

Aug. 2007

Heavy Flavor Averaging Group

Compilation of Charmless Hadronic *CP* Asymmetries

Charged *B* Modes

In PDG2006

New since PDG2006 (preliminary)

New since PDG2006 (published)

RPP#	Mode	PDG2006 Avg.	BABAR	Belle	CLEO	CDF	New Avg.
182	$K^0\pi^+$	$-0.02 \pm 0.07$	$-0.029 \pm 0.039 \pm 0.010$	$0.03 \pm 0.03 \pm 0.01$	$0.18 \pm 0.24 \pm 0.02$		$0.009 \pm 0.025$
183	$K^+\pi^0$	$0.04 \pm 0.04$	$0.030 \pm 0.039 \pm 0.010$	$0.07 \pm 0.03 \pm 0.01$	$-0.29 \pm 0.23 \pm 0.02$		$0.050 \pm 0.025$
184	$\eta'K^+$	$0.020 \pm 0.025$	$0.010 \pm 0.022 \pm 0.006$	$0.028 \pm 0.028 \pm 0.021$	$0.03 \pm 0.12 \pm 0.02$		$0.016 \pm 0.019$
185	$\eta'K^{*+}$	New	$0.30^{+0.33}_{-0.37} \pm 0.02$				$0.30^{+0.33}_{-0.37}$
186	$\eta K^+$	$-0.25 \pm 0.14$	$-0.22 \pm 0.11 \pm 0.01$	$-0.39 \pm 0.16 \pm 0.03$			$-0.27 \pm 0.09$
187	$\eta K^{*+}$	$0.13 \pm 0.14$	$0.01 \pm 0.08 \pm 0.02$	$0.03 \pm 0.10 \pm 0.01$			$0.02 \pm 0.06$
–	$\eta K_0^{*+}(1430)$	New	$0.05 \pm 0.13 \pm 0.02$				$0.05 \pm 0.13$
–	$\eta K_2^{*+}(1430)$	New	$-0.45 \pm 0.30 \pm 0.02$				$-0.45 \pm 0.30$
188	$\omega K^+$	$-0.02 \pm 0.13$	$-0.01 \pm 0.07 \pm 0.01$	$0.05^{+0.08}_{-0.07} \pm 0.01$			$0.02 \pm 0.05$
192	$K^{*0}\pi^+$	$0.07 \pm 0.11$	$0.07 \pm 0.08 \pm 0.07$	$-0.149 \pm 0.064 \pm 0.022$			$-0.085 \pm 0.057$
193	$K^{*+}\pi^0$	New	$0.04 \pm 0.29 \pm 0.05$				$0.04 \pm 0.29$
194	$K^+\pi^+\pi^-$	$-0.013 \pm 0.039$	$-0.013 \pm 0.037 \pm 0.011$	$0.049 \pm 0.026 \pm 0.020$			$0.023 \pm 0.025$
196	$f_0(980)K^+$	$0.09^{+0.14}_{-0.12}$	$0.09 \pm 0.10^{+0.10}_{-0.06}$	$-0.077 \pm 0.065^{+0.046}_{-0.026}$			$-0.026^{+0.068}_{-0.064}$
197	$f_2(1270)K^+$	New		$-0.59 \pm 0.22 \pm 0.04$			$-0.59 \pm 0.22$
202	$K^+\rho^0$	$0.32^{+0.16}_{-0.15}$	$0.32 \pm 0.13^{+0.10}_{-0.08}$	$0.30 \pm 0.11^{+0.11}_{-0.05}$			$0.31^{+0.11}_{-0.10}$
203	$K_0^{*0}(1430)\pi^+$	$-0.064^{+0.039}_{-0.041}$	$-0.064 \pm 0.032^{+0.023}_{-0.026}$	$0.076 \pm 0.038^{+0.028}_{-0.022}$			$-0.002 \pm 0.029$
211	$K^0\rho^+$	New	$-0.12 \pm 0.17 \pm 0.02$				$-0.12 \pm 0.17$
213	$K^{*+}\rho^0$	$0.20^{+0.32}_{-0.29}$	$0.20^{+0.32}_{-0.29} \pm 0.04$				$0.20^{+0.32}_{-0.29}$
214	$K^{*0}\rho^+$	New	$-0.01 \pm 0.16 \pm 0.02$				$-0.01 \pm 0.16$
–	$f_0K^{*+}$	New	$-0.34 \pm 0.21 \pm 0.03$				$-0.34 \pm 0.21$
218	$K^+\overline{K^0}$	$0.15 \pm 0.33$	$0.10 \pm 0.26 \pm 0.03$	$0.13^{+0.23}_{-0.24} \pm 0.02$			$0.12^{+0.17}_{-0.18}$
220	$K^+K_S^0K_S^0$	$-0.04 \pm 0.11$	$-0.04 \pm 0.11 \pm 0.02$				$-0.04 \pm 0.11$
222	$K^+K^-\pi^+$	New	$0.00 \pm 0.10 \pm 0.03$				$0.00 \pm 0.10$
228	$K^+K^-K^+$	$-0.02 \pm 0.08$	$-0.02 \pm 0.03 \pm 0.02$				$-0.02 \pm 0.04$
229	$\phi K^+$	$0.01 \pm 0.07$	$0.046 \pm 0.046 \pm 0.017$	$0.01 \pm 0.12 \pm 0.05$		$-0.07 \pm 0.17^{+0.03}_{-0.02}$	$0.034 \pm 0.044$
–	$a_1^+K^0$	New	$0.12 \pm 0.11 \pm 0.02$				$0.12 \pm 0.11$
–	$b_1^0K^+$	New	$-0.46 \pm 0.20 \pm 0.02$				$-0.46 \pm 0.20$
–	$K^{*+}\pi^+\pi^-$	New	$0.07 \pm 0.07 \pm 0.04$				$0.07 \pm 0.08$
235	$K^{*+}K^+K^-$	New	$0.11 \pm 0.08 \pm 0.03$				$0.11 \pm 0.09$
236	$\phi K^{*+}$	$0.05 \pm 0.11$	$0.00 \pm 0.09 \pm 0.04$	$-0.02 \pm 0.14 \pm 0.03$			$-0.01 \pm 0.08$
239	$\phi\phi K^+$	New		$0.01^{+0.19}_{-0.16} \pm 0.02$			$0.01^{+0.19}_{-0.16}$
242	$K^+\eta\gamma$	$-0.16 \pm 0.10$	$-0.09 \pm 0.12 \pm 0.01$	$-0.16 \pm 0.09 \pm 0.06$			$-0.13 \pm 0.08$
243	$K^+\phi\gamma$	New	$-0.26 \pm 0.14 \pm 0.05$				$-0.26 \pm 0.15$
254	$\pi^+\pi^0$	$-0.02 \pm 0.07$	$0.03 \pm 0.08 \pm 0.01$	$0.07 \pm 0.06 \pm 0.01$			$0.06 \pm 0.05$
255	$\pi^+\pi^-\pi^+$	$-0.01 \pm 0.09$	$-0.01 \pm 0.08 \pm 0.03$				$-0.01 \pm 0.09$
256	$\rho^0\pi^+$	$-0.07 \pm 0.13$	$-0.07 \pm 0.12^{+0.03}_{-0.06}$				$-0.07^{+0.12}_{-0.13}$
257	$f_0(980)\pi^+$	New	$-0.50 \pm 0.54 \pm 0.06$				$-0.50 \pm 0.54$
258	$f_2(1270)\pi^+$	New	$-0.01 \pm 0.25^{+0.28}_{-0.32}$				$-0.01^{+0.38}_{-0.41}$
264	$\rho^+\pi^0$	$0.15 \pm 0.12$	$-0.01 \pm 0.13 \pm 0.02$	$0.06 \pm 0.17^{+0.04}_{-0.05}$			$0.02 \pm 0.11$
266	$\rho^+\rho^0$	$-0.09 \pm 0.16$	$-0.12 \pm 0.13 \pm 0.10$	$0.00 \pm 0.22 \pm 0.03$			$-0.08 \pm 0.13$
–	$b_1^0\pi^+$	New	$0.05 \pm 0.16 \pm 0.02$				$0.05 \pm 0.16$
269	$\omega\pi^+$	$0.10 \pm 0.22$	$-0.02 \pm 0.08 \pm 0.01$	$-0.02 \pm 0.09 \pm 0.01$	$-0.34 \pm 0.25 \pm 0.02$		$-0.04 \pm 0.06$
270	$\omega\rho^+$	$0.05 \pm 0.26$	$0.04 \pm 0.18 \pm 0.02$				$0.04 \pm 0.18$
271	$\eta\pi^+$	$-0.05 \pm 0.10$	$-0.08 \pm 0.10 \pm 0.01$	$-0.23 \pm 0.09 \pm 0.02$			$-0.16 \pm 0.07$
272	$\eta'\pi^+$	$0.14 \pm 0.16$	$0.21 \pm 0.17 \pm 0.01$	$0.20^{+0.37}_{-0.36} \pm 0.04$			$0.21 \pm 0.15$
273	$\eta'\rho^+$	New	$-0.04 \pm 0.28 \pm 0.02$				$-0.04 \pm 0.28$
274	$\eta\rho^+$	New	$0.02 \pm 0.18 \pm 0.02$	$-0.04^{+0.34}_{-0.32} \pm 0.01$			$0.01 \pm 0.16$
286	$p\bar{p}\pi^+$	$-0.16 \pm 0.22$	$0.04 \pm 0.07 \pm 0.04$	$-0.17 \pm 0.10 \pm 0.02$			$-0.04 \pm 0.06$
289	$p\bar{p}K^+$	$-0.05 \pm 0.11$	$-0.16 \pm 0.08 \pm 0.04$	$-0.02 \pm 0.05 \pm 0.02$			$-0.06 \pm 0.05$
294	$p\bar{p}K^{*+}$	New	$0.32 \pm 0.13 \pm 0.05$				$0.32 \pm 0.14$
296	$p\bar{\Lambda}\gamma$	New		$0.17 \pm 0.16 \pm 0.05$			$0.17 \pm 0.17$
320	$K^+\ell\ell$	New	$-0.07 \pm 0.22 \pm 0.02$				$-0.07 \pm 0.22$

## $B^\pm/B^0$ Admixture

RPP#	Mode	PDG2006 Avg.	BABAR	Belle	CLEO	CDF	New Avg.
58	$K^*\gamma$	$-0.01 \pm 0.07$	$-0.013 \pm 0.036 \pm 0.010$	$-0.015 \pm 0.044 \pm 0.012$	$0.08 \pm 0.13 \pm 0.03$		$-0.010 \pm 0.028$
70	$s\gamma$	$0.00 \pm 0.04$	$0.025 \pm 0.050 \pm 0.015$	$0.002 \pm 0.050 \pm 0.030$	$-0.079 \pm 0.108 \pm 0.022$		$0.004 \pm 0.037$
–	$(s+d)\gamma$	New	$-0.11 \pm 0.12 \pm 0.02$				$-0.11 \pm 0.12$
107	$s\ell\ell$	$-0.22 \pm 0.26$	$-0.22 \pm 0.26 \pm 0.02$				$-0.22 \pm 0.26$
113	$K^*\ell\ell$	New	$0.03 \pm 0.23 \pm 0.03$				$0.03 \pm 0.23$

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Neutral *B* Modes

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

RPP#	Mode	PDG2006 Avg.	BABAR	Belle	CLEO	CDF	New Avg.
168	$K^+\pi^-$	$-0.113 \pm 0.020$	$-0.107 \pm 0.018^{+0.007}_{-0.004}$	$-0.093 \pm 0.018 \pm 0.008$	$-0.04 \pm 0.16 \pm 0.02$	$-0.086 \pm 0.023 \pm 0.009$	$-0.097 \pm 0.012$
171	$\eta' K^{*0}$	New	$-0.08 \pm 0.25 \pm 0.02$				$-0.08 \pm 0.25$
172	$\eta K^{*0}$	$0.02 \pm 0.11$	$0.21 \pm 0.06 \pm 0.02$	$0.17 \pm 0.08 \pm 0.01$			$0.19 \pm 0.05$
–	$\eta K_0^{*0}(1430)$	New	$0.06 \pm 0.13 \pm 0.02$				$0.06 \pm 0.13$
–	$\eta K_2^{*0}(1430)$	New	$-0.07 \pm 0.19 \pm 0.02$				$-0.07 \pm 0.19$
180	$K^0\bar{K}^0$	New		$-0.58^{+0.73}_{-0.66} \pm 0.04$			$-0.58^{+0.73}_{-0.66}$
183	$K^+\rho^-$	$0.26 \pm 0.15$		$0.22^{+0.22+0.06}_{-0.23-0.02}$			$0.22 \pm 0.23$
182	$K^+\pi^-\pi^0$	$0.07 \pm 0.11$		$0.07 \pm 0.11 \pm 0.01$			$0.07 \pm 0.11$
189	$K^{*+}\pi^-$	$-0.05 \pm 0.14$	$-0.11 \pm 0.14 \pm 0.05$		$0.26^{+0.33+0.10}_{-0.34-0.08}$		$-0.05 \pm 0.14$
198	$K^{*0}\pi^+\pi^-$	New	$0.07 \pm 0.04 \pm 0.03$				$0.07 \pm 0.05$
199	$K^{*0}\rho^0$	New	$0.09 \pm 0.19 \pm 0.02$				$0.09 \pm 0.19$
200	$f_0(980)K^{*0}$	New	$-0.17 \pm 0.28 \pm 0.02$				$-0.17 \pm 0.28$
202	$a_1^+ K^-$	New	$-0.16 \pm 0.12 \pm 0.01$				$-0.16 \pm 0.12$
–	$b_1^- K^+$	New	$0.07 \pm 0.12 \pm 0.02$				$0.07 \pm 0.12$
204	$\phi K^{*0}$	$0.01 \pm 0.07$	$-0.03 \pm 0.07 \pm 0.03$	$0.02 \pm 0.09 \pm 0.02$			$-0.01 \pm 0.06$
–	$\phi K_0^{*0}(1430)$	New	$0.17 \pm 0.15 \pm 0.03$				$0.17 \pm 0.15$
–	$\phi K_2^{*0}(1430)$	New	$-0.12 \pm 0.14 \pm 0.04$				$-0.12 \pm 0.15$
203	$K^{*0}K^+K^-$	New	$0.01 \pm 0.05 \pm 0.02$				$0.01 \pm 0.05$
–	$K^{*0}\pi^+K^-$	New	$0.22 \pm 0.33 \pm 0.20$				$0.22 \pm 0.39$
230	$\pi^0\pi^0$	$0.3 \pm 0.4$	$0.49 \pm 0.35 \pm 0.05$	$0.44^{+0.73+0.04}_{-0.62-0.06}$			$0.48^{+0.32}_{-0.31}$
–	$b_1^\mp \pi^\pm$	New	$-0.05 \pm 0.10 \pm 0.02$				$-0.05 \pm 0.10$
270	$p\bar{p}K^{*0}$	New	$0.11 \pm 0.13 \pm 0.06$				$0.11 \pm 0.14$

† Measurements of time-dependent *CP* asymmetries are listed on the Unitarity Triangle home page. (<http://www.slac.stanford.edu/xorg/hfag/triangle/index.html>)

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