

15 July 2005

Heavy Flavor Averaging Group

Compilation of Charmless Hadronic  $CP$  Asymmetries

Charged  $B$  Modes

In PDG2004

New since PDG2004 (preliminary)

New since PDG2004 (published)

RPP#	Mode	PDG2004 Avg.	BABAR	Belle	CLEO	CDF	New Avg.
117	$K^0\pi^+$	$0.03 \pm 0.08$	$-0.09 \pm 0.05 \pm 0.01$	$0.05 \pm 0.05 \pm 0.01$	$0.18 \pm 0.24 \pm 0.02$		$-0.02 \pm 0.04$
118	$K^+\pi^0$	$-0.10 \pm 0.08$	$0.06 \pm 0.06 \pm 0.01$	$0.04 \pm 0.04 \pm 0.02$	$-0.29 \pm 0.23 \pm 0.02$		$0.04 \pm 0.04$
119	$\eta'K^+$	$0.009 \pm 0.035$	$0.033 \pm 0.028 \pm 0.005$	$0.029 \pm 0.028 \pm 0.021$	$0.03 \pm 0.12 \pm 0.02$		$0.031 \pm 0.021$
121	$\eta K^+$	New	$-0.20 \pm 0.15 \pm 0.01$	$-0.55 \pm 0.19^{+0.04}_{-0.03}$			$-0.33 \pm 0.12$
122	$\eta K^{*+}$	New	$0.13 \pm 0.14 \pm 0.02$	$-0.09^{+0.16}_{-0.15} \pm 0.01$			$0.03^{+0.11}_{-0.10}$
123	$\omega K^+$	$-0.21 \pm 0.28 \pm 0.03$	$-0.09 \pm 0.17 \pm 0.01$	$0.05 \pm 0.08 \pm 0.01$			$0.02 \pm 0.07$
125	$K^{*0}\pi^+$	New	$0.05 \pm 0.08 \pm 0.08$	$-0.149 \pm 0.064 \pm 0.031$			$-0.093 \pm 0.060$
126	$K^{*+}\pi^0$	New	$0.04 \pm 0.29 \pm 0.05$				$0.04 \pm 0.29$
127	$K^+\pi^+\pi^-$	$0.01 \pm 0.07 \pm 0.03$	$-0.01 \pm 0.038 \pm 0.021$	$0.049 \pm 0.026 \pm 0.030$			$0.022 \pm 0.029$
129	$K^+f_0(980)$	New	$0.09 \pm 0.10^{+0.13}_{-0.05}$	$-0.077 \pm 0.065^{+0.051}_{-0.034}$			$-0.020^{+0.068}_{-0.065}$
130	$K^+\rho^0$	New	$0.34 \pm 0.13^{+0.14}_{-0.17}$	$0.30 \pm 0.11^{+0.11}_{-0.05}$			$0.31^{+0.12}_{-0.11}$
	$K_0^*(1430)^0\pi^+$	New	$-0.06 \pm 0.03^{+0.05}_{-0.06}$	$0.076 \pm 0.038^{+0.036}_{-0.031}$			$0.019 \pm 0.037$
	$f_2(1270)K^+$	New		$-0.59 \pm 0.22 \pm 0.04$			$-0.59 \pm 0.22$
	$K^{*0}\rho^+$	New	$-0.14 \pm 0.17 \pm 0.4$				$-0.14 \pm 0.43$
138	$K^{*+}\rho^0$	$0.20^{+0.32}_{-0.29} \pm 0.04$	$0.20^{+0.32}_{-0.29} \pm 0.04$				$0.20^{+0.32}_{-0.29}$
142	$K^{*+}\overline{K^0}$	New	$0.15 \pm 0.33 \pm 0.03$				$0.15 \pm 0.33$
144	$K^+K_S K_S$	New	$-0.04 \pm 0.11 \pm 0.02$				$-0.04 \pm 0.11$
152	$K^+K^-K^+$	$0.02 \pm 0.07 \pm 0.03$	$0.02 \pm 0.07 \pm 0.03$				$0.02 \pm 0.08$
153	$\phi K^+$	$0.03 \pm 0.07$	$0.054 \pm 0.056 \pm 0.012$	$0.01 \pm 0.12 \pm 0.05$		$-0.07 \pm 0.17^{+0.03}_{-0.02}$	$0.037 \pm 0.050$
156	$\phi K^{*+}$	$0.09 \pm 0.15$	$0.16 \pm 0.17 \pm 0.03$	$-0.02 \pm 0.14 \pm 0.03$			$0.05 \pm 0.11$
173	$\pi^+\pi^0$	$0.05 \pm 0.15$	$-0.01 \pm 0.10 \pm 0.02$	$0.02 \pm 0.08 \pm 0.01$			$0.01 \pm 0.06$
174	$\pi^+\pi^-\pi^+$	$-0.39 \pm 0.33 \pm 0.12$	$-0.01 \pm 0.08 \pm 0.03$				$-0.01 \pm 0.09$
175	$\rho^0\pi^+$	New	$-0.07 \pm 0.12^{+0.03}_{-0.06}$				$-0.07^{+0.12}_{-0.13}$
176	$f_0(980)\pi^+$	New	$-0.50 \pm 0.54 \pm 0.61$				$-0.50 \pm 0.81$
180	$\rho^+\pi^0$	New	$-0.01 \pm 0.13 \pm 0.02$	$0.06 \pm 0.19^{+0.04}_{-0.06}$			$0.01 \pm 0.11$
182	$\rho^+\rho^0$	$-0.09 \pm 0.16$	$-0.19 \pm 0.23 \pm 0.03$	$0.00 \pm 0.22 \pm 0.03$			$-0.09 \pm 0.16$
185	$\omega\pi^+$	$-0.21 \pm 0.19$	$0.03 \pm 0.16 \pm 0.01$	$-0.03 \pm 0.09 \pm 0.02$	$-0.34 \pm 0.25 \pm 0.02$		$-0.04 \pm 0.08$
186	$\omega\rho^+$	New	$0.05 \pm 0.26 \pm 0.02$				$0.05 \pm 0.26$
187	$\eta\pi^+$	New	$-0.13 \pm 0.12 \pm 0.01$	$-0.10 \pm 0.11 \pm 0.02$			$-0.11 \pm 0.08$
188	$\eta'\pi^+$	New	$0.14 \pm 0.16 \pm 0.01$	$0.15 \pm 0.38^{+0.02}_{-0.06}$			$0.14 \pm 0.15$
190	$\eta\rho^+$	New	$0.02 \pm 0.18 \pm 0.02$	$-0.17^{+0.33}_{-0.29} \pm 0.02$			$-0.03 \pm 0.16$

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

RPP#	Mode	PDG2004 Avg.	BABAR	Belle	CLEO	CDF	New Avg.
56	$K^*\gamma$	$-0.01 \pm 0.07$	$-0.013 \pm 0.036 \pm 0.010$	$-0.015 \pm 0.044 \pm 0.012$	$0.08 \pm 0.13 \pm 0.03$		$-0.010 \pm 0.028$
67	$s\gamma$	$-0.079 \pm 0.108 \pm 0.022$	$0.025 \pm 0.050 \pm 0.015$	$0.002 \pm 0.050 \pm 0.026$	$-0.079 \pm 0.108 \pm 0.022$		$0.004 \pm 0.036$
103	$sll$	New	$-0.22 \pm 0.26 \pm 0.02$				$-0.22 \pm 0.26$

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Neutral *B* Modes

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RPP#	Mode	PDG2004 Avg.	BABAR	Belle	CLEO	CDF	New Avg.
123	$K^+\pi^-$	$-0.09 \pm 0.04$	$-0.133 \pm 0.030 \pm 0.009$	$-0.113 \pm 0.022 \pm 0.008$	$-0.04 \pm 0.16 \pm 0.02$	$-0.04 \pm 0.08 \pm 0.01$	$-0.115 \pm 0.018$
124	$K^0\pi^0$ †						
127	$\eta K^{*0}$	New	$0.02 \pm 0.11 \pm 0.02$	$-0.04^{+0.11}_{-0.10} \pm 0.01$			$-0.01 \pm 0.08$
136	$K^+\rho^-$	$0.28 \pm 0.19$	$0.13^{+0.14}_{-0.17} \pm 0.14$	$0.22^{+0.22+0.06}_{-0.23-0.02}$			$0.17^{+0.15}_{-0.16}$
–	$K_0^*(1430)^+\pi^-$	New	$-0.07 \pm 0.12 \pm 0.08$				$-0.07 \pm 0.14$
–	$K_0^*(1430)^0\pi^0$	New	$-0.34 \pm 0.15 \pm 0.11$				$-0.34 \pm 0.19$
140	$K^{*+}\pi^-$	$0.26 \pm 0.35$	$-0.11 \pm 0.14 \pm 0.05$		$0.26^{+0.33+0.10}_{-0.34-0.08}$		$-0.05 \pm 0.14$
–	$K^+\pi^-\pi^0$	New		$0.07 \pm 0.11 \pm 0.01$			$0.07 \pm 0.11$
141	$K^{*0}\pi^0$	New	$-0.01^{+0.24}_{-0.22} \pm 0.13$				$-0.01^{+0.27}_{-0.26}$
154	$\phi K^{*0}$	$0.05 \pm 0.10$	$-0.01 \pm 0.09 \pm 0.02$	$0.02 \pm 0.09 \pm 0.02$			$0.00 \pm 0.07$
177	$\pi^0\pi^0$	New	$0.12 \pm 0.56 \pm 0.06$	$0.44^{+0.53}_{-0.52} \pm 0.17$			$0.28^{+0.40}_{-0.39}$
196	$\rho^0\pi^0$	New		$-0.49^{+0.67}_{-0.81} \pm 0.200.24$			$-0.49^{+0.70}_{-0.83}$
197	$\rho^+\pi^-$ †						

† 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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