- at $\Upsilon(4S)$.

$\Gamma(\rho^0 a_1(1260)^+)/\Gamma_{total}$ Γ_{131}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<6.2 \times 10^{-4}$	90	[190] BORTOLETTO	89	CLEO	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<6.0 \times 10^{-4}$	90	[191] ALBRECHT	90B	ARG	$e^+e^- \to \Upsilon(4S)$
$<3.2 \times 10^{-3}$	90	[190] BEBEK	87	CLEO	$e^+e^- \to \Upsilon(4S)$

[190] BORTOLETTO 89 reports $< 5.4 \times 10^{-4}$ assuming the $\Upsilon(4S)$ decays 43% to $B^0\overline{B}^0$. We rescale to 50%.
[191] ALBRECHT 90B limit assumes equal production of $B^0\overline{B}^0$ and B^+B^- at $\Upsilon(4S)$.

$\Gamma(\rho^0 a_2(1320)^+)/\Gamma_{total}$ Γ_{132}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<7.2 \times 10^{-4}$	90	[192] BORTOLETTO	89	CLEO	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<2.6 \times 10^{-3}$	90	[193] BEBEK	87	CLEO	$e^+e^- \to \Upsilon(4S)$

[192] BORTOLETTO 89 reports $< 6.3 \times 10^{-4}$ assuming the $\Upsilon(4S)$ decays 43% to $B^0\overline{B}^0$. We rescale to 50%.
[193] BEBEK 87reports $< 2.3 \times 10^{-3}$ assuming the $\Upsilon(4S)$ decays 43% to $B^0\overline{B}^0$. We rescale to 50%.

$\Gamma(\pi^+\pi^+\pi^+\pi^-\pi^-\pi^0)/\Gamma_{total}$ Γ_{133}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<6.3 \times 10^{-3}$	90	[194] ALBRECHT	90B	ARG	$e^+e^- \to \Upsilon(4S)$

[194] ALBRECHT 90B limit assumes equal production of $B^0\overline{B}^0$ and B^+B^- at $\Upsilon(4S)$.

$\Gamma(a_1(1260)^+ a_1(1260)^0)/\Gamma_{total}$ Γ_{134}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<1.3 \times 10^{-2}$	90	[195] ALBRECHT	90B	ARG	$e^+e^- \to \Upsilon(4S)$

[195] ALBRECHT 90B limit assumes equal production of $B^0\overline{B}^0$ and B^+B^- at $\Upsilon(4S)$.

$\Gamma(h^+\pi^0)/\Gamma_{total}$ Γ_{135}/Γ

$h^+ = K^+$ or π^+

VALUE	DOCUMENT ID		TECN	COMMENT
$(1.6^{+0.6}_{-0.5} \pm 0.36) \times 10^{-5}$	GODANG	98	CLE2	$e^+e^- \to \Upsilon(4S)$

$\Gamma(\omega h^+)/\Gamma_{total}$ Γ_{136}/Γ

$h^+ = K^+$ or π^+

VALUE	DOCUMENT ID		TECN
$(2.5^{+0.8}_{-0.7} \pm 0.3) \times 10^{-5}$	[196] BERGFELD	98	CLE2

[196] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

, $(p\overline{p}\pi^+)$/, total — , 137/,

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$< 1.6 \times 10^{-4}$	90	[197] BEBEK	89	CLEO	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$< 5.0 \times 10^{-4}$	90	[198] ABREU	95N	DLPH	Sup. by ADAM 96D
$(5.7\pm1.5\pm2.1) \times 10^{-4}$		[199] ALBRECHT	88F	ARG	$e^+e^- \to \Upsilon(4S)$

[197] BEBEK 89 reports $< 1.4 \times 10^{-4}$ assuming the $\Upsilon(4S)$ decays 43% to $B^0\overline{B}^0$. We rescale to 50%.

[198] Assumes a B^0, B^- production fraction of 0.39 and a B_s production fraction of 0.12.

[199] ALBRECHT 88F reports $(5.2 \pm 1.4 \pm 1.9) \times 10^{-4}$ assuming the $\Upsilon(4S)$ decays 45% to $B^0\overline{B}^0$. We rescale to 50%.

, $(p\overline{p}\pi^+$ nonresonant$)$/, total — , 138/,

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<5.3 \times 10^{-5}$	90	BERGFELD	96B	CLE2	$e^+e^- \to \Upsilon(4S)$

, $(p\overline{p}\pi^+\pi^+\pi^-)$/, total — , 139/,

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<5.2 \times 10^{-4}$	90	[200] ALBRECHT	88F	ARG	$e^+e^- \to \Upsilon(4S)$

[200] ALBRECHT 88F reports $< 4.7 \times 10^{-4}$ assuming the $\Upsilon(4S)$ decays 45% to $B^0\overline{B}^0$. We rescale to 50%.

, $(p\overline{p}K^+$ nonresonant$)$/, total — , 140/,

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<8.9 \times 10^{-5}$	90	BERGFELD	96B	CLE2	$e^+e^- \to \Upsilon(4S)$

, $(p\overline{\Lambda})$/, total — , 141/,

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<6 \times 10^{-5}$	90	[201] AVERY	89B	CLEO	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<9.3 \times 10^{-5}$	90	[202] ALBRECHT	88F	ARG	$e^+e^- \to \Upsilon(4S)$

[201] AVERY 89B reports $< 5 \times 10^{-5}$ assuming the $\Upsilon(4S)$ decays 43% to $B^0\overline{B}^0$. We rescale to 50%.

[202] ALBRECHT 88F reports $< 8.5 \times 10^{-5}$ assuming the $\Upsilon(4S)$ decays 45% to $B^0\overline{B}^0$. We rescale to 50%.

, $(p\overline{\Lambda}\pi^+\pi^-)$/, total — , 142/,

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<2.0 \times 10^{-4}$	90	[203] ALBRECHT	88F	ARG	$e^+e^- \to \Upsilon(4S)$

[203] ALBRECHT 88F reports $< 1.8 \times 10^{-4}$ assuming the $\Upsilon(4S)$ decays 45% to $B^0\overline{B}^0$. We rescale to 50%.

, $(\overline{\Delta}^0 p)$/, total — , 143/,

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<3.8 \times 10^{-4}$	90	[204] BORTOLETTO	89	CLEO	$e^+e^- \to \Upsilon(4S)$

[204] BORTOLETTO 89 reports $< 3.3 \times 10^{-4}$ assuming the $\Upsilon(4S)$ decays 43% to $B^0\overline{B}^0$. We rescale to 50%.

, $(\Delta^{++}\overline{p})$/, total — , 144/,

VALUE	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$<1.5 \times 10^{-4}$	90	[205] BORTOLETTO	89	CLEO	$e^+e^- \rightarrow \Upsilon(4S)$

[205] BORTOLETTO 89 reports $< 1.3 \times 10^{-4}$ assuming the $\Upsilon(4S)$ decays 43% to $B^0\overline{B}^0$. We rescale to 50%.

, $(\Lambda_c^- p\pi^+)$/, total — , 145/,

VALUE (units 10^{-4})	*DOCUMENT ID*		*TECN*	*COMMENT*
$6.2^{+2.3}_{-2.0} \pm 1.6$	[206] FU	97	CLE2	$e^+e^- \rightarrow \Upsilon(4S)$

[206] FU 97 uses PDG 96 values of Λ_c branching fraction.

, $(\Lambda_c^- p\pi^+\pi^0)$/, total — , 146/,

VALUE	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$<3.12 \times 10^{-3}$	90	[207] FU	97	CLE2	$e^+e^- \rightarrow \Upsilon(4S)$

[207] FU 97 uses PDG 96 values of Λ_c branching ratio.

, $(\Lambda_c^- p\pi^+\pi^+\pi^-)$/, total — , 147/,

VALUE	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$<1.46 \times 10^{-3}$	90	[208] FU	97	CLE2	$e^+e^- \rightarrow \Upsilon(4S)$

[208] FU 97 uses PDG 96 values of Λ_c branching ratio.

, $(\Lambda_c^- p\pi^+\pi^+\pi^-\pi^0)$/, total — , 148/,

VALUE	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$<1.34 \times 10^{-2}$	90	[209] FU	97	CLE2	$e^+e^- \rightarrow \Upsilon(4S)$

[209] FU 97 uses PDG 96 values of Λ_c branching ratio.

, $(\pi^+e^+e^-)$/, total — , 149/,

Test for $\Delta B = 1$ weak neutral current. Allowed by higher-order electroweak interactions.

VALUE	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
<0.0039	90	[210] WEIR	90B	MRK2	e^+e^- 29 GeV

[210] WEIR 90B assumes B^+ production cross section from LUND.

, $(\pi^+\mu^+\mu^-)$/, total — , 150/,

Test for $\Delta B = 1$ weak neutral current. Allowed by higher-order electroweak interactions.

VALUE	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
<0.0091	90	[211] WEIR	90B	MRK2	e^+e^- 29 GeV

[211] WEIR 90B assumes B^+ production cross section from LUND.

, $(K^+e^+e^-)$/, total — , 151/,

Test for $\Delta B = 1$ weak neutral current. Allowed by higher-order electroweak interactions.

VALUE	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$<6 \times 10^{-5}$	90	[212] AVERY	89B	CLEO	$e^+e^- \rightarrow \Upsilon(4S)$

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

$<9.9 \times 10^{-5}$	90	[213] ALBRECHT	91E	ARG	$e^+e^- \rightarrow \Upsilon(4S)$
$<6.8 \times 10^{-3}$	90	[214] WEIR	90B	MRK2	e^+e^- 29 GeV
$<2.5 \times 10^{-4}$	90	[215] AVERY	87	CLEO	$e^+e^- \rightarrow \Upsilon(4S)$

[212] AVERY 89B reports $< 5 \times 10^{-5}$ assuming the $\Upsilon(4S)$ decays 43% to $B^0\overline{B}^0$. We rescale to 50%.
[213] ALBRECHT 91E reports $< 9.0 \times 10^{-5}$ assuming the $\Upsilon(4S)$ decays 45% to $B^0\overline{B}^0$. We rescale to 50%.
[214] WEIR 90B assumes B^+ production cross section from LUND.
[215] AVERY 87 reports $< 2.1 \times 10^{-4}$ assuming the $\Upsilon(4S)$ decays 40% to $B^0\overline{B}^0$. We rescale to 50%.

$\Gamma(K^+\mu^+\mu^-)/\Gamma_{\text{total}}$ Γ_{152}/Γ

Test for $\Delta B = 1$ weak neutral current. Allowed by higher-order electroweak interactions.

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<1.0 \times 10^{-5}$	90	[216] ABE	96L	CDF	$p\overline{p}$ at 1.8 TeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<2.4 \times 10^{-4}$	90	[217] ALBRECHT	91E	ARG	$e^+e^- \rightarrow \Upsilon(4S)$
$<6.4 \times 10^{-3}$	90	[218] WEIR	90B	MRK2	e^+e^- 29 GeV
$<1.7 \times 10^{-4}$	90	[219] AVERY	89B	CLEO	$e^+e^- \rightarrow \Upsilon(4S)$
$<3.8 \times 10^{-4}$	90	[220] AVERY	87	CLEO	$e^+e^- \rightarrow \Upsilon(4S)$

[216] ABE 96L measured relative to $B^0 \rightarrow J/\psi(1S)K^+$ using PDG 94 branching ratios.
[217] ALBRECHT 91E reports $< 2.2 \times 10^{-4}$ assuming the $\Upsilon(4S)$ decays 45% to $B^0\overline{B}^0$. We rescale to 50%.
[218] WEIR 90B assumes B^+ production cross section from LUND.
[219] AVERY 89B reports $< 1.5 \times 10^{-4}$ assuming the $\Upsilon(4S)$ decays 43% to $B^0\overline{B}^0$. We rescale to 50%.
[220] AVERY 87 reports $< 3.2 \times 10^{-4}$ assuming the $\Upsilon(4S)$ decays 40% to $B^0\overline{B}^0$. We rescale to 50%.

$\Gamma(K^*(892)^+e^+e^-)/\Gamma_{\text{total}}$ Γ_{153}/Γ

Test for $\Delta B = 1$ weak neutral current. Allowed by higher-order electroweak interactions.

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<6.9 \times 10^{-4}$	90	[221] ALBRECHT	91E	ARG	$e^+e^- \rightarrow \Upsilon(4S)$

[221] ALBRECHT 91E reports $< 6.3 \times 10^{-4}$ assuming the $\Upsilon(4S)$ decays 45% to $B^0\overline{B}^0$. We rescale to 50%.

$\Gamma(K^*(892)^+\mu^+\mu^-)/\Gamma_{\text{total}}$ Γ_{154}/Γ

Test for $\Delta B = 1$ weak neutral current. Allowed by higher-order electroweak interactions.

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<1.2 \times 10^{-3}$	90	[222] ALBRECHT	91E	ARG	$e^+e^- \rightarrow \Upsilon(4S)$

[222] ALBRECHT 91E reports $< 1.1 \times 10^{-3}$ assuming the $\Upsilon(4S)$ decays 45% to $B^0\overline{B}^0$. We rescale to 50%.

$\Gamma(\pi^+e^+\mu^-)/\Gamma_{\text{total}}$ Γ_{155}/Γ

Test of lepton family number conservation.

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.0064	90	[223] WEIR	90B	MRK2	e^+e^- 29 GeV

[223] WEIR 90B assumes B^+ production cross section from LUND.

$\Gamma(\pi^+ e^- \mu^+)/\Gamma_{\rm total}$ — Γ_{156}/Γ

Test of lepton family number conservation.

VALUE	CL%	DOCUMENT ID	TECN	COMMENT
<0.0064	90	[224] WEIR 90B	MRK2	$e^+ e^-$ 29 GeV

[224] WEIR 90B assumes B^+ production cross section from LUND.

$\Gamma(K^+ e^+ \mu^-)/\Gamma_{\rm total}$ — Γ_{157}/Γ

Test of lepton family number conservation.

VALUE	CL%	DOCUMENT ID	TECN	COMMENT
<0.0064	90	[225] WEIR 90B	MRK2	$e^+ e^-$ 29 GeV

[225] WEIR 90B assumes B^+ production cross section from LUND.

$\Gamma(K^+ e^- \mu^+)/\Gamma_{\rm total}$ — Γ_{158}/Γ

Test of lepton family number conservation.

VALUE	CL%	DOCUMENT ID	TECN	COMMENT
<0.0064	90	[226] WEIR 90B	MRK2	$e^+ e^-$ 29 GeV

[226] WEIR 90B assumes B^+ production cross section from LUND.

$\Gamma(\pi^- e^+ e^+)/\Gamma_{\rm total}$ — Γ_{159}/Γ

Test of total lepton number conservation.

VALUE	CL%	DOCUMENT ID	TECN	COMMENT
<0.0039	90	[227] WEIR 90B	MRK2	$e^+ e^-$ 29 GeV

[227] WEIR 90B assumes B^+ production cross section from LUND.

$\Gamma(\pi^- \mu^+ \mu^+)/\Gamma_{\rm total}$ — Γ_{160}/Γ

Test of total lepton number conservation.

VALUE	CL%	DOCUMENT ID	TECN	COMMENT
<0.0091	90	[228] WEIR 90B	MRK2	$e^+ e^-$ 29 GeV

[228] WEIR 90B assumes B^+ production cross section from LUND.

$\Gamma(\pi^- e^+ \mu^+)/\Gamma_{\rm total}$ — Γ_{161}/Γ

Test of total lepton number conservation.

VALUE	CL%	DOCUMENT ID	TECN	COMMENT
<0.0064	90	[229] WEIR 90B	MRK2	$e^+ e^-$ 29 GeV

[229] WEIR 90B assumes B^+ production cross section from LUND.

$\Gamma(K^- e^+ e^+)/\Gamma_{\rm total}$ — Γ_{162}/Γ

Test of total lepton number conservation.

VALUE	CL%	DOCUMENT ID	TECN	COMMENT
<0.0039	90	[230] WEIR 90B	MRK2	$e^+ e^-$ 29 GeV

[230] WEIR 90B assumes B^+ production cross section from LUND.

$\Gamma(K^- \mu^+ \mu^+)/\Gamma_{\rm total}$ — Γ_{163}/Γ

Test of total lepton number conservation.

VALUE	CL%	DOCUMENT ID	TECN	COMMENT
<0.0091	90	[231] WEIR 90B	MRK2	$e^+ e^-$ 29 GeV

[231] WEIR 90B assumes B^+ production cross section from LUND.

$\Gamma(K^- e^+ \mu^+)/\Gamma_{\text{total}}$ — Γ_{164}/Γ

Test of total lepton number conservation.

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.0064	90	[232] WEIR	90B	MRK2	$e^+ e^-$ 29 GeV

[232] WEIR 90B assumes B^+ production cross section from LUND.

$B^\pm$ REFERENCES

ABBIENDI	99J	hep-ex/9901017	G. Abbiendi+	(OPAL Collab.)
CERN-EP/98-195, EPJ C (to be publ.)				
ABE	98B	PR D57 5382	F. Abe+	(CDF Collab.)
ABE	98O	PR D58 072001	F. Abe+	(CDF Collab.)
ABE	98Q	PR D58 092002	F. Abe+	(CDF Collab.)
ACCIARRI	98S	PL B438 417	M. Acciarri+	(L3 Collab.)
ANASTASSOV	98	PRL 80 4127	A. Anastassov+	(CLEO Collab.)
ATHANAS	98	PRL 80 5493	M. Athanas+	(CLEO Collab.)
BARATE	98Q	EPJ C4 387	R. Barate+	(ALEPH Collab.)
BEHRENS	98	PRL 80 3710	B.H. Behrens+	(CLEO Collab.)
BERGFELD	98	PRL 81 272	T. Bergfeld+	(CLEO Collab.)
BRANDENB...	98	PRL 80 2762	G. Brandenbrug+	(CLEO Collab.)
GODANG	98	PRL 80 3456	R. Godang+	(CLEO Collab.)
ABE	97J	PRL 79 590	+Abe, Akagi, Allen+	(SLD Collab.)
ACCIARRI	97F	PL B396 327	M. Acciarri+	(L3 Collab.)
ARTUSO	97	PL B399 321	M. Artuso+	(CLEO Collab.)
ATHANAS	97	PRL 79 2208	M. Athanas+	(CLEO Collab.)
BROWDER	97	PR D56 11	T. Browder+	(CLEO Collab.)
FU	97	PRL 79 3125	X. Fu+	(CLEO Collab.)
JESSOP	97	PRL 79 4533	C.P. Jessop+	(CLEO Collab.)
ABE	96B	PR D53 3496	+Albrow, Amendolia, Amidei+	(CDF Collab.)
ABE	96C	PRL 76 4462	+Akimoto, Akopian, Albrow+	(CDF Collab.)
ABE	96H	PRL 76 2015	+Albrow, Amendolia, Amidei+	(CDF Collab.)
ABE	96L	PRL 76 4675	+Akimoto, Akopian, Albrow+	(CDF Collab.)
ABE	96Q	PR D54 6596	+Akimoto, Akopian, Albrow+	(CDF Collab.)
ABE	96R	PRL 77 5176	+Akimoto, Akopian, Albrow+	(CDF Collab.)
ADAM	96D	ZPHY C72 207	W. Adam+	(DELPHI Collab.)
ASNER	96	PR D53 1039	+Athanas, Bliss, Brower+	(CLEO Collab.)
BARISH	96B	PRL 76 1570	+Chadha, Chan, Eigen+	(CLEO Collab.)
BERGFELD	96B	PRL 77 4503	+Eisenstein, Ernst, Gladding+	(CLEO Collab.)
BISHAI	96	PL B369 186	+Fast, Gerndt, Hinson+	(CLEO Collab.)
BUSKULIC	96J	ZPHY C71 31	+De Bonis, Decamp, Ghez+	(ALEPH Collab.)
GIBAUT	96	PR D53 4734	+Kinoshita, Pomianowski, Barish+	(CLEO Collab.)
PDG	96	PR D54 1		
ABREU	95N	PL B357 255	+Adam, Adye, Agasi+	(DELPHI Collab.)
ABREU	95Q	ZPHY C68 13	+Adam, Adye, Agasi+	(DELPHI Collab.)
ADAM	95	ZPHY C68 363	+Adye, Agasi, Ajinenko+	(DELPHI Collab.)
AKERS	95T	ZPHY C67 379	+Alexander, Allison, Ametewee+	(OPAL Collab.)
ALBRECHT	95D	PL B353 554	+Hamacher, Hofmann, Kirchoff+	(ARGUS Collab.)
ALEXANDER	95	PL B341 435	+Bebek, Berkelman, Bloom+	(CLEO Collab.)
Also	95C	PL B347 469 (erratum)	Alexander, Bebek, Berkelman, Bloom+	(CLEO Collab.)
ARTUSO	95	PRL 75 785	+Gao, Goldberg, He+	(CLEO Collab.)
BARISH	95	PR D51 1014	+Chadha, Chan, Cowen+	(CLEO Collab.)
BUSKULIC	95	PL B343 444	+Casper, De Bonis, Decamp, Ghez, Goy+	(ALEPH Collab.)
ABE	94D	PRL 72 3456	+Albrow, Amidei, Anway-Wiese, Apollinari	(CDF Collab.)
ALAM	94	PR D50 43	+Kim, Nemati, O'Neill, Severini+	(CLEO Collab.)
ALBRECHT	94D	PL B335 526	+Hamacher, Hofmann, Kirchhoff, Mankel+	(ARGUS Collab.)
ATHANAS	94	PRL 73 3503	+Brower, Masek, Paar, Gronberg+	(CLEO Collab.)
Also	95	PRL 74 3090 (erratum)	Athanas, Brower, Masek, Paar+	(CLEO Collab.)
PDG	94	PR D50 1173	Montanet+	(CERN, LBL, BOST, IFIC+)
STONE	94	HEPSY 93-11		
ABREU	93D	ZPHY C57 181	+Adam, Adye, Agasi, Alekseev+	(DELPHI Collab.)
ABREU	93G	PL B312 253	+Adam, Adye, Agasi, Ajinenko+	(DELPHI Collab.)
ACTON	93C	PL B307 247	+Alexander, Allison, Allport, Anderson+	(OPAL Collab.)
ALBRECHT	93E	ZPHY C60 11	+Ehrlichmann, Hamacher, Hofmann+	(ARGUS Collab.)

ALEXANDER	93B	PL B319 365	+Bebek, Berkelman, Bloom, Browder+	(CLEO Collab.)
AMMAR	93	PRL 71 674	+Ball, Baringer, Coppage, Copty+	(CLEO Collab.)
BEAN	93B	PRL 70 2681	+Gronberg, Kutschke, Menary, Morrison+	(CLEO Collab.)
BUSKULIC	93D	PL B307 194	+Decamp, Goy, Lees, Minard+	(ALEPH Collab.)
Also	94H	PL B325 537 (errata)		
SANGHERA	93	PR D47 791	+Skwarnicki, Stroynowski, Artuso, Goldberg+	(CLEO Collab.)
ALBRECHT	92C	PL B275 195	+Ehrlichmann, Hamacher, Krueger, Nau+	(ARGUS Collab.)
ALBRECHT	92E	PL B277 209	+Ehrlichmann, Hamacher, Krueger, Nau+	(ARGUS Collab.)
ALBRECHT	92G	ZPHY C54 1	+Ehrlichmann, Hamacher, Krueger, Nau+	(ARGUS Collab.)
BORTOLETTO	92	PR D45 21	+Brown, Dominick, McIlwain+	(CLEO Collab.)
BUSKULIC	92G	PL B295 396	+Decamp, Goy, Lees, Minard+	(ALEPH Collab.)
ALBRECHT	91B	PL B254 288	+Glaeser, Harder, Krueger, Nippe+	(ARGUS Collab.)
ALBRECHT	91C	PL B255 297	+Ehrlichmann, Glaeser, Harder, Krueger+	(ARGUS Collab.)
ALBRECHT	91E	PL B262 148	+Glaeser, Harder, Krueger, Nippe+	(ARGUS Collab.)
BERKELMAN	91	ARNPS 41 1	+Stone	(CORN, SYRA)
"Decays of B Mesons"				
FULTON	91	PR D43 651	+Jensen, Johnson, Kagan, Kass+	(CLEO Collab.)
ALBRECHT	90B	PL B241 278	+Glaeser, Harder, Krueger, Nilsson+	(ARGUS Collab.)
ALBRECHT	90J	ZPHY C48 543	+Ehrlichmann, Harder, Krueger+	(ARGUS Collab.)
ANTREASYAN	90B	ZPHY C48 553	+Bartels, Bieler, Bienlein, Bizzeti+	(Crystal Ball Collab.)
BORTOLETTO	90	PRL 64 2117	+Goldberg, Horwitz, Jain, Mestayer+	(CLEO Collab.)
Also	92	PR D45 21	Bortoletto, Brown, Dominick, McIlwain+	(CLEO Collab.)
WEIR	90B	PR D41 1384	+Klein, Abrams, Adolphsen, Akerlof+	(Mark II Collab.)
ALBRECHT	89G	PL B229 304	+Glaeser, Harder, Krueger+	(ARGUS Collab.)
AVERY	89B	PL B223 470	+Besson, Garren, Yelton+	(CLEO Collab.)
BEBEK	89	PRL 62 8	+Berkelman, Blucher+	(CLEO Collab.)
BORTOLETTO	89	PRL 62 2436	+Goldberg, Horwitz, Mestayer+	(CLEO Collab.)
ALBRECHT	88F	PL B209 119	+Boeckmann, Glaeser+	(ARGUS Collab.)
ALBRECHT	88K	PL B215 424	+Boeckmann, Glaeser+	(ARGUS Collab.)
ALBRECHT	87C	PL B185 218	+Binder, Boeckmann, Glaser+	(ARGUS Collab.)
ALBRECHT	87D	PL B199 451	+Andam, Binder, Boeckmann+	(ARGUS Collab.)
AVERY	87	PL B183 429	+Besson, Bowcock, Giles+	(CLEO Collab.)
BEBEK	87	PR D36 1289	+Berkelman, Blucher, Cassel+	(CLEO Collab.)
ALAM	86	PR D34 3279	+Katayama, Kim, Sun+	(CLEO Collab.)
PDG	86	PL 170B	Aguilar-Benitez, Porter+	(CERN, CIT+)
GILES	84	PR D30 2279	+Hassard, Hempstead, Kinoshita+	(CLEO Collab.)