

Heavy Flavor Averaging Group

B^+ Branching Fractions (decays with kaons) ($\times 10^6$) - September 2007. (UL 90% CL)
 In PDG2006 New since PDG2006 (preliminary) New since PDG2006 (published)

RPP#	Mode	PDG2006 Avg.	BABAR	Belle	CLEO	CDF	New avg.
182	$K^0\pi^+$	24.1 ± 1.7	$23.9 \pm 1.1 \pm 1.0$	$22.8^{+0.8}_{-0.7} \pm 1.3$	$18.8^{+3.7+2.1}_{-3.3-1.8}$		23.1 ± 1.0
183	$K^+\pi^0$	12.1 ± 0.8	$13.6 \pm 0.6 \pm 0.7$	$12.4 \pm 0.5 \pm 0.6$	$12.9^{+2.4+1.2}_{-2.2-1.1}$		12.9 ± 0.6
184	$\eta'K^+$	70.5 ± 3.5	$70.0 \pm 1.5 \pm 2.8$	$69.2 \pm 2.2 \pm 3.7$	$80^{+10}_{-9} \pm 7$		70.2 ± 2.5
185	$\eta'K^{*+}$	< 14	$4.9^{+1.9}_{-1.7} \pm 0.8$	< 2.9	$11.1^{+12.7}_{-8.0}$		$4.9^{+2.1}_{-1.9}$
186	ηK^+	2.6 ± 0.6	$3.7 \pm 0.4 \pm 0.1$	$1.9 \pm 0.3^{+0.2}_{-0.1}$	$2.2^{+2.8}_{-2.2}$		2.7 ± 0.3
187	ηK^{*+}	26 ± 4	$18.9 \pm 1.8 \pm 1.3$	$19.3^{+2.0}_{-1.9} \pm 1.5$	$26.4^{+9.6}_{-8.2} \pm 3.3$		19.3 ± 1.6
–	$\eta K_0^{*+}(1430)$	New	$15.8 \pm 2.2 \pm 2.2$				15.8 ± 3.1
–	$\eta K_2^{*+}(1430)$	New	$9.1 \pm 2.7 \pm 1.4$				9.1 ± 3.0
188	ωK^+	5.1 ± 0.7	$6.3 \pm 0.5 \pm 0.3$	$8.1 \pm 0.6 \pm 0.6$	$3.2^{+2.4}_{-1.9} \pm 0.8$		6.7 ± 0.5
189	ωK^{*+}	< 7.4	< 3.4		< 87		< 3.4
190	$a_0^+(980)K^0 \dagger$	< 3.9	< 3.9				< 3.9
191	$a_0^0(980)K^+ \dagger$	< 2.5	< 2.5				< 2.5
192	$K^{*0}\pi^+$	11.6 ± 1.9	$13.5 \pm 1.2^{+0.8}_{-0.9}$	$9.7 \pm 0.6^{+0.8}_{-0.9}$	$7.6^{+3.5}_{-3.0} \pm 1.6$		10.7 ± 0.8
193	$K^{*+}\pi^0$	6.9 ± 2.4	$6.9 \pm 2.0 \pm 1.3$		$7.1^{+11.4}_{-7.1} \pm 1.0$		6.9 ± 2.3
194	$K^+\pi^+\pi^-$	56 ± 9	$64.1 \pm 2.4 \pm 4.0$	$48.8 \pm 1.1 \pm 3.6$			54.8 ± 2.9
195	$K^+\pi^+\pi^-(NR)$	$3.1^{+1.0}_{-0.8}$	$2.9 \pm 0.6^{+0.8}_{-0.5}$		< 28		$2.9^{+1.0}_{-0.8}$
196	$f_0(980)K^+ \dagger$	8.9 ± 1.0	$9.5 \pm 1.0^{+0.6}_{-0.9}$	$8.8 \pm 0.8^{+0.9}_{-1.8}$			$9.2^{+0.8}_{-1.1}$
197	$f_2(1270)K^+ \dagger$	< 2.3	< 16	$1.33 \pm 0.30^{+0.23}_{-0.34}$			$1.33^{+0.38}_{-0.45}$
198	$f_0(1370)K^+ \dagger$	< 10.7	< 10.7				< 10.7
199	$\rho^0(1450)K^+ \dagger$	< 11.7	< 11.7				< 11.7
200	$f_0(1500)K^+ \dagger$	< 4.4	< 4.4				< 4.4
201	$f_2'(1525)K^+ \dagger$	< 3.4	< 3.4	< 4.9			< 3.4
202	$K^+\rho^0$	$5.0^{+0.7}_{-0.8}$	$5.1 \pm 0.8^{+0.6}_{-0.9}$	$3.89 \pm 0.47^{+0.43}_{-0.41}$	$8.4^{+4.0}_{-3.4} \pm 1.8$		$4.25^{+0.55}_{-0.56}$
203	$K_0^{*0}(1430)\pi^+$	38 ± 5	$44.4 \pm 2.2 \pm 5.3$	$51.6 \pm 1.7^{+7.0}_{-7.4}$			$47.1^{+4.5}_{-4.6}$
204	$K_2^{*0}(1430)\pi^+$	< 6.9	< 23.1	< 6.9			< 6.9
205	$K^{*0}(1410)\pi^+$	< 45	< 45	< 45			< 45
206	$K^{*0}(1680)\pi^+$	< 12	< 15	< 12			< 12
207	$K^-\pi^+\pi^+$	< 1.8	< 1.8	< 4.5			< 1.8
210	$K^0\pi^+\pi^0$	< 66			< 66		< 66
211	$K^0\rho^+$	< 48	$8.0^{+1.4}_{-1.3} \pm 0.6$		< 48		$8.0^{+1.5}_{-1.4}$
213	$K^{*+}\rho^0$	11 ± 4	< 6.1		< 74		< 6.1
214	$K^{*0}\rho^+$	8.9 ± 2.1	$9.6 \pm 1.7 \pm 1.5$	$8.9 \pm 1.7 \pm 1.2$			9.2 ± 1.5
–	$f_0(980)K^{*+} \dagger$	New	$5.2 \pm 1.2 \pm 0.5$				5.2 ± 1.3
215	$K^{*+}\overline{K}^{*0}$	< 71			< 71		< 71
218	$K^+\overline{K}^0$	1.20 ± 0.32	$1.61 \pm 0.44 \pm 0.09$	$1.22^{+0.33+0.13}_{-0.28-0.16}$	< 3.3		$1.36^{+0.29}_{-0.27}$
219	$K^+\overline{K}^0\pi^0$	< 24			< 24		< 24
220	$K^+K_S K_S$	11.5 ± 1.3	$10.7 \pm 1.2 \pm 1.0$	$13.4 \pm 1.9 \pm 1.5$			11.5 ± 1.3
221	$K_S K_S \pi^+$	< 3.2		< 3.2			< 3.2
222	$K^+K^-\pi^+$	< 6.3	$5.0 \pm 0.5 \pm 0.5$	< 13			5.0 ± 0.7
224	$K^+K^+\pi^-$	< 1.3	< 1.3	< 2.4			< 1.3
226	$\overline{K}^{*0}K^+$	< 5.3	< 1.1		< 5.3		< 1.1
–	$\overline{K}_0^{*0}(1430)K^+$	New	< 2.2				< 2.2
228	$K^+K^-K^+$	30.1 ± 1.9	$33.5 \pm 0.9 \pm 1.6$	$30.6 \pm 1.2 \pm 2.3$			32.5 ± 1.5
229	ϕK^+	9.0 ± 0.8	$8.4 \pm 0.7 \pm 0.7$	$9.60 \pm 0.92^{+1.05}_{-0.84}$	$5.5^{+2.1}_{-1.8} \pm 0.6$	$7.6 \pm 1.3 \pm 0.6$	8.30 ± 0.65
231	$a_2 K^+ \dagger$	< 1.1		< 1.1			< 1.1
233	$\phi(1680)K^+ \dagger$	< 0.8		< 0.8			< 0.8
–	$a_1^+ K^0$	New	$34.9 \pm 5.0 \pm 4.4$				34.9 ± 6.7
–	$b_1^0 K^+$	New	$9.1 \pm 1.7 \pm 1.0$				9.1 ± 2.0
–	$K^{*+}\pi^+\pi^-$	New	$75.3 \pm 6.0 \pm 8.1$				75.3 ± 10.1
235	$K^{*+}K^+K^-$	< 1600	$36.2 \pm 3.3 \pm 3.6$				36.2 ± 4.9
236	ϕK^{*+}	9.6 ± 3.0	$11.2 \pm 1.0 \pm 0.9$	$6.7^{+2.1+0.7}_{-1.9-1.0}$	$10.6^{+6.4+1.8}_{-4.9-1.6}$		10.0 ± 1.1
–	$K^{*+}\pi^+K^-$	New	< 11.8				< 11.8
–	$K^{*+}K^+\pi^-$	New	< 6.1				< 6.1
239	$\phi\phi K^+ \S$	$2.6^{+1.1}_{-0.9}$	$7.5 \pm 1.0 \pm 0.7$	$3.2^{+0.6}_{-0.5} \pm 0.3$			4.2 ± 0.6
–	$\eta'\eta'K^+$	New	< 25				< 25

\dagger Product BF - daughter BF taken to be 100%; $\S M_{\phi\phi} < 2.85 \text{ GeV}/c^2$

Heavy Flavor Averaging Group
 B^+ Branching Fractions (decays without kaons) ($\times 10^6$) - September 2007. (UL
90% CL)

In PDG2006 New since PDG2006 (preliminary) New since PDG2006 (published)

RPP#	Mode	PDG2006 Avg.	BABAR	Belle	CLEO	CDF	New avg.
254	$\pi^+\pi^0$	5.5 ± 0.6	$5.02 \pm 0.46 \pm 0.29$	$6.5 \pm 0.4^{+0.4}_{-0.5}$	$4.6^{+1.8+0.6}_{-1.6-0.7}$		$5.59^{+0.41}_{-0.40}$
255	$\pi^+\pi^-\pi^+$	$16.2 \pm 1.2 \pm 0.9$	$16.2 \pm 1.2 \pm 0.9$				16.2 ± 1.5
256	$\rho^0\pi^+$	8.7 ± 1.1	$8.8 \pm 1.0^{+0.6}_{-0.9}$	$8.0^{+2.3}_{-2.0} \pm 0.7$	$10.4^{+3.3}_{-3.4} \pm 2.1$		$8.7^{+1.0}_{-1.1}$
257	$f_0(980)\pi^+ \dagger$	< 3.0	< 3.0				< 3.0
258	$f_2(1270)\pi^+$	$8.2 \pm 2.1 \pm 1.4$	$8.2 \pm 2.1 \pm 1.4$				8.2 ± 2.5
259	$\rho^0(1450)\pi^+$	< 2.3	< 2.3				< 2.3
260	$f_0(1370)\pi^+$	< 3.0	< 3.0				< 3.0
261	$f_0(600)\pi^+$	< 4.1	< 4.1				< 4.1
262	$\pi^+\pi^-\pi^+(NR)$	< 4.6	< 4.6				< 4.6
264	$\rho^+\pi^0$	12.0 ± 1.9	$10.2 \pm 1.4 \pm 0.9$	$13.2 \pm 2.3^{+1.4}_{-1.9}$	< 43		$10.9^{+1.4}_{-1.5}$
266	$\rho^+\rho^0$	26 ± 6	$16.8 \pm 2.2 \pm 2.3$	$31.7 \pm 7.1^{+3.8}_{-6.7}$			18.2 ± 3.0
–	$f_0(980)\rho^+ \dagger$	New	< 1.9				< 1.9
267	$a_1^+\pi^0$	< 1700	$26.4 \pm 5.4 \pm 4.1$				26.4 ± 6.8
268	$a_1^0\pi^+$	< 900	$20.4 \pm 4.7 \pm 3.4$				20.4 ± 5.8
–	$b_1^0\pi^+$	New	$6.7 \pm 1.7 \pm 1.0$				6.7 ± 2.0
269	$\omega\pi^+$	5.9 ± 1.0	$6.7 \pm 0.5 \pm 0.4$	$6.9 \pm 0.6 \pm 0.5$	$11.3^{+3.3}_{-2.9} \pm 1.4$		6.9 ± 0.5
270	$\omega\rho^+$	$12.6 \pm 3.7^{+3.3}_{-1.6}$	$10.6 \pm 2.1^{+1.6}_{-1.0}$		< 61		$10.6^{+2.6}_{-2.3}$
271	$\eta\pi^+$	4.9 ± 0.5	$5.0 \pm 0.5 \pm 0.3$	$4.2 \pm 0.4 \pm 0.2$	$1.2^{+2.8}_{-1.2}$		4.4 ± 0.4
272	$\eta'\pi^+$	4.0 ± 0.9	$3.9 \pm 0.7 \pm 0.3$	$1.8^{+0.7}_{-0.6} \pm 0.1$	$1.0^{+5.8}_{-1.0}$		$2.7^{+0.6}_{-0.5}$
273	$\eta'\rho^+$	< 22	$8.7^{+3.1+2.3}_{-2.8-1.3}$	< 5.8	$11.2^{+11.9}_{-7.0}$		$9.1^{+3.7}_{-2.8}$
274	$\eta\rho^+$	$8.4 \pm 1.9 \pm 1.1$	$8.4 \pm 1.9 \pm 1.1$	$4.1^{+1.4}_{-1.3} \pm 0.4$	$4.8^{+5.2}_{-3.8}$		5.4 ± 1.2
275	$\phi\pi^+$	< 0.41	< 0.24		< 5		< 0.24
276	$\phi\rho^+$	< 16			< 16		< 16
277	$a_0^0(980)\pi^+ \dagger$	< 5.8	< 5.8				< 5.8
–	$a_0^+(980)\pi^0 \dagger$	New	< 1.4				< 1.4

†Product BF - daughter BF taken to be 100%;

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 In PDG2006 New since PDG2006 (preliminary) New since PDG2006 (published)

RPP#	Mode	PDG2006 Avg.	BABAR	Belle	CLEO	CDF	New avg.
168	$K^+\pi^-$	18.2 ± 0.8	$19.1 \pm 0.6 \pm 0.6$	$19.9 \pm 0.4 \pm 0.8$	$18.0^{+2.3+1.2}_{-2.1-0.9}$		19.4 ± 0.6
169	$K^0\pi^0$	11.5 ± 1.0	$10.3 \pm 0.7 \pm 0.6$	$9.2 \pm 0.7^{+0.6}_{-0.7}$	$12.8^{+4.0+1.7}_{-3.3-1.4}$		9.9 ± 0.6
170	$\eta'K^0$	68 ± 4	$66.6 \pm 2.6 \pm 2.8$	$58.9^{+3.6}_{-3.5} \pm 4.3$	$89^{+18}_{-16} \pm 9$		64.9 ± 3.1
171	$\eta'K^{*0}$	< 7.6	$3.8 \pm 1.1 \pm 0.5$	< 2.6	$7.8^{+7.7}_{-5.7}$		3.8 ± 1.2
172	ηK^{*0}	17.7 ± 2.3	$16.5 \pm 1.1 \pm 0.8$	$15.2 \pm 1.2 \pm 1.0$	$13.8^{+5.5}_{-4.6} \pm 1.6$		15.9 ± 1.0
–	$\eta K_0^{*0}(1430)$	New	$9.6 \pm 1.4 \pm 1.3$				9.6 ± 1.9
–	$\eta K_2^{*0}(1430)$	New	$9.6 \pm 1.8 \pm 1.1$				9.6 ± 2.1
173	ηK^0	< 2.0	< 2.9	< 1.9	< 9.3		< 1.9
–	$\eta K^+\pi^-$	New		$31.7 \pm 1.9^{+2.2}_{-2.6}$			$31.7^{+2.9}_{-3.2}$
174	ωK^0	$5.5^{+1.2}_{-1.0}$	$5.4 \pm 0.8 \pm 0.3$	$4.4^{+0.8}_{-0.7} \pm 0.4$	$10.0^{+5.4}_{-4.2} \pm 1.4$		5.0 ± 0.6
175	$a_0^0(980)K^0 \dagger$	< 7.8	< 7.8				< 7.8
176	$a_0^-(980)K^+ \dagger$	< 2.1	< 1.9	< 1.6			< 1.6
–	$a_0^-(1450)K^+ \dagger$	New	< 3.1				< 3.1
178	ωK^{*0}	< 6.0	< 4.2	< 2.7	< 23		< 2.7
179	K^+K^-	< 0.37	$0.04 \pm 0.15 \pm 0.08$	$0.09^{+0.18}_{-0.13} \pm 0.01$	< 0.8	$0.39 \pm 0.16 \pm 0.12 \ddagger$	$0.15^{+0.11}_{-0.10}$
180	$K^0\bar{K}^0$	$1.13^{+0.38}_{-0.35}$	$1.08 \pm 0.28 \pm 0.11$	$0.87^{+0.25}_{-0.20} \pm 0.09$	< 3.3		$0.96^{+0.21}_{-0.19}$
181	$K_S K_S K_S$	$6.2^{+1.2}_{-1.1}$	$6.9^{+0.9}_{-0.8} \pm 0.6$	$4.2^{+1.6}_{-1.3} \pm 0.8$			6.2 ± 0.9
–	$K_S K_S K_L$	New	$< 16^1$				$< 16^1$
182	$K^+\pi^-\pi^0$	$36.6^{+4.2}_{-4.3} \pm 3.0$		$36.6^{+4.2}_{-4.3} \pm 3.0$	< 40		36.6 ± 5.2
183	$K^+\rho^-$	8.5 ± 2.8		$15.1^{+3.4+2.4}_{-3.3-2.6}$	$16^{+8}_{-6} \pm 3$		$15.3^{+3.7}_{-3.5}$
186	$K^0\pi^+\pi^-$	43.8 ± 2.9	$43.0 \pm 2.3 \pm 2.3$	$47.5 \pm 2.4 \pm 3.7$	$50^{+10}_{-9} \pm 7$		$44.8^{+2.6}_{-2.5}$
–	$f_2(1270)K^0$	New		< 2.5			< 2.5
–	$K^+\pi^-\pi^0(NR)$	New		< 9.4			< 9.4
–	$K^{*+}(1410)\pi^-$	New		< 86			< 86
–	$K_0^*(1430)^+\pi^-$	New		$49.7 \pm 3.8^{+6.8}_{-8.2}$			$49.7^{+7.8}_{-9.0}$
187	$K^0\rho^0$	< 39	$4.9 \pm 0.8 \pm 0.9$	$6.1 \pm 1.0^{+1.1}_{-1.2}$	< 39		$5.4^{+0.9}_{-1.0}$
188	$f_0(980)K^0 \dagger$	$5.5 \pm 0.7 \pm 0.6$	$5.5 \pm 0.7 \pm 0.6$	$7.6 \pm 1.7^{+0.9}_{-1.3}$			$5.8^{+0.8}_{-0.9}$
189	$K^{*+}\pi^-$	11.8 ± 1.5	$11.0 \pm 1.5 \pm 0.7$	$8.4 \pm 1.1^{+1.0}_{-0.9}$	$16^{+6}_{-5} \pm 2$		9.8 ± 1.1
191	$K^{*0}\pi^0$	< 3.5		$0.4^{+1.9}_{-1.7} \pm 0.1$	$0.0^{+1.3+0.5}_{-0.0-0.0}$		$0.0^{+1.3}_{-0.1}$
192	$K_2^*(1430)^+\pi^-$	< 18		< 6.3			< 6.3
–	$K^{*+}(1680)\pi^-$	New		< 10.1			< 10.1
–	$K_1^+(1270)\pi^-$	New	< 25.2				< 25.2
–	$K_1^+(1400)\pi^-$	New	< 21.8				< 21.8
193	$K^0K^-\pi^+$	< 21		< 18	< 21		< 18
194	$K^+K^-\pi^0$	< 19			< 19		< 19
195	$K^+K^-K^0$	24.7 ± 2.3	$23.8 \pm 2.0 \pm 1.6$	$28.3 \pm 3.3 \pm 4.0$			24.7 ± 2.3
196	ϕK^0	$8.6^{+1.3}_{-1.1}$	$8.4^{+1.5}_{-1.3} \pm 0.5$	$9.0^{+2.2}_{-1.8} \pm 0.7$	$5.4^{+3.7}_{-2.7} \pm 0.7$		$8.3^{+1.2}_{-1.0}$
198	$K^{*0}\pi^+\pi^-$	< 1400	$54.5 \pm 2.9 \pm 4.3$				54.5 ± 5.2
199	$K^{*0}\rho^0$	< 34	$5.6 \pm 0.9 \pm 1.3$		< 34		5.6 ± 1.6
200	$f_0(980)K^{*0} \dagger$	< 170	< 4.3				< 4.3
–	$K^{*+}\rho^-$	New	< 12				< 12
–	$K^{*0}\bar{K}^0$	New	< 1.9				< 1.9
202	$a_1^-K^+$	< 230	$16.3 \pm 2.9 \pm 2.3$				16.3 ± 3.7
–	$b_1^-K^+$	New	$7.4 \pm 1.0 \pm 1.0$				7.4 ± 1.4
203	$K^{*0}K^+K^-$	< 610	$27.5 \pm 1.3 \pm 2.2$				27.5 ± 2.6
204	ϕK^{*0}	9.5 ± 0.9	$9.2 \pm 0.7 \pm 0.6$	$10.0^{+1.6+0.7}_{-1.5-0.8}$	$11.5^{+4.5+1.8}_{-3.7-1.7}$		9.5 ± 0.8
–	$\phi K_0^{*0}(1430)$	New	$4.6 \pm 0.7 \pm 0.6$				4.6 ± 0.9
–	$\phi K_2^{*0}(1430)$	New	$7.8 \pm 1.1 \pm 0.6$				7.8 ± 1.3
–	$\phi K^{*0}(1680)$	New	< 3.5				< 3.5
–	$\phi K_3^{*0}(1780)$	New	< 2.7				< 2.7
–	$\phi K_4^{*0}(2045)$	New	< 15.3				< 15.3
–	$\phi\phi K^0 \S$	New	$4.1^{+1.7}_{-1.4} \pm 0.4$	$2.3^{+1.0}_{-0.7} \pm 0.2$			$2.8^{+0.9}_{-0.7}$
–	$K^{*0}\pi^+K^-$	New	$4.6 \pm 1.1 \pm 0.8$				4.6 ± 1.4
–	$K^{*0}K^+\pi^-$	New	< 2.2				< 2.2
205	$K^{*0}\bar{K}^{*0}$	< 22	$0.49^{+0.16}_{-0.13} \pm 0.05$		< 22		$0.49^{+0.17}_{-0.14}$
206	$K^{*0}K^{*0}$	< 37	< 0.18		< 22		< 0.18
207	$K^{*+}K^{*-}$	< 141			< 141		< 141
–	$\eta'\eta'K^0$	New	< 31				< 31

\dagger Product BF - daughter BF taken to be 100%, \ddagger Relative BF converted to absolute BF $\S M_{\phi\phi} < 2.85$

$\text{C.V.} / 2.1 \text{E} \text{ by } M(K^+K^-) \text{ or } [2.499, 2.499] \text{ or } [2.549, 2.595] \text{ or } M(K^+K^-) \leq 1.049 \text{ C.V.} / 2$

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RPP#	Mode	PDG2006 Avg.	BABAR	Belle	CLEO	CDF	New avg.
229	$\pi^+\pi^-$	4.6 ± 0.4	$5.5 \pm 0.4 \pm 0.3$	$5.1 \pm 0.2 \pm 0.2$	$4.5_{-1.2-0.4}^{+1.4+0.5}$	$5.10 \pm 0.33 \pm 0.36$ ‡	5.16 ± 0.22
230	$\pi^0\pi^0$	1.5 ± 0.5	$1.47 \pm 0.25 \pm 0.12$	$1.1 \pm 0.3 \pm 0.1$	< 4.4		1.31 ± 0.21
231	$\eta\pi^0$	< 2.5	< 1.3	< 2.5	< 2.9		< 1.3
232	$\eta\eta$	< 2.0	< 1.8	< 2.0	< 18		< 1.8
233	$\eta'\pi^0$	< 3.7	$0.8_{-0.6}^{+0.8} \pm 0.1$	$2.8 \pm 1.0 \pm 0.3$	$0.0_{-0.0}^{+1.8}$		$1.5_{-0.6}^{+0.7}$
234	$\eta'\eta'$	< 10	< 2.4	< 6.5	< 47		< 2.4
235	$\eta'\eta$	< 4.6	< 1.7	< 4.5	< 27		< 1.7
236	$\eta'\rho^0$	< 4.3	< 3.7	< 1.3	< 12		< 1.3
–	$f_0(980)\eta' \dagger$	New	< 1.5				< 1.5
–	$\eta\pi^+\pi^-$	New		$6.2_{-1.6-0.6}^{+1.8+0.8}$			$6.2_{-1.7}^{+2.0}$
237	$\eta\rho^0$	< 1.5	< 1.5	< 1.9	< 10		< 1.5
–	$f_0(980)\eta \dagger$	New	< 0.4				< 0.4
238	$\omega\eta$	< 1.9	< 1.9		< 12		< 1.9
239	$\omega\eta'$	< 2.8	< 2.8	< 2.2	< 60		< 2.2
240	$\omega\rho^0$	< 3.3	< 1.5		< 11		< 1.5
–	$f_0(980)\omega \dagger$	New	< 1.5				< 1.5
241	$\omega\omega$	< 19	< 4.0		< 19		< 4.0
242	$\phi\pi^0$	< 1	< 0.28		< 5		< 0.28
243	$\phi\eta$	< 1	< 0.6		< 9		< 0.6
244	$\phi\eta'$	< 4.5	< 1.0	< 0.5	< 31		< 0.5
245	$\phi\rho^0$	< 13			< 13		< 13
246	$\omega\phi$	< 21	< 1.2		< 21		< 1.2
247	$\phi\phi$	< 1.5	< 1.5		< 12		< 1.5
248	$a_0^\mp(980)\pi^\pm \dagger$	< 5.1	< 3.1	< 2.8			< 2.8
–	$a_0^\mp(1450)\pi^\pm \dagger$	New	< 2.3				< 2.3
250	$\rho^0\pi^0$	1.8 ± 0.8	$1.4 \pm 0.6 \pm 0.3$	$3.0 \pm 0.5 \pm 0.7$	$1.6_{-1.4}^{+2.0} \pm 0.8$		$1.8_{-0.5}^{+0.6}$
251	$\rho^\mp\pi^\pm$	22.8 ± 2.5	$22.6 \pm 1.8 \pm 2.2$	$22.6 \pm 1.1 \pm 4.4$	$27.6_{-7.4}^{+8.4} \pm 4.2$		23.1 ± 2.7
252	$\pi^+\pi^-\pi^+\pi^-$	< 230		< 17.3			< 17.3
253	$\rho^0\rho^0$	< 1.1	$0.84 \pm 0.29 \pm 0.17$	$0.9 \pm 0.4_{-0.4}^{+0.3}$	< 18		0.86 ± 0.28
–	$\rho^0\pi^+\pi^-(NR)$	New		< 6.3			< 6.3
–	$f_0(980)\pi^+\pi^-(NR)$	New		< 8.6			< 8.6
–	$f_0(980)\rho^0 \dagger$	New	< 0.53	< 1.0			< 0.53
–	$f_0(980)f_0(980) \dagger$	New	< 0.16	< 0.8			< 0.16
254	$a_1^\mp\pi^\pm$	< 490	$33.2 \pm 3.8 \pm 3.0$	$29.8 \pm 3.2 \pm 4.6$			31.7 ± 3.7
–	$b_1^\mp\pi^\pm$	New	$10.9 \pm 1.2 \pm 0.9$				10.9 ± 1.5
257	$\rho^+\rho^-$	25 ± 4	$25.5 \pm 2.1_{-3.9}^{+3.6}$	$22.8 \pm 3.8_{-2.6}^{+2.3}$			$24.2_{-3.2}^{+3.1}$
259	$\omega\pi^0$	< 1.2	< 1.2	< 2.0	< 5.5		< 1.2
261	$a_1^\pm\rho^\mp$	< 3400	< 61				< 61

†Product BF - daughter BF taken to be 100%, ‡Relative BF converted to absolute BF

Heavy Flavor Averaging Group
September 2007

Compilation of B^0 Relative Branching Fractions (UL 90% CL)

In PDG2006 **New since PDG2006 (preliminary)** **New since PDG2006 (published)**

RPP#	Mode	PDG2006 Avg.	CDF	DØ	New avg.
179	$\mathcal{B}(B^0 \rightarrow K^+K^-)/\mathcal{B}(B^0 \rightarrow K^+\pi^-)$		$0.020 \pm 0.008 \pm 0.006$		0.020 ± 0.010
229	$\mathcal{B}(B^0 \rightarrow \pi^+\pi^-)/\mathcal{B}(B^0 \rightarrow K^+\pi^-)$		$0.259 \pm 0.017 \pm 0.016$		0.259 ± 0.023

Charmless Mesonic Decays:

BABAR References

- [1] *BABAR* Collaboration (B. Aubert *et al.*), Phys. Rev. Lett. **97**, 171805 (2006).
- [2] *BABAR* Collaboration (B. Aubert *et al.*), Phys. Rev. Lett. **93**, 181806 (2004).
- [3] *BABAR* Collaboration (B. Aubert *et al.*), Phys. Rev. D **76**, 031103 (2007).
- [4] *BABAR* Collaboration, B. Aubert *et al.*, Phys. Rev. D **70**, 032006 (2004).
- [5] *BABAR* Collaboration (B. Aubert *et al.*), Phys. Rev. D **70**, 111102 (2004).
- [6] *BABAR* Collaboration (B. Aubert *et al.*), arXiv:0707.2980 (submitted to PRDRC) .
- [7] *BABAR* Collaboration (B. Aubert *et al.*), Phys. Rev. Lett. **91**, 201802 (2003).
- [8] *BABAR* Collaboration (B. Aubert *et al.*), Phys. Rev. Lett. **91**, 051801 (2003).
- [9] *BABAR* Collaboration (B. Aubert *et al.*), Phys. Rev. Lett. **93**, 051802 (2004).
- [10] *BABAR* Collaboration (B. Aubert *et al.*), Phys. Rev. D **76**, 011103 (2007).
- [11] *BABAR* Collaboration (B. Aubert *et al.*), Phys. Rev. D **75**, 012008 (2007).
- [12] *BABAR* Collaboration (B. Aubert *et al.*), Phys. Rev. Lett. **98**, 111801 (2007).
- [13] *BABAR* Collaboration (B. Aubert *et al.*), arXiv:0707.2798 (submitted to PRDRC).
- [14] *BABAR* Collaboration (B. Aubert *et al.*), Phys. Rev. Lett. **93**, 181805 (2004).
- [15] *BABAR* Collaboration (B. Aubert *et al.*), arXiv:0705.1798 (submitted to PRL).
- [16] *BABAR* Collaboration (B. Aubert *et al.*), arXiv:0708.0050 (submitted to PRL).
- [17] *BABAR* Collaboration (B. Aubert *et al.*), Phys. Rev. Lett. **97**, 051802 (2006).
- [18] *BABAR* Collaboration (B. Aubert *et al.*), Phys. Rev. D **69**, 011102 (2004).
- [19] *BABAR* Collaboration (B. Aubert *et al.*), Phys. Rev. Lett. **98**, 051801 (2007).
- [20] *BABAR* Collaboration (B. Aubert *et al.*), Phys. Rev. D **76**, 052007 (2007).
- [21] *BABAR* Collaboration (B. Aubert *et al.*), Phys. Rev. D **74**, 032003 (2006).
- [22] *BABAR* Collaboration (B. Aubert *et al.*), Phys. Rev. Lett. **95**, 131803 (2005).
- [23] *BABAR* Collaboration (B. Aubert *et al.*), Phys. Rev. Lett. **98**, 051802 (2007).
- [24] *BABAR* Collaboration (B. Aubert *et al.*), Phys. Rev. D **73**, 031101 (2006).
- [25] *BABAR* Collaboration (B. Aubert *et al.*), Phys. Rev. Lett. **95**, 011801 (2005).
- [26] *BABAR* Collaboration (B. Aubert *et al.*), Phys. Rev. D **72**, 052002 (2005).
- [27] *BABAR* Collaboration (B. Aubert *et al.*), Phys. Rev. D **74**, 031105 (2006).
- [28] *BABAR* Collaboration (B. Aubert *et al.*), Phys. Rev. Lett. **98**, 051803 (2007).
- [29] *BABAR* Collaboration (B. Aubert *et al.*), Phys. Rev. D **74**, 051104 (2006).

- [30] *BABAR* Collaboration (B. Aubert *et al.*), Phys. Rev. D **74**, 051102 (2006).
- [31] *BABAR* Collaboration (B. Aubert *et al.*), Phys. Rev. D **71**, 111101 (2005).
- [32] *BABAR* Collaboration (B. Aubert *et al.*), Phys. Rev. D **72**, 072003 (2005); Phys. Rev. D **74**, 099903(E) (2006).
- [33] *BABAR* Collaboration (B. Aubert *et al.*), Phys. Rev. D **75**, 091103 (2007).
- [34] *BABAR* Collaboration (B. Aubert *et al.*), Phys. Rev. D **73**, 071102 (2006).
- [35] *BABAR* Collaboration (B. Aubert *et al.*), Phys. Rev. D **74**, 032005 (2006).
- [36] *BABAR* Collaboration (B. Aubert *et al.*), Phys. Rev. Lett. **97**, 201801 (2006).
- [37] *BABAR* Collaboration (B. Aubert *et al.*), Phys. Rev. D **74**, 031104 (2006).
- [38] *BABAR* Collaboration (B. Aubert *et al.*), Phys. Rev. D **74**, 011102 (2006).
- [39] *BABAR* Collaboration (B. Aubert *et al.*), Phys. Rev. D **74**, 072008 (2006).
- [40] *BABAR* Collaboration (B. Aubert *et al.*), Phys. Rev. Lett. **97**, 261803 (2006).
- [41] *BABAR* Collaboration (B. Aubert *et al.*), Phys. Rev. D **74**, 051106 (2006).
- [42] *BABAR* Collaboration (B. Aubert *et al.*), Phys. Rev. Lett. **97**, 261801 (2006).
- [43] *BABAR* Collaboration (B. Aubert *et al.*), arXiv:0708.0963 (submitted to PRDRC).
- [44] *BABAR* Collaboration (B. Aubert *et al.*), Phys. Rev. Lett. **97**, 201802 (2006).
- [45] *BABAR* Collaboration (B. Aubert *et al.*), Phys. Rev. D **75**, 111102 (2007).
- [46] *BABAR* Collaboration, talk by F. Blanc presented at MoriondQCD (2007).
- [47] *BABAR* Collaboration (B. Aubert *et al.*), Phys. Rev. D **76**, 051103 (2007).
- [48] *BABAR* Collaboration (B. Aubert *et al.*), arXiv:0706.1059 (submitted to PRDRC).
- [49] *BABAR* Collaboration (B. Aubert *et al.*), arXiv:0707.4561 (submitted to PRL).
- [50] *BABAR* Collaboration, arXiv:0709.4165 (submitted to PRL).
- [51] *BABAR* Collaboration (B. Aubert *et al.*), arXiv:0708.2248 (submitted to PRL).
- [52] *BABAR* Collaboration (B. Aubert *et al.*), arXiv:0708.0376 (submitted to PRL).
- [53] *BABAR* Collaboration (B. Aubert *et al.*), Phys. Rev. D **76**, 071104 (2007).
- [54] *BABAR* Collaboration (B. Aubert *et al.*), arXiv:0708.1630 (contributed to LepPho07).
- [55]
- [56]
- [57]
- [58]
- [59]
- [60]

Belle References

- [61] Belle Collaboration (S.-W. Lin, P. Chang *et al.*), Phys. Rev. Lett. **98**, 181804 (2007).
- [62] Belle Collaboration, (J. Schümann, C.H. Wang *et al.*), Phys. Rev. D **75**, 092002 (2007).
- [63] Belle Collaboration (S.-W. Lin, P. Chang *et al.*), Phys. Rev. Lett. **99**, 121601 (2007).
- [64] Belle Collaboration, (P. Chang *et al.*), Phys. Rev. D **71**, 091106 (2005).
- [65] Belle Collaboration, (K. Abe *et al.*), arXiv:0707.2462 (2007).
- [66] Belle Collaboration, (C.-M. Jen, P. Chang *et al.*), Phys. Rev. D **74**, 111101 (2006).
- [67] Belle Collaboration, (C.H. Wang *et al.*), Phys. Rev. D **75**, 092005 (2007).
- [68] Belle Collaboration (A. Garmash *et al.*), Phys. Rev. D **69**, 012001 (2004).
- [69] Belle Collaboration, (K. Abe *et al.*), arXiv:0710.4974 (submitted to PRD).
- [70] Belle Collaboration, (K. Abe *et al.*), arXiv:0708.2006 (contributed to LepPho07).
- [71] Belle Collaboration (J. Zhang, M. Nakao *et al.*), Phys. Rev. Lett. **91**, 221801 (2003).
- [72] Belle Collaboration (A. Gordon *et al.*), Phys. Lett. B **542**, 183 (2002).
- [73] Belle Collaboration (K. Abe *et al.*), hep-ex/0609016 (2006).
- [74] Belle Collaboration (K.-F. Chen *et al.*), Phys. Rev. Lett. **91**, 201801 (2003).
- [75] Belle Collaboration (P. Chang *et al.*), Phys. Lett. B **599**, 148 (2004).
- [76] Belle Collaboration (A. Garmash *et al.*), Phys. Rev. D **71**, 092003 (2005).
- [77]
- [78] Belle Collaboration, (J. Zhang *et al.*), Phys. Rev. Lett. **94**, 031801 (2005).
- [79] Belle Collaboration (K. Abe *et al.*), hep-ex/0610065 (2006).
- [80] Belle Collaboration, (K. Abe *et al.*), hep-ex/0509003 (2005).
- [81]
- [82] Belle Collaboration, (J. Zhang *et al.*), Phys. Rev. Lett. **95**, 141801 (2005).
- [83] Belle Collaboration, (A. Somov *et al.*), Phys. Rev. Lett. **96**, 171801 (2006).
- [84] Belle Collaboration, (J. Schümann *et al.*), Phys. Rev. Lett. **97**, 061802 (2006).
- [85] Belle Collaboration, (P. Chang *et al.*), Phys. Rev. D **75**, 071104 (2007).
- [86] Belle Collaboration, (A. Garmash *et al.*), Phys. Rev. Lett. **96**, 251803 (2006).
- [87] Belle Collaboration, (K. Abe *et al.*), arXiv:0706.3279 (2007).
- [88] Belle Collaboration, (A. Garmash *et al.*), Phys. Rev. D **75**, 012006 (2007).
- [89]
- [90]

CLEO References

- [91] CLEO Collaboration (A. Bornheim *et al.*), Phys. Rev. D **68**, 052002 (2003).
- [92] CLEO Collaboration (S.J. Richichi *et al.*), Phys. Rev. Lett. **85**, 520 (2000).
- [93] CLEO Collaboration (R.A. Briere *et al.*), Phys. Rev. Lett. **86**, 3718 (2001).
- [94] CLEO Collaboration (C.P. Jessop *et al.*), Phys. Rev. Lett. **85**, 2881 (2000).
- [95] CLEO Collaboration (R. Godang *et al.*), Phys. Rev. Lett. **88**, 021802 (2002).
- [96] CLEO Collaboration (T. Bergfeld *et al.*), Phys. Rev. Lett. **81**, 272 (1998).
- [97] CLEO Collaboration (E. Eckhart *et al.*), Phys. Rev. Lett. **89**, 251801 (2002).
- [98] CLEO Collaboration (D.M. Asner *et al.*), Phys. Rev. D **53**, 1039 (1996).
- [99] CLEO Collaboration (T. Bergfeld *et al.*), Phys. Rev. Lett. **77** 4503 (1996).
- [100] CLEO Collaboration (B. Behrens *et al.*), Phys. Rev. Lett. **80** 3710 (1998).

CDF References

- [101] CDF Collaboration (D. Acosta *et al.*), Phys. Rev. Lett. **95** 031801 (2005).
- [102] CDF Collaboration, M. Morello, hep-ex/0612018 (Beauty 2006 contributed paper).