$B^{\pm}/B^{0}$ ADMIXTURE

NODE=S049

B DECAY MODES

NODE=S049210;NODE=S049

The branching fraction measurements are for an admixture of B mesons at the $\Upsilon(4S)$. The values quoted assume that $B(\Upsilon(4S) \to B\overline{B}) = 100\%$.

NODE=S049

For inclusive branching fractions, *e.g.*, $B \to D^{\pm}$ *anything*, the treatment of multiple D's in the final state must be defined. One possibility would be to count the number of events with one-or-more D's and divide by the total number of B's. Another possibility would be to count the total number of D's and divide by the total number of B's, which is the definition of average multiplicity. The two definitions are identical if only one D is allowed in the final state. Even though the "one-or-more" definition seems sensible, for practical reasons inclusive branching fractions are almost always measured using the multiplicity definition. For heavy final state particles, authors call their results inclusive branching fractions while for light particles some authors call their results multiplicities. In the B sections, we list all results as inclusive branching fractions, adopting a multiplicity definition. This means that inclusive branching fractions can exceed 100% and that inclusive partial widths can exceed total widths, just as inclusive cross sections can exceed total cross section.

$\overline{B}$ modes are charge conjugates of the modes below. Reactions indicate the weak decay vertex and do not include mixing.

	Mode		Fraction (Γ_i/Γ)	Scale factor/ Confidence level	
	Semileptonic and leptonic modes				NODE=S049;CLUMP=L
Γ_{1}	$e^+ \nu_e$ anything	[a]			DESIG=100
Γ_{2}	$\mu^+ \nu_\mu$ anything	[a]			DESIG=102
Γ_{3}	$\ell^+ \nu_\ell$ anything	[a,b]	(10.82 ± 0.15) %		DESIG=131
Γ_{4}	$D^- \ell^+ \nu_\ell$ anything	[b]	(2.6 ± 0.5) %		DESIG=148
Γ_{5}	$\overline{D}^0 \ell^+ \nu_\ell$ anything	[b]	(7.2 ± 1.5) %		DESIG=147
Γ_{6}	$\overline{D} \ell^+ \nu_\ell$		(2.41 ± 0.12) %		DESIG=274
Γ_{7}	$D^{*-} \ell^+ \nu_\ell$ anything	[c]	(6.7 ± 1.3) $\times 10^{-3}$		DESIG=182
Γ_{8}	$D^{*0} \ell^+ \nu_\ell$ anything				DESIG=183
Γ_{9}	$\overline{D}^{*} \ell^+ \nu_\ell$	[d]	(4.95 ± 0.11) %		DESIG=280;OUR EVAL;→ UNCHECKED ←
Γ_{10}	$\overline{D}^{*} e^+ \nu_e$				DESIG=297
Γ_{11}	$\overline{D}^{*} \mu^+ \nu_\mu$				DESIG=298
Γ_{12}	$\overline{D}^{**} \ell^+ \nu_\ell$	[b,e]	(2.7 ± 0.7) %		DESIG=217
Γ_{13}	$\overline{D}_1(2420) \ell^+ \nu_\ell$ anything		(3.8 ± 1.3) $\times 10^{-3}$	S=2.4	DESIG=11
Γ_{14}	$\overline{D} \pi \ell^+ \nu_\ell$ anything + $\overline{D}^{*} \pi \ell^+ \nu_\ell$ anything		(2.6 ± 0.5) %	S=1.5	DESIG=34
Γ_{15}	$\overline{D} \pi \ell^+ \nu_\ell$ anything		(1.5 ± 0.6) %		DESIG=232
Γ_{16}	$\overline{D}^{*} \pi \ell^+ \nu_\ell$ anything		(1.9 ± 0.4) %		DESIG=233
Γ_{17}	$\overline{D}^{*}_2(2460) \ell^+ \nu_\ell$ anything		(4.4 ± 1.6) $\times 10^{-3}$		DESIG=12
Γ_{18}	$D^{*-} \pi^+ \ell^+ \nu_\ell$ anything		(1.00 ± 0.34) %		DESIG=13
Γ_{19}	$\overline{D} \pi^+ \pi^- \ell^+ \nu_\ell$		(1.62 ± 0.32) $\times 10^{-3}$		DESIG=285
Γ_{20}	$\overline{D}^{*} \pi^+ \pi^- \ell^+ \nu_\ell$		(9.4 ± 3.2) $\times 10^{-4}$		DESIG=286
Γ_{21}	$D_s^- \ell^+ \nu_\ell$ anything	[b]	< 7 $\times 10^{-3}$	CL=90%	DESIG=36
Γ_{22}	$D_s^- \ell^+ \nu_\ell K^+$ anything	[b]	< 5 $\times 10^{-3}$	CL=90%	DESIG=37
Γ_{23}	$D_s^- \ell^+ \nu_\ell K^0$ anything	[b]	< 7 $\times 10^{-3}$	CL=90%	DESIG=38
Γ_{24}	$X_c \ell^+ \nu_\ell$		(10.63 ± 0.15) %		DESIG=260
Γ_{25}	$X_u \ell^+ \nu_\ell$		(1.92 ± 0.21) $\times 10^{-3}$		DESIG=259
Γ_{26}	$X_u e^+ \nu_e$		(1.57 ± 0.19) $\times 10^{-3}$		DESIG=295
Γ_{27}	$X_u \mu^+ \nu_\mu$		(1.62 ± 0.21) $\times 10^{-3}$		DESIG=296
Γ_{28}	$K^+ \ell^+ \nu_\ell$ anything	[b]	(6.3 ± 0.5) %		DESIG=117
Γ_{29}	$K^- \ell^+ \nu_\ell$ anything	[b]	(10 ± 4) $\times 10^{-3}$		DESIG=118
Γ_{30}	$K^0/\overline{K}^0 \ell^+ \nu_\ell$ anything	[b]	(4.6 ± 0.5) %		DESIG=119
Γ_{31}	$\overline{D} \tau^+ \nu_\tau$		(8.3 ± 0.8) $\times 10^{-3}$		DESIG=267
Γ_{32}	$\overline{D}^{*} \tau^+ \nu_\tau$		(1.42 ± 0.07) %		DESIG=268

D, D^*, or D_s modes

NODE=S049;CLUMP=M

	Mode		Fraction (Γ_i/Γ)	Scale factor/ Conf. level	
Γ_{33}	$D^{\pm}$ anything		(23.1 ± 1.2) %		DESIG=116
Γ_{34}	$D^0/\overline{D}^0$ anything		(64.6 ± 2.1) %	S=1.5	DESIG=107
Γ_{35}	$D^*(2010)^{\pm}$ anything		(22.5 ± 1.5) %		DESIG=111
Γ_{36}	$\overline{D}^*(2007)^0$ anything		(26.0 ± 2.7) %		DESIG=35
Γ_{37}	$D_s^{\pm}$ anything	[f]	(10.6 ± 0.6) %	S=1.7	DESIG=113
Γ_{38}	$D_s^{*\pm}$ anything		(6.3 ± 1.0) %		DESIG=57
Γ_{39}	$D_s^{*\pm}\overline{D}^{(*)}$		(3.4 ± 0.6) %		DESIG=58
Γ_{40}	$\overline{D}D_{s0}(2317)$		seen		DESIG=248;OUR EVAL;→ UNCHECKED ←
Γ_{41}	$\overline{D}D_{sJ}(2457)$		seen		DESIG=249;OUR EVAL;→ UNCHECKED ←
Γ_{42}	$D^{(*)}\overline{D}^{(*)}K^0 + D^{(*)}\overline{D}^{(*)}K^{\pm}$	[f,g]	$(7.1 {}^{+2.7}_{-1.7})$ %		DESIG=51
Γ_{43}	$b \to c\overline{c}s$		(22 ± 4) %		DESIG=31
Γ_{44}	$D_s{}^{(*)}\overline{D}^{(*)}$	[f,g]	(5.0 ± 0.4) %		DESIG=52
Γ_{45}	$D^*D^*(2010)^{\pm}$	[f]	$< 5.9 \times 10^{-3}$	CL=90%	DESIG=54
Γ_{46}	$DD^*(2010)^{\pm} + D^*D^{\pm}$	[f]	$< 5.5 \times 10^{-3}$	CL=90%	DESIG=55
Γ_{47}	$DD^{\pm}$	[f]	$< 3.1 \times 10^{-3}$	CL=90%	DESIG=56
Γ_{48}	$D_s{}^{(*)\pm}\overline{D}^{(*)}X(n\pi^{\pm})$	[f,g]	$(9 {}^{+5}_{-4})$ %		DESIG=53
Γ_{49}	$\overline{D}^*(2010)\gamma$		$< 1.1 \times 10^{-3}$	CL=90%	DESIG=180
Γ_{50}	$D_s^+\pi^-$, $D_s^{*+}\pi^-$, $D_s^+\rho^-$, $D_s^{*+}\rho^-$, $D_s^+\pi^0$, $D_s^{*+}\pi^0$, $D_s^+\eta$, $D_s^{*+}\eta$, $D_s^+\rho^0$, $D_s^{*+}\rho^0$, $D_s^+\omega$, $D_s^{*+}\omega$	[f]	$< 4 \times 10^{-4}$	CL=90%	DESIG=210
Γ_{51}	$D_{s1}(2536)^+$ anything		$< 9.5 \times 10^{-3}$	CL=90%	DESIG=32

Charmonium modes

NODE=S049;CLUMP=N

	Mode		Fraction (Γ_i/Γ)	Scale factor/ Conf. level	
Γ_{52}	$J/\psi(1S)$ anything		(1.094 ± 0.032) %	S=1.1	DESIG=106
Γ_{53}	$J/\psi(1S)$(direct) anything		$(7.8 \pm 0.4) \times 10^{-3}$	S=1.1	DESIG=23
Γ_{54}	$\psi(2S)$ anything		$(3.07 \pm 0.21) \times 10^{-3}$		DESIG=124
Γ_{55}	$\chi_{c1}(1P)$ anything		$(3.55 \pm 0.27) \times 10^{-3}$	S=1.3	DESIG=170
Γ_{56}	$\chi_{c1}(1P)$(direct) anything		$(3.08 \pm 0.19) \times 10^{-3}$		DESIG=24
Γ_{57}	$\chi_{c2}(1P)$ anything		$(9.9 \pm 1.7) \times 10^{-4}$	S=1.6	DESIG=21
Γ_{58}	$\chi_{c2}(1P)$(direct) anything		$(7.5 \pm 1.1) \times 10^{-4}$		DESIG=247
Γ_{59}	$\eta_c(1S)$ anything		$< 9 \times 10^{-3}$	CL=90%	DESIG=22
Γ_{60}	$K\chi_{c1}(3872)$		$(1.9 \pm 0.7) \times 10^{-4}$		DESIG=292
Γ_{61}	$KX(3940)$, $X \to D^{*0}D^0$		$< 6.7 \times 10^{-5}$	CL=90%	DESIG=273
Γ_{62}	$K\chi_{c0}(3915)$, $\chi_{c0} \to \omega J/\psi$	[h]	$(7.1 \pm 3.4) \times 10^{-5}$		DESIG=262

K or K^* modes

NODE=S049;CLUMP=O

	Mode		Fraction (Γ_i/Γ)	Scale factor/ Conf. level	
Γ_{63}	$K^{\pm}$ anything	[f]	(78.9 ± 2.5) %		DESIG=105
Γ_{64}	K^+ anything		(66 ± 5) %		DESIG=120
Γ_{65}	K^- anything		(13 ± 4) %		DESIG=121
Γ_{66}	$K^0/\overline{K}^0$ anything	[f]	(64 ± 4) %		DESIG=122
Γ_{67}	$K^*(892)^{\pm}$ anything		(18 ± 6) %		DESIG=223
Γ_{68}	$K^*(892)^0/\overline{K}^*(892)^0$ anything	[f]	(14.6 ± 2.6) %		DESIG=224
Γ_{69}	$K^*(892)\gamma$		$(4.2 \pm 0.6) \times 10^{-5}$		DESIG=126
Γ_{70}	$\eta K\gamma$		$(8.5 {}^{+1.8}_{-1.6}) \times 10^{-6}$		DESIG=263
Γ_{71}	$K_1(1400)\gamma$		$< 1.27 \times 10^{-4}$	CL=90%	DESIG=127
Γ_{72}	$K_2^*(1430)\gamma$		$(1.7 {}^{+0.6}_{-0.5}) \times 10^{-5}$		DESIG=128
Γ_{73}	$K_2(1770)\gamma$		$< 1.2 \times 10^{-3}$	CL=90%	DESIG=179
Γ_{74}	$K_3^*(1780)\gamma$		$< 3.7 \times 10^{-5}$	CL=90%	DESIG=129
Γ_{75}	$K_4^*(2045)\gamma$		$< 1.0 \times 10^{-3}$	CL=90%	DESIG=178
Γ_{76}	$K\eta'(958)$		$(8.3 \pm 1.1) \times 10^{-5}$		DESIG=226
Γ_{77}	$K^*(892)\eta'(958)$		$(4.1 \pm 1.1) \times 10^{-6}$		DESIG=227
Γ_{78}	$K\eta$		$< 5.2 \times 10^{-6}$	CL=90%	DESIG=228
Γ_{79}	$K^*(892)\eta$		$(1.8 \pm 0.5) \times 10^{-5}$		DESIG=229
Γ_{80}	$K\phi\phi$		$(2.3 \pm 0.9) \times 10^{-6}$		DESIG=250
Γ_{81}	$\overline{b} \to \overline{s}\gamma$		$(3.49 \pm 0.19) \times 10^{-4}$		DESIG=225
Γ_{82}	$\overline{b} \to \overline{d}\gamma$		$(9.2 \pm 3.0) \times 10^{-6}$		DESIG=270
Γ_{83}	$\overline{b} \to \overline{s}$ gluon		< 6.8 %	CL=90%	DESIG=20
Γ_{84}	η anything		$(2.6 {}^{+0.5}_{-0.8}) \times 10^{-4}$		DESIG=47
Γ_{85}	η' anything		$(4.2 \pm 0.9) \times 10^{-4}$		DESIG=48
Γ_{86}	K^+ gluon (charmless)		$< 1.87 \times 10^{-4}$	CL=90%	DESIG=276
Γ_{87}	K^0 gluon (charmless)		$(1.9 \pm 0.7) \times 10^{-4}$		DESIG=277

Light unflavored meson modes

NODE=S049;CLUMP=P

Γ_{88}	$\rho\gamma$		$(1.39 \pm 0.25) \times 10^{-6}$	S=1.2	DESIG=230
Γ_{89}	$\rho/\omega\gamma$		$(1.30 \pm 0.23) \times 10^{-6}$	S=1.2	DESIG=261
Γ_{90}	$\pi^{\pm}$ anything	[f,i]	(358 ± 7) %		DESIG=220
Γ_{91}	π^0 anything		(235 ± 11) %		DESIG=240
Γ_{92}	η anything		(17.6 ± 1.6) %		DESIG=39
Γ_{93}	ρ^0 anything		(21 ± 5) %		DESIG=221
Γ_{94}	ω anything		< 81 %	CL=90%	DESIG=222
Γ_{95}	ϕ anything		(3.43 ± 0.12) %		DESIG=114
Γ_{96}	$\phi K^*(892)$		$< 2.2 \times 10^{-5}$	CL=90%	DESIG=46
Γ_{97}	$\overline{b} \to \overline{d}$ gluon				DESIG=278
Γ_{98}	π^+ gluon (charmless)		$(3.7 \pm 0.8) \times 10^{-4}$		DESIG=279

Baryon modes

NODE=S049;CLUMP=Q

Γ_{99}	$\Lambda_c^+ / \overline{\Lambda}_c^-$ anything		(3.55 ± 0.35) %		DESIG=115
Γ_{100}	Λ_c^+ anything		< 1.3 %	CL=90%	DESIG=40
Γ_{101}	$\overline{\Lambda}_c^-$ anything		< 7 %	CL=90%	DESIG=41
Γ_{102}	$\overline{\Lambda}_c^- \ell^+$ anything		$< 9 \times 10^{-4}$	CL=90%	DESIG=281
Γ_{103}	$\overline{\Lambda}_c^- e^+$ anything		$< 1.8 \times 10^{-3}$	CL=90%	DESIG=14
Γ_{104}	$\overline{\Lambda}_c^- \mu^+$ anything		$< 1.4 \times 10^{-3}$	CL=90%	DESIG=282
Γ_{105}	$\overline{\Lambda}_c^- p$ anything		(2.02 ± 0.32) %		DESIG=16
Γ_{106}	$\overline{\Lambda}_c^- p e^+ \nu_e$		$< 8 \times 10^{-4}$	CL=90%	DESIG=17
Γ_{107}	$\overline{\Sigma}_c^{--}$ anything		$(3.3 \pm 1.7) \times 10^{-3}$		DESIG=201
Γ_{108}	$\overline{\Sigma}_c^-$ anything		$< 8 \times 10^{-3}$	CL=90%	DESIG=202
Γ_{109}	$\overline{\Sigma}_c^0$ anything		$(3.6 \pm 1.7) \times 10^{-3}$		DESIG=203
Γ_{110}	$\overline{\Sigma}_c^0 N (N = p$ or $n)$		$< 1.2 \times 10^{-3}$	CL=90%	DESIG=205
Γ_{111}	Ξ_c^0 anything, $\Xi_c^0 \to \Xi^- \pi^+$		$(1.93 \pm 0.30) \times 10^{-4}$	S=1.1	DESIG=44
Γ_{112}	Ξ_c^+, $\Xi_c^+ \to \Xi^- \pi^+ \pi^+$		$(4.5\ ^{+1.3}_{-1.2}) \times 10^{-4}$		DESIG=45
Γ_{113}	$p/\overline{p}$ anything	[f]	(8.0 ± 0.4) %		DESIG=108
Γ_{114}	$p/\overline{p}$ (direct) anything	[f]	(5.5 ± 0.5) %		DESIG=132
Γ_{115}	$\overline{p} e^+ \nu_e$ anything		$< 5.9 \times 10^{-4}$	CL=90%	DESIG=140
Γ_{116}	$\Lambda/\overline{\Lambda}$ anything	[f]	(4.0 ± 0.5) %		DESIG=109
Γ_{117}	Λ anything		seen		DESIG=42;OUR EVAL;→ UNCHECKED ←
Γ_{118}	$\overline{\Lambda}$ anything		seen		DESIG=43;OUR EVAL;→ UNCHECKED ←
Γ_{119}	$\Xi^- / \overline{\Xi}^+$ anything	[f]	$(2.7 \pm 0.6) \times 10^{-3}$		DESIG=133
Γ_{120}	baryons anything		(6.8 ± 0.6) %		DESIG=134
Γ_{121}	$p\overline{p}$ anything		(2.47 ± 0.23) %		DESIG=135
Γ_{122}	$\Lambda\overline{p}/\overline{\Lambda}p$ anything	[f]	(2.5 ± 0.4) %		DESIG=136
Γ_{123}	$\Lambda\overline{\Lambda}$ anything		$< 5 \times 10^{-3}$	CL=90%	DESIG=137

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

NODE=S049;CLUMP=R

Γ_{124}	$s e^+ e^-$	B1		$(6.7 \pm 1.7) \times 10^{-6}$	S=2.0	DESIG=103
Γ_{125}	$s \mu^+ \mu^-$	B1		$(4.3 \pm 1.0) \times 10^{-6}$		DESIG=104
Γ_{126}	$s \ell^+ \ell^-$	B1	[b]	$(5.8 \pm 1.3) \times 10^{-6}$	S=1.8	DESIG=59
Γ_{127}	$\pi \ell^+ \ell^-$	B1		$< 5.9 \times 10^{-8}$	CL=90%	DESIG=266
Γ_{128}	$\pi e^+ e^-$	B1		$< 1.10 \times 10^{-7}$	CL=90%	DESIG=283
Γ_{129}	$\pi \mu^+ \mu^-$	B1		$< 5.0 \times 10^{-8}$	CL=90%	DESIG=284
Γ_{130}	$K e^+ e^-$	B1		$(4.4 \pm 0.6) \times 10^{-7}$		DESIG=234
Γ_{131}	$K^*(892) e^+ e^-$	B1		$(1.19 \pm 0.20) \times 10^{-6}$	S=1.2	DESIG=235
Γ_{132}	$K \mu^+ \mu^-$	B1		$(4.4 \pm 0.4) \times 10^{-7}$		DESIG=236
Γ_{133}	$K^*(892) \mu^+ \mu^-$	B1		$(1.06 \pm 0.09) \times 10^{-6}$		DESIG=237
Γ_{134}	$K \ell^+ \ell^-$	B1		$(4.8 \pm 0.4) \times 10^{-7}$		DESIG=238
Γ_{135}	$K^*(892) \ell^+ \ell^-$	B1		$(1.05 \pm 0.10) \times 10^{-6}$		DESIG=239
Γ_{136}	$K \nu \overline{\nu}$	B1		$< 1.6 \times 10^{-5}$	CL=90%	DESIG=275
Γ_{137}	$K^* \nu \overline{\nu}$	B1		$< 2.7 \times 10^{-5}$	CL=90%	DESIG=269
Γ_{138}	$\pi \nu \overline{\nu}$	B1		$< 8 \times 10^{-6}$	CL=90%	DESIG=287
Γ_{139}	$\rho \nu \overline{\nu}$	B1		$< 2.8 \times 10^{-5}$	CL=90%	DESIG=288
Γ_{140}	$s e^{\pm} \mu^{\mp}$	LF	[f]	$< 2.2 \times 10^{-5}$	CL=90%	DESIG=33
Γ_{141}	$\pi e^{\pm} \mu^{\mp}$	LF		$< 9.2 \times 10^{-8}$	CL=90%	DESIG=243
Γ_{142}	$\rho e^{\pm} \mu^{\mp}$	LF		$< 3.2 \times 10^{-6}$	CL=90%	DESIG=244
Γ_{143}	$K e^{\pm} \mu^{\mp}$	LF		$< 3.8 \times 10^{-8}$	CL=90%	DESIG=241
Γ_{144}	$K^*(892) e^{\pm} \mu^{\mp}$	LF		$< 5.1 \times 10^{-7}$	CL=90%	DESIG=242

[a] These values are model dependent. LINKAGE=AAA

[b] An ℓ indicates an e or a μ mode, not a sum over these modes. LINKAGE=DX

[c] Here "anything" means at least one particle observed. LINKAGE=LX

[d] This is a B($B^0 \to D^{*-} \ell^+ \nu_\ell$) value. LINKAGE=B0V

[e] D^{**} stands for the sum of the $D(1\,^1P_1)$, $D(1\,^3P_0)$, $D(1\,^3P_1)$, $D(1\,^3P_2)$, $D(2\,^1S_0)$, and $D(2\,^1S_1)$ resonances. LINKAGE=DSS

[f] The value is for the sum of the charge states or particle/antiparticle states indicated. LINKAGE=SG

[g] $D^{(*)}\overline{D}^{(*)}$ stands for the sum of $D^*\overline{D}^*$, $D^*\overline{D}$, $D\overline{D}^*$, and $D\overline{D}$. LINKAGE=SGG

[h] $X(3915)$ denotes a near-threshold enhancement in the $\omega J/\psi$ mass spectrum. LINKAGE=YOJ

[i] Inclusive branching fractions have a multiplicity definition and can be greater than 100%. LINKAGE=M

$B^\pm/B^0$ ADMIXTURE BRANCHING RATIOS

NODE=S049215

$\Gamma(\ell^+ \nu_\ell \text{anything})/\Gamma_{\text{total}}$ Γ_3/Γ

NODE=S049S45

These branching fraction values are model dependent.

NODE=S049S45
NODE=S049S45

VALUE (%)	DOCUMENT ID		TECN	COMMENT
10.82±0.15 OUR EVALUATION	(Produced by HFLAV)			
10.49±0.20 OUR AVERAGE	Error includes scale factor of 1.3. See the ideogram below.			
10.34±0.04±0.26	[1] LEES	17B	BABR	$e^+e^- \to \Upsilon(4S)$
10.28±0.18±0.24	[2] URQUIJO	07	BELL	$e^+e^- \to \Upsilon(4S)$
10.91±0.09±0.24	[3] MAHMOOD	04	CLEO	$e^+e^- \to \Upsilon(4S)$
9.7 ±0.5 ±0.4	[4] ALBRECHT	93H	ARG	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
9.96±0.19±0.32	[5] AUBERT,B	06Y	BABR	Repl. by LEES 17B
10.85±0.21±0.36	[6] OKABE	05	BELL	Repl. by URQUIJO 07
10.83±0.16±0.06	[7] AUBERT	04X	BABR	Repl. by AUBERT,B 06Y
10.36±0.06±0.23	[8] AUBERT,B	04A	BABR	$e^+e^- \to \Upsilon(4S)$
10.87±0.18±0.30	[9] AUBERT	03	BABR	Repl. by AUBERT 04X
10.90±0.12±0.49	[10] ABE	02Y	BELL	Repl. by OKABE 05
10.49±0.17±0.43	[11] BARISH	96B	CLE2	Repl. by MAHMOOD 04
10.80±0.20±0.56	[12] HENDERSON	92	CLEO	$e^+e^- \to \Upsilon(4S)$
10.0 ±0.4 ±0.3	[13] YANAGISAWA	91	CSB2	$e^+e^- \to \Upsilon(4S)$
10.3 ±0.6 ±0.2	[14] ALBRECHT	90H	ARG	Direct e at $\Upsilon(4S)$
10.0 ±0.6 ±0.2	[15] ALBRECHT	90H	ARG	Direct μ at $\Upsilon(4S)$
11.7 ±0.4 ±1.0	[16] WACHS	89	CBAL	Direct e at $\Upsilon(4S)$
12.0 ±0.7 ±0.5	CHEN	84	CLEO	Direct e at $\Upsilon(4S)$
10.8 ±0.6 ±1.0	CHEN	84	CLEO	Direct μ at $\Upsilon(4S)$
11.2 ±0.9 ±1.0	LEVMAN	84	CUSB	Direct μ at $\Upsilon(4S)$
13.2 ±0.8 ±1.4	[17] KLOPFEN...	83B	CUSB	Direct e at $\Upsilon(4S)$

→ UNCHECKED ←

OCCUR=2

OCCUR=2

[1] LEES 17B measurement is obtained from semileptonic decays to electrons. The result is averaged over $B^\pm$ and B^0 mesons, assuming lepton universality. NODE=S049S45;LINKAGE=A

[2] URQUIJO 07 report a measurement of $(10.07 \pm 0.18 \pm 0.21)$% for the partial branching fraction of $B \to e\nu_e X_c$ decay with electron energy above 0.6 GeV. We converted the result to $B \to e\nu_e X$ branching fraction. NODE=S049S45;LINKAGE=UR

[3] Uses charge and angular correlations in $\Upsilon(4S)$ events with a high-momentum lepton and an additional electron. NODE=S049S45;LINKAGE=MA

[4] ALBRECHT 93H analysis performed using tagged semileptonic decays of the B. This technique is almost model independent for the lepton branching ratio. NODE=S049S45;LINKAGE=I

[5] The measurements are obtained for charged and neutral B mesons partial rates of semileptonic decay to electrons with momentum above 0.6 GeV/c in the B rest frame. The best precision on the ratio is achieved for a momentum threshold of 1.0 GeV: B($B^+ \to e^+\nu_e X$) / B($B^0 \to e^+\nu_e X$) = 1.074 ± 0.041 ± 0.026. NODE=S049S45;LINKAGE=AE

[6] The measurements are obtained for charged and neutral B mesons partial rates of semileptonic decay to electrons with momentum above 0.6 GeV/c in the B rest frame, and their ratio of B($B^+ \to e^+\nu_e X$)/B($B^0 \to e^+\nu_e X$) = 1.08 ± 0.05 ± 0.02. NODE=S049S45;LINKAGE=OK

[7] The semileptonic branching ratio, $|V_{cb}|$ and other heavy-quark parameters are determined from a simultaneous fit to moments of the hadronic-mass and lepton-energy distribution. NODE=S049S45;LINKAGE=AU

[8] Uses the high-momentum lepton tag method and requires the electron energy above 0.6 GeV. NODE=S049S45;LINKAGE=AB

[9] Uses the high-momentum lepton tag method. They also report $|V_{cb}|$ = 0.0423 ± 0.0007(exp) ±0.0020(theo.). NODE=S049S45;LINKAGE=YA

[10] Uses the high-momentum lepton tag method. ABE 02Y also reports $\left|V_{cb}\right| = 0.0408 \pm 0.0010(\text{exp}) \pm 0.0025(\text{theo.})$. The second error is due to uncertainties of theoretical inputs. NODE=S049S45;LINKAGE=AY

[11] BARISH 96B analysis performed using tagged semileptonic decays of the B. This technique is almost model independent for the lepton branching ratio. NODE=S049S45;LINKAGE=E

[12] HENDERSON 92 measurement employs e and μ. The systematic error contains 0.004 in quadrature from model dependence. The authors average a variation of the Isgur, Scora, Grinstein, and Wise model with that of the Altarelli-Cabibbo-Corbò-Maiani-Martinelli model for semileptonic decays to correct the acceptance. NODE=S049S45;LINKAGE=AH

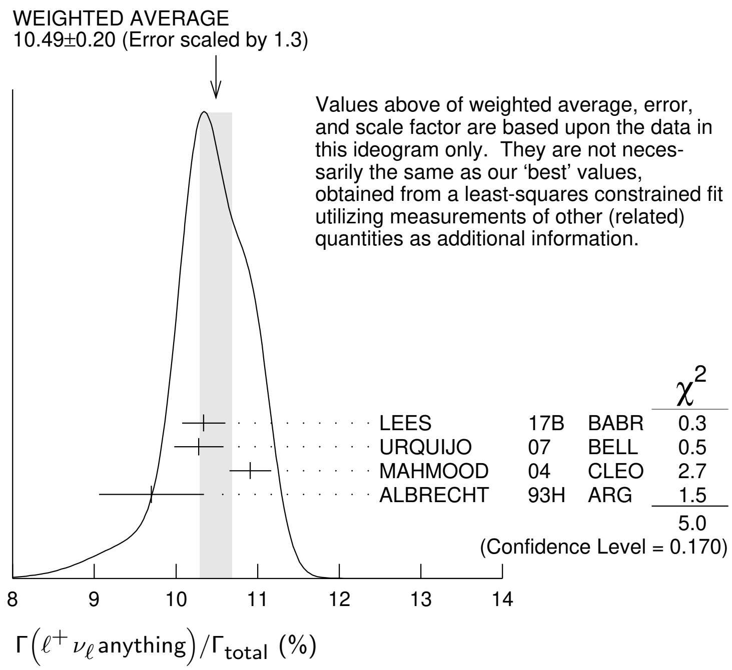
[13] YANAGISAWA 91 also measures an average semileptonic branching ratio at the $\Upsilon(5S)$ of 9.6–10.5% depending on assumptions about the relative production of different B meson species. NODE=S049S45;LINKAGE=C

[14] ALBRECHT 90H uses the model of ALTARELLI 82 to correct over all lepton momenta. 0.099 ± 0.006 is obtained using ISGUR 89B. NODE=S049S45;LINKAGE=AQ

[15] ALBRECHT 90H uses the model of ALTARELLI 82 to correct over all lepton momenta. 0.097 ± 0.006 is obtained using ISGUR 89B. NODE=S049S45;LINKAGE=AT

[16] Using data above $p(e) = 2.4$ GeV, WACHS 89 determine $\sigma(B \to e\nu\,\text{up})/\sigma(B \to e\nu\,\text{charm}) < 0.065$ at 90% CL. NODE=S049S45;LINKAGE=DD

[17] Ratio $\sigma(b \to e\nu\,\text{up})/\sigma(b \to e\nu\,\text{charm}) < 0.055$ at CL = 90%. NODE=S049S45;LINKAGE=D



$\Gamma(e^+\nu_e\,\text{anything})/\Gamma(\mu^+\nu_\mu\,\text{anything})$ Γ_1/Γ_2

NODE=S049R45
NODE=S049R45

VALUE	DOCUMENT ID		TECN	COMMENT
1.007±0.009±0.019	[1] AGGARWAL	23	BELL	$e^+e^- \to \Upsilon(4S)$

[1] The accompanying B meson is fully reconstructed in its hadronic decay modes. NODE=S049R45;LINKAGE=A

$\Gamma(D^-\ell^+\nu_\ell\,\text{anything})/\Gamma(\ell^+\nu_\ell\,\text{anything})$ Γ_4/Γ_3

NODE=S049S40

$\ell = e$ or μ.

NODE=S049S40
NODE=S049S40

VALUE	DOCUMENT ID		TECN	COMMENT
0.26±0.07±0.04	[1] FULTON	91	CLEO	$e^+e^- \to \Upsilon(4S)$

[1] FULTON 91 uses $B(D^+ \to K^-\pi^+\pi^+) = (9.1 \pm 1.3 \pm 0.4)\%$ as measured by MARK III. NODE=S049S40;LINKAGE=A

$\Gamma(\overline{D}^0\ell^+\nu_\ell\,\text{anything})/\Gamma(\ell^+\nu_\ell\,\text{anything})$ Γ_5/Γ_3

NODE=S049S39

$\ell = e$ or μ.

NODE=S049S39
NODE=S049S39

VALUE	DOCUMENT ID		TECN	COMMENT
0.67±0.09±0.10	[1] FULTON	91	CLEO	$e^+e^- \to \Upsilon(4S)$

[1] FULTON 91 uses $B(D^0 \to K^-\pi^+) = (4.2 \pm 0.4 \pm 0.4)\%$ as measured by MARK III. NODE=S049S39;LINKAGE=A

$\Gamma(\overline{D}\ell^+\nu_\ell)/\Gamma(\ell^+\nu_\ell\,\text{anything})$ Γ_6/Γ_3

NODE=S049R80
NODE=S049R80

VALUE	DOCUMENT ID		TECN	COMMENT
0.223±0.006±0.009	[1] AUBERT	10	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Uses a fully reconstructed B meson as a tag on the recoil side. NODE=S049R80;LINKAGE=AU

$\Gamma(D^{*-}\ell^+\nu_\ell \text{anything})/\Gamma_{total}$ — Γ_7/Γ

NODE=S049R16
NODE=S049R16

VALUE (units 10^{-2})	DOCUMENT ID		TECN	COMMENT
0.67±0.08±0.10	ABDALLAH	04D	DLPH	$e^+e^- \rightarrow Z^0$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.6 ±0.3 ±0.1	[1] BARISH	95	CLE2	$e^+e^- \rightarrow \Upsilon(4S)$

[1] BARISH 95 use B($D^0 \rightarrow K^-\pi^+$) = (3.91 ± 0.08 ± 0.17)% and B($D^{*+} \rightarrow D^0\pi^+$) = (68.1 ± 1.0 ± 1.3)%. NODE=S049R16;LINKAGE=A1

$\Gamma(D^{*0}\ell^+\nu_\ell \text{anything})/\Gamma_{total}$ — Γ_8/Γ

NODE=S049R17
NODE=S049R17

VALUE (units 10^{-2})	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.6±0.6±0.1	[1] BARISH	95	CLE2	$e^+e^- \rightarrow \Upsilon(4S)$

[1] BARISH 95 use B($D^0 \rightarrow K^-\pi^+$) = (3.91 ± 0.08 ± 0.17)%, B($D^{*+} \rightarrow D^0\pi^+$) = (68.1 ± 1.0 ± 1.3)%, B($D^{*0} \rightarrow D^0\pi^0$) = (63.6 ± 2.3 ± 3.3)%. NODE=S049R17;LINKAGE=B1

$\Gamma(\overline{D}^* e^+\nu_e)/\Gamma(\overline{D}^* \mu^+\nu_\mu)$ — Γ_{10}/Γ_{11}

NODE=S049R49
NODE=S049R49

VALUE	DOCUMENT ID		TECN	COMMENT
0.993±0.023±0.023	[1] PRIM	23	BELL	$e^+e^- \rightarrow \Upsilon(4S)$

[1] This is the lepton-flavor universality ratio $R_{e\mu}$ for the $B^+ \rightarrow \overline{D}^{*0}\ell^+\nu_\ell$ and $B^0 \rightarrow D^{*-}\ell^+\nu_\ell$ average. NODE=S049R49;LINKAGE=A

$\Gamma(\overline{D}^{**}\ell^+\nu_\ell)/\Gamma_{total}$ — Γ_{12}/Γ

NODE=S049R96

D^{**} stands for the sum of the $D(1\,^1P_1)$, $D(1\,^3P_0)$, $D(1\,^3P_1)$, $D(1\,^3P_2)$, $D(2\,^1S_0)$, and $D(2\,^1S_1)$ resonances. $\ell = e$ or μ, not sum over e and μ modes. NODE=S049R96

NODE=S049R96

VALUE	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
0.027±0.005±0.005		63	[1] ALBRECHT	93	ARG	$e^+e^- \rightarrow \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
<0.028	95		[2] BARISH	95	CLE2	$e^+e^- \rightarrow \Upsilon(4S)$

[1] ALBRECHT 93 assumes the GISW model to correct for unseen modes. Using the BHKT model, the result becomes 0.023 ± 0.006 ± 0.004. Assumes B($D^{*+} \rightarrow D^0\pi^+$) = 68.1%, B($D^0 \rightarrow K^-\pi^+$) = 3.65%, B($D^0 \rightarrow K^-\pi^+\pi^-\pi^+$) = 7.5%. We have taken their average e and μ value. NODE=S049R96;LINKAGE=A

[2] BARISH 95 use B($D^0 \rightarrow K^-\pi^+$) = (3.91 ± 0.08 ± 0.17)%, assume all nonresonant channels are zero, and use GISW model for relative abundances of D^{**} states. NODE=S049R96;LINKAGE=C1

$\Gamma(\overline{D}_1(2420)\ell^+\nu_\ell \text{anything})/\Gamma_{total}$ — Γ_{13}/Γ

NODE=S049R25
NODE=S049R25

VALUE	DOCUMENT ID		TECN	COMMENT
0.0038±0.0013 OUR AVERAGE	Error includes scale factor of 2.4.			
0.0033±0.0006	[1] ABAZOV	05O	D0	$p\overline{p}$ at 1.96 TeV
0.0074±0.0016	[2] BUSKULIC	97B	ALEP	$e^+e^- \rightarrow Z$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
seen	[3] BUSKULIC	95B	ALEP	Repl. by BUSKULIC 97B

[1] Assumes B($D_1 \rightarrow D^*\pi$) = 1, B($D_1 \rightarrow D^*\pi^\pm$) = 2/3, and B($b \rightarrow B$) =0.397. NODE=S049R25;LINKAGE=AB

[2] BUSKULIC 97B assumes B($D_1(2420) \rightarrow D^*\pi$) = 1, B($D_1(2420) \rightarrow D^*\pi^\pm$) = 2/3, and B($b \rightarrow B$) = 0.378 ± 0.022. NODE=S049R25;LINKAGE=B

[3] BUSKULIC 95B reports f_B × B($B \rightarrow \overline{D}_1(2420)^0\ell^+\nu_\ell$ anything) × B($\overline{D}_1(2420)^0 \rightarrow \overline{D}^*(2010)^-\pi^+$) = (2.04 ± 0.58 ± 0.34)$10^{-3}$, where f_B is the production fraction for a single B charge state. NODE=S049R25;LINKAGE=A

$[\Gamma(\overline{D}\pi\ell^+\nu_\ell \text{anything}) + \Gamma(\overline{D}^*\pi\ell^+\nu_\ell \text{anything})]/\Gamma_{total}$ — Γ_{14}/Γ

NODE=S049R34
NODE=S049R34

VALUE	DOCUMENT ID		TECN	COMMENT
0.026 ±0.005 OUR AVERAGE	Error includes scale factor of 1.5.			
0.0340±0.0052±0.0032	[1] ABREU	00R	DLPH	$e^+e^- \rightarrow Z$
0.0226±0.0029±0.0033	[2] BUSKULIC	97B	ALEP	$e^+e^- \rightarrow Z$

[1] Assumes no contribution from B_s and b baryons. Further assumes contributions from single pion ($D\pi$ and $D^*\pi$) states only, allowing isospin conservation to relate the relative π^0 and π^+ rates. NODE=S049R34;LINKAGE=B3

[2] BUSKULIC 97B assumes B($b \rightarrow B$) = 0.378 ± 0.022 and uses isospin invariance by assuming that all observed $D^0\pi^+$, $D^{*0}\pi^+$, $D^+\pi^-$, and $D^{*+}\pi^-$ are from D^{**} states. A correction has been applied to account for the production of B_s^0 and Λ_b^0. NODE=S049R34;LINKAGE=B

$\Gamma(\overline{D}\pi\ell^+\nu_\ell \text{anything})/\Gamma_{total}$ — Γ_{15}/Γ

NODE=S049R55
NODE=S049R55

VALUE	DOCUMENT ID		TECN	COMMENT
0.0154±0.0061	ABREU	00R	DLPH	$e^+e^- \rightarrow Z$

$\Gamma(\overline{D}^{*}\pi\ell^{+}\nu_{\ell}\,\mathrm{anything})/\Gamma_{\mathrm{total}}$ Γ_{16}/Γ

NODE=S049R56
NODE=S049R56

VALUE	DOCUMENT ID		TECN	COMMENT
0.0186±0.0038	ABREU	00R	DLPH	$e^{+}e^{-} \to Z$

$\Gamma(\overline{D}^{*}_{2}(2460)\ell^{+}\nu_{\ell}\,\mathrm{anything})/\Gamma_{\mathrm{total}}$ Γ_{17}/Γ

NODE=S049R26
NODE=S049R26

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
0.0044±0.0016		[1] ABAZOV	05O	D0	$p\overline{p}$ at 1.96 TeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.0065	95	[2] BUSKULIC	97B	ALEP	$e^{+}e^{-} \to Z$
not seen		[3] BUSKULIC	95B	ALEP	$e^{+}e^{-} \to Z$

OCCUR=2

[1] Assumes B($D^{*}_{2} \to D^{*}\pi^{\pm}$) = 0.30 ± 0.06 and B($b \to B$) =0.397.

NODE=S049R26;LINKAGE=AB

[2] A revised number based on BUSKULIC 97B which assumes B($D^{*}_{2}(2460) \to D^{*}\pi^{\pm}$) = 0.20 and B($b \to B$) = 0.378 ± 0.022.

NODE=S049R26;LINKAGE=B1

[3] BUSKULIC 95B reports f_{B} × B($B \to \overline{D}^{*}_{2}(2460)^{0}\ell^{+}\nu_{\ell}$ anything) × B($\overline{D}^{*}_{2}(2460)^{0} \to \overline{D}^{*}(2010)^{-}\pi^{+}$) $\leq 0.81 \times 10^{-3}$ at CL=95%, where f_{B} is the production fraction for a single B charge state.

NODE=S049R26;LINKAGE=A

$\dfrac{\Gamma(B \to \overline{D}^{*}_{2}(2460)\ell^{+}\nu_{\ell}\,anything)\times B(D^{*}_{2}(2460) \to D^{*-}\pi^{+})}{\Gamma(B \to \overline{D}_{1}(2420)\ell^{+}\nu_{\ell}\,anything)\times B(\overline{D}_{1}(2420) \to D^{*-}\pi^{+})}$

NODE=S049R19
NODE=S049R19

VALUE	DOCUMENT ID		TECN	COMMENT
0.39±0.09±0.12	ABAZOV	05O	D0	$p\overline{p}$ at 1.96 TeV

$\Gamma(D^{*-}\pi^{+}\ell^{+}\nu_{\ell}\,\mathrm{anything})/\Gamma_{\mathrm{total}}$ Γ_{18}/Γ

NODE=S049R27

Includes resonant and nonresonant contributions.

NODE=S049R27
NODE=S049R27

VALUE (units 10^{-3})	DOCUMENT ID		TECN	COMMENT
10.0±2.7±2.1	[1] BUSKULIC	95B	ALEP	$e^{+}e^{-} \to Z$

[1] BUSKULIC 95B reports f_{B} × B($B \to \overline{D}^{*}(2010)^{-}\pi^{+}\ell^{+}\nu_{\ell}$ anything) = (3.7 ± 1.0 ± 0.7)10^{-3}. Above value assumes f_{B} = 0.37 ± 0.03.

NODE=S049R27;LINKAGE=A

$\Gamma(\overline{D}\pi^{+}\pi^{-}\ell^{+}\nu_{\ell})/\Gamma(\overline{D}\ell^{+}\nu_{\ell})$ Γ_{19}/Γ_{6}

NODE=S049R90
NODE=S049R90

VALUE (units 10^{-2})	DOCUMENT ID		TECN	COMMENT
6.7±1.0±0.8	[1] LEES	16	BABR	$e^{+}e^{-} \to \Upsilon(4S)$

[1] Measurement used electrons and muons as leptons.

NODE=S049R90;LINKAGE=A

$\Gamma(\overline{D}^{*}\pi^{+}\pi^{-}\ell^{+}\nu_{\ell})/\Gamma(\overline{D}^{*}\ell^{+}\nu_{\ell})$ Γ_{20}/Γ_{9}

NODE=S049R91
NODE=S049R91

VALUE (units 10^{-2})	DOCUMENT ID		TECN	COMMENT
1.9±0.5±0.4	[1] LEES	16	BABR	$e^{+}e^{-} \to \Upsilon(4S)$

[1] Measurement used electrons and muons as leptons.

NODE=S049R91;LINKAGE=A

$\Gamma(D^{-}_{s}\ell^{+}\nu_{\ell}\,\mathrm{anything})/\Gamma_{\mathrm{total}}$ Γ_{21}/Γ

NODE=S049S75
NODE=S049S75

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<7 × 10^{-3}	90	[1] ALBRECHT	93E	ARG	$e^{+}e^{-} \to \Upsilon(4S)$

[1] ALBRECHT 93E reports < 0.012 from a measurement of [$\Gamma(B \to D^{-}_{s}\ell^{+}\nu_{\ell}\,\mathrm{anything})/\Gamma_{\mathrm{total}}$] × [B($D^{+}_{s} \to \phi\pi^{+}$)] assuming B($D^{+}_{s} \to \phi\pi^{+}$) = 0.027, which we rescale to our best value B($D^{+}_{s} \to \phi\pi^{+}$) = 4.5×10^{-2}.

NODE=S049S75;LINKAGE=CA

$\Gamma(D^{-}_{s}\ell^{+}\nu_{\ell}K^{+}\,\mathrm{anything})/\Gamma_{\mathrm{total}}$ Γ_{22}/Γ

NODE=S049S76
NODE=S049S76

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<5 × 10^{-3}	90	[1] ALBRECHT	93E	ARG	$e^{+}e^{-} \to \Upsilon(4S)$

[1] ALBRECHT 93E reports < 0.008 from a measurement of [$\Gamma(B \to D^{-}_{s}\ell^{+}\nu_{\ell}K^{+}\,\mathrm{anything})/\Gamma_{\mathrm{total}}$] × [B($D^{+}_{s} \to \phi\pi^{+}$)] assuming B($D^{+}_{s} \to \phi\pi^{+}$) = 0.027, which we rescale to our best value B($D^{+}_{s} \to \phi\pi^{+}$) = 4.5×10^{-2}.

NODE=S049S76;LINKAGE=CA

$\Gamma(D^{-}_{s}\ell^{+}\nu_{\ell}K^{0}\,\mathrm{anything})/\Gamma_{\mathrm{total}}$ Γ_{23}/Γ

NODE=S049S77
NODE=S049S77

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<7 × 10^{-3}	90	[1] ALBRECHT	93E	ARG	$e^{+}e^{-} \to \Upsilon(4S)$

[1] ALBRECHT 93E reports < 0.012 from a measurement of [$\Gamma(B \to D^{-}_{s}\ell^{+}\nu_{\ell}K^{0}\,\mathrm{anything})/\Gamma_{\mathrm{total}}$] × [B($D^{+}_{s} \to \phi\pi^{+}$)] assuming B($D^{+}_{s} \to \phi\pi^{+}$) = 0.027, which we rescale to our best value B($D^{+}_{s} \to \phi\pi^{+}$) = 4.5×10^{-2}.

NODE=S049S77;LINKAGE=CA

$\Gamma(X_c \ell^+ \nu_\ell)/\Gamma_{total}$ Γ_{24}/Γ

NODE=S049S96
NODE=S049S96

VALUE (%)	DOCUMENT ID	TECN	COMMENT
10.63±0.15 OUR EVALUATION	(Produced by HFLAV)		
10.29±0.19 OUR AVERAGE			
10.18±0.03±0.24	[1] LEES	17B BABR	$e^+ e^- \to \Upsilon(4S)$
10.44±0.19±0.22	[2] URQUIJO	07 BELL	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •			
10.64±0.17±0.06	[3] AUBERT	10A BABR	Repl. by LEES 17B
10.61±0.16±0.06	[4] AUBERT	04X BABR	Repl. by AUBERT 10A

→ UNCHECKED ←

[1] The measurement is obtained from semileptonic decays to electrons $B \to X e \nu$, and using a theoretical model (GAMBINO 07, GAMBINO 11) to predict the contribution from $B \to X_u e \nu$. The result is averaged over $B^\pm$ and B^0 mesons, assuming lepton universality. NODE=S049S96;LINKAGE=A

[2] Measured the independent B^+ and B^0 partial branching fractions with electron energy above 0.4 GeV. NODE=S049S96;LINKAGE=UR

[3] Obtained from a combined fit to the moments of observed spectra in inclusive $B \to X_c \ell^+ \nu_\ell$ decay. NODE=S049S96;LINKAGE=AB

[4] The semileptonic branching ratio, $|V_{cb}|$ and other heavy-quark parameters are determined from a simultaneous fit to moments of the hadronic-mass and lepton-energy distribution. NODE=S049S96;LINKAGE=AU

$\Gamma(X_u \ell^+ \nu_\ell)/\Gamma_{total}$ Γ_{25}/Γ

NODE=S049S95
NODE=S049S95

VALUE (units 10^{-3})	DOCUMENT ID	TECN	COMMENT
1.92 ±0.21 OUR EVALUATION	(Produced by HFLAV)		
1.85 ±0.08 ±0.19	[1] CAO	21A BELL	$e^+ e^- \to \Upsilon(4S)$
$1.665 \pm 0.087 ^{+0.103}_{-0.094}$	[2] LEES	17B BABR	$e^+ e^- \to \Upsilon(4S)$
2.01 ±0.15 ±0.25	[3] LEES	12R BABR	$e^+ e^- \to \Upsilon(4S)$
2.53 ±0.24 ±0.24	[4] AUBERT,B	05X BABR	$e^+ e^- \to \Upsilon(4S)$
2.80 ±0.52 ±0.41	[5] LIMOSANI	05 BELL	$e^+ e^- \to \Upsilon(4S)$
1.77 ±0.29 ±0.38	[6] BORNHEIM	02 CLE2	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •			
1.39 ±0.14 ±0.22	[7] CAO	23 BELL	$e^+ e^- \to \Upsilon(4S)$
1.963±0.173±0.159	[8] URQUIJO	10 BELL	Repl. by CAO 21A
1.18 ±0.09 ±0.07	[9] AUBERT	08AS BABR	Repl. by LEES 12R
$2.27 \pm 0.26 ^{+0.37}_{-0.33}$	[10] AUBERT	06H BABR	Repl. by LEES 17B
2.24 ±0.27 ±0.47	[11,12] AUBERT	04I BABR	Repl. by AUBERT,B 05X

→ UNCHECKED ←

[1] Measures several partial branching fractions in different phase space regions. The most inclusive result of the full branching fraction is obtained in the region for lepton energy in B rest frame $E^*_\ell > 1$ GeV, where the measured partial branching fraction is $\Delta B = (1.59 \pm 0.07 \pm 0.16) \times 10^{-3}$. The acceptance in that region is reported to be 0.86. NODE=S049S95;LINKAGE=B

[2] Obtained from the partial rate $\Delta B = (1.554 \pm 0.082 ^{+0.095}_{-0.086}) \times 10^{-3}$ for the electron momentum interval of 0.8–2.7 GeV/c based on GGOU1 method ($X_c \ell \nu$, m_c constraint fit of SF parameters). NODE=S049S95;LINKAGE=A

[3] Measures several partial branching fractions in different phase space regions. The most precise result on the full branching fraction is obtained in the region for lepton momentum in B rest frame $p^*_\ell > 1$ GeV/c, where the measured partial branching fraction is $\Delta B = (1.80 \pm 0.13 \pm 0.15) \times 10^{-3}$. The acceptance in that region is reported in a private communication by the Authors to be 0.894. The corresponding $|V_{ub}|$ from the BLNP method is $(4.28 \pm 0.15 \pm 0.18 \pm 0.19) \times 10^{-3}$, where the last uncertainty comes from theoretical prediction. NODE=S049S95;LINKAGE=LE

[4] Determined from the partial rate $\Delta B = (4.41 \pm 0.42 \pm 0.42) \times 10^{-4}$ measured for electron energy > 2 GeV and hadronic mass squared < 3.5 GeV^2, and calculated acceptance 0.174 in that region. The V_{ub} is measured as $(4.41 \pm 0.30 ^{+0.65}_{-0.47} \pm 0.28) \times 10^{-3}$. NODE=S049S95;LINKAGE=AE

[5] Uses electrons in the momentum interval 1.9–2.6 GeV/c in the center-of-mass frame. The V_{ub} is found to be $(5.08 \pm 0.47 ^{+0.49}_{-0.48}) \times 10^{-3}$. NODE=S049S95;LINKAGE=LI

[6] BORNHEIM 02 uses the observed yield of leptons from semileptonic B decays in the end-point momentum interval 2.2–2.6 GeV/c with recent CLEO-2 data on $B \to X_s \gamma$. The V_{ub} is found to be $(4.08 \pm 0.34 \pm 0.53) \times 10^{-3}$. NODE=S049S95;LINKAGE=BO

[7] Measurement requires lepton energy $E^*_\ell > 1$ GeV in the B rest frame. It is a part of the inclusive and exclusive $|V_{ub}|$ determination. NODE=S049S95;LINKAGE=C

[8] Uses a multivariate analysis method and requires lepton momentum in the B rest frame, $p^*_\ell > 1.0$ GeV/c. NODE=S049S95;LINKAGE=UR

[9] Measures several partial branching fractions in different phase space regions. The most precise result is obtained in the region for hadronic mass $M_X < 1.55$ GeV/c^2, and is $\Delta B = (1.18 \pm 0.09 \pm 0.07) \times 10^{-3}$. The corresponding $|V_{ub}|$ from the BLNP method NODE=S049S95;LINKAGE=UB

is $(4.27 \pm 0.16 \pm 0.13 \pm 0.30) \times 10^{-3}$, where the last uncertainty comes from the theoretical prediction of the partial rate in the given phase-space region.

10 Obtained from the partial rate $\Delta B = (0.572 \pm 0.041 \pm 0.065) \times 10^{-3}$ for the electron momentum interval of 2.0–2.6 GeV/c based on BLNP method. NODE=S049S95;LINKAGE=AT

11 Used BaBar measurement of Semileptonic branching fraction $B(B \to X \ell \nu_\ell) = (10.87 \pm 0.18 \pm 0.30)\%$ to convert the ratio of rates to branching fraction. NODE=S049S95;LINKAGE=AB

12 The third error includes the systematics and theoretical errors summed in quadrature. NODE=S049S95;LINKAGE=AU

$\Gamma(X_u \ell^+ \nu_\ell)/\Gamma(\ell^+ \nu_\ell \text{anything})$ Γ_{25}/Γ_3

NODE=S049S11
NODE=S049S11

ℓ denotes e or μ, not the sum. These experiments measure this ratio in very limited momentum intervals.

NODE=S049S11

VALUE (units 10^{-2})	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
2.06±0.25±0.42			[1] AUBERT	04I	BABR	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
			[2] ALBRECHT	94C	ARG	$e^+ e^- \to \Upsilon(4S)$
		107	[3] BARTELT	93B	CLE2	$e^+ e^- \to \Upsilon(4S)$
		77	[4] ALBRECHT	91C	ARG	$e^+ e^- \to \Upsilon(4S)$
		41	[5] ALBRECHT	90	ARG	$e^+ e^- \to \Upsilon(4S)$
		76	[6] FULTON	90	CLEO	$e^+ e^- \to \Upsilon(4S)$
<4.0	90		[7] BEHRENDS	87	CLEO	$e^+ e^- \to \Upsilon(4S)$
<4.0	90		CHEN	84	CLEO	Direct e at $\Upsilon(4S)$
<5.5	90		KLOPFEN...	83B	CUSB	Direct e at $\Upsilon(4S)$

1 The third error includes the systematics and theoretical errors summed in quadrature. NODE=S049S11;LINKAGE=AU

2 ALBRECHT 94C find $\Gamma(b \to c)/\Gamma(b \to \text{all}) = 0.99 \pm 0.02 \pm 0.04$. NODE=S049S11;LINKAGE=KA

3 BARTELT 93B (CLEO II) measures an excess of $107 \pm 15 \pm 11$ leptons in the lepton momentum interval 2.3–2.6 GeV/c which is attributed to $b \to u \ell \nu_\ell$. This corresponds to a model-dependent partial branching ratio ΔB_{ub} between $(1.15 \pm 0.16 \pm 0.15) \times 10^{-4}$, as evaluated using the KS model (KOERNER 88), and $(1.54 \pm 0.22 \pm 0.20) \times 10^{-4}$ using the ACCMM model (ARTUSO 93). The corresponding values of $|V_{ub}|/|V_{cb}|$ are 0.056 ± 0.006 and 0.076 ± 0.008, respectively. NODE=S049S11;LINKAGE=E

4 ALBRECHT 91C result supersedes ALBRECHT 90. Two events are fully reconstructed providing evidence for the $b \to u$ transition. Using the model of ALTARELLI 82, they obtain $|V_{ub}/V_{cb}| = 0.11 \pm 0.012$ from 77 leptons in the 2.3–2.6 GeV momentum range. NODE=S049S11;LINKAGE=D

5 ALBRECHT 90 observes 41 ± 10 excess e and μ (lepton) events in the momentum interval $p = 2.3$–2.6 GeV signaling the presence of the $b \to u$ transition. The events correspond to a model-dependent measurement of $|V_{ub}/V_{cb}| = 0.10 \pm 0.01$. NODE=S049S11;LINKAGE=B

6 FULTON 90 observe 76 ± 20 excess e and μ (lepton) events in the momentum interval $p = 2.4$–2.6 GeV signaling the presence of the $b \to u$ transition. The average branching ratio, $(1.8 \pm 0.4 \pm 0.3) \times 10^{-4}$, corresponds to a model-dependent measurement of approximately $|V_{ub}/V_{cb}| = 0.1$ using $B(b \to c \ell \nu) = 10.2 \pm 0.2 \pm 0.7\%$. NODE=S049S11;LINKAGE=A

7 The quoted possible limits range from 0.018 to 0.04 for the ratio, depending on which model or momentum range is chosen. We select the most conservative limit they have calculated. This corresponds to a limit on $|V_{ub}|/|V_{cb}| < 0.20$. While the endpoint technique employed is more robust than their previous results in CHEN 84, these results do not provide a numerical improvement in the limit. NODE=S049S11;LINKAGE=C

$\Gamma(X_u e^+ \nu_e)/\Gamma_{\text{total}}$ Γ_{26}/Γ

NODE=S049R09

Requires $E^*_e > 1$ GeV, where E^*_e is e^+ energy in B rest frame.

NODE=S049R09
NODE=S049R09

VALUE (units 10^{-3})	DOCUMENT ID		TECN	COMMENT
1.57±0.10±0.16	[1] CAO	21A	BELL	$e^+ e^- \to \Upsilon(4S)$

1 The correlation of 53% with $B(B \to X_u \mu^+ \nu_\mu)$(letpon energy in B rest frame $E^*_{\mu^+} >$ 1 GeV) is reported. NODE=S049R09;LINKAGE=A

$\Gamma(X_u \mu^+ \nu_\mu)/\Gamma_{\text{total}}$ Γ_{27}/Γ

NODE=S049R44

Requires $E^*_\mu > 1$ GeV, where E^*_μ is μ^+ energy in B rest frame.

NODE=S049R44
NODE=S049R44

VALUE (units 10^{-3})	DOCUMENT ID		TECN	COMMENT
1.62±0.10±0.18	[1] CAO	21A	BELL	$e^+ e^- \to \Upsilon(4S)$

1 The correlation of 53% with $B(B \to X_u e^+ \nu_e)$(letpon energy in B rest frame $E^*_{e^+} >$ 1 GeV) is reported. NODE=S049R44;LINKAGE=A

$\Gamma(K^+ \ell^+ \nu_\ell \text{anything})/\Gamma(\ell^+ \nu_\ell \text{anything})$ Γ_{28}/Γ_3

NODE=S049S18

ℓ denotes e or μ, not the sum.

NODE=S049S18
NODE=S049S18

VALUE	DOCUMENT ID		TECN	COMMENT
0.58 ±0.05 OUR AVERAGE				
0.594±0.021±0.056	ALBRECHT	94C	ARG	$e^+ e^- \to \Upsilon(4S)$
0.54 ±0.07 ±0.06	[1] ALAM	87B	CLEO	$e^+ e^- \to \Upsilon(4S)$

1 ALAM 87B measurement relies on lepton-kaon correlations. NODE=S049S18;LINKAGE=A

$\Gamma(K^- \ell^+ \nu_\ell \text{anything})/\Gamma(\ell^+ \nu_\ell \text{anything})$ — Γ_{29}/Γ_3

NODE=S049S19

ℓ denotes e or μ, not the sum.

NODE=S049S19
NODE=S049S19

VALUE	DOCUMENT ID		TECN	COMMENT
0.092±0.035 OUR AVERAGE				
0.086±0.011±0.044	ALBRECHT	94C	ARG	$e^+ e^- \rightarrow \Upsilon(4S)$
0.10 ±0.05 ±0.02	[1] ALAM	87B	CLEO	$e^+ e^- \rightarrow \Upsilon(4S)$

[1] ALAM 87B measurement relies on lepton-kaon correlations.

NODE=S049S19;LINKAGE=A

$\Gamma(K^0/\overline{K}^0 \ell^+ \nu_\ell \text{anything})/\Gamma(\ell^+ \nu_\ell \text{anything})$ — Γ_{30}/Γ_3

NODE=S049S20

ℓ denotes e or μ, not the sum. Sum over K^0 and $\overline{K}^0$ states.

NODE=S049S20
NODE=S049S20

VALUE	DOCUMENT ID		TECN	COMMENT
0.42 ±0.05 OUR AVERAGE				
0.452±0.038±0.056	[1] ALBRECHT	94C	ARG	$e^+ e^- \rightarrow \Upsilon(4S)$
0.39 ±0.06 ±0.04	[2] ALAM	87B	CLEO	$e^+ e^- \rightarrow \Upsilon(4S)$

[1] ALBRECHT 94C assume a $K^0/\overline{K}^0$ multiplicity twice that of K^0_S.

NODE=S049S20;LINKAGE=KZ

[2] ALAM 87B measurement relies on lepton-kaon correlations.

NODE=S049S20;LINKAGE=A

$\Gamma(\overline{D}\tau^+ \nu_\tau)/\Gamma(\overline{D}\ell^+ \nu_\ell)$ — Γ_{31}/Γ_6

NODE=S049R36
NODE=S049R36

VALUE (units 10^{-2})	DOCUMENT ID		TECN	COMMENT
34.2 ± 2.6 OUR EVALUATION (Produced by HFLAV)				
35 ± 4 OUR AVERAGE Error includes scale factor of 1.2.				
30.7 ± 3.7±1.6	[1] CARIA	20	BELL	$e^+ e^- \rightarrow \Upsilon(4S)$
37.5 ± 6.4±2.6	[2,3] HUSCHLE	15	BELL	$e^+ e^- \rightarrow \Upsilon(4S)$
44.0 ± 5.8±4.2	[2,3] LEES	12D	BABR	$e^+ e^- \rightarrow \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
4.16±11.7±5.2	[2] AUBERT	08N	BABR	Repl. by LEES 12D

→ UNCHECKED ←

[1] The tag-side B meson is reconstructed in a semileptonic decay mode and the signal-side τ is reconstructed in a purely leptonic decay. The Belle combination of HUSCHLE 15 and CARIA 20 yields R(D) =(32.6 ± 3.4) × 10^{-2}.

NODE=S049R36;LINKAGE=A

[2] Uses a fully reconstructed B meson as a tag on the recoil side.

NODE=S049R36;LINKAGE=AU

[3] Uses $\tau^+ \rightarrow e^+ \nu_e \overline{\nu}_\tau$ and $\tau^+ \rightarrow \mu^+ \nu_\mu \overline{\nu}_\tau$ and e^+ or μ^+ as ℓ^+. Obtained from simultaneous fit to B+ and B0 assuming isospin symmetry.

NODE=S049R36;LINKAGE=LE

$\Gamma(\overline{D}^* \tau^+ \nu_\tau)/\Gamma(\overline{D}^* \ell^+ \nu_\ell)$ — Γ_{32}/Γ_9

NODE=S049R37
NODE=S049R37

VALUE (units 10^{-2})	DOCUMENT ID		TECN	COMMENT
28.6±1.2 OUR EVALUATION (Produced by HFLAV) with ρ^2=1.128 ± 0.033 and a correlation 0.747. The fitted χ^2 is 4.8 for 8 degrees of freedom.				
29.1±1.3 OUR AVERAGE				
$26.2^{+4.1}_{-3.9}{}^{+3.5}_{-3.2}$	[1] ADACHI	24O	BELL	$e^+ e^- \rightarrow \Upsilon(4S)$
28.1±1.8±2.4	[2] AAIJ	23AR	LHCB	pp at 7 and 8 TeV
28.3±1.8±1.4	[3] CARIA	20	BELL	$e^+ e^- \rightarrow \Upsilon(4S)$
$27.0\pm3.5^{+2.8}_{-2.5}$	[4] HIROSE	17	BELL	$e^+ e^- \rightarrow \Upsilon(4S)$
29.3±3.8±1.5	[5] HUSCHLE	15	BELL	$e^+ e^- \rightarrow \Upsilon(4S)$
33.2±2.4±1.8	[5] LEES	12D	BABR	$e^+ e^- \rightarrow \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
29.7±5.6±1.8	[6] AUBERT	08N	BABR	Repl. by LEES 12D

→ UNCHECKED ←

[1] Uses leptonic τ decays and a fully reconstructed B meson in hadronic final states as a tag on the recoil side.

NODE=S049R37;LINKAGE=D

[2] Uses $\tau^+ \rightarrow \mu^+ \nu_\mu \overline{\nu}_\tau$ and μ^+ as ℓ^+. The measurement combines fully reconstructed D^{*+} sample with sample where only D^0 from D^* decays is reconstructed.

NODE=S049R37;LINKAGE=C

[3] The tag-side B meson is reconstructed in a semileptonic decay mode and the signal-side τ is reconstructed in a purely leptonic decay. The Belle combination of HUSCHLE 15, HIROSE 17, and CARIA 20 yields R(D^*) = 0.238 ± 0.018.

NODE=S049R37;LINKAGE=B

[4] Uses a fully reconstructed B meson as a tag on the recoil side.

NODE=S049R37;LINKAGE=A

[5] Uses $\tau^+ \rightarrow e^+ \nu_e \overline{\nu}_\tau$ and $\tau^+ \rightarrow \mu^+ \nu_\mu \overline{\nu}_\tau$ and e^+ or μ^+ as ℓ^+. Obtained from simultaneous fit to B+ and B0 assuming isospin symmetry. Uses a fully reconstructed B meson as a tag on the recoil side.

NODE=S049R37;LINKAGE=LE

[6] Uses a fully reconstructed B meson as a tag on the recoil side. The results are normalized to the B^+ decay rate.

NODE=S049R37;LINKAGE=AU

$\langle n_c \rangle$

NODE=S049S24

VALUE	DOCUMENT ID		TECN	COMMENT
1.10±0.05	[1] GIBBONS	97B	CLE2	$e^+ e^- \rightarrow \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.98±0.16±0.12	[2] ALAM	87B	CLEO	$e^+ e^- \rightarrow \Upsilon(4S)$

[1] GIBBONS 97B from charm counting using B($D_s^+ \rightarrow \phi\pi$) = 0.036 ± 0.009 and B($\Lambda_c^+ \rightarrow p K^- \pi^+$) = 0.044 ± 0.006. NODE=S049S24;LINKAGE=B

[2] From the difference between K^- and K^+ widths. ALAM 87B measurement relies on lepton-kaon correlations. It does not consider the possibility of $B\overline{B}$ mixing. We have thus removed it from the average. NODE=S049S24;LINKAGE=A

$\Gamma(D^\pm \text{anything})/\Gamma_{\text{total}}$ Γ_{33}/Γ

NODE=S049S17

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.231±0.012 OUR AVERAGE					
0.230±0.012±0.004		[1] GIBBONS	97B	CLE2	$e^+ e^- \rightarrow \Upsilon(4S)$
0.241±0.037±0.004		[2] BORTOLETTO	92	CLEO	$e^+ e^- \rightarrow \Upsilon(4S)$
0.223±0.051±0.004		[3] ALBRECHT	91H	ARG	$e^+ e^- \rightarrow \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.203±0.048±0.003	20k	[4] BORTOLETTO	87	CLEO	Sup. by BORTOLETTO 92

[1] GIBBONS 97B reports $[\Gamma(B \rightarrow D^\pm \text{anything})/\Gamma_{\text{total}}] \times [B(D^+ \rightarrow K^- 2\pi^+)]$ = 0.0216 ± 0.0008 ± 0.00082 which we divide by our best value B($D^+ \rightarrow K^- 2\pi^+$) = (9.38 ± 0.16) × 10^{-2}. Our first error is their experiment's error and our second error is the systematic error from using our best value. NODE=S049S17;LINKAGE=D

[2] BORTOLETTO 92 reports $[\Gamma(B \rightarrow D^\pm \text{anything})/\Gamma_{\text{total}}] \times [B(D^+ \rightarrow K^- 2\pi^+)]$ = 0.0226 ± 0.0030 ± 0.0018 which we divide by our best value B($D^+ \rightarrow K^- 2\pi^+$) = (9.38 ± 0.16) × 10^{-2}. Our first error is their experiment's error and our second error is the systematic error from using our best value. NODE=S049S17;LINKAGE=QZ

[3] ALBRECHT 91H reports $[\Gamma(B \rightarrow D^\pm \text{anything})/\Gamma_{\text{total}}] \times [B(D^+ \rightarrow K^- 2\pi^+)]$ = 0.0209 ± 0.0027 ± 0.0040 which we divide by our best value B($D^+ \rightarrow K^- 2\pi^+$) = (9.38 ± 0.16) × 10^{-2}. Our first error is their experiment's error and our second error is the systematic error from using our best value. NODE=S049S17;LINKAGE=C

[4] BORTOLETTO 87 reports $[\Gamma(B \rightarrow D^\pm \text{anything})/\Gamma_{\text{total}}] \times [B(D^+ \rightarrow K^- 2\pi^+)]$ = 0.019 ± 0.004 ± 0.002 which we divide by our best value B($D^+ \rightarrow K^- 2\pi^+$) = (9.38 ± 0.16) × 10^{-2}. Our first error is their experiment's error and our second error is the systematic error from using our best value. NODE=S049S17;LINKAGE=B

$\Gamma(D^0 / \overline{D}^0 \text{anything})/\Gamma_{\text{total}}$ Γ_{34}/Γ

NODE=S049S8

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.646 ±0.021 OUR AVERAGE Error includes scale factor of 1.5. See the ideogram below.					
0.6663±0.0004±0.0177		ZHUKOVA	23	BELL	$e^+ e^- \rightarrow \Upsilon(4S)$
0.636 ±0.024 ±0.005		[1] GIBBONS	97B	CLE2	$e^+ e^- \rightarrow \Upsilon(4S)$
0.591 ±0.047 ±0.005		[2] BORTOLETTO	92	CLEO	$e^+ e^- \rightarrow \Upsilon(4S)$
0.492 ±0.074 ±0.004		[3] ALBRECHT	91H	ARG	$e^+ e^- \rightarrow \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.532 ±0.065 ±0.004	21k	[4] BORTOLETTO	87	CLEO	$e^+ e^- \rightarrow \Upsilon(4S)$
0.608 ±0.183 ±0.005		[5] GREEN	83	CLEO	Repl. by BORTOLETTO 87

[1] GIBBONS 97B reports $[\Gamma(B \rightarrow D^0 / \overline{D}^0 \text{anything})/\Gamma_{\text{total}}] \times [B(D^0 \rightarrow K^- \pi^+)]$ = 0.0251 ± 0.0006 ± 0.00075 which we divide by our best value B($D^0 \rightarrow K^- \pi^+$) = (3.945 ± 0.030) × 10^{-2}. Our first error is their experiment's error and our second error is the systematic error from using our best value. NODE=S049S8;LINKAGE=D

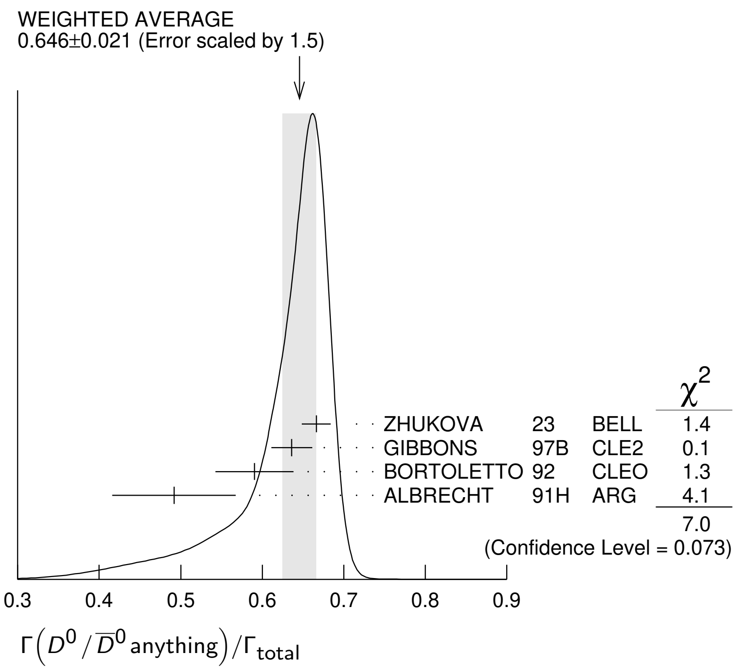
[2] BORTOLETTO 92 reports $[\Gamma(B \rightarrow D^0 / \overline{D}^0 \text{anything})/\Gamma_{\text{total}}] \times [B(D^0 \rightarrow K^- \pi^+)]$ = 0.0233 ± 0.0012 ± 0.0014 which we divide by our best value B($D^0 \rightarrow K^- \pi^+$) = (3.945 ± 0.030) × 10^{-2}. Our first error is their experiment's error and our second error is the systematic error from using our best value. NODE=S049S8;LINKAGE=QZ

[3] ALBRECHT 91H reports $[\Gamma(B \rightarrow D^0 / \overline{D}^0 \text{anything})/\Gamma_{\text{total}}] \times [B(D^0 \rightarrow K^- \pi^+)]$ = 0.0194 ± 0.0015 ± 0.0025 which we divide by our best value B($D^0 \rightarrow K^- \pi^+$) = (3.945 ± 0.030) × 10^{-2}. Our first error is their experiment's error and our second error is the systematic error from using our best value. NODE=S049S8;LINKAGE=C

[4] BORTOLETTO 87 reports $[\Gamma(B \rightarrow D^0 / \overline{D}^0 \text{anything})/\Gamma_{\text{total}}] \times [B(D^0 \rightarrow K^- \pi^+)]$ = 0.0210 ± 0.0015 ± 0.0021 which we divide by our best value B($D^0 \rightarrow K^- \pi^+$) = (3.945 ± 0.030) × 10^{-2}. Our first error is their experiment's error and our second error is the systematic error from using our best value. NODE=S049S8;LINKAGE=B

[5] GREEN 83 reports $[\Gamma(B \rightarrow D^0 / \overline{D}^0 \text{anything})/\Gamma_{\text{total}}] \times [B(D^0 \rightarrow K^- \pi^+)]$ = 0.024 ± 0.006 ± 0.004 which we divide by our best value B($D^0 \rightarrow K^- \pi^+$) = (3.945 ± 0.030) × NODE=S049S8;LINKAGE=A

10^{-2}. Our first error is their experiment's error and our second error is the systematic error from using our best value.



$\Gamma\left(D^-\ell^+\nu_\ell\,\text{anything}\right)/\Gamma\left(\overline{D}^0\ell^+\nu_\ell\,\text{anything}\right)$ Γ_4/Γ_5

NODE=S049R06
NODE=S049R06

VALUE	DOCUMENT ID	TECN	COMMENT
0.359±0.006±0.009	[1] AAIJ 19AD	LHCB	pp at 13 TeV

[1] AAIJ 19AD uses $D^0 \to K^-\pi^+$ and $D^+ \to K^-\pi^+\pi^+$ modes. NODE=S049R06;LINKAGE=A

$\Gamma\left(D^*(2010)^\pm\,\text{anything}\right)/\Gamma_{\text{total}}$ Γ_{35}/Γ

NODE=S049S12
NODE=S049S12

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT	
0.225±0.015 OUR AVERAGE					
0.247±0.019±0.01		[1] GIBBONS 97B	CLE2	$e^+e^- \to \Upsilon(4S)$	SYCLP=A
0.205±0.019±0.007		[2] ALBRECHT 96D	ARG	$e^+e^- \to \Upsilon(4S)$	OCCUR=2;SYCLP=A
0.230±0.028±0.009		[3] BORTOLETTO 92	CLEO	$e^+e^- \to \Upsilon(4S)$	OCCUR=4;SYCLP=A
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.283±0.053±0.002		[4] ALBRECHT 91H	ARG	Sup. by ALBRECHT 96D	
0.22 ±0.04 $^{+0.07}_{-0.04}$	5200	[5] BORTOLETTO 87	CLEO	$e^+e^- \to \Upsilon(4S)$	
0.27 ±0.06 $^{+0.08}_{-0.06}$	510	[6] CSORNA 85	CLEO	Repl. by BORTOLETTO 87	

[1] GIBBONS 97B reports B($B \to D^*(2010)^+$ anything) $= 0.239 \pm 0.015 \pm 0.014 \pm 0.009$ using CLEO measured D and D^* branching fractions. We rescale to our PDG 96 values of D and D^* branching ratios. Our first error is their experiment's error and our second error is the systematic error from using our best value. NODE=S049S12;LINKAGE=E

[2] ALBRECHT 96D reports B($B \to D^*(2010)^+$ anything) 0.196 ± 0.019 using CLEO measured B($D^*(2010)^+ \to D^0\pi^+$) $= 0.681 \pm 0.01 \pm 0.013$, B($D^0 \to K^-\pi^+$) $= 0.0401 \pm 0.0014$, B($D^0 \to K^-\pi^+\pi^+\pi^-$) $= 0.081 \pm 0.005$., We rescale to our PDG 96 values of D and D^* branching ratios. Our first error is their experiment's error and our second error is the systematic error from using our best value. NODE=S049S12;LINKAGE=F

[3] BORTOLETTO 92 reports B($B \to D^*(2010)^+$ anything) $= 0.25 \pm 0.03 \pm 0.04$ using MARK II B($D^*(2010)^+ \to D^0\pi^+$) $= 0.57 \pm 0.06$ and B($D^0 \to K^-\pi^+$) $= 0.042 \pm 0.008$. We rescale to our PDG 96 values of D and D^* branching ratios. Our first error is their experiment's error and our second error is the systematic error from using our best value. NODE=S049S12;LINKAGE=G

[4] ALBRECHT 91H reports $0.348 \pm 0.060 \pm 0.035$ from a measurement of [$\Gamma(B \to D^*(2010)^\pm$ anything$)/\Gamma_{\text{total}}$] $\times$ [B($D^*(2010)^+ \to D^0\pi^+$)] assuming B($D^*(2010)^+ \to D^0\pi^+$) $= 0.55 \pm 0.04$, which we rescale to our best value B($D^*(2010)^+ \to D^0\pi^+$) $= (67.7 \pm 0.5) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value. Uses the PDG 90 B($D^0 \to K^-\pi^+$) $=0.0371 \pm 0.0025$. NODE=S049S12;LINKAGE=C

[5] BORTOLETTO 87 uses old MARK III (BALTRUSAITIS 86E) branching ratios B($D^0 \to K^-\pi^+$) $= 0.056 \pm 0.004 \pm 0.003$ and also assumes B($D^*(2010)^+ \to D^0\pi^+$) $= 0.60^{+0.08}_{-0.15}$. The product branching ratio for B($B \to D^*(2010)^+$) B($D^*(2010)^+ \to D^0\pi^+$) is $0.13 \pm 0.02 \pm 0.012$. Superseded by BORTOLETTO 92. NODE=S049S12;LINKAGE=B

[6] $V-A$ momentum spectrum used to extrapolate below p = 1 GeV. We correct the value assuming B($D^0 \to K^- \pi^+$) = 0.042 ± 0.006 and B($D^{*+} \to D^0 \pi^+$) = $0.6^{+0.08}_{-0.15}$. The product branching fraction is B($B \to D^{*+}$X)·B($D^{*+} \to \pi^+ D^0$)·B($D^0 \to K^- \pi^+$) = $(68 \pm 15 \pm 9) \times 10^{-4}$.

NODE=S049S12;LINKAGE=A

$\Gamma(\overline{D}^*(2007)^0 \text{anything})/\Gamma_{\text{total}}$ Γ_{36}/Γ

NODE=S049R35
NODE=S049R35

VALUE	DOCUMENT ID		TECN	COMMENT
0.260±0.023±0.015	[1] GIBBONS	97B	CLE2	$e^+ e^- \to \Upsilon(4S)$

[1] GIBBONS 97B reports B($B \to D^*(2007)^0$ anything) $0.247 \pm 0.012 \pm 0.018 \pm 0.018$ using CLEO measured D and D^* branching fractions. We rescale to our PDG 96 values of D and D^* branching ratios. Our first error is their experiment's error and our second error is the systematic error from using our best value.

NODE=S049R35;LINKAGE=A

$\Gamma(D_s^\pm \text{anything})/\Gamma_{\text{total}}$ Γ_{37}/Γ

NODE=S049S14
NODE=S049S14

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.106 ±0.006 OUR AVERAGE		Error includes scale factor of 1.7. See the ideogram below.			
0.1128±0.0003±0.0043		ZHUKOVA	23	BELL	$e^+ e^- \to \Upsilon(4S)$
0.089 ±0.010 ±0.008		[1] ARTUSO	05B	CLE2	$e^+ e^- \to \Upsilon(5S)$
0.087 ±0.005 ±0.008		[2] AUBERT	02G	BABR	$e^+ e^- \to \Upsilon(4S)$
0.065 ±0.011 ±0.006		[3] ALBRECHT	92G	ARG	$e^+ e^- \to \Upsilon(4S)$
0.068 ±0.010 ±0.006	257	[4] BORTOLETTO	90	CLEO	$e^+ e^- \to \Upsilon(4S)$
0.085 ±0.022 ±0.008		[5] HAAS	86	CLEO	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.094 ±0.007 ±0.008		[6] GIBAUT	96	CLE2	Repl. by ARTUSO 05B
0.094 ±0.024 ±0.008		[7] ALBRECHT	87H	ARG	$e^+ e^- \to \Upsilon(4S)$

[1] ARTUSO 05B reports $0.0905 \pm 0.0025 \pm 0.0140$ from a measurement of [$\Gamma(B \to D_s^\pm \text{anything})/\Gamma_{\text{total}}$] × [B($D_s^+ \to \phi\pi^+$)] assuming B($D_s^+ \to \phi\pi^+$) = $(4.4 \pm 0.5) \times 10^{-2}$, which we rescale to our best value B($D_s^+ \to \phi\pi^+$) = $(4.5 \pm 0.4) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

NODE=S049S14;LINKAGE=AR

[2] AUBERT 02G reports [$\Gamma(B \to D_s^\pm \text{anything})/\Gamma_{\text{total}}$] × [B($D_s^+ \to \phi\pi^+$)] = $0.00393 \pm 0.00007 \pm 0.00021$ which we divide by our best value B($D_s^+ \to \phi\pi^+$) = $(4.5 \pm 0.4) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

NODE=S049S14;LINKAGE=AG

[3] ALBRECHT 92G reports [$\Gamma(B \to D_s^\pm \text{anything})/\Gamma_{\text{total}}$] × [B($D_s^+ \to \phi\pi^+$)] = $0.00292 \pm 0.00039 \pm 0.00031$ which we divide by our best value B($D_s^+ \to \phi\pi^+$) = $(4.5 \pm 0.4) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

NODE=S049S14;LINKAGE=C

[4] BORTOLETTO 90 reports [$\Gamma(B \to D_s^\pm \text{anything})/\Gamma_{\text{total}}$] × [B($D_s^+ \to \phi\pi^+$)] = 0.00306 ± 0.00047 which we divide by our best value B($D_s^+ \to \phi\pi^+$) = $(4.5 \pm 0.4) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

NODE=S049S14;LINKAGE=A2

[5] HAAS 86 reports [$\Gamma(B \to D_s^\pm \text{anything})/\Gamma_{\text{total}}$] × [B($D_s^+ \to \phi\pi^+$)] = 0.0038 ± 0.0010 which we divide by our best value B($D_s^+ \to \phi\pi^+$) = $(4.5 \pm 0.4) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value. $64 \pm 22\%$ decays are 2-body.

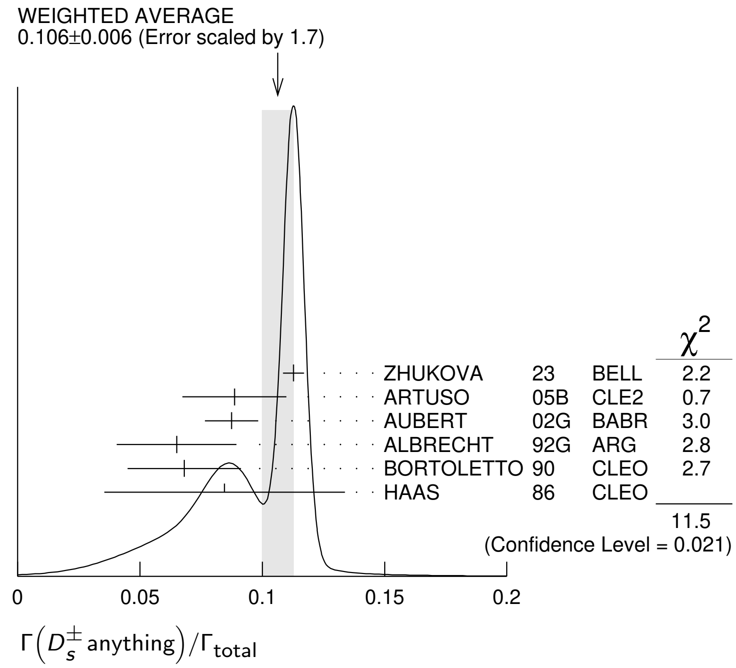
NODE=S049S14;LINKAGE=A

[6] GIBAUT 96 reports $0.1211 \pm 0.0039 \pm 0.0088$ from a measurement of [$\Gamma(B \to D_s^\pm \text{anything})/\Gamma_{\text{total}}$] × [B($D_s^+ \to \phi\pi^+$)] assuming B($D_s^+ \to \phi\pi^+$) = 0.035, which we rescale to our best value B($D_s^+ \to \phi\pi^+$) = $(4.5 \pm 0.4) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

NODE=S049S14;LINKAGE=Z9

[7] ALBRECHT 87H reports [$\Gamma(B \to D_s^\pm \text{anything})/\Gamma_{\text{total}}$] × [B($D_s^+ \to \phi\pi^+$)] = $0.0042 \pm 0.0009 \pm 0.0006$ which we divide by our best value B($D_s^+ \to \phi\pi^+$) = $(4.5 \pm 0.4) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value. $46 \pm 16\%$ of $B \to D_s$X decays are 2-body. Superseded by ALBRECHT 92G.

NODE=S049S14;LINKAGE=B



$\Gamma(D_s^{*\pm}\text{anything})/\Gamma_{\text{total}}$ Γ_{38}/Γ

NODE=S049R63

VALUE	DOCUMENT ID		TECN	COMMENT
0.063±0.009±0.006	[1] AUBERT	02G	BABR	$e^+e^- \to \Upsilon(4S)$

[1] AUBERT 02G reports $[\Gamma(B \to D_s^{*\pm}\text{anything})/\Gamma_{\text{total}}] \times [B(D_s^+ \to \phi\pi^+)] = 0.00284 \pm 0.00029 \pm 0.00025$ which we divide by our best value $B(D_s^+ \to \phi\pi^+) = (4.5 \pm 0.4) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

NODE=S049R63;LINKAGE=AG

$\Gamma(D_s^{*\pm}\overline{D}^{(*)})/\Gamma(D_s^{*\pm}\text{anything})$ Γ_{39}/Γ_{38}

NODE=S049R64

Sum over modes

VALUE	DOCUMENT ID		TECN	COMMENT
0.533±0.037±0.037	AUBERT	02G	BABR	$e^+e^- \to \Upsilon(4S)$

$\Gamma(\overline{D}D_{s0}(2317))/\Gamma_{\text{total}}$ Γ_{40}/Γ

NODE=S049R73

VALUE	DOCUMENT ID		TECN	COMMENT
seen	[1] KROKOVNY	03B	BELL	$e^+e^- \to \Upsilon(4S)$

[1] The product branching ratio for $B(B \to \overline{D}D_{s0}(2317)^+)\times B(D_{s0}(2317)^+ \to D_s\pi^0)$ is measured to be $(8.5^{+2.1}_{-1.9} \pm 2.6) \times 10^{-4}$.

NODE=S049R73;LINKAGE=A

$\Gamma(\overline{D}D_{sJ}(2457))/\Gamma_{\text{total}}$ Γ_{41}/Γ

NODE=S049R74

VALUE	DOCUMENT ID		TECN	COMMENT
seen	[1] KROKOVNY	03B	BELL	$e^+e^- \to \Upsilon(4S)$

[1] The product branching ratio for $B(B \to \overline{D}D_{sJ}(2457)^+)\times B(D_{sJ}(2457)^+ \to D_s^{*+}\pi^0, D_s^+\gamma)$ are measured to be $(17.8^{+4.5}_{-3.9} \pm 5.3) \times 10^{-4}$ and $(6.7^{+1.3}_{-1.2} \pm 2.0) \times 10^{-4}$, respectively.

NODE=S049R74;LINKAGE=A

$\left[\Gamma(D^{(*)}\overline{D}^{(*)}K^0) + \Gamma(D^{(*)}\overline{D}^{(*)}K^\pm)\right]/\Gamma_{\text{total}}$ Γ_{42}/Γ

NODE=S049R1

VALUE	DOCUMENT ID		TECN	COMMENT
$\mathbf{0.071^{+0.025}_{-0.015}{}^{+0.010}_{-0.009}}$	[1] BARATE	98Q	ALEP	$e^+e^- \to Z$

[1] The systematic error includes the uncertainties due to the charm branching ratios.

NODE=S049R1;LINKAGE=A

$\Gamma(b \to c\overline{c}s)/\Gamma_{\text{total}}$ Γ_{43}/Γ

NODE=S049R31

VALUE	DOCUMENT ID		TECN	COMMENT
0.219±0.037	[1] COAN	98	CLE2	$e^+e^- \to \Upsilon(4S)$

[1] COAN 98 uses D-ℓ correlation.

NODE=S049R31;LINKAGE=B

$\Gamma(D_s^{(*)}\overline{D}^{(*)})/\Gamma(D_s^{\pm}\text{ anything})$ Γ_{44}/Γ_{37}

NODE=S049S36

Sum over modes.

NODE=S049S36
NODE=S049S36

VALUE	DOCUMENT ID		TECN	COMMENT
0.469±0.017 OUR AVERAGE				
0.464±0.013±0.015	AUBERT	02G	BABR	$e^+e^- \to \Upsilon(4S)$
$0.56\ ^{+0.21}_{-0.15}\ ^{+0.09}_{-0.08}$	[1] BARATE	98Q	ALEP	$e^+e^- \to Z$
0.457±0.019±0.037	GIBAUT	96	CLE2	$e^+e^- \to \Upsilon(4S)$
0.58 ±0.07 ±0.09	ALBRECHT	92G	ARG	$e^+e^- \to \Upsilon(4S)$
0.56 ±0.10	BORTOLETTO	90	CLEO	$e^+e^- \to \Upsilon(4S)$

[1] BARATE 98Q measures $B(B \to D_s^{(*)}\overline{D}^{(*)}) = 0.056\,^{+0.021}_{-0.015}\,^{+0.009}_{-0.008}\,^{+0.019}_{-0.011}$, where the third error results from the uncertainty on the different D branching ratios and is dominated by the uncertainty on $B(D_s^+ \to \phi\pi^+)$. We divide $B(B \to D_s^{(*)}\overline{D}^{(*)})$ by our best value of $B(B \to D_s\text{ anything}) = 0.1 \pm 0.025$.

NODE=S049S36;LINKAGE=B

$\Gamma(D^*D^*(2010)^{\pm})/\Gamma_{\text{total}}$ Γ_{45}/Γ

NODE=S049R4
NODE=S049R4

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<5.9\times10^{-3}$	90	BARATE	98Q	ALEP	$e^+e^- \to Z$

$[\Gamma(DD^*(2010)^{\pm}) + \Gamma(D^*D^{\pm})]/\Gamma_{\text{total}}$ Γ_{46}/Γ

NODE=S049R5
NODE=S049R5

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<5.5\times10^{-3}$	90	BARATE	98Q	ALEP	$e^+e^- \to Z$

$\Gamma(DD^{\pm})/\Gamma_{\text{total}}$ Γ_{47}/Γ

NODE=S049R6
NODE=S049R6

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<3.1\times10^{-3}$	90	BARATE	98Q	ALEP	$e^+e^- \to Z$

$\Gamma(D_s^{(*)\pm}\overline{D}^{(*)}X(n\pi^{\pm}))/\Gamma_{\text{total}}$ Γ_{48}/Γ

NODE=S049R3
NODE=S049R3

VALUE	DOCUMENT ID		TECN	COMMENT
$\mathbf{0.094\,^{+0.040}_{-0.031}\,^{+0.034}_{-0.024}}$	[1] BARATE	98Q	ALEP	$e^+e^- \to Z$

[1] The systematic error includes the uncertainties due to the charm branching ratios.

NODE=S049R3;LINKAGE=A

$\Gamma(\overline{D}^*(2010)\gamma)/\Gamma_{\text{total}}$ Γ_{49}/Γ

NODE=S049S54
NODE=S049S54

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<1.1\times10^{-3}$	90	[1] LESIAK	92	CBAL	$e^+e^- \to \Upsilon(4S)$

[1] LESIAK 92 set a limit on the inclusive process $B(b \to s\gamma) < 2.8\times10^{-3}$ at 90% CL for the range of masses of 892–2045 MeV, independent of assumptions about s-quark hadronization.

NODE=S049S54;LINKAGE=A

$\Gamma(D_s^+\pi^-, D_s^{*+}\pi^-, D_s^+\rho^-, D_s^{*+}\rho^-, D_s^+\pi^0, D_s^{*+}\pi^0, D_s^+\eta, D_s^{*+}\eta, D_s^+\rho^0, D_s^{*+}\rho^0, D_s^+\omega, D_s^{*+}\omega)/\Gamma_{\text{total}}$ Γ_{50}/Γ

NODE=S049S91

Sum over modes.

NODE=S049S91
NODE=S049S91

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<4\times10^{-4}$	90	[1] ALEXANDER	93B	CLE2	$e^+e^- \to \Upsilon(4S)$

[1] ALEXANDER 93B reports $< 4.8\times10^{-4}$ from a measurement of $[\Gamma(B \to D_s^+\pi^-, D_s^{*+}\pi^-, D_s^+\rho^-, D_s^{*+}\rho^-, D_s^+\pi^0, D_s^{*+}\pi^0, D_s^+\eta, D_s^{*+}\eta, D_s^+\rho^0, D_s^{*+}\rho^0, D_s^+\omega, D_s^{*+}\omega)/\Gamma_{\text{total}}] \times [B(D_s^+ \to \phi\pi^+)]$ assuming $B(D_s^+ \to \phi\pi^+) = 0.037$, which we rescale to our best value $B(D_s^+ \to \phi\pi^+) = 4.5\times10^{-2}$. This branching ratio limit provides a model-dependent upper limit $|V_{ub}|/|V_{cb}| < 0.16$ at CL=90%.

NODE=S049S91;LINKAGE=XB

$\Gamma(D_{s1}(2536)^+\text{ anything})/\Gamma_{\text{total}}$ Γ_{51}/Γ

NODE=S049R32

$D_{s1}(2536)^+$ is the narrow P-wave D_s^+ meson with $J^P = 1^+$.

NODE=S049R32
NODE=S049R32

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.0095	90	[1] BISHAI	98	CLE2	$e^+e^- \to \Upsilon(4S)$

[1] Assuming factorization, the decay constant $f_{D_{s1}^+}$ is at least a factor of 2.5 times smaller than $f_{D_s^+}$.

NODE=S049R32;LINKAGE=A

$\Gamma(J/\psi(1S)\,\text{anything})/\Gamma_{\text{total}}$ — Γ_{52}/Γ

NODE=S049S7

VALUE (units 10^{-2})	EVTS	DOCUMENT ID	TECN	COMMENT
1.094±0.032 OUR AVERAGE		Error includes scale factor of 1.1.		
1.057±0.012±0.040		[1] AUBERT 03F	BABR	$e^+e^- \to \Upsilon(4S)$
1.121±0.013±0.042		ANDERSON 02	CLE2	$e^+e^- \to \Upsilon(4S)$
1.29 ±0.45 ±0.01	27	[2] MASCHMANN 90	CBAL	$e^+e^- \to \Upsilon(4S)$
1.24 ±0.27 ±0.01	120	[3] ALBRECHT 87D	ARG	$e^+e^- \to \Upsilon(4S)$
1.35 ±0.24 ±0.01	52	[4] ALAM 86	CLEO	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
1.12 ±0.06 ±0.01	1489	[5] BALEST 95B	CLE2	$e^+e^- \to \Upsilon(4S)$
1.4 $^{+0.6}_{-0.5}$	7	[6] ALBRECHT 85H	ARG	$e^+e^- \to \Upsilon(4S)$
1.1 ±0.21 ±0.23	46	[7] HAAS 85	CLEO	Repl. by ALAM 86

[1] AUBERT 03F also reports the momentum distribution and helicity of $J/\psi \to \ell^+\ell^-$ in the $\Upsilon(4S)$ center-of-mass frame. NODE=S049S7;LINKAGE=TX

[2] MASCHMANN 90 reports $(1.12 \pm 0.33 \pm 0.25) \times 10^{-2}$ from a measurement of $[\Gamma(B \to J/\psi(1S)\,\text{anything})/\Gamma_{\text{total}}] \times [B(J/\psi(1S) \to e^+e^-)]$ assuming $B(J/\psi(1S) \to e^+e^-) = 0.069 \pm 0.009$, which we rescale to our best value $B(J/\psi(1S) \to e^+e^-) = (5.971 \pm 0.032) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value. NODE=S049S7;LINKAGE=BC

[3] ALBRECHT 87D reports $(1.07 \pm 0.16 \pm 0.22) \times 10^{-2}$ from a measurement of $[\Gamma(B \to J/\psi(1S)\,\text{anything})/\Gamma_{\text{total}}] \times [B(J/\psi(1S) \to e^+e^-)]$ assuming $B(J/\psi(1S) \to e^+e^-) = 0.069 \pm 0.009$, which we rescale to our best value $B(J/\psi(1S) \to e^+e^-) = (5.971 \pm 0.032) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value. ALBRECHT 87D find the branching ratio for J/ψ not from $\psi(2S)$ to be 0.0081 ± 0.0023. NODE=S049S7;LINKAGE=B

[4] ALAM 86 reports $(1.09 \pm 0.16 \pm 0.21) \times 10^{-2}$ from a measurement of $[\Gamma(B \to J/\psi(1S)\,\text{anything})/\Gamma_{\text{total}}] \times [B(J/\psi(1S) \to \mu^+\mu^-)]$ assuming $B(J/\psi(1S) \to \mu^+\mu^-) = 0.074 \pm 0.012$, which we rescale to our best value $B(J/\psi(1S) \to \mu^+\mu^-) = (5.961 \pm 0.033) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value. NODE=S049S7;LINKAGE=BD

[5] BALEST 95B reports $(1.12 \pm 0.04 \pm 0.06) \times 10^{-2}$ from a measurement of $[\Gamma(B \to J/\psi(1S)\,\text{anything})/\Gamma_{\text{total}}] \times [B(J/\psi(1S) \to e^+e^-)]$ assuming $B(J/\psi(1S) \to e^+e^-) = 0.0599 \pm 0.0025$, which we rescale to our best value $B(J/\psi(1S) \to e^+e^-) = (5.971 \pm 0.032) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value. They measure $J/\psi(1S) \to e^+e^-$ and $\mu^+\mu^-$ and use PDG 1994 values for the branching fractions. The rescaling is the same for either mode so we use e^+e^-. NODE=S049S7;LINKAGE=D

[6] Statistical and systematic errors were added in quadrature. ALBRECHT 85H also report a CL = 90% limit of 0.007 for $B \to J/\psi(1S) + X$ where m_X <1 GeV. NODE=S049S7;LINKAGE=A

[7] Dimuon and dielectron events used. NODE=S049S7;LINKAGE=C

$\Gamma(J/\psi(1S)\,(\text{direct})\,\text{anything})/\Gamma_{\text{total}}$ — Γ_{53}/Γ

NODE=S049R23

VALUE	DOCUMENT ID	TECN	COMMENT
0.0078 ±0.0004 OUR AVERAGE	Error includes scale factor of 1.1.		
0.00740±0.00023±0.00043	[1] AUBERT 03F	BABR	$e^+e^- \to \Upsilon(4S)$
0.00813±0.00017±0.00037	[2] ANDERSON 02	CLE2	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •			
0.0080 ±0.0008	[3] BALEST 95B	CLE2	$e^+e^- \to \Upsilon(4S)$

[1] AUBERT 03F also reports the helicity of $J/\psi \to \ell^+\ell^-$ produced directly in B decay. NODE=S049R23;LINKAGE=TX

[2] Also reports the measurement of $J/\psi \to \ell^+\ell^-$ polarization produced directly from B decay. NODE=S049R23;LINKAGE=PO

[3] BALEST 95B assume PDG 1994 values for sub mode branching ratios. $J/\psi(1S)$ mesons are reconstructed in $J/\psi(1S) \to e^+e^-$ and $J/\psi(1S) \to \mu^+\mu^-$. The $B \to J/\psi(1S)X$ branching ratio contains $J/\psi(1S)$ mesons directly from B decays and also from feeddown through $\psi(2S) \to J/\psi(1S)$, $\chi_{c1}(1P) \to J/\psi(1S)$, or $\chi_{c2}(1P) \to J/\psi(1S)$. Using the measured inclusive rates, BALEST 95B corrects for the feeddown and finds the $B \to J/\psi(1S)\,(\text{direct})$ X branching ratio. NODE=S049R23;LINKAGE=D

$\Gamma(\psi(2S)\,\text{anything})/\Gamma_{\text{total}}$ — Γ_{54}/Γ

NODE=S049S25

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
0.00307±0.00021 OUR AVERAGE				
0.00297±0.00020±0.00020		AUBERT 03F	BABR	$e^+e^- \to \Upsilon(4S)$
0.00316±0.00014±0.00028		[1] ANDERSON 02	CLE2	$e^+e^- \to \Upsilon(4S)$
0.0046 ±0.0017 ±0.0011	8	ALBRECHT 87D	ARG	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.0034 ±0.0004 ±0.0003	240	[2] BALEST 95B	CLE2	$e^+e^- \to \Upsilon(4S)$

[1] Also reports the measurement of $\psi(2S) \to \ell^+\ell^-$ polarization produced directly from B decay. NODE=S049S25;LINKAGE=PO

[2] BALEST 95B assume PDG 1994 values for sub mode branching ratios. They find B($B \to \psi(2S)$X, $\psi(2S) \to \ell^+\ell^-$) = 0.30 ± 0.05 ± 0.04 and B($B \to \psi(2S)$X, $\psi(2S) \to J/\psi(1S)\pi^+\pi^-$) = 0.37±0.05±0.05. Weighted average is quoted for B($B \to \psi(2S)$X). NODE=S049S25;LINKAGE=D

$\Gamma(\chi_{c1}(1P)\,\text{anything})/\Gamma_{\text{total}}$ Γ_{55}/Γ

NODE=S049R89
NODE=S049R89

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
3.55±0.27 OUR AVERAGE		Error includes scale factor of 1.3. See the ideogram below.			
3.33±0.05±0.24		[1] BHARDWAJ	16	BELL	$e^+e^- \to \Upsilon(4S)$
3.67±0.35±0.44		AUBERT	03F	BABR	$e^+e^- \to \Upsilon(4S)$
4.35±0.29±0.40		ANDERSON	02	CLE2	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
3.63±0.22±0.34		[2] ABE	02L	BELL	Repl. by BHARDWAJ 16
3.30±0.35±0.12		[3] CHEN	01	CLE2	$e^+e^- \to \Upsilon(4S)$
4.0 ±0.6 ±0.4	112	[4] BALEST	95B	CLE2	Repl. by CHEN 01
10.5 ±3.5 ±2.5		[5] ALBRECHT	92E	ARG	$e^+e^- \to \Upsilon(4S)$

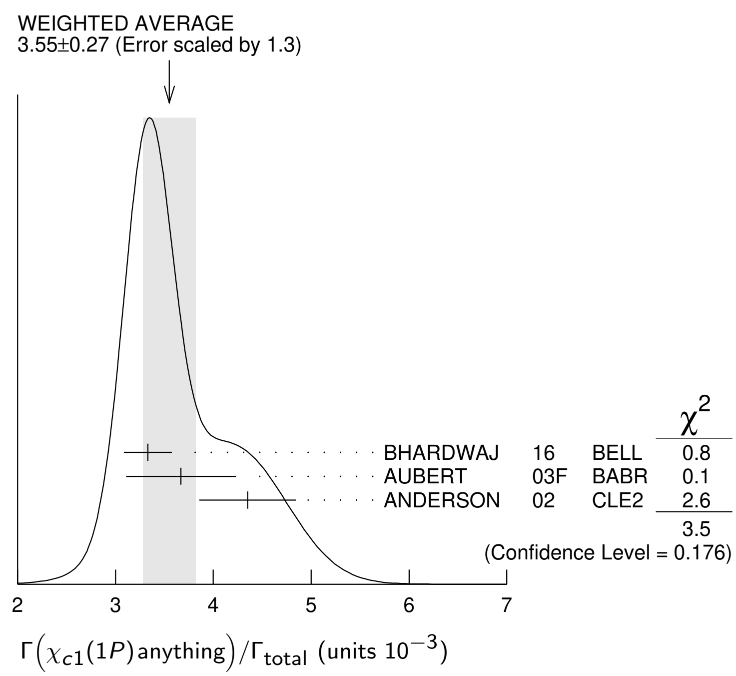
[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$. NODE=S049R89;LINKAGE=B

[2] ABE 02L uses PDG 01 values for B($J/\psi(1S) \to \ell^+\ell^-$) and B($\chi_{c1,c2} \to J/\psi(1S)\gamma$). NODE=S049R89;LINKAGE=LA

[3] CHEN 01 reports 0.00414 ± 0.00031 ± 0.00040 from a measurement of [$\Gamma(B \to \chi_{c1}(1P)$anything$)/\Gamma_{\text{total}}$] × [B($\chi_{c1}(1P) \to \gamma J/\psi(1S)$)] assuming B($\chi_{c1}(1P) \to \gamma J/\psi(1S)$) = 0.273 ± 0.016, which we rescale to our best value B($\chi_{c1}(1P) \to \gamma J/\psi(1S)$) = (34.3 ± 1.3) × 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 $\Upsilon(4S)$. NODE=S049R89;LINKAGE=J3

[4] BALEST 95B assume B($\chi_{c1}(1P) \to J/\psi(1S)\gamma$) = (27.3 ± 1.6) × 10^{-2}, the PDG 1994 value. Fit to ψ-photon invariant mass distribution allows for a $\chi_{c1}(1P)$ and a $\chi_{c2}(1P)$ component. NODE=S049R89;LINKAGE=D

[5] ALBRECHT 92E assumes no $\chi_{c2}(1P)$ production. NODE=S049R89;LINKAGE=A



$\Gamma(\chi_{c1}(1P)\,(\text{direct})\,\text{anything})/\Gamma_{\text{total}}$ Γ_{56}/Γ

NODE=S049R24
NODE=S049R24

VALUE (units 10^{-3})	DOCUMENT ID		TECN	COMMENT
3.08±0.19 OUR AVERAGE				
3.03±0.05±0.24	[1] BHARDWAJ	16	BELL	$e^+e^- \to \Upsilon(4S)$
3.41±0.35±0.42	AUBERT	03F	BABR	$e^+e^- \to \Upsilon(4S)$
3.1 ±0.4 ±0.1	[2] CHEN	01	CLE2	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
3.32±0.22±0.34	[3] ABE	02L	BELL	Repl. by BHARDWAJ 16
3.7 ±0.7	[4] BALEST	95B	CLE2	Repl. by CHEN 01

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

[2] CHEN 01 reports $0.00383 \pm 0.00031 \pm 0.00040$ from a measurement of $[\Gamma(B \to \chi_{c1}(1P)\text{(direct) anything})/\Gamma_{total}] \times [B(\chi_{c1}(1P) \to \gamma J/\psi(1S))]$ assuming $B(\chi_{c1}(1P) \to \gamma J/\psi(1S)) = 0.273 \pm 0.016$, which we rescale to our best value $B(\chi_{c1}(1P) \to \gamma J/\psi(1S)) = (34.3 \pm 1.3) \times 10^{-2}$. 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 $\Upsilon(4S)$.

[3] ABE 02L uses PDG 01 values for $B(J/\psi(1S) \to \ell^+\ell^-)$ and $B(\chi_{c1,c2} \to J/\psi(1S)\gamma)$.

[4] BALEST 95B assume PDG 1994 values. $J/\psi(1S)$ mesons are reconstructed in the e^+e^- and $\mu^+\mu^-$ modes. The $B \to \chi_{c1}(1P)X$ branching ratio contains $\chi_{c1}(1P)$ mesons directly from B decays and also from feeddown through $\psi(2S) \to \chi_{c1}(1P)\gamma$. Using the measured inclusive rates, BALEST 95B corrects for the feeddown and finds the $B \to \chi_{c1}(1P)\text{(direct) X}$ branching ratio.

NODE=S049R24;LINKAGE=A
NODE=S049R24;LINKAGE=J3
NODE=S049R24;LINKAGE=LA
NODE=S049R24;LINKAGE=D

$\Gamma(\chi_{c2}(1P)\text{anything})/\Gamma_{total}$ Γ_{57}/Γ

NODE=S049R21
NODE=S049R21

VALUE (units 10^{-4})	CL%	DOCUMENT ID		TECN	COMMENT
9.9±1.7 OUR AVERAGE		Error includes scale factor of 1.6. See the ideogram below.			
$9.8 \pm 0.6 \pm 1.0$		[1] BHARDWAJ	16	BELL	$e^+e^- \to \Upsilon(4S)$
$21.0 \pm 4.5 \pm 3.1$		AUBERT	03F	BABR	$e^+e^- \to \Upsilon(4S)$
$6.8 \pm 3.4 \pm 0.3$		[2] CHEN	01	CLE2	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$18.0^{+2.3}_{-2.8} \pm 2.6$		[3] ABE	02L	BELL	Repl. by BHARDWAJ 16
<38	90	[4] BALEST	95B	CLE2	Repl. by CHEN 01

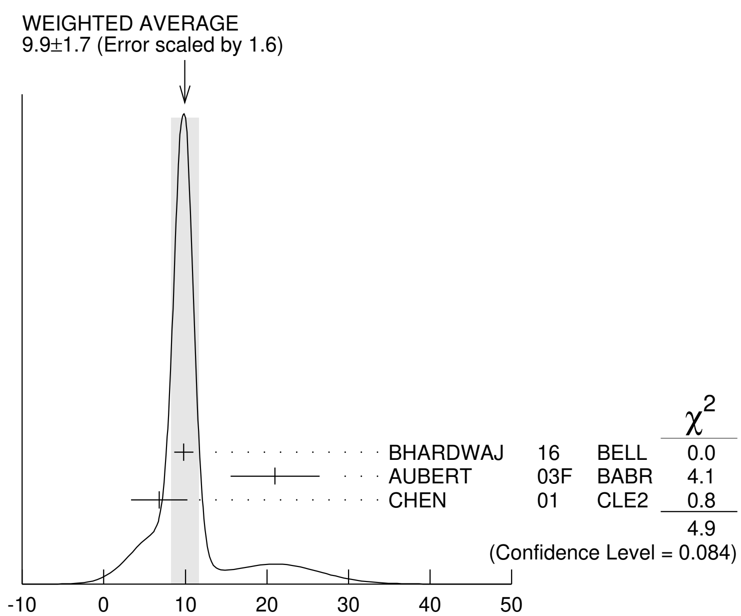
[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] CHEN 01 reports $(9.8 \pm 4.8 \pm 1.5) \times 10^{-4}$ from a measurement of $[\Gamma(B \to \chi_{c2}(1P)\text{anything})/\Gamma_{total}] \times [B(\chi_{c2}(1P) \to \gamma J/\psi(1S))]$ assuming $B(\chi_{c2}(1P) \to \gamma J/\psi(1S)) = 0.135 \pm 0.011$, which we rescale to our best value $B(\chi_{c2}(1P) \to \gamma J/\psi(1S)) = (19.5 \pm 0.7) \times 10^{-2}$. 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 $\Upsilon(4S)$.

[3] ABE 02L uses PDG 01 values for $B(J/\psi(1S) \to \ell^+\ell^-)$ and $B(\chi_{c1,c2} \to J/\psi(1S)\gamma)$.

[4] BALEST 95B assume $B(\chi_{c2}(1P) \to J/\psi(1S)\gamma) = (13.5 \pm 1.1) \times 10^{-2}$, the PDG 1994 value. $J/\psi(1S)$ mesons are reconstructed in the e^+e^- and $\mu^+\mu^-$ modes, and PDG 1994 branching fractions are used. If interpreted as signal, the 35 ± 13 events correspond to $B(B \to \chi_{c2}(1P)X) = (0.25 \pm 0.10 \pm 0.03) \times 10^{-2}$.

NODE=S049R21;LINKAGE=A
NODE=S049R21;LINKAGE=J3
NODE=S049R21;LINKAGE=LA
NODE=S049R21;LINKAGE=D



$\Gamma(\chi_{c2}(1P)\text{anything})/\Gamma_{total}$ Γ_{57}/Γ

$\Gamma(\chi_{c2}(1P)\text{(direct) anything})/\Gamma_{\text{total}}$ Γ_{58}/Γ

NODE=S049R71
NODE=S049R71

VALUE (units 10^{-3})	DOCUMENT ID		TECN	COMMENT
0.75±0.11 OUR AVERAGE				
0.70±0.06±0.10	[1] BHARDWAJ	16	BELL	$e^+e^- \to \Upsilon(4S)$
1.90±0.45±0.29	AUBERT	03F	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$1.53^{+0.23}_{-0.28}\pm0.27$	[2] ABE	02L	BELL	Repl. by BHARDWAJ 16

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$. NODE=S049R71;LINKAGE=A

[2] ABE 02L uses PDG 01 values for B($J/\psi(1S) \to \ell^+\ell^-$) and B($\chi_{c1,c2} \to J/\psi(1S)\gamma$). NODE=S049R71;LINKAGE=LA

$\Gamma(\eta_c(1S)\text{anything})/\Gamma_{\text{total}}$ Γ_{59}/Γ

NODE=S049R22
NODE=S049R22

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.009	90	[1] BALEST	95B	CLE2	$e^+e^- \to \Upsilon(4S)$

[1] BALEST 95B assume PDG 1994 values for sub mode branching ratios. $J/\psi(1S)$ mesons are reconstructed in $J/\psi(1S) \to e^+e^-$ and $J/\psi(1S) \to \mu^+\mu^-$. Search region 2960 $< m_{\eta_c(1S)} <$3010 MeV/c^2. NODE=S049R22;LINKAGE=D

$\Gamma(K\chi_{c1}(3872))/\Gamma_{\text{total}}$ Γ_{60}/Γ

NODE=S049S41
NODE=S049S41

VALUE (units 10^{-4})	DOCUMENT ID		TECN	COMMENT
1.9±0.7 OUR AVERAGE				
1.7±0.5±0.6	[1] AUSHEV	10	BELL	$e^+e^- \to \Upsilon(4S)$
$2.2^{+0.7+1.2}_{-0.8-1.1}$	[2,3] GOKHROO	06	BELL	$e^+e^- \to \Upsilon(4S)$

[1] AUSHEV 10 reports $[\Gamma(B \to K\chi_{c1}(3872))/\Gamma_{\text{total}}] \times [B(\chi_{c1}(3872) \to \overline{D}^{*0}D^0)] = (0.80\pm0.20\pm0.10)\times10^{-4}$ which we divide by our best value $B(\chi_{c1}(3872) \to \overline{D}^{*0}D^0) = (46 \pm 16)\times10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value. NODE=S049S41;LINKAGE=B

[2] GOKHROO 06 reports $[\Gamma(B \to K\chi_{c1}(3872))/\Gamma_{\text{total}}] \times [B(\chi_{c1}(3872) \to D^0\overline{D}^0\pi^0)] = (1.22 \pm 0.31^{+0.23}_{-0.30})\times10^{-4}$ which we divide by our best value $B(\chi_{c1}(3872) \to D^0\overline{D}^0\pi^0) = (55 \pm 28)\times10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value. NODE=S049S41;LINKAGE=A

[3] Measure the near-threshold enhancements in the $(D^0\overline{D}^0\pi^0)$ system at a mass 3875.2 $\pm$ $0.7^{+0.3}_{-1.6} \pm 0.8$ MeV/c^2. NODE=S049S41;LINKAGE=GO

$\Gamma(K X(3940),\ X \to D^{*0}D^0)/\Gamma_{\text{total}}$ Γ_{61}/Γ

NODE=S049R82
NODE=S049R82

VALUE (units 10^{-4})	CL%	DOCUMENT ID		TECN	COMMENT
<0.67	90	AUSHEV	10	BELL	$e^+e^- \to \Upsilon(4S)$

$\Gamma(K\chi_{c0}(3915),\ \chi_{c0} \to \omega J/\psi)/\Gamma_{\text{total}}$ Γ_{62}/Γ

NODE=S049R20
NODE=S049R20

VALUE (units 10^{-5})	DOCUMENT ID		TECN	COMMENT
7.1±1.3±3.1	[1] CHOI	05	BELL	$e^+e^- \to \Upsilon(4S)$

[1] CHOI 05 reports the observation of a near-threshold enhancement in the $\omega J/\psi$ mass spectrum in exclusive $B \to K\omega J/\psi$. The new state, denoted as $\chi_{c0}(3915)$, is measured to have a mass of 3943 ± 11 ± 13 GeV/c^2 and a width Γ = 87 ± 22 ± 26 MeV. NODE=S049R20;LINKAGE=CH

$\Gamma(K^\pm\text{anything})/\Gamma_{\text{total}}$ Γ_{63}/Γ

NODE=S049S6
NODE=S049S6

VALUE	DOCUMENT ID		TECN	COMMENT
0.789±0.025 OUR AVERAGE				
0.82 ±0.01 ±0.05	ALBRECHT	94C	ARG	$e^+e^- \to \Upsilon(4S)$
0.775±0.015±0.025	[1] ALBRECHT	93I	ARG	$e^+e^- \to \Upsilon(4S)$
0.85 ±0.07 ±0.09	ALAM	87B	CLEO	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
seen	[2] BRODY	82	CLEO	$e^+e^- \to \Upsilon(4S)$
seen	[3] GIANNINI	82	CUSB	$e^+e^- \to \Upsilon(4S)$

[1] ALBRECHT 93I value is not independent of the sum of $B \to K^+$anything and $B \to K^-$anything ALBRECHT 94C values. NODE=S049S6;LINKAGE=A

[2] Assuming $\Upsilon(4S) \to B\overline{B}$, a total of 3.38 ± 0.34 ± 0.68 kaons per $\Upsilon(4S)$ decay is found (the second error is systematic). In the context of the standard B-decay model, this leads to a value for (b-quark → c-quark)/(b-quark → all) of 1.09 ± 0.33 ± 0.13. NODE=S049S6;LINKAGE=C

[3] GIANNINI 82 at CESR-CUSB observed 1.58 ± 0.35 K^0 per hadronic event much higher than 0.82 ± 0.10 below threshold. Consistent with predominant $b \to c$X decay. NODE=S049S6;LINKAGE=D

$\Gamma(K^+ \text{anything})/\Gamma_{total}$ Γ_{64}/Γ

NODE=S049S21

VALUE	DOCUMENT ID		TECN	COMMENT
0.66 ±0.05	[1] ALBRECHT	94C	ARG	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.620±0.013±0.038	[2] ALBRECHT	94C	ARG	$e^+e^- \to \Upsilon(4S)$
0.66 ±0.05 ±0.07	[2] ALAM	87B	CLEO	$e^+e^- \to \Upsilon(4S)$

OCCUR=2

[1] Measurement relies on lepton-kaon correlations. It is for the weak decay vertex and does not include mixing of the neutral B meson. Mixing effects were corrected for by assuming a mixing parameter r of (18.1 ± 4.3)%. NODE=S049S21;LINKAGE=B

[2] Measurement relies on lepton-kaon correlations. It includes production through mixing of the neutral B meson. NODE=S049S21;LINKAGE=A

$\Gamma(K^- \text{anything})/\Gamma_{total}$ Γ_{65}/Γ

NODE=S049S22

VALUE	DOCUMENT ID		TECN	COMMENT
0.13 ±0.04	[1] ALBRECHT	94C	ARG	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.165±0.011±0.036	[2] ALBRECHT	94C	ARG	$e^+e^- \to \Upsilon(4S)$
0.19 ±0.05 ±0.02	[2] ALAM	87B	CLEO	$e^+e^- \to \Upsilon(4S)$

OCCUR=2

[1] Measurement relies on lepton-kaon correlations. It is for the weak decay vertex and does not include mixing of the neutral B meson. Mixing effects were corrected for by assuming a mixing parameter r of (18.1 ± 4.3)%. NODE=S049S22;LINKAGE=B

[2] Measurement relies on lepton-kaon correlations. It includes production through mixing of the neutral B meson. NODE=S049S22;LINKAGE=A

$\Gamma(K^0/\overline{K}^0 \text{anything})/\Gamma_{total}$ Γ_{66}/Γ

NODE=S049S23

VALUE	DOCUMENT ID		TECN	COMMENT
0.64 ±0.04 OUR AVERAGE				
0.642±0.010±0.042	[1] ALBRECHT	94C	ARG	$e^+e^- \to \Upsilon(4S)$
0.63 ±0.06 ±0.06	ALAM	87B	CLEO	$e^+e^- \to \Upsilon(4S)$

[1] ALBRECHT 94C assume a $K^0/\overline{K}^0$ multiplicity twice that of K^0_S. NODE=S049S23;LINKAGE=KA

$\Gamma(K^*(892)^\pm \text{anything})/\Gamma_{total}$ Γ_{67}/Γ

NODE=S049R12

VALUE	DOCUMENT ID		TECN	COMMENT
0.182±0.054±0.024	ALBRECHT	94J	ARG	$e^+e^- \to \Upsilon(4S)$

$\Gamma(K^*(892)^0/\overline{K}^*(892)^0 \text{anything})/\Gamma_{total}$ Γ_{68}/Γ

NODE=S049R13

VALUE	DOCUMENT ID		TECN	COMMENT
0.146±0.016±0.020	ALBRECHT	94J	ARG	$e^+e^- \to \Upsilon(4S)$

$\Gamma(K^*(892)\gamma)/\Gamma_{total}$ Γ_{69}/Γ

NODE=S049S26

VALUE (units 10^{-5})	CL%	DOCUMENT ID		TECN	COMMENT
4.24±0.54±0.32		[1] COAN	00	CLE2	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<150	90	[2] LESIAK	92	CBAL	$e^+e^- \to \Upsilon(4S)$
< 24	90	ALBRECHT	88H	ARG	$e^+e^- \to \Upsilon(4S)$

[1] An average of B($B^+ \to K^*(892)^+\gamma$) and B($B^0 \to K^*(892)^0\gamma$) measurements reported in COAN 00 by assuming full correlated systematic errors. NODE=S049S26;LINKAGE=N3

[2] LESIAK 92 set a limit on the inclusive process B($b \to s\gamma$) $< 2.8 \times 10^{-3}$ at 90% CL for the range of masses of 892–2045 MeV, independent of assumptions about s-quark hadronization. NODE=S049S26;LINKAGE=A

$\Gamma(\eta K\gamma)/\Gamma_{total}$ Γ_{70}/Γ

NODE=S049S01

VALUE (units 10^{-6})	DOCUMENT ID		TECN	COMMENT
$8.5\pm1.3^{+1.2}_{-0.9}$	[1] NISHIDA	05	BELL	$e^+e^- \to \Upsilon(4S)$

[1] $m_{\eta K} < 2.4$ GeV/c^2 NODE=S049S01;LINKAGE=NI

$\Gamma(K_1(1400)\gamma)/\Gamma_{total}$ Γ_{71}/Γ

NODE=S049S27

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<12.7 \times 10^{-5}$	90	[1] COAN	00	CLE2	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$< 1.6 \times 10^{-3}$	90	[2] LESIAK	92	CBAL	$e^+e^- \to \Upsilon(4S)$
$< 4.1 \times 10^{-4}$	90	ALBRECHT	88H	ARG	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$. NODE=S049S27;LINKAGE=EP

[2] LESIAK 92 set a limit on the inclusive process B($b \to s\gamma$) $< 2.8 \times 10^{-3}$ at 90% CL for the range of masses of 892–2045 MeV, independent of assumptions about s-quark hadronization. NODE=S049S27;LINKAGE=A

$\Gamma(K_2^*(1430)\gamma)/\Gamma_{total}$ — Γ_{72}/Γ

NODE=S049S28

VALUE (units 10^{-5})	CL%	DOCUMENT ID		TECN	COMMENT
$1.66^{+0.59}_{-0.53}\pm0.13$		[1] COAN	00	CLE2	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<83	90	ALBRECHT	88H	ARG	$e^+e^- \to \Upsilon(4S)$

[1] COAN 00 obtains a fitted signal yield of $15.9^{+5.7}_{-5.2}$ events. A search for contamination by $K^*(1410)$ yielded a rate consistent with 0; the central value assumes no contamination.

NODE=S049S28;LINKAGE=N2

$\Gamma(K_2(1770)\gamma)/\Gamma_{total}$ — Γ_{73}/Γ

NODE=S049S53

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<1.2\times10^{-3}$	90	[1] LESIAK	92	CBAL	$e^+e^- \to \Upsilon(4S)$

[1] LESIAK 92 set a limit on the inclusive process $B(b \to s\gamma) < 2.8\times10^{-3}$ at 90% CL for the range of masses of 892–2045 MeV, independent of assumptions about s-quark hadronization.

NODE=S049S53;LINKAGE=A

$\Gamma(K_3^*(1780)\gamma)/\Gamma_{total}$ — Γ_{74}/Γ

NODE=S049S29

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<3.7\times10^{-5}$	90	[1] NISHIDA	05	BELL	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<3.0\times10^{-3}$	90	ALBRECHT	88H	ARG	$e^+e^- \to \Upsilon(4S)$

[1] Uses $B(K_3^*(1780) \to \eta K) = 0.11^{+0.05}_{-0.04}$.

NODE=S049S29;LINKAGE=NS

$\Gamma(K_4^*(2045)\gamma)/\Gamma_{total}$ — Γ_{75}/Γ

NODE=S049S52

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<1.0\times10^{-3}$	90	[1] LESIAK	92	CBAL	$e^+e^- \to \Upsilon(4S)$

[1] LESIAK 92 set a limit on the inclusive process $B(b \to s\gamma) < 2.8\times10^{-3}$ at 90% CL for the range of masses of 892–2045 MeV, independent of assumptions about s-quark hadronization.

NODE=S049S52;LINKAGE=A

$\Gamma(K\eta'(958))/\Gamma_{total}$ — Γ_{76}/Γ

NODE=S049R50

VALUE	DOCUMENT ID		TECN	COMMENT
$(8.3^{+0.9}_{-0.8}\pm0.7)\times10^{-5}$	[1] RICHICHI	00	CLE2	$e^+e^- \to \Upsilon(4S)$

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

NODE=S049R50;LINKAGE=EP

$\Gamma(K^*(892)\eta'(958))/\Gamma_{total}$ — Γ_{77}/Γ

NODE=S049R51

VALUE (units 10^{-6})	CL%	DOCUMENT ID		TECN	COMMENT
$4.1^{+1.0}_{-0.9}\pm0.5$		[1] AUBERT	07E	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<22	90	[1] RICHICHI	00	CLE2	$e^+e^- \to \Upsilon(4S)$

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

NODE=S049R51;LINKAGE=EP

$\Gamma(K\eta)/\Gamma_{total}$ — Γ_{78}/Γ

NODE=S049R52

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<5.2\times10^{-6}$	90	[1] RICHICHI	00	CLE2	$e^+e^- \to \Upsilon(4S)$

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

NODE=S049R52;LINKAGE=EP

$\Gamma(K^*(892)\eta)/\Gamma_{total}$ — Γ_{79}/Γ

NODE=S049R53

VALUE	DOCUMENT ID		TECN	COMMENT
$(1.80^{+0.49}_{-0.43}\pm0.18)\times10^{-5}$	[1] RICHICHI	00	CLE2	$e^+e^- \to \Upsilon(4S)$

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

NODE=S049R53;LINKAGE=EP

$\Gamma(K\phi\phi)/\Gamma_{total}$ — Γ_{80}/Γ

NODE=S049R75

VALUE (units 10^{-6})	DOCUMENT ID		TECN	COMMENT
$2.3^{+0.9}_{-0.8}\pm0.3$	[1] HUANG	03	BELL	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of charged and neutral B meson pairs and isospin symmetry.

NODE=S049R75;LINKAGE=A

NODE=S049R15

$\Gamma(\overline{b} \to \overline{s}\gamma)/\Gamma_{\rm total}$ Γ_{81}/Γ

NODE=S049R15

VALUE (units 10^{-4})	DOCUMENT ID		TECN	COMMENT
3.49±0.19 OUR AVERAGE				
3.75±0.18±0.35	[1,2] SAITO	15	BELL	$e^+e^- \to \Upsilon(4S)$
3.52±0.20±0.51	[1,3] LEES	12U	BABR	$e^+e^- \to \Upsilon(4S)$
3.32±0.16±0.31	[1,4] LEES	12V	BABR	$e^+e^- \to \Upsilon(4S)$
3.47±0.15±0.40	[1,5] LIMOSANI	09	BELL	$e^+e^- \to \Upsilon(4S)$
3.90±0.91±0.64	[1,6] AUBERT	08O	BABR	$e^+e^- \to \Upsilon(4S)$
3.29±0.44±0.29	[1,7] CHEN	01C	CLE2	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
2.30±0.08±0.30	[8] DEL-AMO-SA..	10M	BABR	$e^+e^- \to \Upsilon(4S)$
4.3 ±0.3 ±0.7	[9] AUBERT	09U	BABR	Repl. by DEL-AMO-SANCHEZ 10M
3.92±0.31±0.47	[1,10] AUBERT,BE	06B	BABR	Repl. by LEES 12V
$3.49\pm0.20^{+0.59}_{-0.46}$	[1,11] AUBERT,B	05R	BABR	Repl. by LEES 12U
3.50±0.32±0.31	[1,12] KOPPENBURG	04	BELL	Repl. by LIMOSANI 09
$3.36\pm0.53^{+0.65}_{-0.68}$	[13] ABE	01F	BELL	Repl. by SAITO 15
2.32±0.57±0.35	ALAM	95	CLE2	Repl. by CHEN 01C

[1] We extrapolate the measured value to $E_\gamma > 1.6$ GeV using the method of BUCHMUELLER 06 (average of three theoretical models). NODE=S049R15;LINKAGE=AA

[2] SAITO 15 measured $(3.51 \pm 0.17 \pm 0.33) \times 10^{-4}$ using a sum-of-exclusive approach in which 38 of the hadronic final states with $m_{X_s} < 2.8$ GeV/c^2 are reconstructed. The cut of minimum photon energy is $E_\gamma > 1.9$ GeV. NODE=S049R15;LINKAGE=SA

[3] Reports $(3.29 \pm 0.19 \pm 0.48) \times 10^{-4}$ for $E_\gamma > 1.9$ GeV. NODE=S049R15;LINKAGE=LS

[4] Reports $(3.21 \pm 0.15 \pm 0.29 \pm 0.08) \times 10^{-4}$ for $1.8 < E_\gamma < 2.8$ GeV, where the last systematic uncertainty is for model dependency. Results with other cutoffs are also reported. NODE=S049R15;LINKAGE=LE

[5] The measurement reported is $(3.45 \pm 0.15 \pm 0.40) \times 10^{-4}$ for $E_\gamma > 1.7$ GeV. NODE=S049R15;LINKAGE=LI

[6] Uses a fully reconstructed B meson as a tag on the recoil side. The measurement reported is $(3.66 \pm 0.85 \pm 0.60) \times 10^{-4}$ for $E_\gamma > 1.9$ GeV. NODE=S049R15;LINKAGE=UB

[7] The measurement reported is $(3.21 \pm 0.43^{+0.32}_{-0.29}) \times 10^{-4}$ for $E_\gamma > 2.0$ GeV. NODE=S049R15;LINKAGE=KO

[8] Measured using sums of seven exclusive final states $B \to X_{d(s)}\gamma$ where $X_{d(s)}$ is a nonstrange (strange) charmless hadronic system in mass range 0.5–2.0 GeV/c^2. NODE=S049R15;LINKAGE=DE

[9] Measured using sums of seven exclusive final states $B \to X_{d(s)}\gamma$ where $X_{d(s)}$ is a nonstrange (strange) charmless hadronic system in mass range 0.6–1.8 GeV/c^2. NODE=S049R15;LINKAGE=AE

[10] The measurement reported is $(3.67 \pm 0.29 \pm 0.45) \times 10^{-4}$ for $E_\gamma > 1.9$ GeV. NODE=S049R15;LINKAGE=AB

[11] The measurement reported is $(3.27 \pm 0.18^{+0.55}_{-0.42}) \times 10^{-4}$ for $E_\gamma > 1.9$ GeV. NODE=S049R15;LINKAGE=AU

[12] The measurement reported is $(3.55 \pm 0.32 \pm 0.32) \times 10^{-4}$ for $E_\gamma > 1.8$ GeV. NODE=S049R15;LINKAGE=CE

[13] ABE 01F reports their systematic errors $(\pm0.42^{+0.50}_{-0.54}) \times 10^{-4}$, where the second error is due to the theoretical uncertainty. We combine them in quadrature. NODE=S049R15;LINKAGE=FA

NODE=S049R38

$\Gamma(\overline{b} \to \overline{d}\gamma)/\Gamma_{\rm total}$ Γ_{82}/Γ

NODE=S049R38

VALUE (units 10^{-6})	DOCUMENT ID		TECN	COMMENT
9.2±2.0±2.3	[1] DEL-AMO-SA..	10M	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
14 ±5 ±4	[2] AUBERT	09U	BABR	Repl. by DEL-AMO-SANCHEZ 10M

[1] Measured using sums of seven exclusive final states $B \to X_{d(s)}\gamma$ where $X_{d(s)}$ is a nonstrange (strange) charmless hadronic system in mass range 0.5–2.0 GeV/c^2. NODE=S049R38;LINKAGE=DE

[2] Measured using sums of seven exclusive final states $B \to X_{d(s)}\gamma$ where $X_{d(s)}$ is a nonstrange (strange) charmless hadronic system in mass range 0.6–1.8 GeV/c^2. NODE=S049R38;LINKAGE=AE

NODE=S049R39

$\Gamma(\overline{b} \to \overline{d}\gamma)/\Gamma(\overline{b} \to \overline{s}\gamma)$ Γ_{82}/Γ_{81}

NODE=S049R39

VALUE	DOCUMENT ID		TECN	COMMENT
0.040±0.009±0.010	[1] DEL-AMO-SA..	10M	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.033±0.013±0.009	[2] AUBERT	09U	BABR	Repl. by DEL-AMO-SANCHEZ 10M

[1] Measured using sums of seven exclusive final states $B \to X_{d(s)}\gamma$ where $X_{d(s)}$ is a nonstrange (strange) charmless hadronic system in mass range 0.5–2.0 GeV/c^2. NODE=S049R39;LINKAGE=DE

[2] Measured using sums of seven exclusive final states $B \to X_{d(s)}\gamma$ where $X_{d(s)}$ is a nonstrange (strange) charmless hadronic system in mass range 0.6–1.8 GeV/c^2. NODE=S049R39;LINKAGE=AE

$\Gamma(\overline{b} \to \overline{s}\text{gluon})/\Gamma_{\text{total}}$ Γ_{83}/Γ

NODE=S049R14
NODE=S049R14

VALUE	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
<0.068	90		[1] COAN	98	CLE2	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
<0.08		2	[2] ALBRECHT	95D	ARG	$e^+e^- \to \Upsilon(4S)$

[1] COAN 98 uses D-ℓ correlation. NODE=S049R14;LINKAGE=B

[2] ALBRECHT 95D use full reconstruction of one B decay as tag. Two candidate events for charmless B decay can be interpreted as either $b \to s$gluon or $b \to u$ transition. If interpreted as $b \to s$gluon they find a branching ratio of $\sim$ 0.026 or the upper limit quoted above. Result is highly model dependent. NODE=S049R14;LINKAGE=A

$\Gamma(\eta \text{ anything})/\Gamma_{\text{total}}$ Γ_{84}/Γ

NODE=S049R47
NODE=S049R47

VALUE (units 10^{-4})	CL%	DOCUMENT ID		TECN	COMMENT
$\mathbf{2.61 \pm 0.30^{+0.44}_{-0.74}}$		[1] NISHIMURA	10	BELL	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$1.69 \pm 0.29^{+0.36}_{-0.62}$		[2] NISHIMURA	10	BELL	$e^+e^- \to \Upsilon(4S)$
<4.4	90	[3] BROWDER	98	CLE2	$e^+e^- \to \Upsilon(4S)$

OCCUR=2

[1] Uses $B \to \eta X_s$ with $0.4 < m_{X_s} < 2.6$ GeV/c^2. NODE=S049R47;LINKAGE=NI

[2] Uses $B \to \eta X_s$ with $1.8 < m_{X_s} < 2.6$ GeV/c^2. NODE=S049R47;LINKAGE=NS

[3] BROWDER 98 search for high momentum $B \to \eta X_s$ between 2.1 and 2.7 GeV/c. NODE=S049R47;LINKAGE=A

$\Gamma(\eta' \text{ anything})/\Gamma_{\text{total}}$ Γ_{85}/Γ

NODE=S049R48
NODE=S049R48

VALUE (units 10^{-4})	DOCUMENT ID		TECN	COMMENT
4.2±0.9 OUR AVERAGE				
3.9±0.8±0.9	[1] AUBERT,B	04F	BABR	$e^+e^- \to \Upsilon(4S)$
4.6±1.1±0.6	[2] BONVICINI	03	CLE2	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$6.2 \pm 1.6^{+1.3}_{-2.0}$	[3] BROWDER	98	CLE2	$e^+e^- \to \Upsilon(4S)$

[1] AUBERT,B 04F reports branching ratio $B \to \eta' X_s$ for high momentum η' between 2.0 and 2.7 GeV/c in the $\Upsilon(4S)$ center-of-mass frame. X_s represents a recoil system consisting of a kaon and zero to four pions. NODE=S049R48;LINKAGE=AU

[2] BONVICINI 03 observed a signal of 61.2 ± 13.9 events in $B \to \eta' X_{nc}$ production for high momentum η' between 2.0 and 2.7 GeV/c in the $\Upsilon(4S)$ center-of-mass frame. The X_{nc} denotes "charmless" hadronic states recoiling against η'. The second error combines systematic and background subtraction uncertainties in quadrature. NODE=S049R48;LINKAGE=CE

[3] BROWDER 98 observed a signal of 39.0 ± 11.6 events in high momentum $B \to \eta' X_s$ production between 2.0 and 2.7 GeV/c. The branching fraction is based on the interpretation of $b \to sg$, where the last error includes additional uncertainties due to the color-suppressed $b \to$ backgrounds. NODE=S049R48;LINKAGE=A

$\Gamma(K^+ \text{gluon (charmless)})/\Gamma_{\text{total}}$ Γ_{86}/Γ

NODE=S049R84
NODE=S049R84

VALUE (units 10^{-4})	CL%	DOCUMENT ID		TECN	COMMENT
<1.87	90	[1] DEL-AMO-SA..11		BABR	$e^+e^- \to \Upsilon(4S)$

[1] $B \to K^+ X$ with $m_X < 1.69$ GeV/c^2. NODE=S049R84;LINKAGE=DA

$\Gamma(K^0 \text{gluon (charmless)})/\Gamma_{\text{total}}$ Γ_{87}/Γ

NODE=S049R85
NODE=S049R85

VALUE (units 10^{-4})	DOCUMENT ID		TECN	COMMENT
$\mathbf{1.95^{+0.51}_{-0.45} \pm 0.50}$	[1] DEL-AMO-SA..11		BABR	$e^+e^- \to \Upsilon(4S)$

[1] $B \to K^0 X$ with $m_X < 1.69$ GeV/c^2. NODE=S049R85;LINKAGE=DA

$\Gamma(\rho\gamma)/\Gamma_{\text{total}}$ Γ_{88}/Γ

NODE=S049R54
NODE=S049R54

VALUE (units 10^{-6})	CL%	DOCUMENT ID		TECN	COMMENT
1.39±0.25 OUR AVERAGE Error includes scale factor of 1.2.					
$1.73^{+0.34}_{-0.32} \pm 0.17$		[1,2] AUBERT	08BH	BABR	$e^+e^- \to \Upsilon(4S)$
$1.21^{+0.24}_{-0.22} \pm 0.12$		[1,2] TANIGUCHI	08	BELL	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$1.36^{+0.29}_{-0.27} \pm 0.10$		[1,3] AUBERT	07L	BABR	Repl. by AUBERT 08BH
< 1.9	90	[1,3] AUBERT	04C	BABR	Repl. by AUBERT 07L
<14	90	[1,4] COAN	00	CLE2	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$. NODE=S049R54;LINKAGE=EP

[2] Assumes $\Gamma(B \to \rho\gamma) = \Gamma(B^+ \to \rho^+\gamma) = 2\,\Gamma(B^0 \to \rho^0\gamma)$ and uses lifetime ratio of $\tau_{B^+}/\tau_{B^0} = 1.071 \pm 0.009$. NODE=S049R54;LINKAGE=UB

[3] Assumes $\Gamma(B \to \rho\gamma) = \Gamma(B^+ \to \rho^+\gamma) = 2\,\Gamma(B^0 \to \rho^0\gamma)$ and uses lifetime ratio of $\tau_{B^+}/\tau_{B^0} = 1.083 \pm 0.017$. NODE=S049R54;LINKAGE=AU

[4] COAN 00 reports $B(B \to \rho\gamma)/B(B \to K^*(892)\gamma) < 0.32$ at 90%CL and scaled by the central value of $B(B \to K^*(892)\gamma) = (4.24 \pm 0.54 \pm 0.32) \times 10^{-5}$. NODE=S049R54;LINKAGE=N4

$\Gamma(\rho\gamma)/\Gamma(K^*(892)\gamma)$ — Γ_{88}/Γ_{69}

NODE=S049RW3
NODE=S049RW3

VALUE (units 10^{-2})	DOCUMENT ID		TECN	COMMENT
$3.02^{+0.60+0.26}_{-0.55-0.28}$	TANIGUCHI	08	BELL	$e^+e^- \to \Upsilon(4S)$

$\Gamma(\rho/\omega\gamma)/\Gamma_{total}$ — Γ_{89}/Γ

NODE=S049RW1
NODE=S049RW1

VALUE (units 10^{-6})	CL%	DOCUMENT ID		TECN	COMMENT
1.30±0.23 OUR AVERAGE		Error includes scale factor of 1.2.			
$1.63^{+0.30}_{-0.28} \pm 0.16$		[1,2,3] AUBERT	08BH	BABR	$e^+e^- \to \Upsilon(4S)$
$1.14 \pm 0.20^{+0.10}_{-0.12}$		[1,3] TANIGUCHI	08	BELL	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$1.25^{+0.25}_{-0.24} \pm 0.09$		[4] AUBERT	07L	BABR	Repl. by AUBERT 08BH
$1.32^{+0.34+0.10}_{-0.31-0.09}$		[4] MOHAPATRA	06	BELL	Repl. by TANIGUCHI 08
$0.6 \pm 0.3 \pm 0.1$		[4] AUBERT	05	BABR	Repl. by AUBERT 07L
<1.4	90	[4] MOHAPATRA	05	BELL	$e^+e^- \to \Upsilon(4S)$

[1] Assumes $\Gamma(B \to \rho\gamma) = \Gamma(B^+ \to \rho^+\gamma) = 2\,\Gamma(B^0 \to \rho^0\gamma)$ and uses lifetime ratio of $\tau_{B^+}/\tau_{B^0} = 1.071 \pm 0.009$. NODE=S049RW1;LINKAGE=AR

[2] Also reports $|V_{td}/V_{ts}| = 0.233^{+0.025+0.022}_{-0.024-0.021}$. NODE=S049RW1;LINKAGE=AU

[3] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$. NODE=S049RW1;LINKAGE=EP

[4] Assumes $\Gamma(B \to \rho\gamma) = \Gamma(B^+ \to \rho^+\gamma) = 2\,\Gamma(B^0 \to \rho^0\gamma)$ and uses lifetime ratio of $\tau_{B^+}/\tau_{B^0} = 1.083 \pm 0.017$. NODE=S049RW1;LINKAGE=AB

$\Gamma(\rho/\omega\gamma)/\Gamma(K^*(892)\gamma)$ — Γ_{89}/Γ_{69}

NODE=S049RW2
NODE=S049RW2

VALUE (units 10^{-2})	CL%	DOCUMENT ID		TECN	COMMENT
$2.84 \pm 0.50^{+0.27}_{-0.29}$		[1] TANIGUCHI	08	BELL	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<3.5	90	MOHAPATRA	05	BELL	Repl. by TANIGUCHI 08

[1] Also reports $|V_{td}/V_{ts}| = 0.195^{+0.020}_{-0.019} \pm 0.015$. NODE=S049RW2;LINKAGE=TA

$\Gamma(\pi^\pm\ \text{anything})/\Gamma_{total}$ — Γ_{90}/Γ

NODE=S049R9
NODE=S049R9

VALUE	DOCUMENT ID		TECN	COMMENT
3.585±0.025±0.070	[1] ALBRECHT	93I	ARG	$e^+e^- \to \Upsilon(4S)$

[1] ALBRECHT 93 excludes $\pi^\pm$ from K^0_S and Λ decays. If included, they find $4.105 \pm 0.025 \pm 0.080$. NODE=S049R9;LINKAGE=A

$\Gamma(\pi^0\ \text{anything})/\Gamma_{total}$ — Γ_{91}/Γ

NODE=S049S60
NODE=S049S60

VALUE	DOCUMENT ID		TECN	COMMENT
2.35±0.02±0.11	[1] ABE	01J	BELL	$e^+e \to \Upsilon(4S)$

[1] From fully inclusive π^0 yield with no corrections from decays of K^0_S or other particles. NODE=S049S60;LINKAGE=A1

$\Gamma(\eta\ \text{anything})/\Gamma_{total}$ — Γ_{92}/Γ

NODE=S049R18
NODE=S049R18

VALUE	DOCUMENT ID		TECN	COMMENT
0.176±0.011±0.012	KUBOTA	96	CLE2	$e^+e^- \to \Upsilon(4S)$

$\Gamma(\rho^0\ \text{anything})/\Gamma_{total}$ — Γ_{93}/Γ

NODE=S049R10
NODE=S049R10

VALUE	DOCUMENT ID		TECN	COMMENT
0.208±0.042±0.032	ALBRECHT	94J	ARG	$e^+e^- \to \Upsilon(4S)$

$\Gamma(\omega\ \text{anything})/\Gamma_{total}$ — Γ_{94}/Γ

NODE=S049R11
NODE=S049R11

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.81	90	ALBRECHT	94J	ARG	$e^+e^- \to \Upsilon(4S)$

$\Gamma(\phi \text{ anything})/\Gamma_{total}$ — Γ_{95}/Γ

NODE=S049S15

VALUE	DOCUMENT ID		TECN	COMMENT
0.0343±0.0012 OUR AVERAGE				
0.0353±0.0005±0.0030	HUANG	07	CLEO	$e^+e^- \to \Upsilon(4S)$
0.0341±0.0006±0.0012	AUBERT	04S	BABR	$e^+e^- \to \Upsilon(4S)$
0.0390±0.0030±0.0035	ALBRECHT	94J	ARG	$e^+e^- \to \Upsilon(4S)$
0.023 ±0.006 ±0.005	BORTOLETTO	86	CLEO	$e^+e^- \to \Upsilon(4S)$

$\Gamma(\phi K^*(892))/\Gamma_{total}$ — Γ_{96}/Γ

NODE=S049R46

VALUE	CL%	DOCUMENT ID		TECN
<2.2 × 10^{-5}	90	[1] BERGFELD	98	CLE2

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$. NODE=S049R46;LINKAGE=EQ

$\Gamma(\pi^+ \text{ gluon (charmless)})/\Gamma_{total}$ — Γ_{98}/Γ

NODE=S049R86

VALUE (units 10^{-4})	DOCUMENT ID		TECN	COMMENT
$3.72^{+0.50}_{-0.47}\pm0.59$	[1] DEL-AMO-SA..	11	BABR	$e^+e^- \to \Upsilon(4S)$

[1] $B \to \pi^+ X$ with $m_X < 1.71$ GeV/c^2. NODE=S049R86;LINKAGE=DA

$\Gamma(\Lambda_c^+ / \overline{\Lambda}_c^- \text{ anything})/\Gamma_{total}$ — Γ_{99}/Γ

NODE=S049S16

VALUE (%)	CL%	DOCUMENT ID		TECN	COMMENT
3.55±0.32±0.14		[1] AUBERT	07C	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
6.4 ±0.8 ±0.8		[2] CRAWFORD	92	CLEO	$e^+e^- \to \Upsilon(4S)$
14 ±9		[3] ALBRECHT	88E	ARG	$e^+e^- \to \Upsilon(4S)$
<11.2	90	[4] ALAM	87	CLEO	$e^+e^- \to \Upsilon(4S)$

[1] AUBERT 07C reports 0.045 ± 0.003 ± 0.012 from a measurement of $[\Gamma(B \to \Lambda_c^+ / \overline{\Lambda}_c^- \text{ anything})/\Gamma_{total}] \times [B(\Lambda_c^+ \to pK^-\pi^+)]$ assuming $B(\Lambda_c^+ \to pK^-\pi^+) = (5.0 \pm 1.3) \times 10^{-2}$, which we rescale to our best value $B(\Lambda_c^+ \to pK^-\pi^+) = (6.35 \pm 0.25) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value. NODE=S049S16;LINKAGE=AU

[2] CRAWFORD 92 result derived from lepton baryon correlations. Assumes all charmed baryons in B^0 and $B^\pm$ decay are Λ_c. NODE=S049S16;LINKAGE=D

[3] ALBRECHT 88E measured $B(B \to \Lambda_c^+ X)\cdot B(\Lambda_c^+ \to pK^-\pi^+) = (0.30 \pm 0.12 \pm 0.06)\%$ and used $B(\Lambda_c^+ \to pK^-\pi^+) = (2.2 \pm 1.0)\%$ from ABRAMS 80 to obtain above number. NODE=S049S16;LINKAGE=B

[4] Assuming all baryons result from charmed baryons, ALAM 86 conclude the branching fraction is 7.4 ± 2.9%. The limit given above is model independent. NODE=S049S16;LINKAGE=A

$\Gamma(\Lambda_c^+ \text{ anything})/\Gamma(\overline{\Lambda}_c^- \text{ anything})$ — $\Gamma_{100}/\Gamma_{101}$

NODE=S049R41

VALUE	DOCUMENT ID		TECN	COMMENT
0.19±0.13±0.04	[1] AMMAR	97	CLE2	$e^+e^- \to \Upsilon(4S)$

[1] AMMAR 97 uses a high-momentum lepton tag ($P_\ell > 1.4$ GeV/c^2). NODE=S049R41;LINKAGE=A

$\Gamma(\overline{\Lambda}_c^- \mu^+ \text{ anything})/\Gamma(\overline{\Lambda}_c^- \text{ anything})$ — $\Gamma_{104}/\Gamma_{101}$

NODE=S049R03

VALUE (units 10^{-2})	DOCUMENT ID		TECN	COMMENT
−2.0±2.0±1.9	LEES	12	BABR	$e^+e^- \to \Upsilon(4S)$

$\Gamma(\overline{\Lambda}_c^- \ell^+ \text{ anything})/\Gamma(\Lambda_c^+ / \overline{\Lambda}_c^- \text{ anything})$ — Γ_{102}/Γ_{99}

NODE=S049R04

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<2.5 × 10^{-2}	90	[1] LEES	12	BABR	$e^+e^- \to \Upsilon(4S)$

[1] LEES 12 quotes also the measurement $\Gamma(B \to \overline{\Lambda}_c^- \ell^+ \text{ anything})/\Gamma(B \to \Lambda_c^+ / \overline{\Lambda}_c^- \text{ anything}) = (1.2 \pm 0.7 \pm 0.4) \times 10^{-2}$. NODE=S049R04;LINKAGE=LE

$\Gamma(\overline{\Lambda}_c^- e^+ \text{ anything})/\Gamma(\Lambda_c^+ / \overline{\Lambda}_c^- \text{ anything})$ — Γ_{103}/Γ_{99}

NODE=S049R28

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.05	90	[1] BONVICINI	98	CLE2	$e^+e^- \to \Upsilon(4S)$

[1] BONVICINI 98 uses the electron with momentum above 0.6 GeV/c. NODE=S049R28;LINKAGE=A

$\Gamma(\overline{\Lambda}_c^- e^+ \text{ anything})/\Gamma(\overline{\Lambda}_c^- \text{ anything})$ — $\Gamma_{103}/\Gamma_{101}$

NODE=S049R01

VALUE (units 10^{-2})	DOCUMENT ID		TECN	COMMENT
2.5±1.1±0.6	[1] LEES	12	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Uses the full reconstruction of the recoiling B in a hadronic decay as a tag. NODE=S049R01;LINKAGE=LE

$\Gamma(\overline{\Lambda}_c^- \ell^+ \text{anything})/\Gamma(\overline{\Lambda}_c^- \text{anything})$ — $\Gamma_{102}/\Gamma_{101}$

NODE=S049R02
NODE=S049R02

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<3.5 × 10^{-2}	90	[1] LEES	12	BABR	$e^+ e^- \to \Upsilon(4S)$

[1] LEES 12 quotes also the measurement $\Gamma(B \to \overline{\Lambda}_c^- \ell^+ \text{anything})/\Gamma(B \to \overline{\Lambda}_c^- \text{anything}) = (1.7 \pm 1.0 \pm 0.6) \times 10^{-2}$.

NODE=S049R02;LINKAGE=LE

$\Gamma(\overline{\Lambda}_c^- p \text{ anything})/\Gamma(\Lambda_c^+ / \overline{\Lambda}_c^- \text{anything})$ — Γ_{105}/Γ_{99}

NODE=S049R29
NODE=S049R29

VALUE	DOCUMENT ID		TECN	COMMENT
0.57±0.05±0.05	BONVICINI	98	CLE2	$e^+ e^- \to \Upsilon(4S)$

$\Gamma(\overline{\Lambda}_c^- p e^+ \nu_e)/\Gamma(\overline{\Lambda}_c^- p \text{ anything})$ — $\Gamma_{106}/\Gamma_{105}$

NODE=S049R30
NODE=S049R30

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.04	90	[1] BONVICINI	98	CLE2	$e^+ e^- \to \Upsilon(4S)$

[1] BONVICINI 98 uses the electron with momentum above 0.6 GeV/c.

NODE=S049R30;LINKAGE=A

$\Gamma(\overline{\Sigma}_c^{--} \text{anything})/\Gamma_{\text{total}}$ — Γ_{107}/Γ

NODE=S049S78
NODE=S049S78

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.0033±0.0017±0.0001	77	[1] PROCARIO	94	CLE2	$e^+ e^- \to \Upsilon(4S)$

[1] PROCARIO 94 reports $[\Gamma(B \to \overline{\Sigma}_c^{--} \text{anything})/\Gamma_{\text{total}}] \times [B(\Lambda_c^+ \to p K^- \pi^+)] = 0.00021 \pm 0.00008 \pm 0.00007$ which we divide by our best value $B(\Lambda_c^+ \to p K^- \pi^+) = (6.35 \pm 0.25) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

NODE=S049S78;LINKAGE=A

$\Gamma(\overline{\Sigma}_c^{-} \text{anything})/\Gamma_{\text{total}}$ — Γ_{108}/Γ

NODE=S049S79
NODE=S049S79

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<8 × 10^{-3}	90	[1] PROCARIO	94	CLE2	$e^+ e^- \to \Upsilon(4S)$

[1] PROCARIO 94 reports $[\Gamma(B \to \overline{\Sigma}_c^{-} \text{anything})/\Gamma_{\text{total}}] \times [B(\Lambda_c^+ \to p K^- \pi^+)] < 0.00048$ which we divide by our best value $B(\Lambda_c^+ \to p K^- \pi^+) = 6.35 \times 10^{-2}$.

NODE=S049S79;LINKAGE=A

$\Gamma(\overline{\Sigma}_c^{0} \text{anything})/\Gamma_{\text{total}}$ — Γ_{109}/Γ

NODE=S049S80
NODE=S049S80

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.0036±0.0017±0.0001	76	[1] PROCARIO	94	CLE2	$e^+ e^- \to \Upsilon(4S)$

[1] PROCARIO 94 reports $[\Gamma(B \to \overline{\Sigma}_c^{0} \text{anything})/\Gamma_{\text{total}}] \times [B(\Lambda_c^+ \to p K^- \pi^+)] = 0.00023 \pm 0.00008 \pm 0.00007$ which we divide by our best value $B(\Lambda_c^+ \to p K^- \pi^+) = (6.35 \pm 0.25) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

NODE=S049S80;LINKAGE=A

$\Gamma(\overline{\Sigma}_c^{0} N (N = p \text{ or } n))/\Gamma_{\text{total}}$ — Γ_{110}/Γ

NODE=S049S82
NODE=S049S82

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<1.2 × 10^{-3}	90	[1] PROCARIO	94	CLE2	$e^+ e^- \to \Upsilon(4S)$

[1] PROCARIO 94 reports < 0.0017 from a measurement of $[\Gamma(B \to \overline{\Sigma}_c^{0} N (N = p \text{ or } n))/\Gamma_{\text{total}}] \times [B(\Lambda_c^+ \to p K^- \pi^+)]$ assuming $B(\Lambda_c^+ \to p K^- \pi^+) = 0.043$, which we rescale to our best value $B(\Lambda_c^+ \to p K^- \pi^+) = 6.35 \times 10^{-2}$.

NODE=S049S82;LINKAGE=A

$\Gamma(\Xi_c^0 \text{anything}, \Xi_c^0 \to \Xi^- \pi^+)/\Gamma_{\text{total}}$ — Γ_{111}/Γ

NODE=S049R42
NODE=S049R42

VALUE (units 10^{-3})	DOCUMENT ID		TECN	COMMENT
0.193±0.030 OUR AVERAGE	Error includes scale factor of 1.1.			
0.211±0.019±0.025	[1] AUBERT,B	05M	BABR	$e^+ e^- \to \Upsilon(4S)$
0.144±0.048±0.021	[2] BARISH	97	CLE2	$e^+ e^- \to \Upsilon(4S)$

[1] The yield is obtained by requiring the momentum P < 2.15 GeV/c.

NODE=S049R42;LINKAGE=AU

[2] BARISH 97 find 79 ± 27 Ξ_c^0 events.

NODE=S049R42;LINKAGE=A

$\Gamma(\Xi_c^+, \Xi_c^+ \to \Xi^- \pi^+ \pi^+)/\Gamma_{\text{total}}$ — Γ_{112}/Γ

NODE=S049R43
NODE=S049R43

VALUE (units 10^{-3})	DOCUMENT ID		TECN	COMMENT
$0.453 \pm 0.096^{+0.085}_{-0.065}$	[1] BARISH	97	CLE2	$e^+ e^- \to \Upsilon(4S)$

[1] BARISH 97 find 125 ± 28 Ξ_c^+ events.

NODE=S049R43;LINKAGE=A

$\Gamma(p/\overline{p}$ anything$)/\Gamma_{\text{total}}$ — Γ_{113}/Γ

NODE=S049S9

Includes p and $\overline{p}$ from Λ and $\overline{\Lambda}$ decay.

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.080±0.004 OUR AVERAGE					
0.080±0.005±0.005		ALBRECHT	93I	ARG	$e^+e^- \to \Upsilon(4S)$
0.080±0.005±0.003		CRAWFORD	92	CLEO	$e^+e^- \to \Upsilon(4S)$
$0.082\pm0.005^{+0.013}_{-0.010}$	2163	[1] ALBRECHT	89K	ARG	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
>0.021		[2] ALAM	83B	CLEO	$e^+e^- \to \Upsilon(4S)$

[1] ALBRECHT 89K include direct and nondirect protons. NODE=S049S9;LINKAGE=AK

[2] ALAM 83B reported their result as $> 0.036 \pm 0.006 \pm 0.009$. Data are consistent with equal yields of p and $\overline{p}$. Using assumed yields below cut, B($B \to p+$ X) = 0.03 not including protons from Λ decays. NODE=S049S9;LINKAGE=A

$\Gamma(p/\overline{p}$ (direct) anything$)/\Gamma_{\text{total}}$ — Γ_{114}/Γ

NODE=S049S30

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.055±0.005 OUR AVERAGE					
0.055±0.005±0.0035		ALBRECHT	93I	ARG	$e^+e^- \to \Upsilon(4S)$
0.056±0.006±0.005		CRAWFORD	92	CLEO	$e^+e^- \to \Upsilon(4S)$
0.055±0.016	1220	[1] ALBRECHT	89K	ARG	$e^+e^- \to \Upsilon(4S)$

[1] ALBRECHT 89K subtract contribution of Λ decay from the inclusive proton yield. NODE=S049S30;LINKAGE=AK

$\Gamma(\overline{p}e^+\nu_e$ anything$)/\Gamma_{\text{total}}$ — Γ_{115}/Γ

NODE=S049S38

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$< 5.9 \times 10^{-4}$	90	[1] ADAM	03B	CLE2	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<16 \times 10^{-4}$	90	ALBRECHT	90H	ARG	$e^+e^- \to \Upsilon(4S)$

[1] Based on $V-A$ model. NODE=S049S38;LINKAGE=VA

$\Gamma(\Lambda/\overline{\Lambda}$ anything$)/\Gamma_{\text{total}}$ — Γ_{116}/Γ

NODE=S049S10

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.040±0.005 OUR AVERAGE					
0.038±0.004±0.006	2998	CRAWFORD	92	CLEO	$e^+e^- \to \Upsilon(4S)$
0.042±0.005±0.006	943	ALBRECHT	89K	ARG	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.022±0.003±0.0022		[1] ACKERSTAFF	97N	OPAL	$e^+e^- \to Z$
>0.011		[2] ALAM	83B	CLEO	$e^+e^- \to \Upsilon(4S)$

[1] ACKERSTAFF 97N assumes B($b \to B$) = 0.868 ± 0.041, *i.e.*, an admixture of B^0, $B^\pm$, and B_s. NODE=S049S10;LINKAGE=AN

[2] ALAM 83B reported their result as $> 0.022 \pm 0.007 \pm 0.004$. Values are for (B($\Lambda$X)+B($\overline{\Lambda}$X))/2. Data are consistent with equal yields of p and $\overline{p}$. Using assumed yields below cut, B($B \to \Lambda$X) = 0.03. NODE=S049S10;LINKAGE=A

$\Gamma(\Lambda$ anything$)/\Gamma(\overline{\Lambda}$ anything$)$ — $\Gamma_{117}/\Gamma_{118}$

NODE=S049R40

VALUE	DOCUMENT ID		TECN	COMMENT
0.43±0.09±0.07	[1] AMMAR	97	CLE2	$e^+e^- \to \Upsilon(4S)$

[1] AMMAR 97 uses a high-momentum lepton tag ($P_\ell > 1.4$ GeV/c^2). NODE=S049R40;LINKAGE=A

$\Gamma(\Xi^-/\overline{\Xi}^+$ anything$)/\Gamma_{\text{total}}$ — Γ_{119}/Γ

NODE=S049S31

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.0027±0.0006 OUR AVERAGE					
0.0027±0.0005±0.0004	147	CRAWFORD	92	CLEO	$e^+e^- \to \Upsilon(4S)$
0.0028±0.0014	54	ALBRECHT	89K	ARG	$e^+e^- \to \Upsilon(4S)$

$\Gamma($baryons anything$)/\Gamma_{\text{total}}$ — Γ_{120}/Γ

NODE=S049S32

VALUE	DOCUMENT ID		TECN	COMMENT
0.068±0.005±0.003	[1] ALBRECHT	92O	ARG	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.076±0.014	[2] ALBRECHT	89K	ARG	$e^+e^- \to \Upsilon(4S)$

[1] ALBRECHT 92O result is from simultaneous analysis of p and Λ yields, $p\overline{p}$ and $\Lambda\overline{p}$ correlations, and various lepton-baryon and lepton-baryon-antibaryon correlations. Supersedes ALBRECHT 89K. NODE=S049S32;LINKAGE=A

[2] ALBRECHT 89K obtain this result by adding their their measurements (5.5 ± 1.6)% for direct protons and (4.2 ± 0.5 ± 0.6)% for inclusive Λ production. They then assume (5.5 ± 1.6)% for neutron production and add it in also. Since each B decay has two baryons, they divide by 2 to obtain (7.6 ± 1.4)%. NODE=S049S32;LINKAGE=AK

$\Gamma(p\overline{p}$ anything$)/\Gamma_{total}$ — Γ_{121}/Γ

NODE=S049S33

Includes p and $\overline{p}$ from Λ and $\overline{\Lambda}$ decay.

NODE=S049S33
NODE=S049S33

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.0247±0.0023 OUR AVERAGE					
0.024 ±0.001 ±0.004		CRAWFORD	92	CLEO	$e^+e^- \rightarrow \Upsilon(4S)$
0.025 ±0.002 ±0.002	918	ALBRECHT	89K	ARG	$e^+e^- \rightarrow \Upsilon(4S)$

$\Gamma(p\overline{p}$ anything$)/\Gamma(p/\overline{p}$ anything$)$ — $\Gamma_{121}/\Gamma_{113}$

NODE=S049S44

Includes p and $\overline{p}$ from Λ and $\overline{\Lambda}$ decay.

NODE=S049S44
NODE=S049S44

VALUE	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.30±0.02±0.05	[1] CRAWFORD	92	CLEO	$e^+e^- \rightarrow \Upsilon(4S)$

[1] CRAWFORD 92 value is not independent of their $\Gamma(p\overline{p}$anything$)/\Gamma_{total}$ value.

NODE=S049S44;LINKAGE=AA

$\Gamma(\Lambda\overline{p}/\overline{\Lambda}p$ anything$)/\Gamma_{total}$ — Γ_{122}/Γ

NODE=S049S34

Includes p and $\overline{p}$ from Λ and $\overline{\Lambda}$ decay.

NODE=S049S34
NODE=S049S34

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.025±0.004 OUR AVERAGE					
0.029±0.005±0.005		CRAWFORD	92	CLEO	$e^+e^- \rightarrow \Upsilon(4S)$
0.023±0.004±0.003	165	ALBRECHT	89K	ARG	$e^+e^- \rightarrow \Upsilon(4S)$

$\Gamma(\Lambda\overline{p}/\overline{\Lambda}p$ anything$)/\Gamma(\Lambda/\overline{\Lambda}$ anything$)$ — $\Gamma_{122}/\Gamma_{116}$

NODE=S049S43

Includes p and $\overline{p}$ from Λ and $\overline{\Lambda}$ decay.

NODE=S049S43
NODE=S049S43

VALUE	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.76±0.11±0.08	[1] CRAWFORD	92	CLEO	$e^+e^- \rightarrow \Upsilon(4S)$

[1] CRAWFORD 92 value is not independent of their $[\Gamma(\Lambda\overline{p}$anything$)+\Gamma(\overline{\Lambda}p$anything$)]/\Gamma_{total}$ value.

NODE=S049S43;LINKAGE=AA

$\Gamma(\Lambda\overline{\Lambda}$ anything$)/\Gamma_{total}$ — Γ_{123}/Γ

NODE=S049S35
NODE=S049S35

VALUE	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
<0.005	90		CRAWFORD	92	CLEO	$e^+e^- \rightarrow \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
<0.0088	90	12	ALBRECHT	89K	ARG	$e^+e^- \rightarrow \Upsilon(4S)$

$\Gamma(\Lambda\overline{\Lambda}$ anything$)/\Gamma(\Lambda/\overline{\Lambda}$ anything$)$ — $\Gamma_{123}/\Gamma_{116}$

NODE=S049S42
NODE=S049S42

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.13	90	[1] CRAWFORD	92	CLEO	$e^+e^- \rightarrow \Upsilon(4S)$

[1] CRAWFORD 92 value is not independent of their $\Gamma(\Lambda\overline{\Lambda}$anything$)/\Gamma_{total}$ value.

NODE=S049S42;LINKAGE=AA

$\Gamma(se^+e^-)/\Gamma_{total}$ — Γ_{124}/Γ

NODE=S049S3

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

NODE=S049S3

NODE=S049S3

VALUE (units 10^{-6})	CL%	DOCUMENT ID		TECN	COMMENT
6.7 ±1.7 OUR AVERAGE		Error includes scale factor of 2.0.			
$7.69^{+0.82}_{-0.77}{}^{+0.71}_{-0.60}$		[1] LEES	14D	BABR	$e^+e^- \rightarrow \Upsilon(4S)$
$4.04\pm1.30^{+0.87}_{-0.83}$		[2] IWASAKI	05	BELL	$e^+e^- \rightarrow \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
6.0 ±1.7 ±1.3		[2] AUBERT,B	04I	BABR	Repl. by LEES 14D
$5.0\pm2.3^{+1.3}_{-1.1}$		[2] KANEKO	03	BELL	Repl. by IWASAKI 05
< 57	90	GLENN	98	CLEO	$e^+e^- \rightarrow \Upsilon(4S)$
<50000	90	BEBEK	81	CLEO	$e^+e^- \rightarrow \Upsilon(4S)$

[1] Measured from sum of exclusive modes through K^+, $K^+\pi^0$, $K^+\pi^-$, $K^+\pi^-\pi^0$, $K^+\pi^-\pi^+$, K^0_S, $K^0_S\pi^0$, $K^0_S\pi^+$, $K^0_S\pi^+\pi^0$, and $K^0_S\pi^+\pi^-$ corrected for unobserved modes.

NODE=S049S3;LINKAGE=A

[2] Requires $M_{\ell^+\ell^-} > 0.2$ GeV/c^2.

NODE=S049S3;LINKAGE=IW

$\Gamma(s\mu^+\mu^-)/\Gamma_{\text{total}}$ Γ_{125}/Γ

NODE=S049S4

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

NODE=S049S4

VALUE (units 10^{-6})	CL%	DOCUMENT ID		TECN	COMMENT
4.3 ±1.0 OUR AVERAGE					
$4.41^{+1.31}_{-1.17}{}^{+0.63}_{-0.50}$		[1] LEES	14D	BABR	$e^+e^- \to \Upsilon(4S)$
$4.13 \pm 1.05^{+0.85}_{-0.81}$		[2] IWASAKI	05	BELL	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$5.0 \pm 2.8 \pm 1.2$		AUBERT,B	04I	BABR	Repl. by LEES 14D
$7.9 \pm 2.1 {}^{+2.1}_{-1.5}$		KANEKO	03	BELL	Repl. by IWASAKI 05
$<$ 58	90	GLENN	98	CLEO	$e^+e^- \to \Upsilon(4S)$
$<$17000	90	CHADWICK	81	CLEO	$e^+e^- \to \Upsilon(4S)$

NODE=S049S4

[1] Measured from sum of exclusive modes through K^+, $K^+\pi^0$, $K^+\pi^-$, $K^+\pi^-\pi^0$, $K^+\pi^-\pi^+$, K^0_S, $K^0_S\pi^0$, $K^0_S\pi^+$, $K^0_S\pi^+\pi^0$, and $K^0_S\pi + \pi^-$ corrected for unobserved modes.

NODE=S049S4;LINKAGE=B

[2] Requires $M_{\ell^+\ell^-} > 0.2$ GeV/c^2.

NODE=S049S4;LINKAGE=IW

$\left[\Gamma(se^+e^-) + \Gamma(s\mu^+\mu^-)\right]/\Gamma_{\text{total}}$ $(\Gamma_{124}+\Gamma_{125})/\Gamma$

NODE=S049S5

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

NODE=S049S5

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<4.2 \times 10^{-5}$	90	GLENN	98	CLEO	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<$0.0024	90	[1] BEAN	87	CLEO	Repl. by GLENN 98
$<$0.0062	90	[2] AVERY	84	CLEO	Repl. by BEAN 87

NODE=S049S5

[1] BEAN 87 reports $\left[(\mu^+\mu^-)+(e^+e^-)\right]/2$ and we converted it.

NODE=S049S5;LINKAGE=B

[2] Determine ratio of B^+ to B^0 semileptonic decays to be in the range 0.25–2.9.

NODE=S049S5;LINKAGE=A

$\Gamma(s\ell^+\ell^-)/\Gamma_{\text{total}}$ Γ_{126}/Γ

NODE=S049R72

Test for $\Delta B = 1$ weak neutral current.

NODE=S049R72

VALUE (units 10^{-6})	DOCUMENT ID		TECN	COMMENT
5.8 ±1.3 OUR AVERAGE Error includes scale factor of 1.8.				
$6.73^{+0.70}_{-0.64}{}^{+0.60}_{-0.56}$	[1] LEES	14D	BABR	$e^+e^- \to \Upsilon(4S)$
$4.11 \pm 0.83^{+0.85}_{-0.81}$	[2] IWASAKI	05	BELL	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$5.6 \pm 1.5 \pm 1.3$	[3] AUBERT,B	04I	BABR	Repl. by LEES 14D
$6.1 \pm 1.4 {}^{+1.4}_{-1.1}$	[3] KANEKO	03	BELL	Repl. by IWASAKI 05

NODE=S049R72

[1] Measured from sum of exclusive modes through K^+, $K^+\pi^0$, $K^+\pi^-$, $K^+\pi^-\pi^0$, $K^+\pi^-\pi^+$, K^0_S, $K^0_S\pi^0$, $K^0_S\pi^+$, $K^0_S\pi^+\pi^0$, and $K^0_S\pi + \pi^-$ corrected for unobserved modes.

NODE=S049R72;LINKAGE=A

[2] Requires $M_{\ell^+\ell^-} > 0.2$ GeV/c^2.

NODE=S049R72;LINKAGE=IW

[3] Requires $M_{e^+e^-} > 0.2$ GeV/c^2.

NODE=S049R72;LINKAGE=KN

$\Gamma(\pi\ell^+\ell^-)/\Gamma_{\text{total}}$ Γ_{127}/Γ

NODE=S049R78

NODE=S049R78

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<5.9 \times 10^{-8}$	90	[1] LEES	13M	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<6.2 \times 10^{-8}$	90	[1] WEI	08A	BELL	$e^+e^- \to \Upsilon(4S)$
$<9.1 \times 10^{-8}$	90	[1] AUBERT	07AG	BABR	$e^+e^- \to \Upsilon(4S)$

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

NODE=S049R78;LINKAGE=EP

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

NODE=S049R87

NODE=S049R87

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<11.0 \times 10^{-8}$	90	[1] LEES	13M	BABR	$e^+e^- \to \Upsilon(4S)$

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

NODE=S049R87;LINKAGE=EP

$\Gamma(\pi\mu^+\mu^-)/\Gamma_{\text{total}}$ Γ_{129}/Γ

NODE=S049R88

NODE=S049R88

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<5.0 \times 10^{-8}$	90	[1] LEES	13M	BABR	$e^+e^- \to \Upsilon(4S)$

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

NODE=S049R88;LINKAGE=EP

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

NODE=S049R57

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

VALUE (units 10^{-7})	CL%	DOCUMENT ID	TECN	COMMENT
4.4±0.6 OUR AVERAGE				
$3.9^{+0.9}_{-0.8}\pm0.2$		[1] AUBERT 09T	BABR	$e^+e^- \to \Upsilon(4S)$
$4.8^{+0.8}_{-0.7}\pm0.3$		[1] WEI 09A	BELL	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$3.3^{+0.9}_{-0.8}\pm0.2$		[1] AUBERT,B 06J	BABR	Repl. by AUBERT 09T
$7.4^{+1.8}_{-1.6}\pm0.5$		[1] AUBERT 03U	BABR	Repl. by AUBERT,B 06J
$4.8^{+1.5}_{-1.3}\pm0.3$		[1,2] ISHIKAWA 03	BELL	Repl. by WEI 09A
<13	90	ABE 02	BELL	Repl. by ISHIKAWA 03

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.
[2] The second error is a total of systematic uncertainties including model dependence.

NODE=S049R57;LINKAGE=EP
NODE=S049R57;LINKAGE=IS

$\Gamma(K^*(892) e^+ e^-)/\Gamma_{total}$ — Γ_{131}/Γ

NODE=S049R58

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

VALUE (units 10^{-7})	CL%	DOCUMENT ID	TECN	COMMENT
11.9±2.0 OUR AVERAGE Error includes scale factor of 1.2.				
$9.9^{+2.3}_{-2.1}\pm0.6$		[1] AUBERT 09T	BABR	$e^+e^- \to \Upsilon(4S)$
$13.9^{+2.3}_{-2.0}\pm1.2$		[1] WEI 09A	BELL	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$9.7^{+3.0}_{-2.7}\pm1.4$		[1] AUBERT,B 06J	BABR	Repl. by AUBERT 09T
$9.8^{+5.0}_{-4.2}\pm1.1$		[1] AUBERT 03U	BABR	Repl. by AUBERT,B 06J
$14.9^{+5.2}_{-4.6}{}^{+1.2}_{-1.3}$		[2] ISHIKAWA 03	BELL	Repl. by WEI 09A
<56	90	ABE 02	BELL	Repl. by ISHIKAWA 03

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.
[2] Assumes equal production of B^0 and B^+ at $\Upsilon(4S)$. The second error is a total of systematic uncertainties including model dependence.

NODE=S049R58;LINKAGE=EP
NODE=S049R58;LINKAGE=IS

$\Gamma(K \mu^+ \mu^-)/\Gamma_{total}$ — Γ_{132}/Γ

NODE=S049R59

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

VALUE (units 10^{-7})	DOCUMENT ID	TECN	COMMENT
4.4±0.4 OUR AVERAGE			
$4.2\pm0.4\pm0.2$	AALTONEN 11AI	CDF	$p\overline{p}$ at 1.96 TeV
$4.1^{+1.3}_{-1.2}\pm0.2$	[1] AUBERT 09T	BABR	$e^+e^- \to \Upsilon(4S)$
$5.0\pm0.6\pm0.3$	[1] WEI 09A	BELL	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •			
$3.5^{+1.3}_{-1.1}\pm0.3$	[1] AUBERT,B 06J	BABR	Repl. by AUBERT 09T
$4.5^{+2.3}_{-1.9}\pm0.4$	[1] AUBERT 03U	BABR	Repl. by AUBERT,B 06J
$4.8^{+1.2}_{-1.1}\pm0.4$	[1,2] ISHIKAWA 03	BELL	Repl. by WEI 09A
$9.9^{+4.0}_{-3.2}{}^{+1.3}_{-1.0}$	ABE 02	BELL	Repl. by ISHIKAWA 03

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.
[2] The second error is a total of systematic uncertainties including model dependence.

NODE=S049R59;LINKAGE=EP
NODE=S049R59;LINKAGE=IS

$\Gamma(K \mu^+ \mu^-)/\Gamma(K e^+ e^-)$ — $\Gamma_{132}/\Gamma_{130}$

NODE=S049R76

VALUE	DOCUMENT ID	TECN	COMMENT
$1.01^{+0.19}_{-0.16}$ OUR AVERAGE			
$1.03^{+0.28}_{-0.24}\pm0.01$	[1] CHOUDHURY 21	BELL	$e^+e^- \to \Upsilon(4S)$
$1.00^{+0.31}_{-0.25}\pm0.07$	[2] LEES 12S	BABR	$e^+e^- \to \Upsilon(4S)$
$0.96^{+0.44}_{-0.34}\pm0.05$	AUBERT 09T	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •			

$1.03 \pm 0.19 \pm 0.06$	[3] WEI	09A	BELL	$e^+ e^- \to \Upsilon(4S)$
$1.06 \pm 0.48 \pm 0.08$	AUBERT,B	06J	BABR	Repl. by AUBERT 09T

[1] For $1.0 < q^2 < 6.0$ GeV^2/c^4. Measurements in other q^2 bins are also reported. NODE=S049R76;LINKAGE=A

[2] Measured in the union of $0.10 < q^2 < 8.12$ GeV^2/c^4 and $q^2 > 10.11$ GeV^2/c^4. LEES 12S reports also individual measurements $\Gamma(B \to K\mu^+\mu^-)/\Gamma(B \to K e^+ e^-) = 0.74^{+0.40}_{-0.31} \pm 0.06$ for $0.10 < q^2 < 8.12$ GeV^2/c^4 and $\Gamma(B \to K\mu^+\mu^-)/\Gamma(B \to K e^+ e^-) = 1.43^{+0.65}_{-0.44} \pm 0.12$ for $q^2 > 10.11$ GeV^2/c^4. NODE=S049R76;LINKAGE=LE

[3] Superseded by CHOUDHURY 21. NODE=S049R76;LINKAGE=B

$\Gamma(K^*(892)\mu^+\mu^-)/\Gamma_{total}$ Γ_{133}/Γ

NODE=S049R60

Test for $\Delta B = 1$ weak neutral current. Allowed by higher-order electroweak interactions. NODE=S049R60

NODE=S049R60

VALUE (units 10^{-7})	CL%	DOCUMENT ID		TECN	COMMENT
10.6±0.9 OUR AVERAGE					
$10.1 \pm 1.0 \pm 0.5$		AALTONEN	11AI	CDF	$p\bar{p}$ at 1.96 TeV
$13.5^{+3.5}_{-3.3} \pm 1.0$		[1] AUBERT	09T	BABR	$e^+ e^- \to \Upsilon(4S)$
$11.0^{+1.6}_{-1.4} \pm 0.8$		[1] WEI	09A	BELL	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$8.8^{+3.5}_{-3.0} \pm 1.2$		[1] AUBERT,B	06J	BABR	Repl. by AUBERT 09T
$12.7^{+7.6}_{-6.1} \pm 1.6$		[1] AUBERT	03U	BABR	Repl. by AUBERT,B 06J
$11.7^{+3.6}_{-3.1} \pm 1.0$		[2] ISHIKAWA	03	BELL	Repl. by WEI 09A
<31	90	ABE	02	BELL	Repl. by ISHIKAWA 03

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$. NODE=S049R60;LINKAGE=EP

[2] Assumes equal production of B^0 and B^+ at $\Upsilon(4S)$. The second error is a total of systematic uncertainties including model dependence. NODE=S049R60;LINKAGE=IS

$\Gamma(K^*(892)\mu^+\mu^-)/\Gamma(K^*(892)e^+e^-)$ $\Gamma_{133}/\Gamma_{131}$

NODE=S049R77

NODE=S049R77

VALUE	DOCUMENT ID		TECN	COMMENT
0.98±0.15 OUR AVERAGE				
$1.13^{+0.34}_{-0.26} \pm 0.10$	[1] LEES	12S	BABR	$e^+ e^- \to \Upsilon(4S)$
$1.37^{+0.53}_{-0.40} \pm 0.09$	AUBERT	09T	BABR	$e^+ e^- \to \Upsilon(4S)$
$0.83 \pm 0.17 \pm 0.08$	WEI	09A	BELL	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$0.91 \pm 0.45 \pm 0.06$	AUBERT,B	06J	BABR	Repl. by AUBERT 09T

[1] Measured in the union of $0.10 < q^2 < 8.12$ GeV^2/c^4 and $q^2 > 10.11$ GeV^2/c^4. LEES 12S reports also individual measurements $\Gamma(B \to K^*(892)\mu^+\mu^-)/\Gamma(B \to K^*(892)e^+e^-) = 1.06^{+0.48}_{-0.33} \pm 0.08$ for $0.10 < q^2 < 8.12$ GeV^2/c^4 and $\Gamma(B \to K^*(892)\mu^+\mu^-)/\Gamma(B \to K^*(892)e^+e^-) = 1.18^{+0.55}_{-0.37} \pm 0.11$ for $q^2 > 10.11$ GeV^2/c^4. NODE=S049R77;LINKAGE=LE

$\Gamma(K\ell^+\ell^-)/\Gamma_{total}$ Γ_{134}/Γ

NODE=S049R61

Test for $\Delta B = 1$ weak neutral current. Allowed by higher-order electroweak interactions. NODE=S049R61

NODE=S049R61

VALUE (units 10^{-7})	CL%	DOCUMENT ID		TECN	COMMENT
4.8±0.4 OUR AVERAGE					
$4.7 \pm 0.6 \pm 0.2$		LEES	12S	BABR	$e^+ e^- \to \Upsilon(4S)$
$4.8^{+0.5}_{-0.4} \pm 0.3$		WEI	09A	BELL	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$3.9 \pm 0.7 \pm 0.2$		[1] AUBERT	09T	BABR	Repl. by LEES 12S
$3.4 \pm 0.7 \pm 0.2$		[1] AUBERT,B	06J	BABR	Repl. by AUBERT 09T
$6.5^{+1.4}_{-1.3} \pm 0.4$		[2] AUBERT	03U	BABR	Repl. by AUBERT,B 06J
$4.8^{+1.0}_{-0.9} \pm 0.3$		[3] ISHIKAWA	03	BELL	Repl. by WEI 09A
$7.5^{+2.5}_{-2.1} \pm 0.6$		[4] ABE	02	BELL	Repl. by ISHIKAWA 03
< 5.1	90	[1] AUBERT	02L	BABR	$e^+ e^- \to \Upsilon(4S)$
<17	90	[5] ANDERSON	01B	CLE2	$e^+ e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$. NODE=S049R61;LINKAGE=EP
[2] Assumes all four $B \to K \ell^+ \ell^-$ modes having equal partial widths in the fit. NODE=S049R61;LINKAGE=UA
[3] Assumes equal production rate for charge and neutral B meson pairs, isospin invariance, lepton universality for $B \to K \ell^+ \ell^-$, and B($B \to K^*(892) \mu^+ \mu^-$) = 1.33. The second error is total systematic uncertainties including model dependence. NODE=S049R61;LINKAGE=IK
[4] Assumes lepton universality. NODE=S049R61;LINKAGE=LU
[5] The result is for di-lepton masses above 0.5 GeV. NODE=S049R61;LINKAGE=A

$\Gamma(K^*(892)\ell^+\ell^-)/\Gamma_{\text{total}}$ Γ_{135}/Γ

NODE=S049R62

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

NODE=S049R62

NODE=S049R62

VALUE (units 10^{-7})	CL%	DOCUMENT ID		TECN	COMMENT
10.5±1.0 OUR AVERAGE					
$10.2^{+1.4}_{-1.3} \pm 0.5$		LEES	12S	BABR	$e^+ e^- \to \Upsilon(4S)$
$10.7^{+1.1}_{-1.0} \pm 0.9$		WEI	09A	BELL	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$11.1^{+1.9}_{-1.8} \pm 0.7$		[1] AUBERT	09T	BABR	Repl. by LEES 12S
$7.8^{+1.9}_{-1.7} \pm 1.1$		[1] AUBERT,B	06J	BABR	Repl. by AUBERT 09T
$8.8^{+3.3}_{-2.9} \pm 1.0$		[2] AUBERT	03U	BABR	Repl. by AUBERT,B 06J
$11.5^{+2.6}_{-2.4} \pm 0.8$		[3] ISHIKAWA	03	BELL	Repl. by WEI 09A
<31	90	[1,4] AUBERT	02L	BABR	Repl. by AUBERT 03U
<33	90	[5] ANDERSON	01B	CLE2	$e^+ e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$. NODE=S049R62;LINKAGE=EP
[2] Assumes the partial width ratio of electron and muon modes to be $\Gamma(B \to K^*(892) e^+ e^-)/\Gamma(B \to K^*(892) \mu^+ \mu^-) = 1.33$. NODE=S049R62;LINKAGE=AU
[3] Assumes equal production rate for charge and neutral B meson pairs, isospin invariance, lepton universality for $B \to K \ell^+ \ell^-$, and B($B \to K^*(892) \mu^+ \mu^-$) = 1.33. The second error is total systematic uncertainties including model dependence. NODE=S049R62;LINKAGE=IK
[4] For averaging $K^*(892)\mu^+\mu^-$ and $K^*(892) e^+ e^-$ modes, AUBERT 02L assumed B($B \to K^*(892) e^+ e^-$)/B($B \to K^*(892) \mu^+ \mu^-$) = 1.2. NODE=S049R62;LINKAGE=H3
[5] The result is for di-lepton masses above 0.5 GeV. NODE=S049R62;LINKAGE=A

$\Gamma(K\nu\overline{\nu})/\Gamma_{\text{total}}$ Γ_{136}/Γ

NODE=S049R83

Test for ΔB =1 weak neutral current.

NODE=S049R83

NODE=S049R83

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<1.6 × 10^{-5}	90	[1] GRYGIER	17	BELL	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<1.7 × 10^{-5}	90	[1,2] LEES	13I	BABR	$e^+ e^- \to \Upsilon(4S)$
<1.4 × 10^{-5}	90	[1] DEL-AMO-SA...	10Q	BABR	Repl. by LEES 13I

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$. NODE=S049R83;LINKAGE=EP
[2] Also reported a limit $< 3.2 \times 10^{-5}$ at 90% CL obtained using a fully reconstructed hadronic B-tag evnets. NODE=S049R83;LINKAGE=LE

$\Gamma(K^*\nu\overline{\nu})/\Gamma_{\text{total}}$ Γ_{137}/Γ

NODE=S049R79

Test for ΔB =1 weak neutral current.

NODE=S049R79

NODE=S049R79

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<2.7 × 10^{-5}	90	[1] GRYGIER	17	BELL	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<7.6 × 10^{-5}	90	[1,2] LEES	13I	BABR	$e^+ e^- \to \Upsilon(4S)$
<8 × 10^{-5}	90	AUBERT	08BC	BABR	Repl. by LEES 13I

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$. NODE=S049R79;LINKAGE=EP
[2] Also reported a limit $< 7.9 \times 10^{-5}$ at 90% CL obtained using a fully reconstructed hadronic B-tag evnets. NODE=S049R79;LINKAGE=LE

$\Gamma(\pi\nu\overline{\nu})/\Gamma_{\text{total}}$ Γ_{138}/Γ

NODE=S049R00

NODE=S049R00

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.8 × 10^{-5}	90	[1] GRYGIER	17	BELL	$e^+ e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$. NODE=S049R00;LINKAGE=A

$\Gamma(\rho\nu\overline{\nu})/\Gamma_{\text{total}}$ Γ_{139}/Γ

NODE=S049R05

NODE=S049R05

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<2.8 × 10^{-5}	90	[1] GRYGIER	17	BELL	$e^+ e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$. NODE=S049R05;LINKAGE=A

NODE=S049R33

$\Gamma(s e^{\pm}\mu^{\mp})/\Gamma_{total}$ — Γ_{140}/Γ

NODE=S049R33

Test for lepton family number conservation. Allowed by higher-order electroweak interactions.

NODE=S049R33

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<2.2 × 10^{-5}	90	GLENN	98	CLEO	$e^+e^- \rightarrow \Upsilon(4S)$

NODE=S049R67

$\Gamma(\pi e^{\pm}\mu^{\mp})/\Gamma_{total}$ — Γ_{141}/Γ

NODE=S049R67

Test of lepton family number conservation.

NODE=S049R67

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<9.2 × 10^{-8}	90	[1] AUBERT	07AG	BABR	$e^+e^- \rightarrow \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<1.6 \times 10^{-6}$	90	[1] EDWARDS	02B	CLE2	$e^+e^- \rightarrow \Upsilon(4S)$

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

NODE=S049R67;LINKAGE=EP

NODE=S049R68

$\Gamma(\rho e^{\pm}\mu^{\mp})/\Gamma_{total}$ — Γ_{142}/Γ

NODE=S049R68

Test of lepton family number conservation.

NODE=S049R68

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<3.2 × 10^{-6}	90	[1] EDWARDS	02B	CLE2	$e^+e^- \rightarrow \Upsilon(4S)$

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

NODE=S049R68;LINKAGE=EP

NODE=S049R65

$\Gamma(K e^{\pm}\mu^{\mp})/\Gamma_{total}$ — Γ_{143}/Γ

NODE=S049R65

Test of lepton family number conservation.

NODE=S049R65

VALUE (units 10^{-7})	CL%	DOCUMENT ID		TECN	COMMENT
< 0.38	90	[1] AUBERT,B	06J	BABR	$e^+e^- \rightarrow \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<16	90	[1] EDWARDS	02B	CLE2	$e^+e^- \rightarrow \Upsilon(4S)$

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

NODE=S049R65;LINKAGE=EP

NODE=S049R66

$\Gamma(K^*(892) e^{\pm}\mu^{\mp})/\Gamma_{total}$ — Γ_{144}/Γ

NODE=S049R66

Test of lepton family number conservation.

NODE=S049R66

VALUE (units 10^{-7})	CL%	DOCUMENT ID		TECN	COMMENT
< 5.1	90	[1] AUBERT,B	06J	BABR	$e^+e^- \rightarrow \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<62	90	[1] EDWARDS	02B	CLE2	$e^+e^- \rightarrow \Upsilon(4S)$

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

NODE=S049R66;LINKAGE=EP

CP VIOLATION

NODE=S049225

A_{CP} is defined as

NODE=S049225

$$\frac{B(\overline{B} \rightarrow \overline{f}) - B(B \rightarrow f)}{B(\overline{B} \rightarrow \overline{f}) + B(B \rightarrow f)},$$

the *CP*-violation charge asymmetry of inclusive $B^{\pm}$ and B^0 decay.

NODE=S049CP1

$A_{CP}(B \rightarrow K^*(892)\gamma)$

NODE=S049CP1

VALUE	DOCUMENT ID		TECN	COMMENT
−0.003±0.011 OUR AVERAGE				
$-0.004 \pm 0.014 \pm 0.003$	[1] HORIGUCHI	17	BELL	$e^+e^- \rightarrow \Upsilon(4S)$
$-0.003 \pm 0.017 \pm 0.007$	[2] AUBERT	09AO	BABR	$e^+e^- \rightarrow \Upsilon(4S)$
$0.08 \pm 0.13 \pm 0.03$	[3] COAN	00	CLE2	$e^+e^- \rightarrow \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$-0.013 \pm 0.036 \pm 0.010$	[4] AUBERT,BE	04A	BABR	Repl. by AUBERT 09AO
$-0.015 \pm 0.044 \pm 0.012$	[3] NAKAO	04	BELL	Repl. by HORIGUCHI 17
$-0.044 \pm 0.076 \pm 0.012$	[5] AUBERT	02C	BABR	Repl. by AUBERT,BE 04A

[1] Uses B($\Upsilon(4S) \rightarrow B^+B^-$) = (51.4 ± 0.6)% and B($\Upsilon(4S) \rightarrow B^0\overline{B}^0$) = (48.6 ± 0.6)%.

NODE=S049CP1;LINKAGE=A

[2] Corresponds to a 90% CL interval $-0.033 < A_{CP} < 0.028$.

NODE=S049CP1;LINKAGE=AE

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

NODE=S049CP1;LINKAGE=EP

[4] Corresponds to a 90% CL allowed region, $-0.074 < A_{CP} < 0.049$.

NODE=S049CP1;LINKAGE=AU

[5] A 90% CL range is $-0.170 < A_{CP} < 0.082$.

NODE=S049CP1;LINKAGE=C7

$A_{CP}(B \to s\gamma)$

NODE=S049CP2
NODE=S049CP2

VALUE	DOCUMENT ID		TECN	COMMENT
0.015 ±0.011 OUR AVERAGE				
0.0144±0.0128±0.0011	[1] WATANUKI	19	BELL	$e^+ e^- \to \Upsilon(4S)$
0.017 ±0.019 ±0.010	[2] LEES	14K	BABR	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
−0.011 ±0.030 ±0.014	[3] AUBERT	08BJ	BABR	Repl. by LEES 14K
0.025 ±0.050 ±0.015	[4] AUBERT,B	04E	BABR	Repl. by AUBERT 08BJ
0.002 ±0.050 ±0.030	[5] NISHIDA	04	BELL	Repl. by WATANUKI 19

[1] Using a sum-of-exclusive technique with $m_{X_s} < 2.8$ GeV/c^2. NODE=S049CP2;LINKAGE=C

[2] Measured with 16 exclusively reconstructed $B \to X_s \gamma$ decays with $0.6 < m_{X_s} < 2.0$ GeV/c^2 (ten charged and six neutral self-tagging B modes). NODE=S049CP2;LINKAGE=B

[3] Uses a sum of exclusively reconstructed $B \to X_s$ decay modes, with X_s mass between 0.6 and 2.8 GeV/c^2. NODE=S049CP2;LINKAGE=BE

[4] Corresponds to $-0.06 < A_{CP} < 0.11$ at 90% CL. NODE=S049CP2;LINKAGE=AU

[5] This measurement is performed inclusively for recoil mass X_s less than 2.1 GeV, which corresponds to $-0.093 < A_{CP} < 0.096$ at 90% CL. NODE=S049CP2;LINKAGE=NI

$A_{CP}(B \to (s+d)\gamma)$

NODE=S049CP4
NODE=S049CP4

VALUE	DOCUMENT ID		TECN	COMMENT
0.010±0.031 OUR AVERAGE				
0.022±0.039±0.009	[1] PESANTEZ	15	BELL	$e^+ e^- \to \Upsilon(4S)$
0.057±0.060±0.018	LEES	12V	BABR	$e^+ e^- \to \Upsilon(4S)$
−0.10 ±0.18 ±0.05	[2] AUBERT	08O	BABR	$e^+ e^- \to \Upsilon(4S)$
−0.110±0.115±0.017	AUBERT,BE	06B	BABR	$e^+ e^- \to \Upsilon(4S)$
−0.079±0.108±0.022	[3] COAN	01	CLE2	$e^+ e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$. Uses an opposite side lepton tag. Requires center-of-mass frame $E_\gamma > 2.1$ GeV. NODE=S049CP4;LINKAGE=B

[2] Uses a fully reconstructed B meson as a tag on the recoil side. Requires $E_\gamma > 2.2$ GeV. NODE=S049CP4;LINKAGE=UB

[3] Corresponds to $-0.27 < A_{CP} < 0.10$ at 90% CL. NODE=S049CP4;LINKAGE=A

$A_{CP}(B \to X_s \ell^+ \ell^-)$

NODE=S049CP3
NODE=S049CP3

VALUE	DOCUMENT ID		TECN	COMMENT
0.04±0.11±0.01	[1] LEES	14D	BABR	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
−0.22±0.26±0.02	[2] AUBERT,B	04I	BABR	Repl. by LEES 14D

[1] Measured from sum of exclusive modes through K^+, $K^+\pi^0$, $K^+\pi^-$, $K^+\pi^-\pi^0$, $K^+\pi^-\pi^+$, $K^0_S\pi^+$, and $K^0_S\pi^+\pi^0$. NODE=S049CP3;LINKAGE=A

[2] The final state flavor is determined by the kaon and pion charges where modes with $X_s = K^0_S$, $K^0_S\pi^0$ or $K^0_S\pi^+\pi^-$ are not used. NODE=S049CP3;LINKAGE=AU

$A_{CP}(B \to X_s \ell^+ \ell^-)$ ($1.0 < q^2 < 6.0$ GeV^2/c^4)

NODE=S049CP9
NODE=S049CP9

VALUE	DOCUMENT ID		TECN	COMMENT
−0.06±0.22±0.01	[1] LEES	14D	BABR	$e^+ e^- \to \Upsilon(4S)$

[1] Measured from sum of exclusive modes through K^+, $K^+\pi^0$, $K^+\pi^-$, $K^+\pi^-\pi^0$, $K^+\pi^-\pi^+$, $K^0_S\pi^+$, and $K^0_S\pi^+\pi^0$. NODE=S049CP9;LINKAGE=A

$A_{CP}(B \to X_s \ell^+ \ell^-)$ ($10.1 < q^2 < 12.9$ or $q^2 > 14.2$ GeV^2/c^4)

NODE=S049CPA
NODE=S049CPA

VALUE	DOCUMENT ID		TECN	COMMENT
$0.19^{+0.18}_{-0.17}\pm0.01$	[1] LEES	14D	BABR	$e^+ e^- \to \Upsilon(4S)$

[1] Measured from sum of exclusive modes through K^+, $K^+\pi^0$, $K^+\pi^-$, $K^+\pi^-\pi^0$, $K^+\pi^-\pi^+$, $K^0_S\pi^+$, and $K^0_S\pi +\ (pi-)^0$. NODE=S049CPA;LINKAGE=LE

$A_{CP}(B \to K^* e^+ e^-)$

NODE=S049CP6
NODE=S049CP6

VALUE	DOCUMENT ID		TECN	COMMENT
−0.18±0.15±0.01	WEI	09A	BELL	$e^+ e^- \to \Upsilon(4S)$

$A_{CP}(B \to K^* \mu^+ \mu^-)$

NODE=S049CP7
NODE=S049CP7

VALUE	DOCUMENT ID		TECN	COMMENT
−0.03±0.13±0.02	WEI	09A	BELL	$e^+ e^- \to \Upsilon(4S)$

$A_{CP}(B \rightarrow K^* \ell^+ \ell^-)$ NODE=S049CP5

VALUE	DOCUMENT ID		TECN	COMMENT
-0.04 ± 0.07 OUR AVERAGE				
$0.03 \pm 0.13 \pm 0.01$	[1] LEES	12S	BABR	$e^+ e^- \rightarrow \Upsilon(4S)$
$+0.01^{+0.16}_{-0.15} \pm 0.01$	AUBERT	09T	BABR	$e^+ e^- \rightarrow \Upsilon(4S)$
$-0.10 \pm 0.10 \pm 0.01$	WEI	09A	BELL	$e^+ e^- \rightarrow \Upsilon(4S)$

[1] Measured in the union of $0.10 < q^2 < 8.12$ GeV^2/c^4 and $q^2 > 10.11$ GeV^2/c^4. LEES 12S reports also individual measurements $A_{CP}(B \rightarrow K^* \ell^+ \ell^-) = -0.13^{+0.18}_{-0.19} \pm 0.01$ for $0.10 < q^2 < 8.12$ GeV^2/c^4 and $A_{CP}(B \rightarrow K^* \ell^+ \ell^-) = 0.16^{+0.18}_{-0.19} \pm 0.01$ for $q^2 > 10.11$ GeV^2/c^4. NODE=S049CP5;LINKAGE=LE

$A_{CP}(B \rightarrow \eta \text{anything})$ NODE=S049CP8

VALUE	DOCUMENT ID		TECN	COMMENT
$-0.13 \pm 0.04^{+0.02}_{-0.03}$	[1] NISHIMURA	10	BELL	$e^+ e^- \rightarrow \Upsilon(4S)$

[1] Uses $B \rightarrow \eta X_s$ with $0.4 < m_{X_s} < 2.6$ GeV/c^2. NODE=S049CP8;LINKAGE=NI

$\Delta A_{CP}(X_s \gamma) = A_{CP}(B^{\pm} \rightarrow X_s \gamma) - A_{CP}(B^0 \rightarrow X_s \gamma)$ NODE=S049DA1

This is the isospin difference of the CP asymmetries. NODE=S049DA1

VALUE	DOCUMENT ID		TECN	COMMENT
0.041 ± 0.023 OUR AVERAGE				
$0.0369 \pm 0.0265 \pm 0.0076$	[1] WATANUKI	19	BELL	$e^+ e^- \rightarrow \Upsilon(4S)$
$0.050 \pm 0.039 \pm 0.015$	[2] LEES	14K	BABR	$e^+ e^- \rightarrow \Upsilon(4S)$

[1] Using a sum-of-exclusive technique with $m_{X_s} < 2.8$ GeV/c^2. NODE=S049DA1;LINKAGE=B

[2] Measured with 16 exclusively reconstructed $B \rightarrow X_s \gamma$ decays with $0.6 < m_{X_s} < 2.0$ GeV/c^2 (ten charged and six neutral self-tagging B modes). NODE=S049DA1;LINKAGE=A

$\overline{A}_{CP}(B \rightarrow X_s \gamma) = (A_{CP}(B^+ \rightarrow X_s \gamma) + A_{CP}(B^0 \rightarrow X_s \gamma))/2$ NODE=S049A06

VALUE	DOCUMENT ID		TECN	COMMENT
$0.0091 \pm 0.0121 \pm 0.0013$	[1] WATANUKI	19	BELL	$e^+ e^- \rightarrow \Upsilon(4S)$

[1] Using a sum-of-exclusive technique with $m_{X_s} < 2.8$ GeV/c^2. NODE=S049A06;LINKAGE=A

$\Delta A_{CP}(B \rightarrow K^* \gamma) = A_{CP}(B^+ \rightarrow K^{*+} \gamma) - A_{CP}(B^0 \rightarrow K^{*0} \gamma)$ NODE=S049A02

This is the isospin difference of the CP asymmetries. NODE=S049A02

VALUE	DOCUMENT ID		TECN	COMMENT
$0.024 \pm 0.028 \pm 0.005$	[1] HORIGUCHI	17	BELL	$e^+ e^- \rightarrow \Upsilon(4S)$

[1] Uses B($\Upsilon(4S) \rightarrow B^+ B^-$) = (51.4 ± 0.6)% and B($\Upsilon(4S) \rightarrow B^0 \overline{B}^0$) = (48.6 ± 0.6)%. NODE=S049A02;LINKAGE=A

$\overline{A}_{CP}(B \rightarrow K^* \gamma) = (A_{CP}(B^+ \rightarrow K^{*+} \gamma) + A_{CP}(B^0 \rightarrow K^{*0} \gamma))/2$ NODE=S049A03

This is the average CP asymmetry. NODE=S049A03

VALUE	DOCUMENT ID		TECN	COMMENT
$-0.001 \pm 0.014 \pm 0.003$	[1] HORIGUCHI	17	BELL	$e^+ e^- \rightarrow \Upsilon(4S)$

[1] Uses B($\Upsilon(4S) \rightarrow B^+ B^-$) = (51.4 ± 0.6)% and B($\Upsilon(4S) \rightarrow B^0 \overline{B}^0$) = (48.6 ± 0.6)%. NODE=S049A03;LINKAGE=A

POLARIZATION IN B DECAY NODE=S049224

In decays involving two vector mesons, one can distinguish among the states in which meson polarizations are both longitudinal (L) or both are transverse and parallel ($\parallel$) or perpendicular ($\perp$) to each other with the parameters Γ_L/Γ, $\Gamma_{\perp}/\Gamma$, and the relative phases $\phi_{\parallel}$ and $\phi_{\perp}$. See the definitions in the note on "Polarization in B Decays" review in the B^0 Particle Listings. NODE=S049224

$F_L(B \rightarrow K^* \ell^+ \ell^-)$ ($q^2 > 0.1$ GeV^2/c^4) NODE=S049FL

VALUE	DOCUMENT ID		TECN	COMMENT
$0.63^{+0.18}_{-0.19} \pm 0.05$	[1] AUBERT,B	06J	BABR	$e^+ e^- \rightarrow \Upsilon(4S)$

[1] Results with different q^2 cuts are also reported. NODE=S049FL;LINKAGE=AU

$F_L(B \rightarrow K^* \ell^+ \ell^-)$ ($m_{\ell\ell} < 2.5$ GeV/c^2) NODE=S049FL1

VALUE	DOCUMENT ID		TECN	COMMENT
$0.35 \pm 0.16 \pm 0.04$	AUBERT	09N	BABR	$e^+ e^- \rightarrow \Upsilon(4S)$

$F_L(B \to K^* \ell^+ \ell^-)$ ($m_{\ell\ell} > 3.2$ GeV/c^2)

NODE=S049FL2

VALUE	DOCUMENT ID		TECN	COMMENT
$0.71^{+0.20}_{-0.22}\pm0.04$	AUBERT	09N	BABR	$e^+ e^- \to \Upsilon(4S)$

$F_L(B \to K^* \ell^+ \ell^-)$ ($0.10 < q^2 < 0.98$ GeV^2/c^4)

NODE=S049FLB

VALUE	DOCUMENT ID		TECN	COMMENT
$0.263^{+0.045}_{-0.044}\pm0.017$	AAIJ	16B	LHCB	pp at 7, 8 TeV

$F_L(B \to K^* \ell^+ \ell^-)$ ($1.1 < q^2 < 2.5$ GeV^2/c^4)

NODE=S049FLC

VALUE	DOCUMENT ID		TECN	COMMENT
$0.660^{+0.083}_{-0.077}\pm0.022$	AAIJ	16B	LHCB	pp at 7, 8 TeV

$F_L(B \to K^* \ell^+ \ell^-)$ ($0.1 < q^2 < 2.0$ GeV^2/c^4)

NODE=S049FL3

VALUE	DOCUMENT ID		TECN	COMMENT
$0.34^{+0.08}_{-0.07}$ OUR AVERAGE				
$0.37^{+0.10}_{-0.09}{}^{+0.04}_{-0.03}$	AAIJ	13Y	LHCB	pp at 7 TeV, $K^{*0}\mu^+\mu^-$
$0.30\pm0.16\pm0.02$	AALTONEN	12I	CDF	$p\overline{p}$ at 1.96 TeV
$0.29^{+0.21}_{-0.18}\pm0.02$	WEI	09A	BELL	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$0.60^{+0.00}_{-0.28}\pm0.19$	[1] CHATRCHYAN	13BL	CMS	pp at 7 TeV
$0.00^{+0.13}_{-0.00}\pm0.02$	AAIJ	12U	LHCB	Repl. by AAIJ 13Y
$0.53^{+0.32}_{-0.34}\pm0.07$	AALTONEN	11L	CDF	Repl. by AALTONEN 12I

[1] CHATRCHYAN 13BL uses, for this bin, $1.0 < q^2 < 2.0$ GeV^2/c^4.

NODE=S049FL3;LINKAGE=CH

$F_L(B \to K^* \ell^+ \ell^-)$ ($2.0 < q^2 < 4.3$ GeV^2/c^4)

NODE=S049FL4

VALUE	DOCUMENT ID		TECN	COMMENT
0.77 ± 0.05 OUR AVERAGE				
$0.876^{+0.109}_{-0.097}\pm0.017$	[1] AAIJ	16B	LHCB	pp at 7, 8 TeV
$0.80\pm0.08\pm0.06$	KHACHATRY...	16D	CMS	pp at 8 TeV
$0.74^{+0.10}_{-0.09}{}^{+0.02}_{-0.03}$	AAIJ	13Y	LHCB	pp at 7 TeV, $K^{*0}\mu^+\mu^-$
$0.65\pm0.17\pm0.03$	CHATRCHYAN	13BL	CMS	pp at 7 TeV
$0.37^{+0.25}_{-0.24}\pm0.10$	AALTONEN	12I	CDF	$p\overline{p}$ at 1.96 TeV
$0.71\pm0.24\pm0.05$	WEI	09A	BELL	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$0.77\pm0.15\pm0.03$	AAIJ	12U	LHCB	Repl. by AAIJ 13Y
$0.40^{+0.32}_{-0.33}\pm0.08$	AALTONEN	11L	CDF	Repl. by AALTONEN 12I

[1] Measured in $2.5 < q^2 < 4.0$ GeV^2/c^4.

NODE=S049FL4;LINKAGE=A

$F_L(B \to K^* \ell^+ \ell^-)$ ($4.0 < q^2 < 6.0$ GeV^2/c^4)

NODE=S049FLD

VALUE	DOCUMENT ID		TECN	COMMENT
$0.611^{+0.052}_{-0.053}\pm0.017$	AAIJ	16B	LHCB	pp at 7, 8 TeV

$F_L(B \to K^* \ell^+ \ell^-)$ ($6.0 < q^2 < 8.0$ GeV^2/c^4)

NODE=S049FLE

VALUE	DOCUMENT ID		TECN	COMMENT
$0.579\pm0.046\pm0.015$	AAIJ	16B	LHCB	pp at 7, 8 TeV

$F_L(B \to K^* \ell^+ \ell^-)$ ($4.3 < q^2 < 8.6$ GeV^2/c^4)

NODE=S049FL5

VALUE	DOCUMENT ID		TECN	COMMENT
0.64 ± 0.06 OUR AVERAGE				
$0.57\pm0.07\pm0.03$	AAIJ	13Y	LHCB	pp at 7 TeV, $K^{*0}\mu^+\mu^-$
$0.81^{+0.13}_{-0.12}\pm0.05$	CHATRCHYAN	13BL	CMS	pp at 7 TeV
$0.68^{+0.15}_{-0.17}\pm0.09$	AALTONEN	12I	CDF	$p\overline{p}$ at 1.96 TeV
$0.64^{+0.23}_{-0.24}\pm0.07$	WEI	09A	BELL	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$0.60^{+0.06}_{-0.07}\pm0.01$	AAIJ	12U	LHCB	Repl. by AAIJ 13Y
$0.82^{+0.19}_{-0.23}\pm0.07$	AALTONEN	11L	CDF	Repl. by AALTONEN 12I

$F_L(B \to K^* \ell^+ \ell^-)$ ($10.09 < q^2 < 12.86$ GeV^2/c^4)

NODE=S049FL6

VALUE	DOCUMENT ID	TECN	COMMENT
0.448±0.033 OUR AVERAGE			
$0.493^{+0.049}_{-0.047} \pm 0.013$	[1] AAIJ 16B	LHCB	pp at 7, 8 TeV
$0.39 \pm 0.05 \pm 0.04$	KHACHATRY... 16D	CMS	pp at 8 TeV
$0.48\ ^{+0.08}_{-0.09} \pm 0.03$	AAIJ 13Y	LHCB	pp at 7 TeV, $K^{*0}\mu^+\mu^-$
$0.45\ ^{+0.10}_{-0.11} \pm 0.04$	CHATRCHYAN 13BL	CMS	pp at 7 TeV
$0.47 \pm 0.14 \pm 0.03$	AALTONEN 12I	CDF	$p\overline{p}$ at 1.96 TeV
$0.17\ ^{+0.17}_{-0.15} \pm 0.03$	WEI 09A	BELL	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •			
$0.41 \pm 0.11 \pm 0.03$	AAIJ 12U	LHCB	Repl. by AAIJ 13Y
$0.31\ ^{+0.19}_{-0.18} \pm 0.02$	AALTONEN 11L	CDF	Repl. by AALTONEN 12I

[1] Measured in $11.0 < q^2 < 12.5$ GeV^2/c^4.

NODE=S049FL6;LINKAGE=A

$F_L(B \to K^* \ell^+ \ell^-)$ ($15.0 < q^2 < 17.0$ GeV^2/c^4)

NODE=S049FLF

VALUE	DOCUMENT ID	TECN	COMMENT
0.349±0.039±0.009	AAIJ 16B	LHCB	pp at 7, 8 TeV

$F_L(B \to K^* \ell^+ \ell^-)$ ($17.0 < q^2 < 19.0$ GeV^2/c^4)

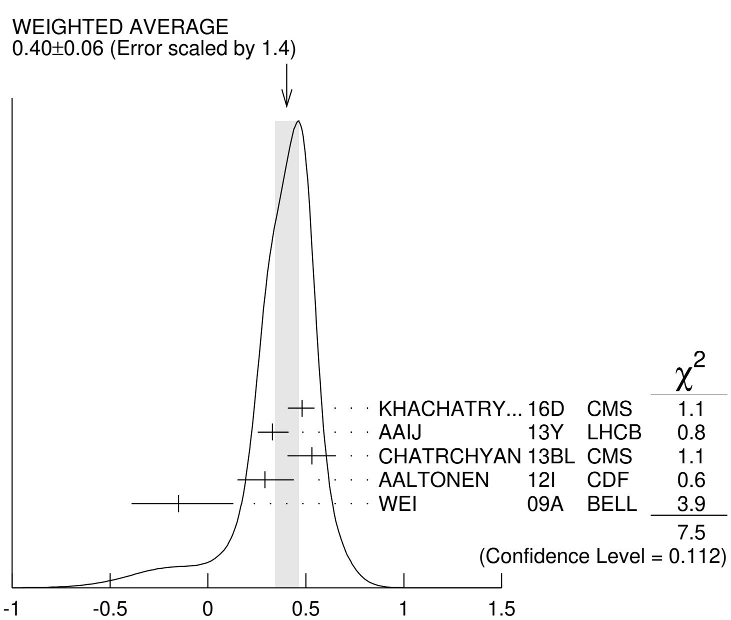
NODE=S049FLG

VALUE	DOCUMENT ID	TECN	COMMENT
$\mathbf{0.354^{+0.049}_{-0.048} \pm 0.025}$	AAIJ 16B	LHCB	pp at 7, 8 TeV

$F_L(B \to K^* \ell^+ \ell^-)$ ($14.18 < q^2 < 16.0$ GeV^2/c^4)

NODE=S049FL7

VALUE	DOCUMENT ID	TECN	COMMENT
0.40±0.06 OUR AVERAGE	Error includes scale factor of 1.4. See the ideogram below.		
$0.48^{+0.05}_{-0.06} \pm 0.04$	KHACHATRY... 16D	CMS	pp at 8 TeV
$0.33^{+0.08}_{-0.07}{}^{+0.02}_{-0.03}$	AAIJ 13Y	LHCB	pp at 7 TeV, $K^{*0}\mu^+\mu^-$
$0.53 \pm 0.12 \pm 0.03$	CHATRCHYAN 13BL	CMS	pp at 7 TeV
$0.29^{+0.14}_{-0.13} \pm 0.05$	AALTONEN 12I	CDF	$p\overline{p}$ at 1.96 TeV
$-0.15^{+0.27}_{-0.23} \pm 0.07$	WEI 09A	BELL	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •			
$0.37 \pm 0.09 \pm 0.05$	AAIJ 12U	LHCB	Repl. by AAIJ 13Y
$0.55^{+0.17}_{-0.18} \pm 0.02$	AALTONEN 11L	CDF	Repl. by AALTONEN 12I



$F_L(B \to K^* \ell^+ \ell^-)$ ($14.18 < q^2 < 16.0$ GeV^2/c^4)

$F_L(B \to K^* \ell^+ \ell^-)$ $(16.0 < q^2 < 19.0\ GeV^2/c^4)$

NODE=S049FL8

VALUE		DOCUMENT ID	TECN	COMMENT
0.350±0.019 OUR AVERAGE				
$0.345 \pm 0.020 \pm 0.007$	[1]	AAIJ 20Y	LHCB	pp at 7, 8, 13 TeV
$0.38\ ^{+0.05}_{-0.06} \pm 0.04$		KHACHATRY... 16D	CMS	pp at 8 TeV
$0.38\ ^{+0.09}_{-0.07} \pm 0.03$		AAIJ 13Y	LHCB	pp at 7 TeV, $K^{*0}\mu^+\mu^-$
$0.44 \pm 0.07 \pm 0.03$		CHATRCHYAN 13BL	CMS	pp at 7 TeV
$0.20\ ^{+0.19}_{-0.17} \pm 0.05$		AALTONEN 12I	CDF	$p\overline{p}$ at 1.96 TeV
$0.12\ ^{+0.15}_{-0.13} \pm 0.02$		WEI 09A	BELL	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$0.344\ ^{+0.028}_{-0.030} \pm 0.008$	[1]	AAIJ 16B	LHCB	Repl. by AAIJ 20Y
$0.26\ ^{+0.10}_{-0.08} \pm 0.03$		AAIJ 12U	LHCB	Repl. by AAIJ 13Y
$0.09\ ^{+0.18}_{-0.14} \pm 0.03$		AALTONEN 11L	CDF	Repl. by AALTONEN 12I

[1] Measured in $15.0 < q^2 < 19.0\ GeV^2/c^4$.

NODE=S049FL8;LINKAGE=A

$F_L(B \to K^* \ell^+ \ell^-)$ $(1.0 < q^2 < 6.0\ GeV^2/c^4)$

NODE=S049FL9

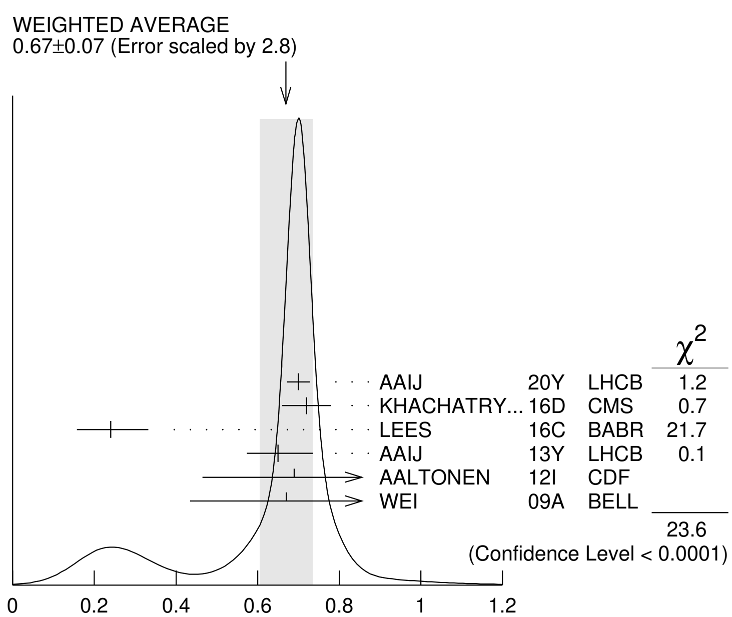
VALUE		DOCUMENT ID	TECN	COMMENT
0.67 ±0.07 OUR AVERAGE		Error includes scale factor of 2.8. See the ideogram below.		
$0.700 \pm 0.025 \pm 0.013$	[1]	AAIJ 20Y	LHCB	pp at 7, 8, 13 TeV
0.72 ± 0.06		KHACHATRY... 16D	CMS	pp at 7, 8 TeV
$0.24\ ^{+0.09}_{-0.08} \pm 0.02$	[2]	LEES 16C	BABR	$e^+e^- \to \Upsilon(4S)$
$0.65\ ^{+0.08}_{-0.07} \pm 0.03$		AAIJ 13Y	LHCB	pp at 7 TeV, $K^{*0}\mu^+\mu^-$
$0.69\ ^{+0.19}_{-0.21} \pm 0.08$		AALTONEN 12I	CDF	$p\overline{p}$ at 1.96 TeV
$0.67 \pm 0.23 \pm 0.05$		WEI 09A	BELL	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$0.690\ ^{+0.035}_{-0.036} \pm 0.017$	[1]	AAIJ 16B	LHCB	Repl. by AAIJ 20Y
$0.68 \pm 0.10 \pm 0.02$		CHATRCHYAN 13BL	CMS	Repl. by KHACHATRYAN 16D
$0.55 \pm 0.10 \pm 0.03$		AAIJ 12U	LHCB	Repl. by AAIJ 13Y
$0.50\ ^{+0.27}_{-0.30} \pm 0.03$		AALTONEN 11L	CDF	Repl. by AALTONEN 12I

[1] Measured in $1.1 < q^2 < 6.0\ GeV^2/c^4$.

NODE=S049FL9;LINKAGE=A

[2] Measured by combining B^0 and B^+ with e and μ as leptons. Results are also provided separately for B^0 and B^+.

NODE=S049FL9;LINKAGE=B



$F_L(B \to K^* \ell^+ \ell^-)$ $(1.0 < q^2 < 6.0\ GeV^2/c^4)$

$F_L(B \to K^* \ell^+ \ell^-)$ ($0.0 < q^2 < 4.3$ GeV^2/c^4)

NODE=S049FLA
NODE=S049FLA

VALUE	DOCUMENT ID	TECN	COMMENT
$\mathbf{0.33^{+0.14}_{-0.13} \pm 0.03}$	AALTONEN 12I	CDF	$p\bar{p}$ at 1.96 TeV
• • • We do not use the following data for averages, fits, limits, etc. • • •			
$0.47^{+0.23}_{-0.24} \pm 0.03$	AALTONEN 11L	CDF	Repl. by AALTONEN 12I

$A_T^{(2)}$ in $B \to K^* e^+ e^-$ (at low q^2)

NODE=S049A20
NODE=S049A20

VALUE	DOCUMENT ID	TECN	COMMENT
$\mathbf{0.52 \pm 0.53 \pm 0.11}$	[1,2] FERLEWICZ 24	BELL	$e^+ e^- \to \Upsilon(4S)$

[1] Events are reconstructed in $B^0 \to K^{*0}(\to K^+ \pi^-) e^+ e^-$ and $B^+ \to K^{*+}(\to K^0_S \pi^+) e^+ e^-$ decay modes. The effective dielectron invariant mass is required to be in the range $0.0008 < q^2 < 1.12$ GeV^2/c^4.

NODE=S049A20;LINKAGE=A

[2] A_T^{Im} and $A_T^{(2)}$ measure the ratio of the right- and left-handed Wilson coefficients, C_7'/C_7, which constrains non-SM contributions at small q^2.

NODE=S049A20;LINKAGE=B

A_T^{Im} in $B \to K^* e^+ e^-$ (at low q^2)

NODE=S049A21
NODE=S049A21

VALUE	DOCUMENT ID	TECN	COMMENT
$\mathbf{-1.27 \pm 0.52 \pm 0.12}$	[1,2] FERLEWICZ 24	BELL	$e^+ e^- \to \Upsilon(4S)$

[1] Events are reconstructed in $B^0 \to K^{*0}(\to K^+ \pi^-) e^+ e^-$ and $B^+ \to K^{*+}(\to K^0_S \pi^+) e^+ e^-$ decay modes. The effective dielectron invariant mass is required to be in the range $0.0008 < q^2 < 1.12$ GeV^2/c^4.

NODE=S049A21;LINKAGE=A

[2] A_T^{Im} and $A_T^{(2)}$ measure the ratio of the right- and left-handed Wilson coefficients, C_7'/C_7, which constrains non-SM contributions at small q^2.

NODE=S049A21;LINKAGE=B

$P_\tau(B \to D^* \tau^+ \nu_\tau)$

NODE=S049A01

Measures difference in decay widths with positive and negative τ^+ helicities normalized to the sum of those decay widths.

NODE=S049A01

NODE=S049A01

VALUE	DOCUMENT ID	TECN	COMMENT
$\mathbf{-0.38 \pm 0.51^{+0.21}_{-0.16}}$	[1] HIROSE 17	BELL	$e^+ e^- \to \Upsilon(4S)$

[1] Uses a fully reconstructed B meson as a tag on the recoil side.

NODE=S049A01;LINKAGE=A

Γ_L/Γ in $B \to \overline{D}^* \ell^+ \nu_\ell$

NODE=S049A13
NODE=S049A13

VALUE	DOCUMENT ID	TECN	COMMENT
$\mathbf{0.502 \pm 0.012 \pm 0.004}$	[1] PRIM 23	BELL	$e^+ e^- \to \Upsilon(4S)$

[1] This is the $B^+ \to \overline{D}^{*0} \ell^+ \nu_\ell$ and $B^0 \to D^{*-} \ell^+ \nu_\ell$ average.

NODE=S049A13;LINKAGE=A

Γ_L/Γ in $B \to \overline{D}^* e^+ \nu_e$

NODE=S049A14
NODE=S049A14

VALUE	DOCUMENT ID	TECN	COMMENT
$\mathbf{0.485 \pm 0.018 \pm 0.005}$	[1] PRIM 23	BELL	$e^+ e^- \to \Upsilon(4S)$

[1] This is the $B^+ \to \overline{D}^{*0} e^+ \nu_e$ and $B^0 \to D^{*-} e^+ \nu_e$ average.

NODE=S049A14;LINKAGE=A

Γ_L/Γ in $B \to \overline{D}^* \mu^+ \nu_\mu$

NODE=S049A15
NODE=S049A15

VALUE	DOCUMENT ID	TECN	COMMENT
$\mathbf{0.515 \pm 0.017 \pm 0.005}$	[1] PRIM 23	BELL	$e^+ e^- \to \Upsilon(4S)$

[1] This is the $B^+ \to \overline{D}^{*0} \mu^+ \nu_\mu$ and $B^0 \to D^{*-} \mu^+ \nu_\mu$ average.

NODE=S049A15;LINKAGE=A

$\Delta(\Gamma_L/\Gamma)$ in $B \to \overline{D}^* (leption)^+ \nu_\ell$

NODE=S049A16

$\Delta(\Gamma_L/\Gamma) = (\Gamma_L/\Gamma)^\mu - (\Gamma_L/\Gamma)^e$

NODE=S049A16
NODE=S049A16

VALUE	DOCUMENT ID	TECN	COMMENT
$\mathbf{0.030 \pm 0.025 \pm 0.007}$	[1] PRIM 23	BELL	$e^+ e^- \to \Upsilon(4S)$

[1] This is the B^+ and B^0 average.

NODE=S049A16;LINKAGE=A

PARTIAL BRANCHING FRACTIONS IN $B \to K^{(*)} \ell^+ \ell^-$

NODE=S049223

B($B \to K^* \ell^+ \ell^-$) ($q^2 < 2.0$ GeV^2/c^4)

NODE=S049PB1
NODE=S049PB1

VALUE (units 10^{-7})	DOCUMENT ID	TECN	COMMENT
1.68±0.23 OUR AVERAGE			
$1.89^{+0.52}_{-0.46} \pm 0.06$	[1] LEES 12S	BABR	$e^+ e^- \to \Upsilon(4S)$
$1.73 \pm 0.33 \pm 0.10$	AALTONEN 11AI	CDF	$p\overline{p}$ at 1.96 TeV
$1.46^{+0.40}_{-0.35} \pm 0.11$	WEI 09A	BELL	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •			
$0.98 \pm 0.40 \pm 0.09$	AALTONEN 11L	CDF	Repl. by AALTONEN 11AI

[1] The value reported here from LEES 12S refers to $0.1 < q^2 < 2.0$ GeV^2/c^2.

NODE=S049PB1;LINKAGE=LE

B($B \to K^* \ell^+ \ell^-$) ($2.0 < q^2 < 4.3$ GeV^2/c^4)

NODE=S049PB2
NODE=S049PB2

VALUE (units 10^{-7})	DOCUMENT ID	TECN	COMMENT
0.87±0.17 OUR AVERAGE			
$0.95^{+0.35}_{-0.30} \pm 0.04$	LEES 12S	BABR	$e^+ e^- \to \Upsilon(4S)$
$0.82 \pm 0.26 \pm 0.06$	AALTONEN 11AI	CDF	$p\overline{p}$ at 1.96 TeV
$0.86^{+0.31}_{-0.27} \pm 0.07$	WEI 09A	BELL	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •			
$1.00 \pm 0.38 \pm 0.09$	AALTONEN 11L	CDF	Repl. by AALTONEN 11AI

B($B \to K^* \ell^+ \ell^-$) ($4.3 < q^2 < 8.68$ GeV^2/c^4)

NODE=S049PB3
NODE=S049PB3

VALUE (units 10^{-7})	DOCUMENT ID	TECN	COMMENT
1.67±0.29 OUR AVERAGE			
$1.82^{+0.56}_{-0.52} \pm 0.09$	[1] LEES 12S	BABR	$e^+ e^- \to \Upsilon(4S)$
$1.72 \pm 0.41 \pm 0.14$	AALTONEN 11AI	CDF	$p\overline{p}$ at 1.96 TeV
$1.37^{+0.47}_{-0.42} \pm 0.39$	WEI 09A	BELL	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •			
$1.69 \pm 0.57 \pm 0.15$	AALTONEN 11L	CDF	Repl. by AALTONEN 11AI

[1] The value reported here from LEES 12S refers to $4.3 < q^2 < 8.12$ GeV^2/c^2.

NODE=S049PB3;LINKAGE=LE

B($B \to K^* \ell^+ \ell^-$) ($10.09 < q^2 < 12.86$ GeV^2/c^4)

NODE=S049PB4
NODE=S049PB4

VALUE (units 10^{-7})	DOCUMENT ID	TECN	COMMENT
1.93±0.25 OUR AVERAGE			
$1.86^{+0.52}_{-0.48} \pm 0.10$	[1] LEES 12S	BABR	$e^+ e^- \to \Upsilon(4S)$
$1.77 \pm 0.34 \pm 0.11$	AALTONEN 11AI	CDF	$p\overline{p}$ at 1.96 TeV
$2.24^{+0.44}_{-0.40} \pm 0.19$	WEI 09A	BELL	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •			
$1.97 \pm 0.47 \pm 0.17$	AALTONEN 11L	CDF	Repl. by AALTONEN 11AI

[1] The value reported here from LEES 12S refers to $10.11 < q^2 < 12.89$ GeV^2/c^2.

NODE=S049PB4;LINKAGE=LE

B($B \to K^* \ell^+ \ell^-$) ($14.18 < q^2 < 16.0$ GeV^2/c^4)

NODE=S049PB5
NODE=S049PB5

VALUE (units 10^{-7})	DOCUMENT ID	TECN	COMMENT
1.21±0.17 OUR AVERAGE			
$1.46^{+0.41}_{-0.36} \pm 0.06$	[1] LEES 12S	BABR	$e^+ e^- \to \Upsilon(4S)$
$1.21 \pm 0.24 \pm 0.07$	AALTONEN 11AI	CDF	$p\overline{p}$ at 1.96 TeV
$1.05^{+0.29}_{-0.26} \pm 0.08$	WEI 09A	BELL	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •			
$1.51 \pm 0.36 \pm 0.13$	AALTONEN 11L	CDF	Repl. by AALTONEN 11AI

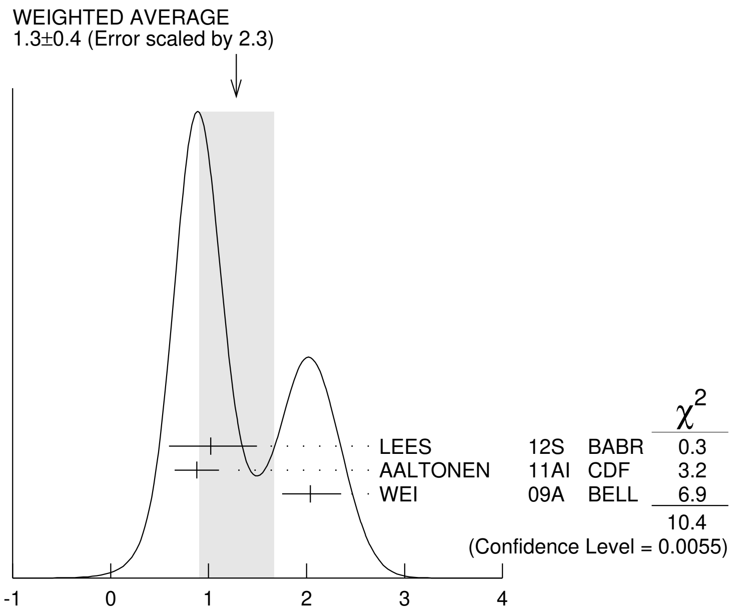
[1] The value reported here from LEES 12S refers to $14.21 < q^2 < 16.0$ GeV^2/c^2.

NODE=S049PB5;LINKAGE=LE

$B(B \to K^* \ell^+ \ell^-)$ $(16.0 < q^2\ \mathrm{GeV}^2/c^4)$

NODE=S049PB6
NODE=S049PB6

VALUE (units 10^{-7})	DOCUMENT ID		TECN	COMMENT
1.3 ±0.4 OUR AVERAGE	Error includes scale factor of 2.3. See the ideogram below.			
$1.02^{+0.47}_{-0.42} \pm 0.06$	LEES	12S	BABR	$e^+ e^- \to \Upsilon(4S)$
$0.88 \pm 0.22 \pm 0.05$	AALTONEN	11AI	CDF	$p\overline{p}$ at 1.96 TeV
$2.04^{+0.27}_{-0.24} \pm 0.16$	WEI	09A	BELL	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$1.35 \pm 0.37 \pm 0.12$	AALTONEN	11L	CDF	Repl. by AALTONEN 11AI



$B(B \to K^* \ell^+ \ell^-)$ $(16.0 < q^2\ \mathrm{GeV}^2/c^4)$ (units 10^{-7})

$B(B \to K^* \ell^+ \ell^-)$ $(1.0 < q^2 < 6.0\ \mathrm{GeV}^2/c^4)$

NODE=S049PB7
NODE=S049PB7

VALUE (units 10^{-7})	DOCUMENT ID		TECN	COMMENT
1.64±0.26 OUR AVERAGE				
$2.05^{+0.53}_{-0.48} \pm 0.07$	LEES	12S	BABR	$e^+ e^- \to \Upsilon(4S)$
$1.48 \pm 0.39 \pm 0.12$	AALTONEN	11AI	CDF	$p\overline{p}$ at 1.96 TeV
$1.49^{+0.45}_{-0.40} \pm 0.12$	WEI	09A	BELL	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$1.60 \pm 0.54 \pm 0.14$	AALTONEN	11L	CDF	Repl. by AALTONEN 11AI

$B(B \to K^* \ell^+ \ell^-)$ $(0.0 < q^2 < 4.3\ \mathrm{GeV}^2/c^4)$

NODE=S049PB8
NODE=S049PB8

VALUE (units 10^{-7})	DOCUMENT ID		TECN	COMMENT
2.53±0.43±0.15	AALTONEN	11AI	CDF	$p\overline{p}$ at 1.96 TeV
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$1.98 \pm 0.55 \pm 0.18$	AALTONEN	11L	CDF	Repl. by AALTONEN 11AI

$B(B^+ \to K^* \mu^+ \mu^-)$ / $B(B^+ \to K^* e^+ e^-)$ $(0.045 < q^2 < 1.1\ \mathrm{GeV}^2/c^4)$

NODE=S049A10
NODE=S049A10

VALUE	DOCUMENT ID		TECN	COMMENT
$\mathbf{0.52^{+0.36}_{-0.26} \pm 0.05}$	WEHLE	21	BELL	$e^+ e^- \to \Upsilon(4S)$

$B(B^+ \to K^* \mu^+ \mu^-)$ / $B(B^+ \to K^* e^+ e^-)$ $(1.1 < q^2 < 6.0\ \mathrm{GeV}^2/c^4)$

NODE=S049A11
NODE=S049A11

VALUE	DOCUMENT ID		TECN	COMMENT
$\mathbf{0.96^{+0.45}_{-0.29} \pm 0.11}$	WEHLE	21	BELL	$e^+ e^- \to \Upsilon(4S)$

$B(B^+ \to K^* \mu^+ \mu^-)$ / $B(B^+ \to K^* e^+ e^-)$ $(15.0 < q^2 < 19.0\ \mathrm{GeV}^2/c^4)$

NODE=S049A12
NODE=S049A12

VALUE	DOCUMENT ID		TECN	COMMENT
$\mathbf{1.18^{+0.52}_{-0.32} \pm 0.10}$	WEHLE	21	BELL	$e^+ e^- \to \Upsilon(4S)$

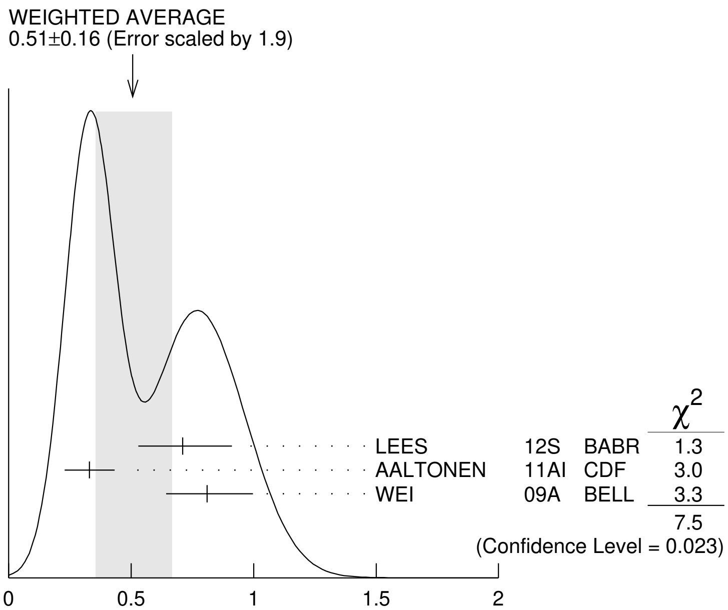
B($B \to K \ell^+ \ell^-$) ($q^2 < 2.0$ GeV^2/c^4)

NODE=S049PB9
NODE=S049PB9

VALUE (units 10^{-7})		DOCUMENT ID		TECN	COMMENT
0.51±0.16 OUR AVERAGE	Error includes scale factor of 1.9. See the ideogram below.				
$0.71^{+0.20}_{-0.18}\pm0.02$	[1]	LEES	12S	BABR	$e^+e^- \to \Upsilon(4S)$
$0.33\pm0.10\pm0.02$		AALTONEN	11AI	CDF	$p\overline{p}$ at 1.96 TeV
$0.81^{+0.18}_{-0.16}\pm0.05$		WEI	09A	BELL	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$0.38\pm0.16\pm0.03$		AALTONEN	11L	CDF	Repl. by AALTONEN 11AI

[1] The value reported here from LEES 12S refers to $0.1 < q^2 < 2.0$ GeV^2/c^2.

NODE=S049PB9;LINKAGE=LE



B($B \to K \ell^+ \ell^-$) ($q^2 < 2.0$ GeV^2/c^4) (units 10^{-7})

B($B \to K \ell^+ \ell^-$) ($2.0 < q^2 < 4.3$ GeV^2/c^4)

NODE=S049PBA
NODE=S049PBA

VALUE (units 10^{-7})		DOCUMENT ID		TECN	COMMENT
$0.57^{+0.10}_{-0.09}$ OUR AVERAGE	Error includes scale factor of 1.2.				
$0.49^{+0.15}_{-0.13}\pm0.01$		LEES	12S	BABR	$e^+e^- \to \Upsilon(4S)$
$0.77\pm0.14\pm0.05$		AALTONEN	11AI	CDF	$p\overline{p}$ at 1.96 TeV
$0.46^{+0.14}_{-0.12}\pm0.03$		WEI	09A	BELL	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$0.58\pm0.19\pm0.04$		AALTONEN	11L	CDF	Repl. by AALTONEN 11AI

B($B \to K \ell^+ \ell^-$) ($4.3 < q^2 < 8.68$ GeV^2/c^4)

NODE=S049PBB
NODE=S049PBB

VALUE (units 10^{-7})		DOCUMENT ID		TECN	COMMENT
1.00±0.11 OUR AVERAGE					
$0.94^{+0.20}_{-0.19}\pm0.02$	[1]	LEES	12S	BABR	$e^+e^- \to \Upsilon(4S)$
$1.05\pm0.17\pm0.07$		AALTONEN	11AI	CDF	$p\overline{p}$ at 1.96 TeV
$1.00^{+0.19}_{-0.18}\pm0.06$		WEI	09A	BELL	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$0.93\pm0.25\pm0.06$		AALTONEN	11L	CDF	Repl. by AALTONEN 11AI

[1] The value reported here from LEES 12S refers to $4.3 < q^2 < 8.12$ GeV^2/c^2.

NODE=S049PBB;LINKAGE=LE

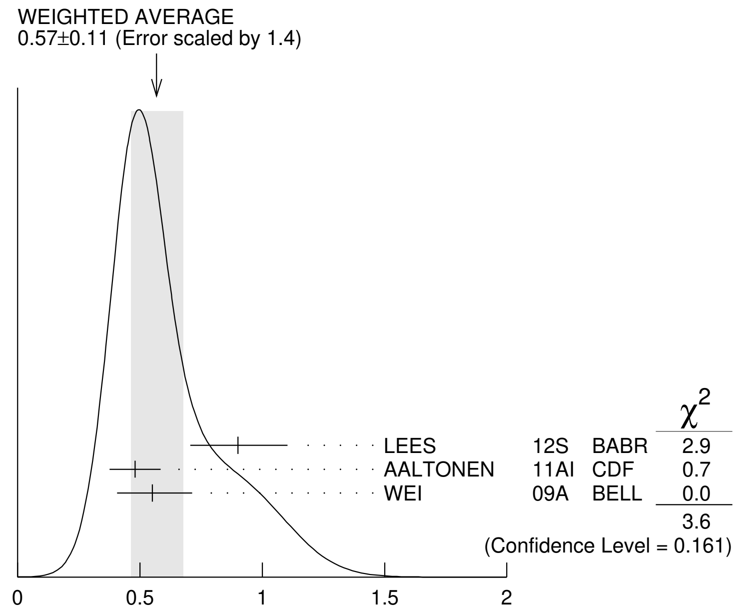
B($B \to K \ell^+ \ell^-$) ($10.09 < q^2 < 12.86$ GeV^2/c^4)

NODE=S049PBC
NODE=S049PBC

VALUE (units 10^{-7})		DOCUMENT ID		TECN	COMMENT
0.57±0.11 OUR AVERAGE	Error includes scale factor of 1.4. See the ideogram below.				
$0.90^{+0.20}_{-0.19}\pm0.04$	[1]	LEES	12S	BABR	$e^+e^- \to \Upsilon(4S)$
$0.48\pm0.10\pm0.03$		AALTONEN	11AI	CDF	$p\overline{p}$ at 1.96 TeV
$0.55^{+0.16}_{-0.14}\pm0.03$		WEI	09A	BELL	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$0.72\pm0.17\pm0.05$		AALTONEN	11L	CDF	Repl. by AALTONEN 11AI

[1] The value reported here from LEES 12S refers to $10.11 < q^2 < 12.89$ GeV^2/c^2.

NODE=S049PBC;LINKAGE=LE



B($B \to K \ell^+ \ell^-$) ($10.09 < q^2 < 12.86$ GeV^2/c^4) (units 10^{-7})

B($B \to K \ell^+ \ell^-$) ($14.18 < q^2 < 16.0$ GeV^2/c^4)

NODE=S049PBD
NODE=S049PBD

VALUE (units 10^{-7})	*DOCUMENT ID*		*TECN*	*COMMENT*
0.49±0.07 OUR AVERAGE				
$0.49^{+0.15}_{-0.14}\pm0.02$	[1] LEES	12S	BABR	$e^+ e^- \to \Upsilon(4S)$
$0.52\pm0.09\pm0.03$	AALTONEN	11AI	CDF	$p\overline{p}$ at 1.96 TeV
$0.38^{+0.19}_{-0.12}\pm0.02$	WEI	09A	BELL	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$0.38\pm0.12\pm0.03$	AALTONEN	11L	CDF	Repl. by AALTONEN 11AI

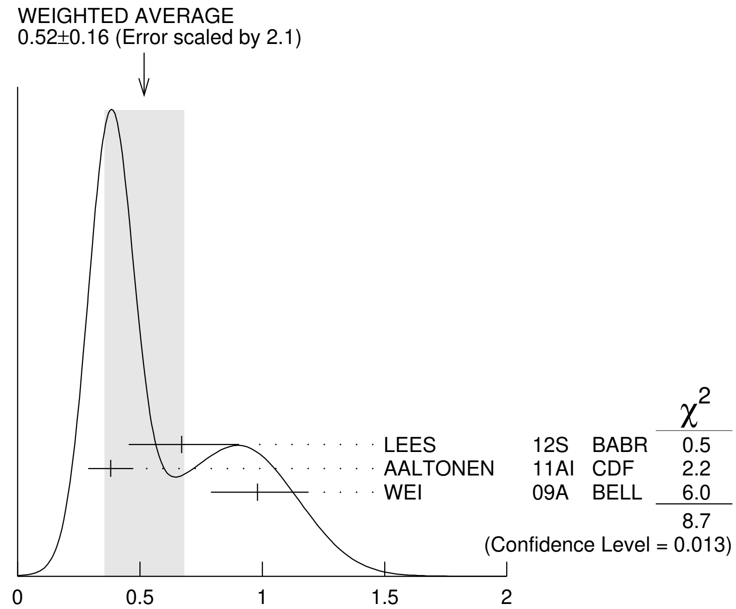
[1] The value reported here from LEES 12S refers to $14.21 < q^2 < 16.0$ GeV^2/c^2.

NODE=S049PBD;LINKAGE=LE

B($B \to K \ell^+ \ell^-$) ($16.0 < q^2$ GeV^2/c^4)

NODE=S049PBE
NODE=S049PBE

VALUE (units 10^{-7})	*DOCUMENT ID*		*TECN*	*COMMENT*
0.52±0.16 OUR AVERAGE Error includes scale factor of 2.1. See the ideogram below.				
$0.67^{+0.23}_{-0.21}\pm0.05$	LEES	12S	BABR	$e^+ e^- \to \Upsilon(4S)$
$0.38\pm0.09\pm0.02$	AALTONEN	11AI	CDF	$p\overline{p}$ at 1.96 TeV
$0.98^{+0.20}_{-0.18}\pm0.06$	WEI	09A	BELL	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$0.35\pm0.13\pm0.02$	AALTONEN	11L	CDF	Repl. by AALTONEN 11AI



B($B \to K \ell^+ \ell^-$) (16.0 < q^2 GeV^2/c^4) (units 10^{-7})

B($B \to K \ell^+ \ell^-$) (1.0 < q^2 < 6.0 GeV^2/c^4)

NODE=S049PBF
NODE=S049PBF

VALUE (units 10^{-7})	DOCUMENT ID		TECN	COMMENT
1.33±0.13 OUR AVERAGE				
$1.36^{+0.27}_{-0.24}\pm0.03$	LEES	12S	BABR	$e^+e^- \to \Upsilon(4S)$
$1.29\pm0.18\pm0.08$	AALTONEN	11AI	CDF	$p\overline{p}$ at 1.96 TeV
$1.36^{+0.23}_{-0.21}\pm0.08$	WEI	09A	BELL	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$1.01\pm0.26\pm0.07$	AALTONEN	11L	CDF	Repl. by AALTONEN 11AI

B($B \to K \ell^+ \ell^-$) (0.0 < q^2 < 4.3 GeV^2/c^4)

NODE=S049PBG
NODE=S049PBG

VALUE (units 10^{-7})	DOCUMENT ID		TECN	COMMENT
$1.07\pm0.17\pm0.07$	AALTONEN	11AI	CDF	$p\overline{p}$ at 1.96 TeV
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$0.96\pm0.25\pm0.06$	AALTONEN	11L	CDF	Repl. by AALTONEN 11AI

B($B \to X_s \ell^+ \ell^-$) (1.0 < q^2 < 6.0 GeV^2/c^4)

NODE=S049PBH
NODE=S049PBH

VALUE (units 10^{-6})	DOCUMENT ID		TECN	COMMENT
$1.60^{+0.41+0.25}_{-0.39-0.22}$	[1] LEES	14D	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Measured from sum of exclusive modes through K^+, $K^+\pi^0$, $K^+\pi^-$, $K^+\pi^-\pi^0$, $K^+\pi^-\pi^+$, K^0_S, $K^0_S\pi^0$, $K^0_S\pi^+$, $K^0_S\pi^+\pi^0$, and $K^0_S\pi+\ \pi^-$ corrected for unobserved modes. NODE=S049PBH;LINKAGE=A

B($B \to X_s e^+ e^-$) (1.0 < q^2 < 6.0 GeV^2/c^4)

NODE=S049PBI
NODE=S049PBI

VALUE (units 10^{-6})	DOCUMENT ID		TECN	COMMENT
$1.93^{+0.47+0.28}_{-0.45-0.24}$	[1] LEES	14D	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Measured from sum of exclusive modes through K^+, $K^+\pi^0$, $K^+\pi^-$, $K^+\pi^-\pi^0$, $K^+\pi^-\pi^+$, K^0_S, $K^0_S\pi^0$, $K^0_S\pi^+$, $K^0_S\pi^+\pi^0$, and $K^0_S\pi+\ \pi^-$ corrected for unobserved modes. NODE=S049PBI;LINKAGE=A

B($B \to X_s \mu^+ \mu^-$) (1.0 < q^2 < 6.0 GeV^2/c^4)

NODE=S049PBJ
NODE=S049PBJ

VALUE (units 10^{-6})	DOCUMENT ID		TECN	COMMENT
$0.66^{+0.82+0.31}_{-0.76-0.25}$	[1] LEES	14D	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Measured from sum of exclusive modes through K^+, $K^+\pi^0$, $K^+\pi^-$, $K^+\pi^-\pi^0$, $K^+\pi^-\pi^+$, K^0_S, $K^0_S\pi^0$, $K^0_S\pi^+$, $K^0_S\pi^+\pi^0$, and $K^0_S\pi+\ \pi^-$ corrected for unobserved modes. NODE=S049PBJ;LINKAGE=A

B($B \to X_s \ell^+ \ell^-$) (14.2 < q^2 GeV^2/c^4)

NODE=S049PBK
NODE=S049PBK

VALUE (units 10^{-6})	DOCUMENT ID		TECN	COMMENT
$0.57^{+0.16}_{-0.15}{}^{+0.03}_{-0.02}$	[1] LEES	14D	BABR	$e^+ e^- \to \Upsilon(4S)$

[1] Measured from sum of exclusive modes through K^+, $K^+\pi^0$, $K^+\pi^-$, $K^+\pi^-\pi^0$, $K^+\pi^-\pi^+$, K^0_S, $K^0_S\pi^0$, $K^0_S\pi^+$, $K^0_S\pi^+\pi^0$, and $K^0_S\pi+\ \pi^-$ corrected for unobserved modes.

NODE=S049PBK;LINKAGE=A

B($B \to X_s e^+ e^-$) (14.2 < q^2 GeV^2/c^4)

NODE=S049PBL
NODE=S049PBL

VALUE (units 10^{-6})	DOCUMENT ID		TECN	COMMENT
$0.56^{+0.19}_{-0.18}{}^{+0.03}_{-0.03}$	[1] LEES	14D	BABR	$e^+ e^- \to \Upsilon(4S)$

[1] Measured from sum of exclusive modes through K^+, $K^+\pi^0$, $K^+\pi^-$, $K^+\pi^-\pi^0$, $K^+\pi^-\pi^+$, K^0_S, $K^0_S\pi^0$, $K^0_S\pi^+$, $K^0_S\pi^+\pi^0$, and $K^0_S\pi+\ \pi^-$ corrected for unobserved modes.

NODE=S049PBL;LINKAGE=A

B($B \to X_s \mu^+ \mu^-$) (14.2 < q^2 GeV^2/c^4)

NODE=S049PBM
NODE=S049PBM

VALUE (units 10^{-6})	DOCUMENT ID		TECN	COMMENT
$0.60^{+0.31}_{-0.29}{}^{+0.05}_{-0.04}$	[1] LEES	14D	BABR	$e^+ e^- \to \Upsilon(4S)$

[1] Measured from sum of exclusive modes through K^+, $K^+\pi^0$, $K^+\pi^-$, $K^+\pi^-\pi^0$, $K^+\pi^-\pi^+$, K^0_S, $K^0_S\pi^0$, $K^0_S\pi^+$, $K^0_S\pi^+\pi^0$, and $K^0_S\pi+\ \pi^-$ corrected for unobserved modes.

NODE=S049PBM;LINKAGE=A

LEPTON (HADRON) FORWARD-BACKWARD ASYMMETRY IN $B \to K^{(*)} \ell^+ \ell^-$ ($B \to K/\pi h^+ h^-$) DECAY

NODE=S049220

The forward-backward angular asymmetry of the lepton pair in $B \to K^{(*)} \ell^+ \ell^-$ ($B \to K/\pi h^+ h^-$) decay is defined as

$$\mathrm{A}_{FB}(\mathrm{s}) = \frac{N(cos\theta>0)-N(cos\theta<0)}{N(cos\theta>0)+N(cos\theta<0)},$$

where s=q^2/m_B^2, and θ is the angle of the ℓ^- (h^-) with respect to the flight direction of the B meson, measured in the dilepton (dihadron) rest frame. In addition, the fraction of longitudinal polarization F_L of the K^* and F_S, the relative contribution from scalar and pseudoscalar penguin amplitudes in $B \to K \ell^+ \ell^-$, can be measured from the angular distribution of its decay products.

NODE=S049220

A_{FB}($B \to K^* \ell^+ \ell^-$) (q^2 > 0.1 GeV^2/c^4)

NODE=S049FB1
NODE=S049FB1

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
0.50±0.15±0.02		[1] ISHIKAWA	06	BELL	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
>0.55	95	[2] AUBERT,B	06J	BABR	$e^+ e^- \to \Upsilon(4S)$

[1] Using an unbinned max. likelihood fits to the M_{bc} distribution in five q^2 bins for $\cos\theta > 0$ and $\cos\theta < 0$.

NODE=S049FB1;LINKAGE=IS

[2] Results with different q^2 cuts are also reported.

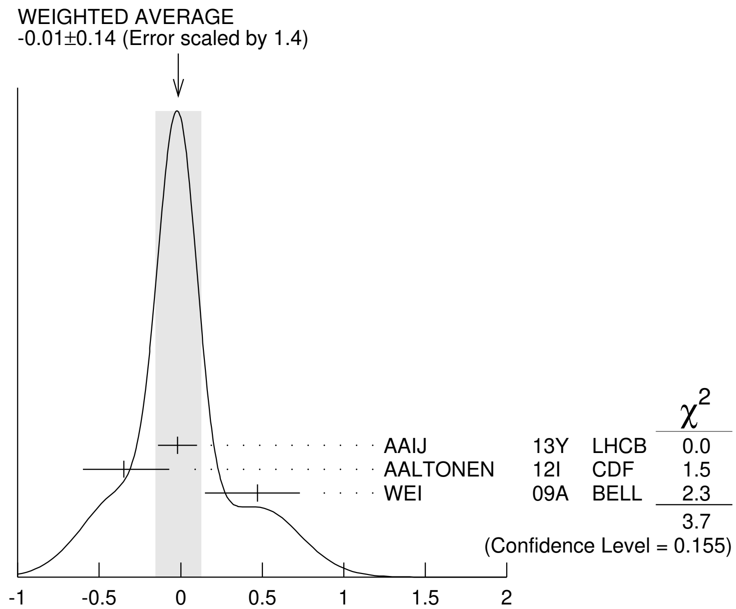
NODE=S049FB1;LINKAGE=AU

A_{FB}($B \to K^* \ell^+ \ell^-$) (0.1 < q^2 < 2.0 GeV^2/c^4)

NODE=S049FB5
NODE=S049FB5

VALUE	DOCUMENT ID		TECN	COMMENT
−0.01±0.14 OUR AVERAGE	Error includes scale factor of 1.4. See the ideogram below.			
−0.02±0.12±0.01	AAIJ	13Y	LHCB	pp at 7 TeV, $K^{*0}\mu^+\mu^-$
$-0.35^{+0.26}_{-0.23}\pm0.10$	AALTONEN	12I	CDF	$p\overline{p}$ at 1.96 TeV
$0.47^{+0.26}_{-0.32}\pm0.03$	WEI	09A	BELL	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$-0.29^{+0.37}_{-0.00}\pm0.18$	[1] CHATRCHYAN	13BL	CMS	pp at 7 TeV
−0.15±0.20±0.06	AAIJ	12U	LHCB	Repl. by AAIJ 13Y
$0.13^{+1.65}_{-0.75}\pm0.25$	AALTONEN	11L	CDF	Repl. by AALTONEN 12I

[1] CHATRCHYAN 13BL uses, for this bin, $1.0 < q^2 < 2.0$ GeV^2/c^4. NODE=S049FB5;LINKAGE=CH



$A_{FB}(B \to K^* \ell^+ \ell^-)$ $(0.1 < q^2 < 2.0$ GeV^2/c^4)

$A_{FB}(B \to K^* \ell^+ \ell^-)$ ($m_{\ell\ell} < 2.5$ GeV/c^2)

NODE=S049FB3

VALUE	DOCUMENT ID		TECN	COMMENT
$0.24^{+0.18}_{-0.23} \pm 0.05$	AUBERT	09N	BABR	$e^+ e^- \to \Upsilon(4S)$

$A_{FB}(B \to K^* \ell^+ \ell^-)$ ($m_{\ell\ell} > 3.2$ GeV/c^2)

NODE=S049FB4

VALUE	DOCUMENT ID		TECN	COMMENT
$0.76^{+0.52}_{-0.32} \pm 0.07$	AUBERT	09N	BABR	$e^+ e^- \to \Upsilon(4S)$

$A_{FB}(B \to K^* \ell^+ \ell^-)$ $(0.10 < q^2 < 0.98$ GeV^2/c^4)

NODE=S049FBP

VALUE	DOCUMENT ID		TECN	COMMENT
$-0.003^{+0.058}_{-0.057} \pm 0.009$	AAIJ	16B	LHCB	pp at 7, 8 TeV

$A_{FB}(B \to K^* \ell^+ \ell^-)$ $(1.1 < q^2 < 2.5$ GeV^2/c^4)

NODE=S049FBQ

VALUE	DOCUMENT ID		TECN	COMMENT
$-0.191^{+0.068}_{-0.080} \pm 0.012$	AAIJ	16B	LHCB	pp at 7, 8 TeV

$A_{FB}(B \to K^* \ell^+ \ell^-)$ $(2.0 < q^2 < 4.3$ GeV^2/c^4)

NODE=S049FB6

VALUE	DOCUMENT ID		TECN	COMMENT
-0.14 ± 0.05 OUR AVERAGE				
$-0.118^{+0.082}_{-0.090} \pm 0.007$	[1] AAIJ	16B	LHCB	pp at 7, 8 TeV
$-0.12^{+0.15}_{-0.17} \pm 0.05$	KHACHATRY...	16D	CMS	pp at 8 TeV
$-0.20 \pm 0.08 \pm 0.01$	AAIJ	13Y	LHCB	pp at 7 TeV, $K^{*0} \mu^+ \mu^-$
$-0.07 \pm 0.20 \pm 0.02$	CHATRCHYAN	13BL	CMS	pp at 7 TeV
$0.29^{+0.32}_{-0.35} \pm 0.15$	AALTONEN	12I	CDF	$p\overline{p}$ at 1.96 TeV
$0.11^{+0.31}_{-0.36} \pm 0.07$	WEI	09A	BELL	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$0.05^{+0.16}_{-0.20} \pm 0.04$	AAIJ	12U	LHCB	Repl. by AAIJ 13Y
$0.19^{+0.40}_{-0.41} \pm 0.14$	AALTONEN	11L	CDF	Repl. by AALTONEN 12I

[1] Measured in $2.5 < q^2 < 4.0$ GeV^2/c^4. NODE=S049FB6;LINKAGE=A

$A_{FB}(B \to K^* \ell^+ \ell^-)$ ($0.0 < q^2 < 4.3$ GeV^2/c^4)

NODE=S049FBF

VALUE	DOCUMENT ID		TECN	COMMENT
$\mathbf{-0.08^{+0.21}_{-0.20}\pm0.05}$	AALTONEN	12I	CDF	$p\overline{p}$ at 1.96 TeV
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$0.21^{+0.31}_{-0.33}\pm0.05$	AALTONEN	11L	CDF	Repl. by AALTONEN 12I

$A_{FB}(B \to K^* \ell^+ \ell^-)$ ($4.0 < q^2 < 6.0$ GeV^2/c^4)

NODE=S049FBR

VALUE	DOCUMENT ID		TECN	COMMENT
$\mathbf{0.025^{+0.051}_{-0.052}\pm0.004}$	AAIJ	16B	LHCB	pp at 7, 8 TeV

$A_{FB}(B \to K^* \ell^+ \ell^-)$ ($6.0 < q^2 < 8.0$ GeV^2/c^4)

NODE=S049FBS

VALUE	DOCUMENT ID		TECN	COMMENT
$\mathbf{0.152^{+0.041}_{-0.040}\pm0.008}$	AAIJ	16B	LHCB	pp at 7, 8 TeV

$A_{FB}(B \to K^* \ell^+ \ell^-)$ ($1.0 < q^2 < 6.0$ GeV^2/c^4)

NODE=S049FBE

VALUE	DOCUMENT ID		TECN	COMMENT
−0.078±0.022 OUR AVERAGE Error includes scale factor of 1.1.				
$-0.073\pm0.021\pm0.002$	[1] AAIJ	20Y	LHCB	pp at 7, 8, 13 TeV
-0.12 ± 0.08	KHACHATRY...	16D	CMS	pp at 7, 8 TeV
$0.21^{+0.10}_{-0.15}{}^{+0.07}_{-0.09}$	[2] LEES	16C	BABR	$e^+e^- \to \Upsilon(4S)$
$-0.17\pm0.06\pm0.01$	AAIJ	13Y	LHCB	pp at 7 TeV, $K^{*0}\mu^+\mu^-$
$0.29^{+0.20}_{-0.23}\pm0.07$	AALTONEN	12I	CDF	$p\overline{p}$ at 1.96 TeV
$0.26^{+0.27}_{-0.30}\pm0.07$	WEI	09A	BELL	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$-0.075^{+0.032}_{-0.034}\pm0.007$	[1] AAIJ	16B	LHCB	Repl. by AAIJ 20Y
0.55 ± 0.43	[3] SATO	16	BELL	$e^+e^- \to \Upsilon(4S)$
$-0.07\pm0.12\pm0.01$	CHATRCHYAN	13BL	CMS	Repl. by KHACHATRYAN 16D
$-0.06^{+0.13}_{-0.14}\pm0.07$	AAIJ	12U	LHCB	Repl. by AAIJ 13Y
$0.43^{+0.36}_{-0.37}\pm0.06$	AALTONEN	11L	CDF	Repl. by AALTONEN 12I

[1] Measured in $1.1 < q^2 < 6.0$ GeV^2/c^4. NODE=S049FBE;LINKAGE=A

[2] Measured by combining B^0 and B^+ with e and μ as leptons. Results are also provided separately for B^0 and B^+. NODE=S049FBE;LINKAGE=C

[3] Uses $K^* \to K^-\pi^+$, $K^-\pi^0$, $K^0_S\pi^-$ in the range M$(K\pi) < 1.1$ GeV/c^2. Uncertainty is statistical only. NODE=S049FBE;LINKAGE=B

$A_{FB}(B \to K^* \ell^+ \ell^-)$ ($4.3 < q^2 < 8.6$ GeV^2/c^4)

NODE=S049FB7

VALUE	DOCUMENT ID		TECN	COMMENT
$\mathbf{0.13^{+0.06}_{-0.05}}$ **OUR AVERAGE** Error includes scale factor of 1.1.				
$0.16^{+0.06}_{-0.05}\pm0.01$	AAIJ	13Y	LHCB	pp at 7 TeV, $K^{*0}\mu^+\mu^-$
$-0.01\pm0.11\pm0.03$	CHATRCHYAN	13BL	CMS	pp at 7 TeV
$0.01\pm0.20\pm0.09$	AALTONEN	12I	CDF	$p\overline{p}$ at 1.96 TeV
$0.45^{+0.15}_{-0.21}\pm0.15$	WEI	09A	BELL	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$0.27^{+0.06}_{-0.08}\pm0.02$	AAIJ	12U	LHCB	Repl. by AAIJ 13Y
$-0.06^{+0.30}_{-0.28}\pm0.05$	AALTONEN	11L	CDF	Repl. by AALTONEN 12I

$A_{FB}(B \to K^* \ell^+ \ell^-)$ ($10.09 < q^2 < 12.86$ GeV^2/c^4)

NODE=S049FBB

VALUE	DOCUMENT ID		TECN	COMMENT
0.288±0.034 OUR AVERAGE Error includes scale factor of 1.2.				
$0.318^{+0.044}_{-0.040}\pm0.009$	[1] AAIJ	16B	LHCB	pp at 7, 8 TeV
$0.16\pm0.06\pm0.01$	KHACHATRY...	16D	CMS	pp at 8 TeV
$0.28^{+0.07}_{-0.06}\pm0.02$	AAIJ	13Y	LHCB	pp at 7 TeV, $K^{*0}\mu^+\mu^-$

$0.40 \pm 0.08 \pm 0.05$	CHATRCHYAN	13BL	CMS	pp at 7 TeV
$0.38\ {}^{+0.16}_{-0.19} \pm 0.09$	AALTONEN	12I	CDF	$p\overline{p}$ at 1.96 TeV
$0.43\ {}^{+0.18}_{-0.20} \pm 0.03$	WEI	09A	BELL	$e^+ e^- \rightarrow \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$0.27\ {}^{+0.11}_{-0.13} \pm 0.02$	AAIJ	12U	LHCB	Repl. by AAIJ 13Y
$0.66\ {}^{+0.23}_{-0.20} \pm 0.07$	AALTONEN	11L	CDF	Repl. by AALTONEN 12I

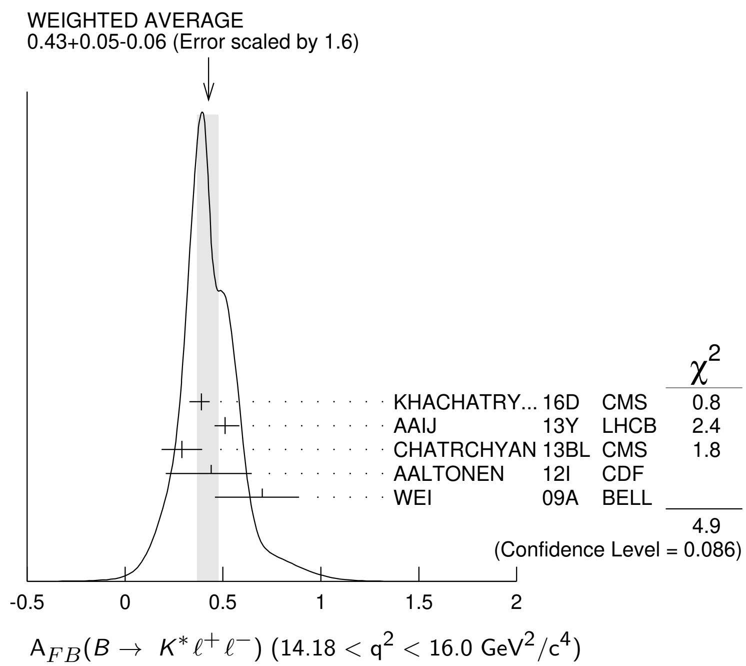
[1] Measured in $11.0 < q^2 < 12.5$ GeV^2/c^4.

NODE=S049FBB;LINKAGE=A

$A_{FB}(B \rightarrow K^* \ell^+ \ell^-)$ ($14.18 < q^2 < 16.0$ GeV^2/c^4)

NODE=S049FBC
NODE=S049FBC

VALUE	DOCUMENT ID		TECN	COMMENT
$0.43^{+0.05}_{-0.06}$ OUR AVERAGE	Error includes scale factor of 1.6. See the ideogram below.			
$0.39^{+0.04}_{-0.06} \pm 0.01$	KHACHATRY...	16D	CMS	pp at 8 TeV
$0.51^{+0.07}_{-0.05} \pm 0.02$	AAIJ	13Y	LHCB	pp at 7 TeV, $K^{*0} \mu^+ \mu^-$
$0.29 \pm 0.09 \pm 0.05$	CHATRCHYAN	13BL	CMS	pp at 7 TeV
$0.44^{+0.18}_{-0.21} \pm 0.10$	AALTONEN	12I	CDF	$p\overline{p}$ at 1.96 TeV
$0.70^{+0.16}_{-0.22} \pm 0.10$	WEI	09A	BELL	$e^+ e^- \rightarrow \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$0.47^{+0.06}_{-0.08} \pm 0.03$	AAIJ	12U	LHCB	Repl. by AAIJ 13Y
$0.42 \pm 0.16 \pm 0.09$	AALTONEN	11L	CDF	Repl. by AALTONEN 12I



$A_{FB}(B \rightarrow K^* \ell^+ \ell^-)$ ($15.0 < q^2 < 17.0$ GeV^2/c^4)

NODE=S049FBT
NODE=S049FBT

VALUE	DOCUMENT ID		TECN	COMMENT
$0.411^{+0.41}_{-0.037} \pm 0.008$	AAIJ	16B	LHCB	pp at 7, 8 TeV

$A_{FB}(B \rightarrow K^* \ell^+ \ell^-)$ ($17.0 < q^2 < 19.0$ GeV^2/c^4)

NODE=S049FBU
NODE=S049FBU

VALUE	DOCUMENT ID		TECN	COMMENT
$0.305^{+0.049}_{-0.048} \pm 0.013$	AAIJ	16B	LHCB	pp at 7, 8 TeV

$A_{FB}(B \to K^* \ell^+ \ell^-)$ ($16.0 < q^2 < 19.0$ GeV^2/c^4)

NODE=S049FBD

VALUE	DOCUMENT ID	TECN	COMMENT
0.362±0.019 OUR AVERAGE			
0.353±0.020±0.010	[1] AAIJ 20Y	LHCB	pp at 7, 8, 13 TeV
0.35 ±0.07 ±0.01	KHACHATRY... 16D	CMS	pp at 8 TeV
$0.30 \pm 0.08 {}^{+0.01}_{-0.02}$	AAIJ 13Y	LHCB	pp at 7 TeV, $K^{*0}\mu^+\mu^-$
0.41 ±0.05 ±0.03	CHATRCHYAN 13BL	CMS	pp at 7 TeV
$0.65 {}^{+0.17}_{-0.18} \pm 0.16$	AALTONEN 12I	CDF	$p\overline{p}$ at 1.96 TeV
$0.66 {}^{+0.11}_{-0.16} \pm 0.04$	WEI 09A	BELL	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •			
0.355±0.027±0.009	[1] AAIJ 16B	LHCB	Repl. by AAIJ 20Y
$0.16 {}^{+0.11}_{-0.13} \pm 0.06$	AAIJ 12U	LHCB	Repl. by AAIJ 13Y
$0.70 {}^{+0.16}_{-0.25} \pm 0.10$	AALTONEN 11L	CDF	Repl. by AALTONEN 12I

[1] Measured in $15.0 < q^2 < 19.0$ GeV^2/c^4.

NODE=S049FBD;LINKAGE=A

$A_{FB}(B \to K \ell^+ \ell^-)$ ($q^2 > 0.1$ GeV^2/c^4)

NODE=S049FB2

VALUE	DOCUMENT ID	TECN	COMMENT
0.11±0.12 OUR AVERAGE			
$0.15 {}^{+0.21}_{-0.23} \pm 0.08$	[1] AUBERT,B 06J	BABR	$e^+e^- \to \Upsilon(4S)$
0.10±0.14±0.01	[2] ISHIKAWA 06	BELL	$e^+e^- \to \Upsilon(4S)$

[1] Results with different q^2 cuts are also reported.

NODE=S049FB2;LINKAGE=AU

[2] Using an unbinned max. likelihood fits to the M_{bc} distribution in five q^2 bins for $\cos\theta > 0$ and $\cos\theta < 0$.

NODE=S049FB2;LINKAGE=IS

$A_{FB}(B \to K \ell^+ \ell^-)$ ($q^2 < 2.0$ GeV^2/c^4)

NODE=S049FB8

VALUE	DOCUMENT ID	TECN	COMMENT
$\mathbf{0.00 {}^{+0.06}_{-0.05}}$ **OUR AVERAGE**			
$0.00 {}^{+0.06}_{-0.05} {}^{+0.03}_{-0.01}$	AAIJ 13H	LHCB	pp at 7 TeV
$0.13 {}^{+0.42}_{-0.43} \pm 0.07$	AALTONEN 12I	CDF	$p\overline{p}$ at 1.96 TeV
$0.06 {}^{+0.32}_{-0.35} \pm 0.02$	WEI 09A	BELL	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •			
$-0.15 {}^{+0.46}_{-0.39} \pm 0.08$	AALTONEN 11L	CDF	Repl. by AALTONEN 12I

$A_{FB}(B \to K \ell^+ \ell^-)$ ($2.0 < q^2 < 4.3$ GeV^2/c^4)

NODE=S049FB9

VALUE	DOCUMENT ID	TECN	COMMENT
$\mathbf{0.09 {}^{+0.10}_{-0.07}}$ **OUR AVERAGE** Error includes scale factor of 1.4.			
$0.07 {}^{+0.08}_{-0.05} {}^{+0.02}_{-0.01}$	AAIJ 13H	LHCB	pp at 7 TeV
$0.32 {}^{+0.15}_{-0.16} \pm 0.05$	AALTONEN 12I	CDF	$p\overline{p}$ at 1.96 TeV
$-0.43 {}^{+0.38}_{-0.40} \pm 0.09$	WEI 09A	BELL	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •			
$0.72 {}^{+0.40}_{-0.35} \pm 0.07$	AALTONEN 11L	CDF	Repl. by AALTONEN 12I

$A_{FB}(B \to K \ell^+ \ell^-)$ ($0.0 < q^2 < 4.3$ GeV^2/c^4)

NODE=S049FBK

VALUE	DOCUMENT ID	TECN	COMMENT
0.31±0.16±0.04	AALTONEN 12I	CDF	$p\overline{p}$ at 1.96 TeV
• • • We do not use the following data for averages, fits, limits, etc. • • •			
$0.36 {}^{+0.24}_{-0.26} \pm 0.06$	AALTONEN 11L	CDF	Repl. by AALTONEN 12I

$A_{FB}(B \to K \ell^+ \ell^-)$ ($1.0 < q^2 < 6.0$ GeV^2/c^4)

NODE=S049FBJ

VALUE	DOCUMENT ID	TECN	COMMENT
$0.034^{+0.040}_{-0.029}$ OUR AVERAGE			
$0.02\ ^{+0.05}_{-0.03}\ ^{+0.02}_{-0.01}$	AAIJ 13H	LHCB	pp at 7 TeV
$0.13 \pm 0.09 \pm 0.02$	AALTONEN 12I	CDF	$p\overline{p}$ at 1.96 TeV
$-0.04\ ^{+0.13}_{-0.16} \pm 0.05$	WEI 09A	BELL	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •			
0.00 ± 0.13	[1] SATO 16	BELL	$e^+ e^- \to \Upsilon(4S)$
$0.08\ ^{+0.27}_{-0.22} \pm 0.07$	AALTONEN 11L	CDF	Repl. by AALTONEN 12I

[1] Statistical uncertainty only.

NODE=S049FBJ;LINKAGE=A

$A_{FB}(B \to K \ell^+ \ell^-)$ ($4.3 < q^2 < 8.6$ GeV^2/c^4)

NODE=S049FBA

VALUE	DOCUMENT ID	TECN	COMMENT
$-0.04^{+0.04}_{-0.05}$ OUR AVERAGE			
$-0.02^{+0.03}_{-0.05} \pm 0.03$	AAIJ 13H	LHCB	pp at 7 TeV
$0.01^{+0.13}_{-0.10} \pm 0.01$	AALTONEN 12I	CDF	$p\overline{p}$ at 1.96 TeV
$-0.20^{+0.12}_{-0.14} \pm 0.03$	WEI 09A	BELL	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •			
$-0.20^{+0.17}_{-0.28} \pm 0.03$	AALTONEN 11L	CDF	Repl. by AALTONEN 12I

$A_{FB}(B \to K \ell^+ \ell^-)$ ($10.09 < q^2 < 12.86$ GeV^2/c^4)

NODE=S049FBG

VALUE	DOCUMENT ID	TECN	COMMENT
-0.05 ± 0.06 OUR AVERAGE			
$-0.03 \pm 0.07 \pm 0.01$	AAIJ 13H	LHCB	pp at 7 TeV
$-0.03^{+0.11}_{-0.10} \pm 0.04$	AALTONEN 12I	CDF	$p\overline{p}$ at 1.96 TeV
$-0.21^{+0.17}_{-0.15} \pm 0.06$	WEI 09A	BELL	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •			
$-0.10^{+0.17}_{-0.15} \pm 0.07$	AALTONEN 11L	CDF	Repl. by AALTONEN 12I

$A_{FB}(B \to K \ell^+ \ell^-)$ ($14.18 < q^2 < 16.0$ GeV^2/c^4)

NODE=S049FBH

VALUE	DOCUMENT ID	TECN	COMMENT
$-0.02^{+0.07}_{-0.05}$ OUR AVERAGE			
$-0.01^{+0.12}_{-0.06} \pm 0.01$	AAIJ 13H	LHCB	pp at 7 TeV
$-0.05^{+0.09}_{-0.11} \pm 0.03$	AALTONEN 12I	CDF	$p\overline{p}$ at 1.96 TeV
$0.04^{+0.32}_{-0.26} \pm 0.05$	WEI 09A	BELL	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •			
$0.03^{+0.49}_{-0.16} \pm 0.04$	AALTONEN 11L	CDF	Repl. by AALTONEN 12I

$A_{FB}(B \to K \ell^+ \ell^-)$ ($16.0 < q^2 < 18.0$ GeV^2/c^4)

NODE=S049FBL

VALUE	DOCUMENT ID	TECN	COMMENT
$-0.09^{+0.07}_{-0.09}{}^{+0.02}_{-0.01}$	AAIJ 13H	LHCB	pp at 7 TeV

$A_{FB}(B \to K \ell^+ \ell^-)$ ($18.0 < q^2 < 22.0$ GeV^2/c^4)

NODE=S049FBM

VALUE	DOCUMENT ID	TECN	COMMENT
$0.02 \pm 0.11 \pm 0.01$	AAIJ 13H	LHCB	pp at 7 TeV

$A_{FB}(B \to K \ell^+ \ell^-)$ ($q^2 > 16.0$ GeV^2/c^4)

NODE=S049FBI

VALUE	DOCUMENT ID	TECN	COMMENT
$0.04^{+0.09}_{-0.07}$ OUR AVERAGE			
$0.09^{+0.17}_{-0.13} \pm 0.03$	AALTONEN 12I	CDF	$p\overline{p}$ at 1.96 TeV
$0.02^{+0.11}_{-0.08} \pm 0.02$	WEI 09A	BELL	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •			
$0.07^{+0.30}_{-0.23} \pm 0.02$	AALTONEN 11L	CDF	Repl. by AALTONEN 12I

$A_{FB}(B \to X_s \ell^+ \ell^-)$ ($1.0 < q^2 < 6.0$ GeV^2/c^4)

NODE=S049A00

VALUE	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.74 ± 0.54	[1] SATO	16	BELL	$e^+ e^- \to \Upsilon(4S)$

[1] Uses the sum of 10 exclusive X_s modes in the range M(X_s) > 1.1 GeV/c^2. Uncertainty is statistical only.

NODE=S049A00;LINKAGE=A

$F_S(B \to K \ell^+ \ell^-)$ ($q^2 > 0.1$ GeV^2/c^4)

NODE=S049FS

VALUE	DOCUMENT ID		TECN	COMMENT
$\mathbf{0.81^{+0.58}_{-0.61} \pm 0.46}$	[1] AUBERT,B	06J	BABR	$e^+ e^- \to \Upsilon(4S)$

[1] Results with different q^2 cuts are also reported.

NODE=S049FS;LINKAGE=AU

$A_{FB}(B \to K p \overline{p})$ ($m_{p\overline{p}} < 2.85$ GeV/c^2)

NODE=S049FBN

VALUE	DOCUMENT ID		TECN	COMMENT
0.495±0.012±0.007	[1] AAIJ	14AF	LHCB	pp at 7, 8 TeV

[1] Measured in $B^+ \to K^+ p \overline{p}$ decays.

NODE=S049FBN;LINKAGE=AA

$A_{FB}(B \to \pi p \overline{p})$ ($m_{p\overline{p}} < 2.85$ GeV/c^2)

NODE=S049FBO

VALUE	DOCUMENT ID		TECN	COMMENT
−0.409±0.033±0.006	[1] AAIJ	14AF	LHCB	pp at 7, 8 TeV

[1] Measured in $B^+ \to \pi^+ p \overline{p}$ decays.

NODE=S049FBO;LINKAGE=AA

A_{FB} in $B \to \overline{D}^* e^+ \nu_e$

NODE=S049A17

VALUE	DOCUMENT ID		TECN	COMMENT
0.227±0.020±0.006	[1] PRIM	23	BELL	$e^+ e^- \to \Upsilon(4S)$

[1] This is the B^+ and B^0 average.

NODE=S049A17;LINKAGE=A

A_{FB} in $B \to \overline{D}^* \mu^+ \nu_\mu$

NODE=S049A18

VALUE	DOCUMENT ID		TECN	COMMENT
0.256±0.020±0.005	[1] PRIM	23	BELL	$e^+ e^- \to \Upsilon(4S)$

[1] This is the B^+ and B^0 average.

NODE=S049A18;LINKAGE=A

$\Delta(A_{FB}) = (A^{\mu}_{FB} - A^{e}_{FB})$ in $B^0 \to D^{*-} \ell^+ \nu_\ell$

NODE=S049A19

VALUE	DOCUMENT ID		TECN	COMMENT
0.028±0.028±0.008	[1] PRIM	23	BELL	$e^+ e^- \to \Upsilon(4S)$

[1] This is the B^+ and B^0 average.

NODE=S049A19;LINKAGE=A

ISOSPIN ASYMMETRY

NODE=S049245

Δ_{0-} is defined as

NODE=S049245

$$\frac{\Gamma(\overline{B}^0 \to f_d) - \Gamma(B^- \to f_u)}{\Gamma(\overline{B}^0 \to f_d) + \Gamma(B^- \to f_u)},$$

the isospin asymmetry of inclusive neutral and charged B decay.

$\Delta_{0-}(B(B \to X_s \gamma))$

NODE=S049IA1

VALUE	DOCUMENT ID		TECN	COMMENT
−0.005 ±0.020 OUR AVERAGE				
−0.0048±0.0149±0.0150	[1] WATANUKI	19	BELL	$e^+ e^- \to \Upsilon(4S)$
−0.006 ±0.058 ±0.026	AUBERT,B	05R	BABR	$e^+ e^- \to \Upsilon(4S)$

[1] Using a sum-of-exclusive technique with $m_{X_s} < 2.8$ GeV/c^2.

NODE=S049IA1;LINKAGE=A

$\Delta_{0-}(B(B \to X_{s+d} \gamma))$

NODE=S049A07

VALUE	DOCUMENT ID		TECN	COMMENT
−0.06±0.15±0.07	[1] AUBERT	08O	BABR	$e^+ e^- \to \Upsilon(4S)$

[1] Uses a fully reconstructed B meson as a tag on the recoil side. The result is for $E_\gamma >$ 2.2 GeV.

NODE=S049A07;LINKAGE=A

$\Delta_{0+}(B \to K^*(892)\gamma)$ NODE=S049IS1

Δ_{0+} describes the isospin asymmetry between $\Gamma(B^0 \to K^*(892)^0\gamma)$ and $\Gamma(B^+ \to K^*(892)^+\gamma)$. NODE=S049IS1

VALUE		DOCUMENT ID		TECN	COMMENT
0.063±0.017 OUR AVERAGE					
$0.062\pm0.015\pm0.013$	1	HORIGUCHI	17	BELL	$e^+e^- \to \Upsilon(4S)$
$0.066\pm0.021\pm0.022$	2	AUBERT	09AO	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$0.050\pm0.045\pm0.037$	3	AUBERT,BE	04A	BABR	Repl. by AUBERT 09AO
$0.012\pm0.044\pm0.026$		NAKAO	04	BELL	Repl. by HORIGUCHI 17

NODE=S049IS1

[1] Uses B($\Upsilon(4S) \to B^+B^-$) = (51.4 ± 0.6)% and B($\Upsilon(4S) \to B^0\overline{B}^0$) = (48.6 ± 0.6)%. NODE=S049IS1;LINKAGE=A

[2] Uses the production ratio of charged and neutral B from $\Upsilon(4S)$ decays and the lifetime ratio $\tau_{B^+}/\tau_{B^0} = 1.071 \pm 0.009$. The 90% CL interval is $0.017 < \Delta_{0+} < 0.116$ NODE=S049IS1;LINKAGE=AE

[3] Uses the production ratio of charged and neutral B from $\Upsilon(4S)$ decays $R^{+/0} = 1.006 \pm 0.048$ and the lifetime ratio of $\tau_{B^+} / \tau_{B^0} = 1.083 \pm 0.017$. The 90% CL interval is $-0.046 < \Delta_{0+} < 0.146$. NODE=S049IS1;LINKAGE=AU

$\Delta_{\rho\gamma} = \Gamma(B^+ \to \rho^+\gamma) / (2 \cdot \Gamma(B^0 \to \rho^0\gamma)) - 1$ NODE=S049IA2

VALUE	DOCUMENT ID		TECN	COMMENT
−0.46±0.17 OUR AVERAGE				
$-0.43^{+0.25}_{-0.22}\pm0.10$	AUBERT	08BH	BABR	$e^+e^- \to \Upsilon(4S)$
$-0.48^{+0.21}_{-0.19}{}^{+0.08}_{-0.09}$	TANIGUCHI	08	BELL	$e^+e^- \to \Upsilon(4S)$

NODE=S049IA2

$\Delta_{0-}(B(B \to K\ell^+\ell^-))$ NODE=S049IA3

VALUE		DOCUMENT ID		TECN	COMMENT
−0.15±0.06 OUR AVERAGE Error includes scale factor of 1.2.					
$-0.31^{+0.13}_{-0.11}\pm0.01$	1	CHOUDHURY	21	BELL	$e^+e^- \to \Upsilon(4S)$
$-0.10^{+0.08}_{-0.09}\pm0.02$	2	AAIJ	14M	LHCB	pp at 7, 8 TeV
$-0.09^{+0.08}_{-0.08}\pm0.02$	3	AAIJ	14M	LHCB	pp at 7, 8 TeV
$-0.58^{+0.29}_{-0.37}\pm0.02$	4	LEES	12S	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$-0.35^{+0.23}_{-0.27}$	5	AAIJ	12AH	LHCB	Repl. by AAIJ 14M
$-1.43^{+0.56}_{-0.85}\pm0.05$	6,7	AUBERT	09T	BABR	Repl. by LEES 12S
$-0.31^{+0.17}_{-0.14}\pm0.08$	8,9	WEI	09A	BELL	$e^+e^- \to \Upsilon(4S)$

NODE=S049IA3

OCCUR=2

[1] For $1.0 < q^2 < 6.0$ GeV^2/c^4 using both $\mu^+\mu^-$ and e^+e^- as a lepton pair. Measurements in other q^2 bins are also reported. NODE=S049IA3;LINKAGE=C

[2] For $1.1 < q^2 < 6.0$ GeV^2/c^4 using $\mu^+\mu^-$ as a lepton pair and assuming isospin symmetry for the $B \to J/\psi(1S)K$. Measurements in other q^2 bins are also reported. NODE=S049IA3;LINKAGE=A

[3] For $15.0 < q^2 < 19.0$ GeV^2/c^4 using $\mu^+\mu^-$ as a lepton pair and assuming isospin symmetry for the $B \to J/\psi(1S)K$. Measurements in other q^2 bins are also reported. NODE=S049IA3;LINKAGE=B

[4] For $0.10 < q^2 < 8.12$ GeV^2/c^4. Measurements in other q^2 bins are also reported. NODE=S049IA3;LINKAGE=LE

[5] For $1 < q^2 < 6$ GeV^2/c^4. NODE=S049IA3;LINKAGE=AA

[6] For $0.1 < m^2_{\ell^+\ell^-} < 7.02$ GeV^2/c^4. NODE=S049IA3;LINKAGE=AU

[7] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$. NODE=S049IA3;LINKAGE=EP

[8] Superseded by CHOUDHURY 21. NODE=S049IA3;LINKAGE=D

[9] For $q^2 < 8.68$ GeV^2/c^4. NODE=S049IA3;LINKAGE=WE

$\Delta_{0-}(B(B \to K^*\ell^+\ell^-))$ NODE=S049IA4

VALUE		DOCUMENT ID		TECN	COMMENT
$\mathbf{-0.03^{+0.08}_{-0.07}}$ **OUR AVERAGE** Error includes scale factor of 1.2.					
$0.00^{+0.12}_{-0.10}\pm0.02$	1	AAIJ	14M	LHCB	pp at 7, 8 TeV
$0.06^{+0.10}_{-0.09}\pm0.02$	2	AAIJ	14M	LHCB	pp at 7, 8 TeV
$-0.25^{+0.20}_{-0.17}\pm0.03$	3	LEES	12S	BABR	$e^+e^- \to \Upsilon(4S)$
$-0.29\pm0.16\pm0.09$	4	WEI	09A	BELL	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
-0.15 ± 0.16	5	AAIJ	12AH	LHCB	Repl. by AAIJ 14M
$-0.56^{+0.17}_{-0.15}\pm0.03$	6,7	AUBERT	09T	BABR	Repl. by LEES 12S

NODE=S049IA4

OCCUR=2

[1] For $1.1 < q^2 < 6.0$ GeV^2/c^4 using $\mu^+\mu^-$ as a lepton pair and assuming isospin symmetry for the B($B \to J/\psi(1S) K^*(892)$). Measurements in other q^2 bins are also reported. NODE=S049IA4;LINKAGE=A
[2] For $15.0 < q^2 < 22.0$ GeV^2/c^4 using $\mu^+\mu^-$ as a lepton pair and assuming isospin symmetry for the B($B \to J/\psi(1S) K^*(892)$). Measurements in other q^2 bins are also reported. NODE=S049IA4;LINKAGE=B
[3] For $0.10 < q^2 < 8.12$ GeV^2/c^4. Measurements in other q^2 bins are also reported. NODE=S049IA4;LINKAGE=LE
[4] For $q^2 < 8.68$ GeV^2/c^4. NODE=S049IA4;LINKAGE=WE
[5] For $1 < q^2 < 6$ GeV^2/c^4. NODE=S049IA4;LINKAGE=AA
[6] For $0.1 < m^2_{\ell^+\ell^-} < 7.02$ GeV^2/c^4. NODE=S049IA4;LINKAGE=AU
[7] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$. NODE=S049IA4;LINKAGE=EP

Δ_{0-}(B($B \to K^{(*)}\ell^+\ell^-$))

NODE=S049IA5
NODE=S049IA5

VALUE	DOCUMENT ID	TECN	COMMENT
-0.45 ± 0.17 OUR AVERAGE	Error includes scale factor of 1.7.		
$-0.64^{+0.15}_{-0.14}\pm0.03$	[1,2] AUBERT 09T	BABR	$e^+e^- \to \Upsilon(4S)$
$-0.30^{+0.12}_{-0.11}\pm0.08$	[3] WEI 09A	BELL	$e^+e^- \to \Upsilon(4S)$

[1] For $0.1 < m^2_{\ell^+\ell^-} < 7.02$ GeV^2/c^4. NODE=S049IA5;LINKAGE=AU
[2] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$. NODE=S049IA5;LINKAGE=EP
[3] For $q^2 < 8.68$ GeV^2/c^2. NODE=S049IA5;LINKAGE=WE

$B \to X_c \ell\nu$ HADRONIC MASS MOMENTS

NODE=S049230

$\langle M_X^2 - \overline{M}_D^2 \rangle$ (First Moments)

NODE=S049MX1
NODE=S049MX1

VALUE (GeV^2)	DOCUMENT ID	TECN	COMMENT
0.36 $\pm$0.08 OUR AVERAGE	Error includes scale factor of 1.8.		
0.467$\pm$0.038$\pm$0.068	[1] ACOSTA 05F	CDF	$p\overline{p}$ at 1.96 TeV
0.293$\pm$0.012$\pm$0.058	[2] CSORNA 04	CLE2	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •			
0.251$\pm$0.023$\pm$0.062	[3] CRONIN-HEN..01B	CLE2	$e^+e^- \to \Upsilon(4S)$

[1] Moments are measured with a minimum lepton momentum of 0.7 GeV/c in the B rest frame; NODE=S049MX1;LINKAGE=AC
[2] Uses minimum lepton energy of 1.5 GeV and also reports moments with $E_\ell > 1.0$ GeV. NODE=S049MX1;LINKAGE=CS
[3] The leptons are required to have $P_\ell > 1.5$ GeV/c. NODE=S049MX1;LINKAGE=A

$\langle M_X^2 \rangle$ (First Moments)

NODE=S049MX4
NODE=S049MX4

VALUE (GeV^2)	DOCUMENT ID	TECN	COMMENT
4.156$\pm$0.029 OUR AVERAGE			
4.144$\pm$0.028$\pm$0.022	[1] SCHWANDA 07	BELL	$e^+e^- \to \Upsilon(4S)$
4.18 $\pm$0.04 $\pm$0.03	[1] AUBERT,B 04	BABR	$e^+e^- \to \Upsilon(4S)$

[1] The leptons are required to have $E_\ell > 1.5$ GeV/c. NODE=S049MX4;LINKAGE=SC

$\langle (M_X^2 - \overline{M}_X^2)^2 \rangle$ (Second Moments)

NODE=S049MX2
NODE=S049MX2

VALUE (GeV^4)	DOCUMENT ID	TECN	COMMENT
0.55 $\pm$0.08 OUR AVERAGE			
0.515$\pm$0.061$\pm$0.064	[1] SCHWANDA 07	BELL	$e^+e^- \to \Upsilon(4S)$
0.629$\pm$0.031$\pm$0.143	[2] CSORNA 04	CLE2	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •			
1.05 $\pm$0.26 $\pm$0.13	[3] ACOSTA 05F	CDF	$p\overline{p}$ at 1.96 TeV
0.576$\pm$0.048$\pm$0.168	[1] CRONIN-HEN..01B	CLE2	$e^+e^- \to \Upsilon(4S)$

[1] The leptons are required to have $E_\ell > 1.5$ GeV/c. NODE=S049MX2;LINKAGE=A
[2] Uses minimum lepton energy of 1.5 GeV and also reports moments with $E_\ell > 1.0$ GeV. NODE=S049MX2;LINKAGE=CS
[3] Moments are measured with a minimum lepton momentum of 0.7 GeV/c in the B rest frame; NODE=S049MX2;LINKAGE=AC

$\langle (M_X^2 - \overline{M}_D^2)^2 \rangle$ (Second Moments)

NODE=S049MX3
NODE=S049MX3

VALUE (GeV^4)	DOCUMENT ID	TECN	COMMENT
0.639$\pm$0.056$\pm$0.178	[1] CRONIN-HEN..01B	CLE2	$e^+e^- \to \Upsilon(4S)$

[1] The leptons are required to have $E_\ell > 1.5$ GeV/c. NODE=S049MX3;LINKAGE=A

$B \to X_c \ell \nu$ LEPTON MOMENTUM MOMENTS

NODE=S049240

R_0 ($\Gamma_{E_l > 1.7 GeV}$ / $\Gamma_{E_l > 1.5 GeV}$)

NODE=S049EL
NODE=S049EL

VALUE	DOCUMENT ID		TECN	COMMENT
0.6187±0.0014±0.0016	[1] MAHMOOD	03	CLE2	$e^+ e^- \to \Upsilon(4S)$

[1] The leptons are required to have E_l >1.5 GeV in the B rest frame.

NODE=S049EL;LINKAGE=LE

R_1 ($\langle E_l \rangle_{E_l > 1.5 GeV}$)

NODE=S049AEL
NODE=S049AEL

VALUE	DOCUMENT ID		TECN	COMMENT
1.7797±0.0018 OUR AVERAGE Error includes scale factor of 1.8. See the ideogram below.				
1.7743±0.0019±0.0014	[1] AUBERT,B	04A	BABR	$e^+ e^- \to \Upsilon(4S)$
1.7792±0.0021±0.0027	[2] MAHMOOD	04	CLEO	$e^+ e^- \to \Upsilon(4S)$
1.7810±0.0007±0.0009	[3] MAHMOOD	03	CLE2	$e^+ e^- \to \Upsilon(4S)$

[1] The leptons are required to have E_l > 1.5 GeV in the B rest frame. The result with E_l > 0.6 GeV is also given.

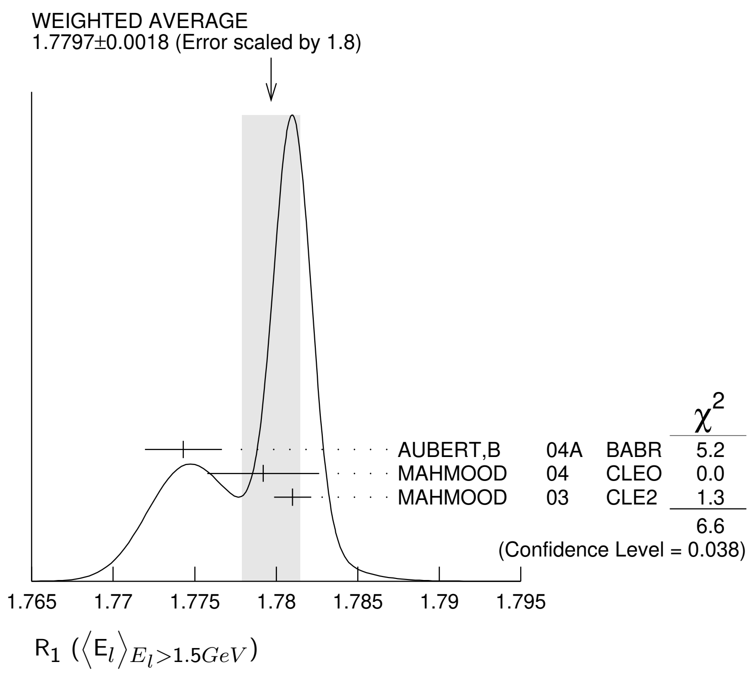
NODE=S049AEL;LINKAGE=AU

[2] Uses E_e > 1.5 GeV and also reports moments with other minimum minimum E_e conditions, as low as E_e > 0.6 GeV.

NODE=S049AEL;LINKAGE=MA

[3] The leptons are required to have E_l >1.5 GeV in the B rest frame.

NODE=S049AEL;LINKAGE=LE



R_2 ($\langle E_l^2 - \overline{E}_l^2 \rangle_{E_l > 1.5 GeV}$)

NODE=S049EL2
NODE=S049EL2

VALUE (10^{-3} GeV^2)	DOCUMENT ID		TECN	COMMENT
30.8±0.8 OUR AVERAGE				
30.3±0.9±0.5	[1] AUBERT,B	04A	BABR	$e^+ e^- \to \Upsilon(4S)$
31.6±0.8±1.0	[2] MAHMOOD	04	CLEO	$e^+ e^- \to \Upsilon(4S)$

[1] The leptons are required to have E_l > 1.5 GeV in the B rest frame. The result with E_l > 0.6 GeV is also given.

NODE=S049EL2;LINKAGE=AU

[2] Uses E_e > 1.5 GeV and also reports moments with other minimum minimum E_e conditions, as low as E_e > 0.6 GeV.

NODE=S049EL2;LINKAGE=MA

R_3 ($\langle E_l^3 - \overline{E}_l^3 \rangle_{E_l > 1.5 GeV}$)

NODE=S049EL3
NODE=S049EL3

VALUE (10^{-3} GeV^3)	DOCUMENT ID		TECN	COMMENT
2.12±0.47±0.20	[1] AUBERT,B	04A	BABR	$e^+ e^- \to \Upsilon(4S)$

[1] The leptons are required to have E_l > 1.5 GeV in the B rest frame. The result with E_l > 0.6 GeV is also given.

NODE=S049EL3;LINKAGE=AU

$B \to X_s\gamma$ PHOTON ENERGY MOMENTS

NODE=S049250

$\langle E_\gamma \rangle$

NODE=S049GM1
NODE=S049GM1

VALUE (GeV)	DOCUMENT ID		TECN	COMMENT
2.314±0.011 OUR AVERAGE				
$2.346 \pm 0.018 ^{+0.027}_{-0.022}$	[1,2] LEES	12U	BABR	$e^+ e^- \to \Upsilon(4S)$
$2.304 \pm 0.014 \pm 0.017$	[2,3] LEES	12V	BABR	$e^+ e^- \to \Upsilon(4S)$
$2.311 \pm 0.009 \pm 0.015$	[3] LIMOSANI	09	BELL	$e^+ e^- \to \Upsilon(4S)$
$2.289 \pm 0.058 \pm 0.027$	[3,4] AUBERT	08O	BABR	$e^+ e^- \to \Upsilon(4S)$
$2.309 \pm 0.023 \pm 0.023$	[2,3] SCHWANDA	08	BELL	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$2.288 \pm 0.025 \pm 0.023$	[3] AUBERT,BE	06B	BABR	Repl. by LEES 12V

[1] LEES 12U uses $E_\gamma > 1.897$ GeV to calculate the moments; the moments are used to calculate the HQET parameters $m_b = 4.579^{+0.032}_{-0.029}$ GeV/c^2 and $\mu_\pi^2 = 0.257^{+0.034}_{-0.039}$ GeV^2 in the shape function model. The same HQET parameters are also determined in the kinetic model. NODE=S049GM1;LINKAGE=LE

[2] Results for different E_γ threshold values are also measured. NODE=S049GM1;LINKAGE=SC

[3] The result is for $E_\gamma > 1.9$ GeV. NODE=S049GM1;LINKAGE=AU

[4] Uses a fully reconstructed B meson as a tag on the recoil side. NODE=S049GM1;LINKAGE=UB

$\langle E_\gamma^2 \rangle - \langle E_\gamma \rangle^2$

NODE=S049GM2
NODE=S049GM2

VALUE (10^{-2} GeV^2)	DOCUMENT ID		TECN	COMMENT
3.03±0.25 OUR AVERAGE				
$2.11 \pm 0.57 ^{+0.55}_{-0.69}$	[1,2] LEES	12U	BABR	$e^+ e^- \to \Upsilon(4S)$
$3.62 \pm 0.33 \pm 0.33$	[2,3] LEES	12V	BABR	$e^+ e^- \to \Upsilon(4S)$
$3.02 \pm 0.19 \pm 0.30$	[3] LIMOSANI	09	BELL	$e^+ e^- \to \Upsilon(4S)$
$3.34 \pm 1.24 \pm 0.62$	[3,4] AUBERT	08O	BABR	$e^+ e^- \to \Upsilon(4S)$
$2.17 \pm 0.60 \pm 0.55$	[2,3] SCHWANDA	08	BELL	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$3.28 \pm 0.40 \pm 0.43$	[3] AUBERT,BE	06B	BABR	Repl. by LEES 12V

[1] LEES 12U uses $E_\gamma > 1.897$ GeV to calculate the moments; the moments are used to calculate the HQET parameters $m_b = 4.579^{+0.032}_{-0.029}$ GeV/c^2 and $\mu_\pi^2 = 0.257^{+0.034}_{-0.039}$ GeV^2 in the shape function model. The same HQET parameters are also determined in the kinetic model. NODE=S049GM2;LINKAGE=LE

[2] Results for different E_γ threshold values are also measured. NODE=S049GM2;LINKAGE=SC

[3] The result is for $E_\gamma > 1.9$ GeV. NODE=S049GM2;LINKAGE=AU

[4] Uses a fully reconstructed B meson as a tag on the recoil side. NODE=S049GM2;LINKAGE=UB

$B^\pm/B^0$ ADMIXTURE REFERENCES

NODE=S049

ADACHI	24O	PR D110 072020	I. Adachi *et al.*	(BELLE II Collab.)	REFID=63091
FERLEWICZ	24	PR D110 072005	D. Ferlewicz *et al.*	(BELLE Collab.)	REFID=63084
AAIJ	23AR	PRL 131 111802	R. Aaij *et al.*	(LHCb Collab.)	REFID=62445
AGGARWAL	23	PRL 131 051804	L. Aggarwal *et al.*	(BELLE II Collab.)	REFID=62319
CAO	23	PRL 131 211801	L. Cao *et al.*	(BELLE Collab.)	REFID=62467
PRIM	23	PR D108 012002	M.T. Prim *et al.*	(BELLE Collab.)	REFID=62303
ZHUKOVA	23	JHEP 2308 131	V. Zhukova *et al.*	(BELLE Collab.)	REFID=62312
CAO	21A	PR D104 012008	L. Cao *et al.*	(BELLE Collab.)	REFID=61361
CHOUDHURY	21	JHEP 2103 105	S. Choudhury *et al.*	(BELLE Collab.)	REFID=61037
WEHLE	21	PRL 126 161801	S. Wehle *et al.*	(BELLE Collab.)	REFID=61178
AAIJ	20Y	PRL 125 011802	R. Aaij *et al.*	(LHCb Collab.)	REFID=60572
CARIA	20	PRL 124 161803	G. Caria *et al.*	(BELLE Collab.)	REFID=60557
AAIJ	19AD	PR D100 031102	R. Aaij *et al.*	(LHCb Collab.)	REFID=59907
WATANUKI	19	PR D99 032012	S. Watanuki *et al.*	(BELLE Collab.)	REFID=59618
GRYGIER	17	PR D96 091101	J. Grygier *et al.*	(BELLE Collab.)	REFID=58302
HIROSE	17	PRL 118 211801	S. Hirose *et al.*	(BELLE Collab.)	REFID=57929
Also		PR D97 012004	S. Hirose *et al.*	(BELLE Collab.)	REFID=58712
HORIGUCHI	17	PRL 119 191802	T. Horiguchi *et al.*	(BELLE Collab.)	REFID=58275
LEES	17B	PR D95 072001	J.P. Lees *et al.*	(BABAR Collab.)	REFID=57976
AAIJ	16B	JHEP 1602 104	R. Aaij *et al.*	(LHCb Collab.)	REFID=57152
BHARDWAJ	16	PR D93 052016	V. Bhardwaj *et al.*	(BELLE Collab.)	REFID=57272
KHACHATRY...	16D	PL B753 424	V. Khachatryan *et al.*	(CMS Collab.)	REFID=57008
LEES	16	PRL 116 041801	J.P. Lees *et al.*	(BABAR Collab.)	REFID=57108
LEES	16C	PR D93 052015	J.P. Lees *et al.*	(BABAR Collab.)	REFID=57271
SATO	16	PR D93 032008	Y. Sato *et al.*	(BELLE Collab.)	REFID=57251
Also		PR D93 059901 (errat.)	Y. Sato *et al.*	(BELLE Collab.)	REFID=57274
HUSCHLE	15	PR D92 072014	M. Huschle *et al.*	(BELLE Collab.)	REFID=56899
PESANTEZ	15	PRL 114 151601	L. Pesantez *et al.*	(BELLE Collab.)	REFID=56470
SAITO	15	PR D91 052004	T. Saito *et al.*	(BELLE Collab.)	REFID=56405
AAIJ	14AF	PRL 113 141801	R. Aaij *et al.*	(LHCb Collab.)	REFID=55891
AAIJ	14M	JHEP 1406 133	R. Aaij *et al.*	(LHCb Collab.)	REFID=55726
LEES	14D	PRL 112 211802	J.P. Lees *et al.*	(BABAR Collab.)	REFID=55853
LEES	14K	PR D90 092001	J.P. Lees *et al.*	(BABAR Collab.)	REFID=56157
AAIJ	13H	JHEP 1302 105	R. Aaij *et al.*	(LHCb Collab.)	REFID=54859
AAIJ	13Y	JHEP 1308 131	R. Aaij *et al.*	(LHCb Collab.)	REFID=55047

CHATRCHYAN	13BL	PL B727 77	S. Chatrchyan *et al.*	(CMS Collab.)	REFID=55439
LEES	13I	PR D87 112005	J.P. Lees *et al.*	(BABAR Collab.)	REFID=55161
LEES	13M	PR D88 032012	J.P. Lees *et al.*	(BABAR Collab.)	REFID=55178
AAIJ	12AH	JHEP 1207 133	R. Aaij *et al.*	(LHCb Collab.)	REFID=54472
AAIJ	12U	PRL 108 181806	R. Aaij *et al.*	(LHCb Collab.)	REFID=54215
AALTONEN	12I	PRL 108 081807	T. Aaltonen *et al.*	(CDF Collab.)	REFID=54206
LEES	12	PR D85 011102	J.P. Lees *et al.*	(BABAR Collab.)	REFID=53992
LEES	12D	PRL 109 101802	J.P. Lees *et al.*	(BABAR Collab.)	REFID=54261
Also		PR D88 072012	J.P. Lees *et al.*	(BABAR Collab.)	REFID=55461
LEES	12R	PR D86 032004	J.P. Lees *et al.*	(BABAR Collab.)	REFID=54385
LEES	12S	PR D86 032012	J.P. Lees *et al.*	(BABAR Collab.)	REFID=54386
LEES	12U	PR D86 052012	J.P. Lees *et al.*	(BABAR Collab.)	REFID=54613
LEES	12V	PRL 109 191801	J.P. Lees	(BABAR Collab.)	REFID=54614
Also		PR D86 112008	J.P. Lees *et al.*	(BABAR Collab.)	REFID=54802
AALTONEN	11AI	PRL 107 201802	T. Aaltonen *et al.*	(CDF Collab.)	REFID=53836
AALTONEN	11L	PRL 106 161801	T. Aaltonen *et al.*	(CDF Collab.)	REFID=16443
DEL-AMO-SA...	11	PR D83 031103	P. del Amo Sanchez *et al.*	(BABAR Collab.)	REFID=53663
GAMBINO	11	JHEP 1109 055	P. Gambino	(LCGT)	REFID=58783
AUBERT	10	PRL 104 011802	B. Aubert *et al.*	(BABAR Collab.)	REFID=53189
AUBERT	10A	PR D81 032003	B. Aubert *et al.*	(BABAR Collab.)	REFID=53198
AUSHEV	10	PR D81 031103	T. Aushev *et al.*	(BELLE Collab.)	REFID=53225
DEL-AMO-SA...	10M	PR D82 051101	P. del Amo Sanchez *et al.*	(BABAR Collab.)	REFID=53500
DEL-AMO-SA...	10Q	PR D82 112002	P. del Amo Sanchez *et al.*	(BABAR Collab.)	REFID=53575
NISHIMURA	10	PRL 105 191803	K. Nishimura *et al.*	(BELLE Collab.)	REFID=53468
URQUIJO	10	PRL 104 021801	P. Urquijo *et al.*	(BELLE Collab.)	REFID=53190
AUBERT	09AO	PRL 103 211802	B. Aubert *et al.*	(BABAR Collab.)	REFID=53083
AUBERT	09N	PR D79 031102	B. Aubert *et al.*	(BABAR Collab.)	REFID=52794
AUBERT	09T	PRL 102 091803	B. Aubert *et al.*	(BABAR Collab.)	REFID=52829
Also		EPAPS Document No.	E-PRLTAO-102-060910	(BABAR Collab.)	REFID=53060;ERROR=1
AUBERT	09U	PRL 102 161803	B. Aubert *et al.*	(BABAR Collab.)	REFID=52830
LIMOSANI	09	PRL 103 241801	A. Limosani *et al.*	(BELLE Collab.)	REFID=53155
WEI	09A	PRL 103 171801	J.-T. Wei *et al.*	(BELLE Collab.)	REFID=53061
Also		EPAPS Supplement	J.-T. Wei *et al.*	(BELLE Collab.)	REFID=53240
AUBERT	08AS	PRL 100 171802	B. Aubert *et al.*	(BABAR Collab.)	REFID=52367
AUBERT	08BC	PR D78 072007	B. Aubert *et al.*	(BABAR Collab.)	REFID=52537
AUBERT	08BH	PR D78 112001	B. Aubert *et al.*	(BABAR Collab.)	REFID=52545
AUBERT	08BJ	PRL 101 171804	B. Aubert *et al.*	(BABAR Collab.)	REFID=52553
AUBERT	08N	PRL 100 021801	B. Aubert *et al.*	(BABAR Collab.)	REFID=52222
Also		PR D79 092002	B. Aubert *et al.*	(BABAR Collab.)	REFID=52799
AUBERT	08O	PR D77 051103	B. Aubert *et al.*	(BABAR Collab.)	REFID=52223
SCHWANDA	08	PR D78 032016	C. Schwanda *et al.*	(BELLE Collab.)	REFID=52422
TANIGUCHI	08	PRL 101 111801	N. Taniguchi *et al.*	(BELLE Collab.)	REFID=52449
WEI	08A	PR D78 011101	J.-T. Wei *et al.*	(BELLE Collab.)	REFID=52409
AUBERT	07AG	PRL 99 051801	B. Aubert *et al.*	(BABAR Collab.)	REFID=51862
AUBERT	07C	PR D75 012003	B. Aubert *et al.*	(BABAR Collab.)	REFID=51619
AUBERT	07E	PRL 98 051802	B. Aubert *et al.*	(BABAR Collab.)	REFID=51633
AUBERT	07L	PRL 98 151802	B. Aubert *et al.*	(BABAR Collab.)	REFID=51676
GAMBINO	07	JHEP 0710 058	P. Gambino *et al.*		REFID=58784
HUANG	07	PR D75 012002	G.S. Huang *et al.*	(CLEO Collab.)	REFID=51624
SCHWANDA	07	PR D75 032005	C. Schwanda *et al.*	(BELLE Collab.)	REFID=51648
URQUIJO	07	PR D75 032001	P. Urquijo *et al.*	(BELLE Collab.)	REFID=51647
AUBERT	06H	PR D73 012006	B. Aubert *et al.*	(BABAR Collab.)	REFID=51088
AUBERT,B	06J	PR D73 092001	B. Aubert *et al.*	(BABAR Collab.)	REFID=51305
AUBERT,B	06Y	PR D74 091105	B. Aubert *et al.*	(BABAR Collab.)	REFID=51498
AUBERT,BE	06B	PRL 97 171803	B. Aubert *et al.*	(BABAR Collab.)	REFID=51435
BUCHMUEL...	06	PR D73 073008	O.L. Buchmueller, H.U. Flacher	(RHBL)	REFID=52217
GOKHROO	06	PRL 97 162002	G. Gokhroo *et al.*	(BELLE Collab.)	REFID=51432
ISHIKAWA	06	PRL 96 251801	A. Ishikawa *et al.*	(BELLE Collab.)	REFID=51239
MOHAPATRA	06	PRL 96 221601	D. Mohapatra *et al.*	(BELLE Collab.)	REFID=51235
ABAZOV	05O	PRL 95 171803	V.M. Abazov *et al.*	(D0 Collab.)	REFID=50834
ACOSTA	05F	PR D71 051103	D. Acosta *et al.*	(CDF Collab.)	REFID=50623
ARTUSO	05B	PRL 95 261801	M. Artuso *et al.*	(CLEO Collab.)	REFID=50992
AUBERT	05	PRL 94 011801	B. Aubert *et al.*	(BABAR Collab.)	REFID=50366
AUBERT,B	05M	PRL 95 142003	B. Aubert *et al.*	(BABAR Collab.)	REFID=50831
AUBERT,B	05R	PR D72 052004	B. Aubert *et al.*	(BABAR Collab.)	REFID=50896
AUBERT,B	05X	PRL 95 111801	B. Aubert *et al.*	(BABAR Collab.)	REFID=50918
Also		PRL 97 019903 (errat.)	B. Aubert *et al.*	(BABAR Collab.)	REFID=51243
CHOI	05	PRL 94 182002	S.-K. Choi *et al.*	(BELLE Collab.)	REFID=50737
IWASAKI	05	PR D72 092005	M. Iwasaki *et al.*	(BELLE Collab.)	REFID=50945
LIMOSANI	05	PL B621 28	A. Limosani *et al.*	(BELLE Collab.)	REFID=50678
MOHAPATRA	05	PR D72 011101	D. Mohapatra *et al.*	(BELLE Collab.)	REFID=50700
NISHIDA	05	PL B610 23	S. Nishida *et al.*	(BELLE Collab.)	REFID=50596
OKABE	05	PL B614 27	T. Okabe *et al.*	(BELLE Collab.)	REFID=50601
ABDALLAH	04D	EPJ C33 213	J. Abdallah *et al.*	(DELPHI Collab.)	REFID=49916
AUBERT	04C	PRL 92 111801	B. Aubert *et al.*	(BABAR Collab.)	REFID=49670
AUBERT	04I	PRL 92 071802	B. Aubert *et al.*	(BABAR Collab.)	REFID=49873
AUBERT	04S	PR D69 052005	B. Aubert *et al.*	(BABAR Collab.)	REFID=49957
AUBERT	04X	PRL 93 011803	B. Aubert *et al.*	(BABAR Collab.)	REFID=49991
AUBERT,B	04	PR D69 111103	B. Aubert *et al.*	(BABAR Collab.)	REFID=50008
AUBERT,B	04A	PR D69 111104	B. Aubert *et al.*	(BABAR Collab.)	REFID=50009
AUBERT,B	04E	PRL 93 021804	B. Aubert *et al.*	(BABAR Collab.)	REFID=50058
AUBERT,B	04F	PRL 93 061801	B. Aubert *et al.*	(BABAR Collab.)	REFID=50062
AUBERT,B	04I	PRL 93 081802	B. Aubert *et al.*	(BABAR Collab.)	REFID=50072
AUBERT,BE	04A	PR D70 112006	B. Aubert *et al.*	(BABAR Collab.)	REFID=50377
CSORNA	04	PR D70 032002	S.E. Csorna *et al.*	(CLEO Collab.)	REFID=50048
KOPPENBURG	04	PRL 93 061803	P. Koppenburg *et al.*	(BELLE Collab.)	REFID=50069
MAHMOOD	04	PR D70 032003	A.H. Mahmodd *et al.*	(CLEO Collab.)	REFID=50049
NAKAO	04	PR D69 112001	M. Nakao *et al.*	(BELLE Collab.)	REFID=50010
NISHIDA	04	PRL 93 031803	S. Nishida *et al.*	(BELLE Collab.)	REFID=49994
ADAM	03B	PR D68 012004	N.E. Adam *et al.*	(CLEO Collab.)	REFID=49507
AUBERT	03	PR D67 031101	B. Aubert *et al.*	(BABAR Collab.)	REFID=49202
AUBERT	03F	PR D67 032002	B. Aubert *et al.*	(BABAR Collab.)	REFID=49214

AUBERT	03U	PRL 91 221802	B. Aubert *et al.*	(BABAR Collab.)	REFID=49648
BONVICINI	03	PR D68 011101	G. Bonvicini *et al.*	(CLEO Collab.)	REFID=49503
HUANG	03	PRL 91 241802	H.-C. Huang *et al.*	(BELLE Collab.)	REFID=49621
ISHIKAWA	03	PRL 91 261601	A. Ishikawa *et al.*	(BELLE Collab.)	REFID=49641
KANEKO	03	PRL 90 021801	J. Kaneko *et al.*	(BELLE Collab.)	REFID=49165
KROKOVNY	03B	PRL 91 262002	P. Krokovny *et al.*	(BELLE Collab.)	REFID=49615
MAHMOOD	03	PR D67 072001	A.H. Mahmood *et al.*	(CLEO Collab.)	REFID=49211
ABE	02	PRL 88 021801	K. Abe *et al.*	(BELLE Collab.)	REFID=48518
ABE	02L	PRL 89 011803	K. Abe *et al.*	(BELLE Collab.)	REFID=48691
ABE	02Y	PL B547 181	K. Abe *et al.*	(BELLE Collab.)	REFID=49005
ANDERSON	02	PRL 89 282001	S. Anderson *et al.*	(CLEO Collab.)	REFID=49292
AUBERT	02C	PRL 88 101805	B. Aubert *et al.*	(BABAR Collab.)	REFID=48600
AUBERT	02G	PR D65 091104	B. Aubert *et al.*	(BABAR Collab.)	REFID=48638
AUBERT	02L	PRL 88 241801	B. Aubert *et al.*	(BABAR Collab.)	REFID=48751
BORNHEIM	02	PRL 88 231803	A. Bornheim *et al.*	(CLEO Collab.)	REFID=48709
EDWARDS	02B	PR D65 111102	K.W. Edwards *et al.*	(CLEO Collab.)	REFID=48799
ABE	01F	PL B511 151	K. Abe *et al.*	(BELLE Collab.)	REFID=48171
ABE	01J	PR D64 072001	K. Abe *et al.*	(BELLE Collab.)	REFID=48342
ANDERSON	01B	PRL 87 181803	S. Anderson *et al.*	(CLEO Collab.)	REFID=48389
CHEN	01	PR D63 031102	S. Chen *et al.*	(CLEO Collab.)	REFID=48225
CHEN	01C	PRL 87 251807	S. Chen *et al.*	(CLEO Collab.)	REFID=48532
COAN	01	PRL 86 5661	T.E. Coan *et al.*	(CLEO Collab.)	REFID=48240
CRONIN-HEN...	01B	PRL 87 251808	D. Cronin-Hennessy *et al.*	(CLEO Collab.)	REFID=48533
PDG	01	Unofficial 2001 WWW edition			REFID=49189;ERROR=2
ABREU	00R	PL B475 407	P. Abreu *et al.*	(DELPHI Collab.)	REFID=47657
COAN	00	PRL 84 5283	T.E. Coan *et al.*	(CLEO Collab.)	REFID=47633
RICHICHI	00	PRL 85 520	S.J. Richichi *et al.*	(CLEO Collab.)	REFID=47660
BARATE	98Q	EPJ C4 387	R. Barate *et al.*	(ALEPH Collab.)	REFID=46146
BERGFELD	98	PRL 81 272	T. Bergfeld *et al.*	(CLEO Collab.)	REFID=46091
BISHAI	98	PR D57 3847	M. Bishai *et al.*	(CLEO Collab.)	REFID=45870
BONVICINI	98	PR D57 6604	G. Bonvicini *et al.*	(CLEO Collab.)	REFID=45934
BROWDER	98	PRL 81 1786	T.E. Browder *et al.*	(CLEO Collab.)	REFID=46116
COAN	98	PRL 80 1150	T.E. Coan *et al.*	(CLEO Collab.)	REFID=45872
GLENN	98	PRL 80 2289	S. Glenn *et al.*	(CLEO Collab.)	REFID=45869
ACKERSTAFF	97N	ZPHY C74 423	K. Ackerstaff *et al.*	(OPAL Collab.)	REFID=45488
AMMAR	97	PR D55 13	R. Ammar *et al.*	(CLEO Collab.)	REFID=45263
BARISH	97	PRL 79 3599	B. Barish *et al.*	(CLEO Collab.)	REFID=45717
BUSKULIC	97B	ZPHY C73 601	D. Buskulic *et al.*	(ALEPH Collab.)	REFID=45294
GIBBONS	97B	PR D56 3783	L. Gibbons *et al.*	(CLEO Collab.)	REFID=45668
ALBRECHT	96D	PL B374 256	H. Albrecht *et al.*	(ARGUS Collab.)	REFID=44891
BARISH	96B	PRL 76 1570	B.C. Barish *et al.*	(CLEO Collab.)	REFID=44693
GIBAUT	96	PR D53 4734	D. Gibaut *et al.*	(CLEO Collab.)	REFID=44784
KUBOTA	96	PR D53 6033	Y. Kubota *et al.*	(CLEO Collab.)	REFID=44786
PDG	96	PR D54 1	R. M. Barnett *et al.*	(PDG Collab.)	REFID=44495
ALAM	95	PRL 74 2885	M.S. Alam *et al.*	(CLEO Collab.)	REFID=44192
ALBRECHT	95D	PL B353 554	H. Albrecht *et al.*	(ARGUS Collab.)	REFID=44352
BALEST	95B	PR D52 2661	R. Balest *et al.*	(CLEO Collab.)	REFID=44415
BARISH	95	PR D51 1014	B.C. Barish *et al.*	(CLEO Collab.)	REFID=44139
BUSKULIC	95B	PL B345 103	D. Buskulic *et al.*	(ALEPH Collab.)	REFID=44127
ALBRECHT	94C	ZPHY C62 371	H. Albrecht *et al.*	(ARGUS Collab.)	REFID=43912
ALBRECHT	94J	ZPHY C61 1	H. Albrecht *et al.*	(ARGUS Collab.)	REFID=44172
PROCARIO	94	PRL 73 1472	M. Procario *et al.*	(CLEO Collab.)	REFID=43735
ALBRECHT	93	ZPHY C57 533	H. Albrecht *et al.*	(ARGUS Collab.)	REFID=43269
ALBRECHT	93E	ZPHY C60 11	H. Albrecht *et al.*	(ARGUS Collab.)	REFID=43514
ALBRECHT	93H	PL B318 397	H. Albrecht *et al.*	(ARGUS Collab.)	REFID=43633
ALBRECHT	93I	ZPHY C58 191	H. Albrecht *et al.*	(ARGUS Collab.)	REFID=44171
ALEXANDER	93B	PL B319 365	J. Alexander *et al.*	(CLEO Collab.)	REFID=43725
ARTUSO	93	PL B311 307	M. Artuso	(SYRA)	REFID=43792
BARTELT	93B	PRL 71 4111	J.E. Bartelt *et al.*	(CLEO Collab.)	REFID=43642
ALBRECHT	92E	PL B277 209	H. Albrecht *et al.*	(ARGUS Collab.)	REFID=41985
ALBRECHT	92G	ZPHY C54 1	H. Albrecht *et al.*	(ARGUS Collab.)	REFID=42037
ALBRECHT	92O	ZPHY C56 1	H. Albrecht *et al.*	(ARGUS Collab.)	REFID=43148
BORTOLETTO	92	PR D45 21	D. Bortoletto *et al.*	(CLEO Collab.)	REFID=41920
CRAWFORD	92	PR D45 752	G. Crawford *et al.*	(CLEO Collab.)	REFID=42008
HENDERSON	92	PR D45 2212	S. Henderson *et al.*	(CLEO Collab.)	REFID=42014
LESIAK	92	ZPHY C55 33	T. Lesiak *et al.*	(Crystal Ball Collab.)	REFID=42108
ALBRECHT	91C	PL B255 297	H. Albrecht *et al.*	(ARGUS Collab.)	REFID=41454
ALBRECHT	91H	ZPHY C52 353	H. Albrecht *et al.*	(ARGUS Collab.)	REFID=41875
FULTON	91	PR D43 651	R. Fulton *et al.*	(CLEO Collab.)	REFID=41391
YANAGISAWA	91	PRL 66 2436	C. Yanagisawa *et al.*	(CUSB II Collab.)	REFID=41703
ALBRECHT	90	PL B234 409	H. Albrecht *et al.*	(ARGUS Collab.)	REFID=41040
ALBRECHT	90H	PL B249 359	H. Albrecht *et al.*	(ARGUS Collab.)	REFID=41412
BORTOLETTO	90	PRL 64 2117	D. Bortoletto *et al.*	(CLEO Collab.)	REFID=41178
Also		PR D45 21	D. Bortoletto *et al.*	(CLEO Collab.)	REFID=41920
FULTON	90	PRL 64 16	R. Fulton *et al.*	(CLEO Collab.)	REFID=41039
MASCHMANN	90	ZPHY C46 555	W.S. Maschmann *et al.*	(Crystal Ball Collab.)	REFID=41224
PDG	90	PL B239 1	J.J. Hernandez *et al.*	(IFIC, BOST, CIT+)	REFID=40744
ALBRECHT	89K	ZPHY C42 519	H. Albrecht *et al.*	(ARGUS Collab.)	REFID=41112
ISGUR	89B	PR D39 799	N. Isgur *et al.*	(TNTO, CIT)	REFID=41916
WACHS	89	ZPHY C42 33	K. Wachs *et al.*	(Crystal Ball Collab.)	REFID=40855
ALBRECHT	88E	PL B210 263	H. Albrecht *et al.*	(ARGUS Collab.)	REFID=40595
ALBRECHT	88H	PL B210 258	H. Albrecht *et al.*	(ARGUS Collab.)	REFID=40652
KOERNER	88	ZPHY C38 511	J.G. Korner, G.A. Schuler	(MAINZ, DESY)	REFID=43791
ALAM	87	PRL 59 22	M.S. Alam *et al.*	(CLEO Collab.)	REFID=40380
ALAM	87B	PRL 58 1814	M.S. Alam *et al.*	(CLEO Collab.)	REFID=40382
ALBRECHT	87D	PL B199 451	H. Albrecht *et al.*	(ARGUS Collab.)	REFID=40325
ALBRECHT	87H	PL B187 425	H. Albrecht *et al.*	(ARGUS Collab.)	REFID=40379
BEAN	87	PR D35 3533	A. Bean *et al.*	(CLEO Collab.)	REFID=40383
BEHRENDS	87	PRL 59 407	S. Behrends *et al.*	(CLEO Collab.)	REFID=40386
BORTOLETTO	87	PR D35 19	D. Bortoletto *et al.*	(CLEO Collab.)	REFID=40381
ALAM	86	PR D34 3279	M.S. Alam *et al.*	(CLEO Collab.)	REFID=40324
BALTRUSAIT...	86E	PRL 56 2140	R.M. Baltrusaitis *et al.*	(Mark III Collab.)	REFID=11477
BORTOLETTO	86	PRL 56 800	D. Bortoletto *et al.*	(CLEO Collab.)	REFID=11613
HAAS	86	PRL 56 2781	J. Haas *et al.*	(CLEO Collab.)	REFID=11614
ALBRECHT	85H	PL 162B 395	H. Albrecht *et al.*	(ARGUS Collab.)	REFID=11608
CSORNA	85	PRL 54 1894	S.E. Csorna *et al.*	(CLEO Collab.)	REFID=11610
HAAS	85	PRL 55 1248	J. Haas *et al.*	(CLEO Collab.)	REFID=11611
AVERY	84	PRL 53 1309	P. Avery *et al.*	(CLEO Collab.)	REFID=11572
CHEN	84	PRL 52 1084	A. Chen *et al.*	(CLEO Collab.)	REFID=11601
LEVMAN	84	PL 141B 271	G.M. Levman *et al.*	(CUSB Collab.)	REFID=11605
ALAM	83B	PRL 51 1143	M.S. Alam *et al.*	(CLEO Collab.)	REFID=11587
GREEN	83	PRL 51 347	J. Green *et al.*	(CLEO Collab.)	REFID=11592
KLOPFEN...	83B	PL 130B 444	C. Klopfenstein *et al.*	(CUSB Collab.)	REFID=11593
ALTARELLI	82	NP B208 365	G. Altarelli *et al.*	(ROMA, INFN, FRAS)	REFID=41915
BRODY	82	PRL 48 1070	A.D. Brody *et al.*	(CLEO Collab.)	REFID=11582
GIANNINI	82	NP B206 1	G. Giannini *et al.*	(CUSB Collab.)	REFID=11583
BEBEK	81	PRL 46 84	C. Bebek *et al.*	(CLEO Collab.)	REFID=11578
CHADWICK	81	PRL 46 88	K. Chadwick *et al.*	(CLEO Collab.)	REFID=11579
ABRAMS	80	PRL 44 10	G.S. Abrams *et al.*	(SLAC, LBL)	REFID=12114